



WORLD CONFERENCE ON DROWNING PREVENTION



POTSDAM • GERMANY • 20-22 OCTOBER 2013

A Century of Lifesaving - a Challenge to Drowning Prevention



Conference Abstracts

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DLRG

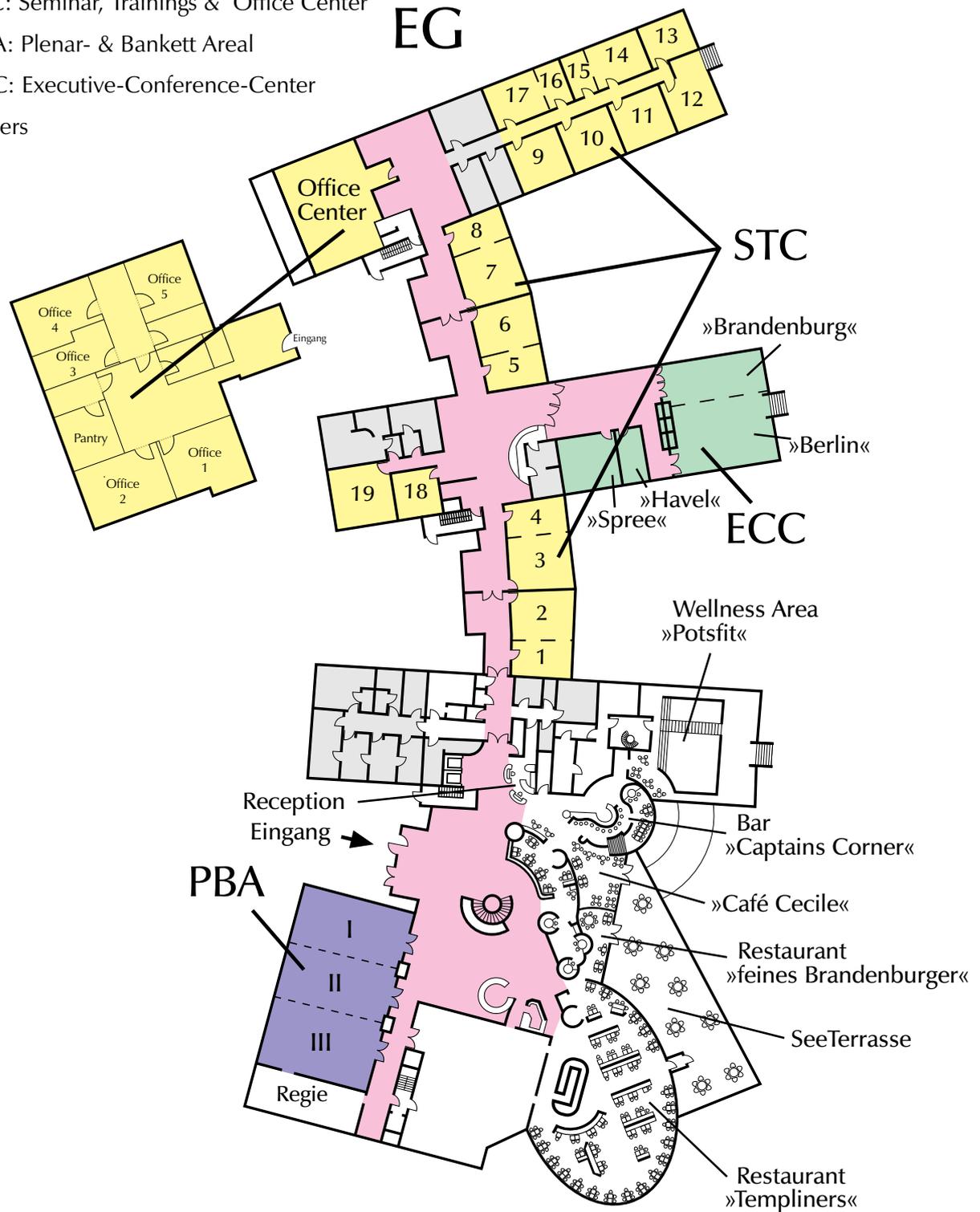
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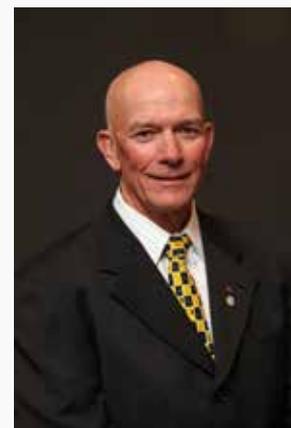
ERDGESCHOSS

- STC:** Seminar, Trainings & Office Center
- PBA:** Plenar- & Bankett Areal
- ECC:** Executive-Conference-Center
- Foyers**



On behalf of the International Life Saving Federation it gives me great pleasure to welcome all of the participants to the World Conference on Drowning Prevention 2013, in Potsdam Germany.

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The World Conference on Drowning Prevention 2013 provides a significant opportunity to make a difference and advance the cause of global reduction of drowning. We express our sincere gratitude to everyone attending the World Conference on Drowning Prevention in Potsdam Germany and I look forward to catching up with all the participants at the Conference.

A handwritten signature in black ink, appearing to read 'Graham Ford'. The signature is fluid and cursive, written over a light grey background.

Graham Ford
ILS President



The fourth World Conference on Drowning Prevention will be hosted by the German Life Saving Society (Deutsche Lebens-Rettung-Gesellschaft = DLRG). After Amsterdam, Porto, and DaNang the world of lifesaving meets again for presentations, exchange of ideas and development of innovative projects.

The relevance of drowning prevention is shown by two figures per year:

- nearly 1 Million drownings in the world,
- 35.000 to 40.000 drownings in Europe.

In Germany we reached 2012 with 383 drownings (= 0,47 drownings per 100.000 inhabitants) a marvellous low figure, but nevertheless we have to continue our efforts in

- Prevention
- Teaching swimming and lifesaving
- Rescue and disaster operations.

Therefore we are happy to organize the 2013 world Conference.

Our meetings include a wide range of themes and aspects from prevention to management, from education to rescue service, from disaster prevention and operations to the work with youth and seniors.

This conference in Potsdam has found the highest interest we ever had for such conferences:

- 221 oral presentations,
 - 58 poster exhibitions, and
 - 7 prominent keynote speakers
- will attract everybody.

The preparation team with Claudia Mauersberg, Jörg Jennerjahn, Jens Quernheim and Matthias Stoll has worked hard and we hope successfully.

Enjoy the congress and the nice area of Potsdam with historical castles, gardens and lakes.

The Seminaris Hotel offers a good service at all time!



Dr. Klaus Wilkens
President, Conference Chairman
German Live Saving Society DLRG)



Helmut Stöhr
Director of Education Service
German Live Saving Society DLRG)

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International Life Saving Federation World Conference on Drowning Prevention Conference Abstracts

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Keynotes



The DLRG as host of the conference and efficient water rescue organization

Dr. Klaus Wilkens (German Life Saving Society DLRG)

The German Life Saving Society (DLRG) was founded in 1913 at Hotel du Prusse in Leipzig after 16 people drowned after a crash of the pier at Binz / Rügen. One century later the DLRG represents with over 1.100.000 Members and supporters the worldwide biggest Life Saving Organization and stands for an efficient organization to win the challenge of drowning prevention. Per Example the drowning of 0-15 year's old children could be reduced by 82% in the last ten years.

The success of reducing drowning and develop effective drowning prevention strategies is based on different columns, which are represented by the WCDP 2013 Topics.

Supported by Nivea, the DLRG could realize different basic water education campaigns for children. Young Children get the rules for bathing taught at beach festivals along the coast of Northern and Eastern Sea, especially skilled DLRG lifesavers go into the kindergarten and educate the children themselves in best behaviour at the water and simple questions of self-rescue, child care worker were trained to teach children to swim and a campaign will offer the possibility to reach the „Seahorse Badge“ for every children in Germany.

With over 2.000 local clubs and over six million hours voluntary work per year, the DLRG is nationwide the Number one for Swimming and Lifesaving Education. With a range from Lifeguards, over Instructors up to specialist like Swift Water Operators and Rescue divers the DLRG is well prepared to reduce the number of drowning victims in Germany. One special project provides swimming education for tourists in Hotels of European Countries. During the last 27 years over all 69 projects could be realized in 16 European Countries. Some other important and successful projects are the voluntary Water Rescue Service along the German coast line and task forces for fast operation during flood disasters. Also, there exists a highly successful national rescue sport team. In 2013 five gold, two silver and two bronze medals at the world games in Cali, the second place at European Championship and the first place at European Junior Championships could be reached.

To finance science, special projects and information programs the DLRG Board and its branches and local clubs founded the „donation“ fund. In the meantime up to 2012 DLRG has been able to generate more than 610,000 donors with a donation income of more than 11 million Euros per year. This means, that about 50% of Income could be generated out of Donations.

With 63% of member younger then 27 years old, the DLRG will confronting the next challenge - the demographic change in Germany - with special projects for people older than 50 years.



The role of the ILS as partner of the world

Graham Ford (International Life Saving ILS)

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Global progress for drowning prevention: Outlook and challenges

Dr. David Meddings (World Health Organization WHO)

Drowning prevention can become the next big issue in injury prevention. Progress on other threats to child survival has unmasked drowning as an important killer of children, particularly in low- and middle-income countries. In addition, the toll of drowning in older age groups also is significant. Policy and research neglect over the years is slowly giving way to an emerging willingness to engage with drowning prevention globally.

Much remains to be done. There are important research priorities that need to be addressed and others that still need to be defined. Care needs to be taken in engaging donors to support the field, and strategic consideration needs to be given to how those in the drowning prevention field wish to frame the issues and engage the necessary support to confront them.

These are complex challenges, and they are made more complex by the important differences in risk factor distribution between high-income and low- and middle-income countries (where 95% of drowning occurs). Discussion of these will be given within the context of the global epidemiology of drowning. Prospects for catalysing global interest in addressing drowning prevention will be considered, along with the role of normative institutions and frameworks such as the World Health Assembly resolution on child injury prevention. The plans for the WHO Global Report on Drowning, currently under development, will also be discussed.



RLSS: An international lifesaving partner

Clive Holland (The Royal Life Saving Society)

Since 1891, The Royal Life Saving Society has been working to eliminate drowning in the Commonwealth. Over the 120 years that The Royal Life Saving Society has been functioning, there have been a wealth of political, social, economic and climate changes within the Commonwealth and within the lifesaving fraternity that have changed the role and function of the organisation. In the 21st century the Society is comprised of 28 Member Branches working collaboratively to deliver community-lead and community-based drowning prevention programs in nations across the Commonwealth.

Our work is centered around 5 core strategic goals, which we achieve through advocating for drowning prevention, building the capacity of our membership and collaborating with our members and partners. Our success in all areas is underpinned by open, transparent partnerships. Key partnerships will be discussed investigating strengths, challenges and success of these partnerships; including our members, the International Life Saving Federation, the Commonwealth, the Royal National Lifeboat Institute, Nile Swimmers.



ILSE as Partner in Europe

Dr. Detlev Mohr (International Life Saving Europe ILSE)

The International Life Saving Federation (ILS) is the world non-profit association of aquatic Lifesavers and aquatic Lifesaving organisations.

The International Life Saving Federation of Europe (ILSE) is the European branch of ILS. ILSE is an effective umbrella organisation, representing federations working in the field of Water Safety in Europe. Through its own work and that of its member federations, ILSE leads the global effort to reduce injury and death in, on or around the water. ILSE aids in the global exchange of lifesaving information, promotes the best lifesaving practices, helps to establish lifesaving organisations in areas of Europe where they are needed, acts as the European federation for lifesaving sport and work with other international bodies with similar goals.

„Our Vision is a World free of Drowning. We are representing more than 5 millions of Lifesavers and Lifeguards all over Europe. ILSE is Europe’s authority for drowning prevention, lifesaving and lifesaving sport.“ said ILSE President at the last General Assembly of ILSE.

ILSE leads, collaborates and partners with national and international organisations to prevent drowning, to promote the provision of lifesaving services and oversee lifesaving sport in Europe with the following specific objectives:

1. Lead the global effort to develop and recommend best practice in drowning prevention, aquatic lifesaving, resuscitation and emergency care.
2. Teach lifesaving and establish educational exchanges of aquatic lifesaving techniques and operations.
3. Exchange medical and scientific experiences in the field of aquatic lifesaving and drowning prevention.
4. Encourage the conduct of training and development of standards available to the whole of the aquatic lifesaving world for drowning prevention, lifesaving and lifesaving sport.
5. Extend the teachings and activities of ILSE to all places in Europe and communicate and act in co-operation with other international humanitarian bodies.
6. Promote uniformity concerning equipment, information, symbols and laws for control and regulation within the aquatic environment.
7. Promote and organise lifesaving sports and regularly organise international aquatic lifesaving competitions in order to stimulate the interest of competitors to improve their ability and willingness to save people who are in danger in the aquatic environment.
8. Encourage and oversee the convening of international congresses for the purpose of creating links of friendship, solidarity and collaboration between Members and other international bodies which pursue the same humanitarian goals.
9. Encourage measures to prevent the pollution of waters and beaches and other elements, which are dangerous to the public and users of the aquatic environment.
10. Take such other actions as ILS considers will advance these Objectives.

The ILSE has two main operating forces: One is the strategic operating Board of Directors (BOD), the other are the four operational oriented commissions. The members of the Board of Directors are elected during the General Assembly, whereas the commission members are selected by the Board’s decision. Each commission is lead by a Chairman, supported by a Vice Chairman and a Secretary. All other persons in a commission are called ‚Members‘. Our commissions are transnational working parties with experts from all over Europe. Due to different activity fields, ILSE has four different commissions, three advisors and the auditor’s panel. The commissions derive their tasks from the Strategic Development Plan.

ILSE co-operates with many other organisations and functions all over Europe:

European Union / European Commissions / European Parliament, European Association for Injury Prevention and Safety Promotion (EuroSafe), European Child Safety Alliance (ECSA), European Committee for Standardisation CEN, European Network of Sport Science, Education and Employment (ENSSEE), European Non-Governmental Sport Organisation (ENGSO), European Resuscitation Council (ERC), European Sports Conference (ESC), Foundation for Environmental Education (FEE), International Federation of Red Cross and Red Crescent Societies (IFRC) European Branch, International Federation of Swimming Teachers’ Associations Limited (IFSTA), International Maritime Rescue Federation (IMRF), International Military Sports Council (CISM), International Olympic Committee Europe, Tm; Fitness International Sport for all Association, Corps Touristique e.V., Union Sportive des Polices d’Europe (USPE), World Health Organisation (WHO), European Branch.

Contact: detlev.mohr@dlrg.de



Nordic Countries working together

Pärla Salomaa (Finnish Life Saving and Swimming Teaching)

The Nordic Lifesaving Federation was founded in 1945. The founding members were Sweden, Norway, Denmark, Iceland and Finland. The Faroe Islands were also accepted as a member even though they are not an independent country but territory of Denmark. In the beginning the Federation organised a Conference every three year, and the participants were of chairman level. In the Nordic Lifesaving Conference in Sweden in 2008, the countries present decided to start to meet on a yearly basis. As the pace of life is faster than before, the old 3-year cycle was too slow.

The Nordic Meeting takes place in the fall. The organizing of the Meeting rotates: every federation at their turn is responsible for the organising of the Meeting. The Meeting is meant for the secretary general, education coordinator and board member of each federation.

Traditionally, the Nordic Countries include Sweden, Denmark, Norway, Iceland and Finland. The latest meeting that was held in Helsinki in October 2012 also widely discussed the purpose of the Federation. It was decided to discontinue the old Federation and to replace it with a Nordic Lifesaving Group. The rules of the new Group are still to be approved by member federations. That should be done by fall, before the next Meeting.

The Nordic Countries have agreed to enlarge the group to include also the Baltic Countries of Estonia, Lithuania and Latvia. Observers are welcome to participate in the Meeting.

The purpose of the Nordic Meetings is to share information (as not all countries have representation in ILSE or its board and commissions). All the countries have the same goals and we do similar things. By sharing best practice and other experiences, it is easier to avoid making the same mistakes or to avoid major pitfalls. One common issue for the Nordic countries is cold water and ice.

The Meeting also helps countries to develop for example youth and competition activities. Some countries are more advanced in some areas, so by sharing knowledge and experience, we can all progress. One important purpose of the Nordic co-operation is to be more powerful in our contribution to ILSE and ILS.

Promoting the Nordic Definition of swimming ability is a good and concrete example of the work we have done together. In 1996, the Nordic Lifesaving Federation members agreed on a common definition of swimming ability: A person possesses swimming ability, if after falling into deep water so that their head initially goes under water, is then able to get back to the surface and swim 200 meters at least 50 of which on their back. It is used as the official measurement for the Swimming ability studies and to measure children's swimming skills. The definition has now been adopted by ILSE.

Nordic Group is continuing its work as an independent body. It has no permanent office or paid staff, and all members pay for their own costs regarding the meetings. It is a good forum to ask for advice and to circulate ideas. By including Estonia, Latvia and Lithuania, the Group wants to offer them the opportunity to join the cooperation. Participation is not obligatory, and there are no rules as what one has to tell about their issues in each country.

By doing a joint presentation at the WCDP 2013, the Nordic Group wants to share its background and ways of working to other federations and people involved in lifesaving.

Cooperation opportunities of the WHO Regional Office for Europe with the ILSE

Dinesh Sethi (WHO Europe)

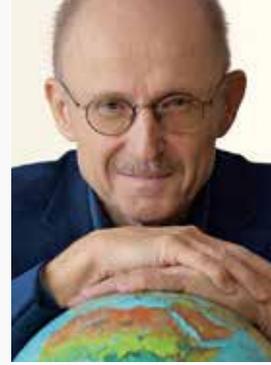


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Drowning is a leading cause of premature mortality globally. It leads to 27000 deaths in the 53 countries of the WHO European Region. This burden is unequally distributed, a cause of inequality between and within countries. Drowning death rates are 5 times higher in low- and middle-income countries than high-income countries. Death rates in the worse 3 countries (Lithuania, Latvia and Belarus) are 23 times higher than in the 3 safest countries (Germany, Netherlands and United Kingdom). Irrespective of country income, drowning disproportionately affects people from deprived sections of society and males, who comprise 4 of 5 deaths. It is the 8th leading cause of death in children and adolescents under 20 years. Climate change and the consequent summer heat-waves, has led to unexpected peaks in drowning, suggesting that country preparedness needs to be increased. The experience accumulated by several countries in the Region and elsewhere shows that sustained commitment across all levels of government and society with systematic approaches to drowning prevention can make countries in the Region much safer. These make compelling arguments for advocating for increased investment in prevention. The International Life Savers Federation of Europe offers a critical resource in the global push to reduce premature deaths from this leading cause. There is much to be gained through the cross fertilisation of expertise and resources through these and other networks. This conference presents an opportunity to build on the foundations of such approaches.

Drowning prevention and Sport for All

Willi Lemke (United Nations Office on Sport for Development and Peace)



The goals of drowning prevention go hand in hand with a Sport for All approach. The 'sport for all' movement promotes the Olympic ideals that participation in sport is a human right for all regardless of race, social class and sex, and is also an essential element for the well being of individuals and society. The aims of a sport for all approach are to encourage sport activities that can be exercised by people of all ages, both sexes, and in different social and economic conditions; to provide sporting facilities and assistance to everyone and every people in the world; and to encourage governments to create policy and take action to promote sport education in schools and elsewhere for all children and youth.

Over the past 10 to 20 years, the United Nations and partner organizations have been recognizing the uses of sport as an effective tool to aid in achieving the Millennium Development Goals. As the Special Advisor of Sport for Development and Peace to the United Nations Secretary General my mandate is dedicated to promoting a sport for all approach around the world. Sport is more than simply competition, if used in the right way it can contribute to gender equality, assist in achieving universal primary education, improve health, and decrease rates of child mortality around the world and much more. Sport for all emphasizes the importance of sport education for children and youth from kindergarten age onwards. Sport education is often promoted as a tool that teaches fair play, perseverance, teamwork and tolerance but these are not the only benefits - sport education can also contribute to health and safety by saving lives.

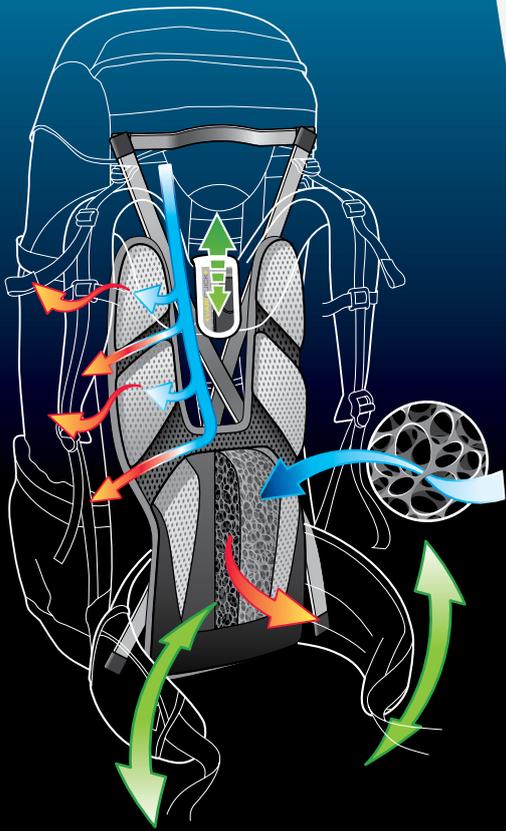
In a 2004 report the World Health Organization noted that drowning is the 3rd leading cause of unintentional death around the world. Children under 5 years of age have the highest drowning mortality rates worldwide. Drowning death rates are highest in the African regions and also in China and India. We know that in some countries males are more likely to drown because of risk taking factors, but we also have to take into account that problems of gender inequality worldwide may mean that girls and women have less opportunities to learn how to swim. These gendered realities have to be considered when looking at promoting swimming and water safety.

By working together and developing partnerships between NGOs, governments, schools, and communities we can ensure that sport education can save lives. Governments must be encouraged to engage in drowning prevention strategies. School sports programmes and community education outside of schools should be encouraged to teach swimming and safety awareness around water. The United Nations Office of Sport for Development and Peace organizes youth leadership camps around the world, and swimming lessons are an incredibly important aspect to this programme. Many of the youth who have never been taught how to swim get the opportunity to learn and become comfortable in water in a safe and supportive environment.



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partner from

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Prevention



The National Drowning Prevention Alliance: A National Approach to Drowning Prevention

Kim Tyson (National Drowning Prevention Alliance)

The National Drowning Prevention Alliance (NDPA) is a nonprofit organization dedicated to the prevention of drowning through educational programming, research and data, family support and legislative advocacy.

The NDPA since its short inception has created several national campaigns to address the issue of drowning and how to prevent it. In 2009 they did a position paper on „Layers of Protection“. It addresses the issues of that are associated with drowning in any body of water.

In 2010 the US Consumer Product Safety Council awarded the NDPA with a \$1.28 million dollar contract for a national media and public Relations campaign. A 6 minute dvd and several public service announcements were created and are still used today.

From Broward County FL the NDPA help promote and implemement the Water SMART Babies program. A prescription program in partnership with pediatricians and public pools. National standards for baby swim lessons were developed from this program.

The NDPA Safer 3 Early Education Drowning Prevention Program was developed for the preschool through elementary school teachers to teach drownig prevention and water safety to their students. The whole curriculum is avaibale on line.

The NDPA uses social media to spread the word about drowning prevention and water safety. In 2011 the NDPA won a national EARNIES award for the social media campaign through Facebook „Lifesaver of the Year“ award.

Our memebrship campaign has grown over 400% in just over two years. The NDPA has created NDPA Chapters. The chapters are grassroots chapters of the NDPA in communities around the country. We help them establish a local drowning prevention task force/coalition and provide resources and materials to help them get established. There are two international chapters.

And every year the NDPA host an anual drowning prevention symposium. In 2012 the symposium will be in Fort Lauderdale, FL. in 2013 it will be in Dallas TX.

Contact: kimwtyson@aol.com

Prevention through the Application of a Facility Admission Standard

Michael Shane (The Royal Life Saving Society Canada)

Supervised swimming facilities are some of the safest places to swim. With thousands of bathers visiting sites each week we are fortunate that very few incidents occur in these facilities. We can attribute this to proper training of staff, sound policies and procedures, and many other factors. Unfortunately sometimes this is not enough. In 1996 the Lifesaving Society developed an aquatic facility admission standard for young children after an extensive review of cases of drowning in public aquatic facilities in Canada, after participating in many Coroners' Inquests, and after listening to facility operators and lifeguards.

The Society has promoted this standard to facility owners/operators, government and local health departments. This important initiative has led to a reduction in incidents and enhanced safety in our facilities. This session will review the steps taken in the creation of this standard, the research undertaken, policy development, implementation considerations and promotional and communication vehicles created. All participants will receive a complimentary Lifesaving Society Workbook and CD of the session. This CD will contain resources that were developed to promote and administer this standard.

Risk assessment and human risk behavior - Hazards vs. risks

Erik Bech (Surf Lifesaving Denmark)

The presentation covers topics about objective risks and human risk-taking and perception of risk.

The aquatic environment is per se a hazardous place to be for humans. In the past, present and future, humans has been dependent on exposing themselves to the hazards of water, to sustain life. Today, humans also takes unnecessary risks in their spare time even in the most extreme weather conditions, but sometimes also because they are completely unaware of dangers.

This oral presentation describes different risk taking groups and models, and gives advice and best-practices on how to reduce both hazards on beaches and the risk taking behavior on and in water. Keywords are The Tiger effect, fear-strategies, cognitive dissonance theory, suicides related to weather.

The learning objectives to the audience are to understand the following issues:

1. Public awareness and understanding of drowning definitions, and drowning risks
2. Challenges in the public perception of a „safe“ beach
3. Awareness of the scale of near-misses to drowning death

Watch Around Water - An Industry Response

Lauren Nimmo (The Royal Life Saving Society - Western Australia)

There is often a misconception by parents that the supervision of young children is the sole responsibility of lifeguards. With lifeguards employed at a 1:100 ratio, it is unrealistic for parents to expect them to provide the constant and direct supervision that is needed for every young child in the facility at all times.

Caregiver supervision and attentiveness take on increased importance when young children are in and around aquatic settings because of the augmented dangers and tragic consequences associated with aquatic incidents. Despite this, inadequate supervision, or lack thereof, has been implicated in almost all childhood drowning deaths worldwide.

A recent study conducted by the University of Ballarat in Victoria, examined the level of caregiver supervision of young children in public aquatic facilities and found that over half of young children observed (52.4%) received poor or no supervision and only 29.5% received good or excellent supervision from a caregiver. The study found that a greater number of potential injury incidents occurred in public pools when children were unsupervised and that these children were more likely to engage in high risk activities.

In addition, recent injury surveillance data from public swimming pools in WA indicate that children under 14 years are overrepresented and are at the highest risk of injury at public swimming pool facilities.

Watch Around Water is an education and awareness program throughout public swimming pool facilities in Western Australia that was developed to address the growing industry concern regarding parental supervision of children while visiting aquatic facilities following a spate of drowning deaths involving young children at public pools in Western Australia.

Aim: to reduce drowning deaths, near-drowning incidents and associated injuries amongst young children under 14 years of age in public swimming pool facilities.

Objectives:

1. To provide state-wide parental supervision standards and practices at public swimming pool facilities throughout Western Australia
2. Increase and improve aquatic staff knowledge and skills regarding safe supervision practices
3. Improve awareness of and provide knowledge to caregivers of appropriate supervision levels for children under 14 years if age at public swimming pool facilities
4. Increase the proportion of caregivers that effectively supervise their children while at public swimming pool facilities

The program was developed by the aquatics industry for the aquatics industry which has been integral to its success. The program takes a proactive approach to addressing this issue by using a combination of strategies to support legislation and guidelines implemented and to compliment the activities already being undertaken by aquatic facilities.

To date there are 105 Watch Around Water facilities located throughout Western Australia which represents 85% of the total number of public pools. All public pools that are part of the program agree to implement the following supervision policies:

- Children under five years of age must be accompanied into the centre by a responsible adult and supervised within arm's reach at all times.
- Children under 10 years of age must be accompanied into the centre by responsible adult and supervised at all times.

Since the program was initiated in 2004, there have been no drowning deaths involving young children in public swimming pool facilities in Western Australia and pool managers are reporting increased levels of parental supervision as a result of the program. It is clear that while the program has made some progress, it is essential to ensure that the messages are continually promoted to ensure sustainable behavior change.

Given the success of the program in Western Australia, we have seen over 250 pools register as part of the Watch Around Water program Australia-wide and have successfully adapted the program to suit the needs and expectations of different community groups (including Aboriginal and culturally and linguistically diverse backgrounds) and aquatic industry needs.

Deaths from drowning among 0-4 aged children for a period of five years in Turkey

Tevfik Turgut

Water plays an important role in the lives of children as it is a source of fun, adventure and challenge for them. Children, particularly aged between 0-4 years, have a high percentage among deaths by drowning incidents in many countries. It is expressed that 0-4 years aged children have the highest death rates by drowning incidents. The reasons for the high death rates among 0-4 years aged children can be ordered as following;

- drowning by children can occur in seconds,
- very quietly, and
- even in very shallow water environments.

Child drowning has been studied broadly by many researchers from different countries. But, in spite of the importance of the issue, it hasn't still been studied scientifically in Turkey.

Aim

Aim of this study is to examine deaths from drowning by 0-4 aged children to find out the general characteristics of drowned children and drowning incidents by using online search engines and online newspaper reports covering five years (01st January 2007 - 31st December 2011) to point out the risk factors.

Method

This is a web based, descriptive, retrospective study on deaths caused by unintentional drowning incidents which includes only 0-4 aged children. Online search engines were run to find out the drowning incidents in which victims were 0-4 years aged children with key words „baby, child, drowning“.

Results

According to the findings, 253 children (Mage 2.66 ± 1.002) died from drowning in a period of five years (2007-2011). Male to female ratio was 2.3:1. Death rate (accounted according to 0-4 years population group) was 0.88 per 100,000 populations. Most of children were reported as being not alone. The majority of drowning incidents occurred during children were playing in, on, or around the water (77.1%), or as they were at their residences (12.3%). An important part of drowning incidents took place in irrigation canals/pools (28.9%), in fresh water sources (24.1%), interestingly in buckets/washbowls (11.1%), and septic tanks (8.3%).

Conclusion

As given in results the numbers of deaths by drowning incidents among 0-4 aged children is very high. On the other hand a very important part of deaths by drowning incidents during the covered period occurred in human made water sources as irrigation canals/pools, buckets/washbowls, septic tanks, or at their residences where drowning incidents could be prevented with serious precautions and more attention.

To destruct all the risk of drowning for children or adults wouldn't be possible. On the other hand with some very easily applicable preventive approaches and more attention of caregivers many of these deaths from drowning by children would not be experienced as children aged between 0-4 years need help and observation of their parents or caregivers intensively.

It is important to build up awareness on the risks of drowning by children by parents and other caregivers. Furthermore to develop their lifesaving skills in water and to teach them first aid play a vital role to prevent deaths by drowning incidents among young children. Increased awareness on the drowning would save lives of children with little investment of money and time.

Women as the Influencer Campaign to Promote Lifejacket Wearing Amongst Men

Barbara Byers (Lifesaving Society Canada)

While boating-related fatalities have trended downwards over the last 20 years in Canada, people not wearing their lifejackets continues to be a contributing factor in 80% of drownings. This statistic combined with findings that men are more than 4 times more likely to drown than women led the Canadian Safe Boating Council and the Lifesaving Society to take the innovative approach to educate women about boating safety and encourage them to influence their husbands/partners to wear their lifejackets. The approach of speaking to women about their husbands/partners was innovative, so research was needed to gain insight for creative development.

Qualitative research was the first step and this insight was incorporated into 4 creative concepts for quantitative testing. The quantitative research yielded a clear „winning“ poster for final development. The end result was a national campaign utilizing billboard advertising and a special area on the Smart Boater website geared specifically to women.

The presentation will include examples of how women are effective Influencers of men in advertising with examples from other categories using print and video examples/case histories. Boating fatality trends in Canada and the USA will be presented to demonstrate how fatalities have reached a plateau and how innovative approaches are needed to „punch through the glass floor“. The role of research to identify insights and direction for concept development and the methodology for both quantitative and qualitative research will be presented as well as the final research results, the media plan and revamped website.

Presenter: Barbara Byers

As the Research Director for the Drowning Prevention Research Centre Canada, Barbara is responsible for leading the collection, analysis and dissemination of water incident research in Canada. This scientific evidence-based data is used to guide the development of drowning prevention initiatives.

Barbara is responsible for developing the strategic and executional components for the Lifesaving Society's annual Water Smart campaign, directed at changing the behaviour of Canadians to prevent drowning and water-related injuries.

Barbara is the Past Chair of the Canadian Safe Boating Council and the current chair of the PFD Task Force and the Educational Programs Committee. She is a member of the International Lifesaving Federation's Child Drowning Committee, one of the principal authors of the 2007 World Drowning Report.

Teaching Pre-Teens to Keep Themselves and Their Friends Safe While their Brain is „Under Construction“

Barbara Byers (Lifesaving Society Canada)

Pre-teens are the often ignored but important age group for water safety training. Adolescents are more likely to be enjoying water-related activities with a group of friends and without adult supervision. By targeting kids at this age, the Lifesaving Society in Canada believes they can equip them with the skills and judgment they need to keep themselves and their friends safe well into adulthood. A new survival swimming program, called Swim to Survive+ was developed by the Society in 2012 to address this need. The program teaches pre-teens how to survive an unexpected fall into deep water while wearing clothes, and teaches the basic skills to help a friend in deep water.

While basic swimming skills are critical to prevent drowning, the Society estimates that about half of Canadian children never take traditional swimming lessons. To address this, the Society continues to expand its highly successful „Swim to Survive“ program, which teaches the essentials needed to survive an unexpected fall into deep water. Grade 3 students are taught to ROLL into deep water, TREAD water for one minute and SWIM 50 metres. Swim to Survive programs are available across Canada. Over 400,000 children across the country have participated in the program to date.

The new Swim to Survive+(tm) program, geared toward presenting more realistic situations for children in Grade 7, builds on the skills taught in the original Swim to Survive program. The + (plus) in the new program means that students are taught to ROLL, TREAD and SWIM WITH CLOTHES ON.

In addition, the new program also teaches kids how to assist a friend who may have accidentally fallen into deep water. The pre-teens learn three key skills: TALK, THROW and REACH.

When a friend or family member unexpectedly falls into deep water, Swim to Survive+(tm) teaches students to remain on the deck or boat, call for help, to talk loudly and encourage the person to kick to safety. If the person requires further assistance, students are taught to throw a buoyant aid to assist them while continuing to verbally encourage them to continue kicking. Lastly, if students must reach to assist the person, they are taught to be sure to remain on the deck/dock/boat, reach out with an aid, all while continuing to verbally encourage the person to kick to safety.

The new program also requires students to complete a fitness swim that helps build stamina. The participants are trained to swim four intervals of 10 to 15 metres each on their front or back, with 15 to 30 second rests and a pulse check at each interval.

As well, the program includes 3 lessons for the teachers for in classroom instruction and parent materials. To date, more than 1,000 Ontario children have participated in the Swim to Survive+(tm) pilot program.

Presenter: Barbara Byers

As the Research Director for the Drowning Prevention Research Centre Canada, Barbara is responsible for leading the collection, analysis and dissemination of water incident research in Canada. This scientific evidence-based data is used to guide the development of drowning prevention initiatives.

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Barbara is the Past Chair of the Canadian Safe Boating Council and the current chair of the PFD Task Force and the Educational Programs Committee. She is a member of the International Lifesaving Federation's Child Drowning Committee, one of the principal authors of the 2007 World Drowning Report.

Barbara has been with the Lifesaving Society for 20 years. Prior her position with the Lifesaving Society, Barbara had marketing/advertising positions with Warner Lambert and the Leo Burnett advertising agency.

Assessing the risk of drowning at sea: UK case study

Michael Wright (Greenstreet Berman Ltd), **Cath Reynolds** (Royal National Lifeboat Institution)

This paper will present the results of an analysis of the risk of drowning at sea and along the coast of the UK. The analysis used data from the Water Accident Incident Database, RNLI, ROPSA and Maritime and Coastguard Agency. The data included records of all identifiable deaths for 2006-2009, providing, for the first time, a robust estimate of drowning. The data also identified the activity at the time of drowning, such as sailing versus swimming. The data on deaths was matched to data on the number of people who participate in the identified activities. The number of people participating in each activity was identified from government records of employment in commercial fishing and an annual survey of participation in Water Sports and Leisure activities. The combination of the fatality data and participation data enabled calculation of the rate of death per participant for each activity. The rate of death, per activity, was then compared to guidelines on the tolerability of fatality risk. The assessment enabled activities to be categorized as Very High, High, Moderate, Low and Very low risk. The rates of death were also compared with other forms of accidental death, such as driving, cycling and fire in the home. The latter comparison enabled the risk of drowning to be compared with other common forms of death. As part of this work the age and gender profile of casualties was assessed, with gender specific risk estimates developed. Finally, the frequency of incidents with many casualties, termed Societal Risk, was estimated and compared with Societal Risk tolerability criteria, again for each activity. The results of this assessment can be used to guide the targeting of prevention work onto those people and activities most at risk and to help demonstrate the safety case for prevention of drowning.

High risk water entries: Jumping to (fatal) conclusions?

Dr. Kevin Moran (University of Auckland)

1. Introduction

Death and injury as a consequence of jumping into water from height has not been well investigated. The activity has received some media attention in high income countries in recent years, becoming known internationally as 'tombstoning', and it is viewed by some (almost exclusively male) youth as a rite of passage to adulthood. Characteristically, jumping from height into water is invariably unregulated, unsupervised, and sometimes takes place in remote environments. In the 5 years from 2007-2011, 8 fatal incidents from jumping/diving into water were reported in New Zealand (Water Safety New Zealand, 2011) and in the UK from 2006-2010, 139 tombstoning incidents requiring an emergency response were reported, with 14 resulting fatalities and many more resulting in spine and limb injuries (Wills Dawes, 2011). In Australia, 'jumping in' accounted for 4% of the 315 drowning deaths in 2011 (Royal Life Saving Society-Australia, 2011) and 8% of the 132 youth aged 15-19 years that had drowned from 2002-2011 (Royal Life Saving Society-Australia, 2012).

2. Method

This observational study applied an analytical framework to the video footage of recreational jumping diving activity in New Zealand and Australia in order to better understand the circumstances surrounding this activity and the role of social networking sites in propagating such high risk behaviour. The data under investigation was publicly available on the Internet website YouTube and the study did not engage with the subjects of the activity via social networking processes (private or public interactions on websites such as Facebook or MySpace) or other forms of face-to-face oral interviews or written surveys.

3. Results

The search of the YouTube website for publicly posted video clips found 389 instances of jumping activity throughout New Zealand (n = 210) and Australia (n = 179). Rivers were the most frequently reported site of jumping activity in both New Zealand (47%) and Australia (35%). Almost three times as much cliff jumping occurred in Australia compared with New Zealand (Australia, 28%; New Zealand 10%) and jumps from artificial structures were far more frequent in New Zealand (New Zealand 20%; Australia, 1%). In both countries, most of the sites were fresh water (New Zealand 65%; Australia, 69%), had no water movement (New Zealand 60%; Australia, 69%), and the water surface appeared calm (New Zealand 76%; Australia, 68%).

One fifth (20%) of the jumps in New Zealand and one third (33%) of the jumps in Australia were made from heights estimated to be more than 12m. In both countries, the jumpers (n = 929) were predominantly male (88%), and, of those whose age was able to be estimated from the video footage, most appeared to be young adults older than 18 years of age (New Zealand 59%; Australia 81%) rather than youth aged less than 18 years (New Zealand 41%; Australia 19%).

4. Discussion

The YouTube website portraying jumps from height were visited almost half a million times (495,686 hits). Analysis of video footage posted on social networking sites and in the public domain has provided opportunity to explore the nature and extent of a high risk aquatic recreational activity that has hitherto escaped research scrutiny. That easily available video footage of high-risk jumping activity may foster normalisation and sensationalising of this activity among young people is cause for concern. It may even encourage further risky behaviour by providing information about jump sites, ways of accessing them, and invitations to take part. Targeted interventions that focus on males, the risks of jumping or diving into water from height, the dangers of peer pressure to engage in risky behaviour are recommended. Use of social network sites to foster safe behaviours may be an effective way to educate young people of the inherent risks of jumping from height into water.

Strengthening partnership to promote survival swimming program for rural school children

Dr. Orapin Laosee

Drowning is a leading cause of injury death among children aged less than 15 years worldwide. The majority of drowning deaths occur in low and middle income countries. Drowning is one of the most common causes of death among young children in developing countries in Asia, including Thailand. Specific prevention methods were recommended to ensure appropriateness for the age group. The evidence has been shown that participation in swimming lessons was associated with reduction in risk of drowning. A pilot project was conducted in a northern part of Thailand. The project aimed to determine the feasibility of survival swimming program in natural setting.

A collaboration of the community partners such as health care staff, guardian's group, school teachers, and the research team was formed and initiated the swimming program as a community effort. A group of partner has consensus that school child should be able to swim to reduce drowning risk. They called for meeting to identify program purpose, partner's functions and the project activities. A clean natural water body in the community was chosen as a safe area to swim. In addition, local materials have been used to construct the natural pool and floating devices. The survival swimming lessons were delivered by a trained instructor and 60 children aged 7-12 years children were enrolled. Health staff and guardians monitored the swimming program to ensure their child's safety. By the end of 20 lessons, over 80% of children gained a level of swimming skill which required the physical skills necessary to across at least 25 meters of open water without assistance and floated for 90 seconds.

The project demonstrated that with the existing community resources, partnership in community people could increase child's swimming skill to reduce drowning risk. In addition, natural swimming pool was introduced to increase swimming ability of rural children.

The Water Safety Check (WSC)

Christoph Müller (The Swiss Council for Accident Prevention bfu), Elisabeth Herzig

Background

The main cause of fatal drowning among 0-9 year olds in Switzerland is an unintentional fall into a body of water. Until 2008, water competence courses in Swiss primary schools focused on swimming distance. The Swiss Council for Accident Prevention (bfu) participated in the 2007 World Water Safety (WWS) Conference in Porto, Portugal, where Barbara Byers and Robert K. Stallman gave the presentations „Swim to Survive“ and „The Teaching of Swimming Based on a Model Derived from the Causes of Drowning“, respectively. Following this conference, the Association of the Swiss Swim Sports Federation and the bfu introduced the Water Safety Check (WSC) in Switzerland in 2008. The WSC is a test of self-rescue ability that is conducted in swimming pools.

Aim

Establishing the WSC as a minimum water safety standard in Swiss primary schools.

Methods

To implement the WSC among 6-9 year olds, the bfu and the Association of the Swiss Swim Sports Federation used the following channels: a network targeting the Swiss primary school system¹, including direct mailings with hand-outs for waterside WSC instruction; national workshops from 2008-2011 to disseminate theoretical knowledge on drowning prevention and self-rescue ability; and a national water safety campaign from 2011-2013 that takes place mainly in Swiss public pools and water sites. Successful completion of the WSC is acknowledged with presentation of a WSC pass.

Additionally, at a conference of all 26 Swiss sports departments, the bfu recommended the integration of the WSC into the primary school curriculum of each canton.

Results

At the time of writing this abstract, the cantons of Zug, St. Gallen, Vaud, and Bern-representing roughly a quarter of the Swiss population-have implemented the WSC into the primary school curriculums by means of a cantonal directive. The 21 German-speaking Swiss cantons have agreed on a common school curriculum, called Curriculum 21, that should be effective starting in 2014. A working group has issued a recommendation to integrate the WSC into Curriculum 21 as a mandatory item.

Since 2008, the Association of the Swiss Swim Sports Federation has issued 40 000 WSC passes, and an additional 20 000 pupils have passed the WSC as part of the basic tests of the Association of the Swiss Swim Sports Federations. This adds up to a total of 60 000 WSC tests-over 10% of all primary school pupils nationwide.

Discussion

The four cantons that are already using the WSC as a mandatory minimum water safety standard can open the door for the remaining 22 cantons. Chances are good that these cantons will adopt the WSC with the implementation of Curriculum 21. However, there is a large difference between a cantonal directive on paper versus the actual WSC execution in the water. The main obstacles to implementation are a lack of qualified teachers and limited available water capacity. WSC tests are presently conducted in swimming pools and not in open bodies of water, like lakes or ponds.

Conclusion

The past five years have seen the introduction of a water safety standard that was previously unknown to the Swiss drowning prevention community. There was a lot of enthusiasm behind this initial work, which was inspired by the example of the Canadian Swim to Survive program. However, the bfu and the Association of the Swiss Swim Sports Federation will have to continue their promotion of the WSC to see a majority of 6-9 year olds gain minimum water safety competence in the near future. Furthermore, the development of a WSC 2 aiming at self rescue ability in open water should be considered.

References

¹ Brügger O, Müller C. Watersports (drowning). In: Brügger O, Bianchi G, Hofer F, Walter M, Michel FI, Müller C. Accident Research - Sport. Bern: Swiss Council for Accident Prevention; 2012:228-257.

Managing Change through a Paradigm Shift : The Australian Rip Current Campaign Experience

Anthony Bradstreet (Surf Life Saving Australia), Shauna Sherker, Matthew Thompson

94 people drowned around the coastline of Australia in the 2008-09 season. Surf lifesavers and lifeguards conducted 13,600 rescues, and stopped 446,900 people getting into trouble before they needed rescuing. Swimming and wading is the highest reported drowning activity and an overwhelming majority of the rescue and preventative actions arise from swimming at ocean beaches with up to 89% occurring in rips. Given that only 4% of Australian beaches are patrolled by lifeguard and lifesaving services, many visitors will visit and swim at unpatrolled beaches thus requiring a key priority for any public safety strategy to be focused on rip awareness and education.

Public education programs aim to achieve a reduction in the rate of coastal drowning associated with rip currents, and increase in the awareness of rip currents and survival strategies. The lessons learnt from the Australian rip current education context remain relevant to inform the prevention strategies of international advocates to mitigate this global coastal hazard.

SLSA has spent the last 3 years working within a marketing and social science context to develop its latest strategy to educate all Australian about rips. The challenge in developing a campaign around this complex topic has required defining the degree of difficulty in communicating the different aspects of rip currents to the public, testing of appropriate messages and targeting various touch points in the communication process to the public. The messages developed, and the issues associated with them will be discussed. A challenge made significantly more difficult in the ever evolving research climate, with new scientific understandings questioning traditionally understood rip current paradigms.

This presentation will discuss the difficulties faced by practitioners, marketers and researchers throughout the process, at a pivotal period in rip current science and understanding. The dynamic rip current environment, and complexity of advice has affected the intervention strategies available to practitioners to employ. This also affects the reach of interventions, cost, and community outcomes.

Additionally, it will also discuss the challenges which accompany not only the shift in perspective for the water safety industry and researchers, but the effect and perception of change on the most important stakeholders, the public.

The industry has taken excellent steps to break down the disconnects identified at the 1st International Rip Current Symposium between practitioners and researchers. Once universal messages have been determined, if they are different to traditionally promoted messages, appropriate change management strategies will be essential. The case study of the Surf Life Saving Australia, „To escape a rip current, swim parallel to the beach“ campaign will be examined for lessons learnt to inform future interventions internationally.

Water Safety Education for Children

Zoe Cooper (sta International Experts in Safety Training Solutions)

With drowning being the 3rd most common cause of death in children in the UK, it is clear that swimming is a life skill that needs to be encouraged from an early age. This is recognised by the UK Government with swimming and water safety forming part of the National Curriculum, yet still it was found last year that one in three children leave primary school (age 11) unable to swim 25 meters.

Swim schools and academies need an incentivised, structured 'learn to swim' programme that gives children ownership of their progression and achievements as well as water safety education.

In this session, STA's Business Development Manager, Zoe Cooper, will discuss how working in partnership with other organisations can increase the number of children learning to swim and attaining water safety education, reducing the potential of drowning later in life.

Public rescue equipment - The Ringbuoy as a lifesaver

Martin O'Sullivan (Irish Water Safety)

This is an evidence based account of the considerable number of lives saved annually in Ireland by members of the public using the available Public Rescue Equipment - the ringbuoy (also known as a lifebuoy, life ring or life belt)

During the first decade of the present century the Rescue Commission of ILSE carried out a survey regarding the use of life belts or ringbuoys as Public Rescue Equipment. The results indicated that Ireland was the only country where ringbuoys were extensively deployed. The survey was linked to the FEE criteria regarding rural Blue Flag beaches with very low usage, where lifeguards were not deployed.

In Ireland ringbuoys are placed on all beaches used by the public. They are placed 100m apart. They are also deployed along river banks, at lakesides and on all marinas.

Irish Water Safety organises an annual Award Ceremony which includes a Just-In-Time Award for members of the public who have saved the lives of people who were in danger of drowning.

The link between the deployment of ringbuoys and the lives saved is very significant.

Methods

Irish Water Safety has gathered evidence over the past 10 years on the means by which members of the public have successfully carried out rescues of persons in danger of death by drowning.

Outline

This central section of the presentation will outline the number of persons saved from drowning in Ireland by use of the ringbuoy.

Other methods of saving lives will also be tabulated

The presentation will include the drowning stats showing a big drop in the number of people who drowned in Ireland (other than those who have chosen to end their lives by drowning)

Discussion

The discussion is twin tracked

1. The Irish Water Safety syllabus whereby members of the public are trained from a very young age in the use of ringbuoys as a means of saving lives
2. The agreement between IWS and the Municipal Authorities to deploy ringbuoys in all aquatic environments which are used by members of the public or indeed exclusively by their own staff

Conclusion

The focus will be on message

Proper training in the use of the ringbuoy allied to correct deployment of same in aquatic environments will save lives.

Acknowledgements

1. The Volunteers of Irish Water Safety, present and past.
2. The HQ staff of Irish Water Safety

References

The Syllabus of Irish Water Safety, in particular the Sections entitled Safety 1,2,3 and 4

Utilising the media to promote water safety

Roger Sweeney (Irish Water Safety)

There are methods to work closely with the media to save on advertising costs. Multiples of these prevention program cost-savings are reflected in the savings on supplying rescue services and by extension, health services as a result of fewer casualties needing treatment. This presentation outlines some of the partnerships that have been successful for Irish Water Safety in utilising the media to change the skills, attitudes and behaviours of those at risk in aquatic environments.

Legislate or Educate – promoting the wearing of lifejackets

Roger Sweeney (Irish Water Safety)

Lifejackets save lives - it's a simple fact. What is not so simple is the cultural shift required to instil a public sense of responsibility to wear lifejackets during aquatic activities. This presentation examines the facilitators and barriers to adopting, implementing and monitoring lifejacket legislation and focuses on how Irish Water Safety's education and promotion functions are a more effective solution to changing attitudes and behaviour. The impact, the lessons learned and the recommendations for future drowning prevention initiatives will close this presentation.

Educating and Marketing To At Risk Groups

Roger Sweeney (Irish Water Safety)

This presentation details the interventions adopted by Irish Water Safety (IWS) to market the promotion of water safety best practices in order to change the skills, attitudes and behaviours of those at risk in aquatic environments. A particular emphasis is placed on interventions that teach children to stay safe. These interventions extend beyond coastal regions to educate and build awareness about dangerous aquatic environments at home, at work, on farms, on holidays, when boating, at pools and at inland waterways such as rivers, canals and parks. The methodology discussed with which IWS targets these at-risk groups includes public safety media campaigns, education conferences and workshops, literature, signage, public rescue equipment and a programme for young schoolchildren - Primary Aquatics Water Safety (PAWS) - now a component of the physical education strand of the primary school curriculum. The details of various marketing initiatives to date will be explored.

SLSNSW - Dangerous Surf Warning System

Dean Storey (Surf Life Saving New South Wales)

Introduction

Contemporary weather and swell modelling in Australia, has provided Surf Life Saving New South Wales (SLSNSW) a significant opportunity to proactively engage with the community regarding forecasted dangerous surf conditions.

In partnership with the Bureau of Meteorology (BOM), SLSNSW has developed a system of wave height and wave period thresholds which are inbuilt within BOM forecasting programs and automatically trigger proactive warnings to key water safety agencies.

A subsequent system of actions by SLSNSW ensures the 'warnings' are disseminated to the public and key user groups through various methods - with a key focus on the new immigrant community and tourists who may lack experience in understanding the NSW coastline and associated risks when conditions change.

Methods

Planning/Preparation Phase (BOM)

Indications of a 'swell event' that may exceed the pre-determined forecasting thresholds, results in the following BOM actions:

1. An early warning of potential dangerous surf conditions is provided to SLSNSW 48hrs prior. This allows SLSNSW the opportunity to prepare internal operational briefs and media advisories.
2. A confirmed dangerous surf warning is issued 24hrs prior to the event.
3. Extensions of the warning (location or duration) or warning cancellations are made as required.

Response Phase (SLSNSW)

Once a Dangerous Surf Warning is confirmed, SLSNSW implements the following preventative measures:

1. An internal 'Operational Brief' is released to lifesaving/emergency services in affected areas. This enables services to organise and brief on-duty or callout services).
2. An (English) media advisory is issued to media agencies including radio, print, TV and web, plus SLSNSW digital channels including Facebook and Twitter) warning of dangerous conditions and recommended actions.
3. A (Multilingual) media advisory is issued to foreign language media agencies in two translated templates which are translated into seven different languages. The templates either focus on a general dangerous surf warning (swimming/boating/rock-fishing), or a dedicated rock-fishing warning (common with the low wave height/high swell period events).
4. A warning is issued to all coastal accommodation providers registered with SLSNSW's 'Coastal Accommodation Network' (a network built by SLSNSW which provides free water safety information/collateral for tourists).
5. A warning is issued to rock-fishing partner organisations/groups (RECFISH), fishing clubs and new immigrant fishing groups.

Results

Since its implementation in 2010, the system has been activated 44 times and has seen an exponential increase in the promotion of dangerous surf warnings and water safety information to the public, including:

- An improvement in coastal safety issues being promoted and discussed within new immigrant and foreign language media, community and activity groups.
- The proactive notification of 25,000 NSW lifesavers/lifeguards empowering localised public warnings and service preparation.
- Proactive engagement with emergency services strengthens joint operations with lifesaving services in the 'surf zone'.

Opportunities

SLSNSW is currently working with the BOM to identify and implement enhancements to the system. Areas of focus include:

- Assessing and reviewing the effectiveness of the threshold level to optimise effectiveness while balancing frequency of warnings.
- Refining the preventative 'actions' to provide more accurate and specific value to at-risk user groups and at-risk locations (within variable environmental situations).
- Reviewing and enhancing the effectiveness of foreign language media uptake and engagement.



SLSNSW - Dangerous Surf Warning System

Dean Storey (Surf Life Saving New South Wales)

- Alleviating concerns within the fishing fraternity of perceived negative impacts of dangerous surf warnings vilifying the sport of rock-fishing.
- Implementing 'live' vehicle access warning signage and other real-time engagement initiatives at high-activity locations.
- Researching the impact of wind direction and weather conditions on risk perception and risk taking by coastal users.

Conclusion

The development of a state-wide preventative warning system has enhanced the internal preparedness of lifesaving and emergency services for heightened coastal emergencies, and significantly improved the provision of real-time warnings to the general public and specific user groups. The system has also led to the development and enhancement of complementary safety programs, including engagement with coastal accommodation providers (tourists), foreign language media and relevant community groups.

Collecting drowning data. The what, the how, pitfalls and future actions

Associate Professor Richard Franklin (Royal Life Saving Society - Australia)

An accurate count of the number of people who drown per annum is important, especially when trying to engage government, donors and individuals in preventing future drowning deaths. As the lifesaving community continues to address the issue of preventing drowning, having an accurate number will help in developing targeted programs, monitoring their success and helping with the allocation of scarce resources.

While it has been argued that the official WHO figures underestimate the number of people who drown it is unknown if this is true due to the paucity of drowning data available. Ensuring accurate and timely collection of information about drowning deaths is an important underlying pillar of drowning prevention. The collection of information on drowning deaths has been undertaken for many decades yet only recently has there been a clear consensus on a definition for drowning and its subsequent sequelae.

The collection of drowning data is not easy even in countries with a centralized collection mechanism and significant resources. The collation of this information is made even more difficult when the overall number of drowning deaths is placed into categories. This is then compounded when trying to compare across countries using differing definitions and categories.

So what categories should be used? Some breakdown of demographics is warranted, such as gender and age, males drown more often than females and children are often more at risk than adults. The type of water body is also important as who is responsible for the water body will often change the way prevention strategies are targeted. What the person was doing at the time also helps with development of prevention strategies, for example a person who is swimming for recreation requires a different prevention strategy as opposed to a person who jumps into the water. The intent (i.e. suicide, homicide, or unintentional) also changes the strategies, to date most of the work has focused on unintentional drowning deaths however future work will be required to address the issue of suicide and those who drown while attempting their rescue.

This presentation provides a background for why the fields of age, gender, location, activity and intent are the core elements that should be collected and that other categories such as alcohol, swimming skill, rescue attempt, CPR attempt, clothing worn, flood or disaster related, drugs, etc may be important for an organization to collect and 31 provide elucidation of drowning deaths. It will also explore in detail the classifications of location and activity and discusses the challenges being faced for consensus. The presentation will also explore where drowning information may come from (such as police, coroner, hospitals, lifesaving organizations etc.) and the challenges presented when using each of these sources.

This paper is not the final word on the classification of drowning but the start of a discussion about an ideal of a worldwide consensus of a core set of variables which allow comparisons across and within countries.

Preventing children from drowning in home swimming pools

Associate Professor Richard Franklin (Royal Life Saving Society - Australia), Amy Peden (Royal Life Saving Society - Australia), Kerriane Watt, Peter Leggat

Greater affluence in Australia during the 60's and 70's resulted in the increased construction of home swimming pools and consequently, a rise in child drowning deaths. Local councils then enacted pool fencing legislation which was subsequently taken up at a State and Territory level. Initially pool fencing regulation required only that access to the pool by people outside the property was restricted. This was then upgraded to 3-sided pool fencing to prevent children from entering the pool from the yard, and then to 4-sided pool fencing to restrict access to the pool directly from the house, which is twice as safe as 3-sided fencing. It also resulted in the development of an Australian Standard (AS1926 - Swimming Pool safety).

Effective pool fencing legislation has been the cornerstone of child drowning prevention, but can Australia improve further? In Australia in the last two decades, there has been a decline in drowning deaths in home swimming pools largely attributed to pool fencing which has been shown to reduce drowning deaths by approximately 30%. In 2010 Queensland introduced legislation changes to ensure that all pools are inspected at time of sale, or when leased. New pools need four-sided fencing and 1.8m boundary fences. There were a number of other changes which make the Queensland legislation the strongest in Australia.

So the question is „Is there still room for improvement?“

In an attempt to answer this question, the 2011 Queensland Social Survey (QSS), a randomized computer assisted telephone survey (CATI) of 1,265 Queensland residents, asked the following question ‚How effective do you think that tightening the pool fencing legislation will be in reducing child drowning deaths?‘ Respondents answered on a 5 point Likert Scale.

Overall 57% of respondents believed that tightening pool fencing legislation would be effective in reducing child drowning deaths. People with pools at their residence were significantly ($F=36.1$; $p<0.01$) more likely to doubt the effectiveness of tightening the legislation. People with children <5yrs in their household were more likely to perceive that tightening legislation would be effective, but this was not significant ($p<0.05$). Females ($F=4.1$; $p<0.05$), renters ($F=10.4$; $p<0.05$) and those who are single, widowed, divorced or living in a de facto relationship (vs married or separated; $F=2.8$; $p<0.05$) were significantly more likely to perceive that tightening legislation would be effective in resulting in child drowning deaths.

These results indicate that there is still much work to be undertaken to educate people that changes in pool legislation are beneficial - four out of 10 people surveyed did not think that tightening pool legislation would be effective in preventing child drowning. The analyses of these data also suggests that there are specific groups that need to be targeted, eg: home owners, people with higher household incomes, people age 45-54, those separated and/or not divorced and those with a pool at home.

To help pool owners understand the strategies available to ensure the safety of children around the pool, continuing education will be required to ensure that: children are supervised when in on or near water; pool fences are regularly checked and in good working order; an environment is created where the child is not allowed to climb the fence, and that all people using the pool understand the importance that the pool gate remains closed at all times.

While the number of children drowning in home swimming pools has decreased there is still room for improvement and a need to ensure those who own a pool take this responsibility seriously. Despite concerted efforts by numerous organisations, the message about pool fencing effectiveness does not appear to be reaching the most important group - pool owners. Better strategies to educate pool owners about the effectiveness of pool fence legislation, and to increase compliance, are required.

Exploration of underlying medical conditions in child (0-19 years) drowning deaths and possible prevention strategies

Associate Professor Richard Franklin (Royal Life Saving Society - Australia), Amy Peden (Royal Life Saving Society - Australia), John Pearn, Kerriane Watt, Belinda Wallis, Peter Leggat, Roy Kimble

Drowning remains a major cause of childhood mortality worldwide in both developed and developing nations. Preventative approaches are effective if targeted towards the specific and distinct syndromes which cause childhood immersion deaths.

Accumulating evidence from Australian Drowning Reports compiled by the Royal Life Saving Society - Australia has indicated that approximately 10% of child immersion fatalities involve pre-existing acute or chronic medical conditions. Several papers have highlighted the risks of epilepsy and drowning. However, the more general nexus between underlying medical conditions and the risk of drowning has not been fully explored. The possibility exists that preventative approaches may be more effective in this subgroup of at-risk children.

In this paper we report an investigation of the links between pre-existent medical conditions and drowning fatalities. This study is a retrospective total population, ten year examination of all 0-19 year old drowning fatalities in Australia.

Methods

This total population study has identified every report of child drowning fatalities indexed in the National Coronial Information System (NCIS). All data available for children aged 0-19 years who drowned during the period 1 July 2002 to 30 June 2012 were examined.

All cases that were not drowning (eg, natural causes, shark or crocodile attack) were excluded. Cases identified as self-inflicted harm or assault were excluded. For some included cases, information was incomplete or unknown because: the case was open (20.9%) (i.e., the Coroner was still enquiring into the death); the person was alone at time of drowning; the Coroner was unable to make a ruling on circumstances surrounding the death; the body was heavily decomposed or not located; or residential address was not applicable (eg, due to homelessness).

Results

There were 627 children who died during this period, of whom 11% had an underlying medical condition. While 69.7% were male, there were no gender differences among children who had an underlying medical condition. Children under 5 years of age were (significantly) less likely than older children to have an underlying medical condition. The most common conditions were seizure related (mainly epilepsy) and autism.

Discussion

There is no clear prevention strategy for ensuring that children with underlying medical conditions do not drown. However, possible strategies include:

- Depth of water - shallow water bathing practice.
- Supervision - In the majority of cases the supervising adult was either not present or was not paying attention at the time of death.
- Medication- in at least two cases it was known the child was not taking their medication.
- Pool fencing -at least two children < 5 years drowned in a swimming pool; a properly functioning pool fence would have saved one of the lives.
- Life jackets - those children at increased risk (i.e. who may suffer a seizure) and are in the water may need to wear a life jacket that will roll them onto their back and keep their nose and mouth out of the water if a seizure occurs.
- Parental / Carer CPR - there is evidence to show that early CPR and a short amount of time between immersion and commencing CPR (note this is also related to improved supervision) can have a beneficial outcome.
- Swimming skills - swimming skills are an important developmental skill and as such children with seizure disorders should not miss out, however these lessons should be conducted with appropriate strategies to ensure the child's safety.
- Alarms - a range of alarms are available but should not be relied on solely for the supervision of children.
- Rules - setting and enforcing rules.
- Buddy system - Not being alone may provide some added protection.

Further exploration of the epidemiology of drowning due to underlying medical conditions is required, to develop prevention strategies that will ensure the safety of all children when in, on, or around water.

Equipping youth with skills for life

Stacey Willcox (WaterSafe Auckland Inc)

Introduction/Background

Wai Wise is a youth drowning prevention initiative. Wai Wise specifically targets Pacific Island, Maori and Asian youth aged 16-24 years old in Waitakere, West Auckland. It is a 3-year pilot programme between four organisations with a common goal to reduce drowning and water related incidents among this population and increase safer behavior around the water. Evidence for targeting this particular group and area of Auckland:

- 513 people drowned in New Zealand between 2007 - 2011, of which 17% were aged 15-24 years.
- Youth make up approximately 10% of the 5-year average of drownings in the Auckland region from 2007-2011
- 133 people drowned in Auckland over the same period; 24% Pacific Island, 15% Maori and 12% Asian, all high risk groups which are over represented in the drowning statistics
- In 2011, the number of Asian people that drowned in 2011 was 3 times the 5-year national average.
- Waitakere is a high risk environment. It is bordered by a harbour and is notorious for high energy west coast beaches, in addition to having many rivers, creeks, lakes and dams in the area
- Between 2007-2011, there were 27 drownings in Waitakere, giving it the second highest drowning toll in the wider Auckland region
- On average, five people drown in Waitakere each year, and about half of these drownings are people of Asian, Pacific Island or Maori ethnicity

Pacific Island, Asian and Maori populations traditionally have been involved in water activities however many now lack the ability to transfer their skills to open water environments. It is essential to equip youth with these skills, as it is hoped that they will act as role models within their communities to encourage a safety culture when participating in future aquatic sport and recreation activities.

Aims

- Give youth of Maori, Pacific and Asian background practical knowledge and skills to keep themselves and others safer when in, on and around aquatic environments.
- Increase participation in aquatic based sport and recreation
- Develop role models to deliver and promote water safety messages and safer behaviour in their communities

Methodology

- Wai Wise is delivered over a 6-8 week period, combining practical learning in the classroom, pool and natural water environments
- Leadership modules
- Delivery is tailored to meet the needs of each individual group

Outcomes

- 202 people have completed Wai Wise, exceeding the projected number of participants over the whole three years being 165 (55 per year)
- 17 participants have completed a separate Leadership Course
- 92% of all participants report a significant improvement in personal water safety and survival skills.
- 90% of participants can describe and demonstrate how to safely help someone in the water
- 100% of participants indicated they are now more likely to swim at patrolled beaches
- 77% of participants report that they have increased their water confidence as a result of Wai Wise
- 12 people gained Workplace First Aid Level 1 qualification
- Wider social and health outcomes include improved fitness, career goals, overall personal confidence and linking to the participant's local environment.
- Wai Wise has been delivered in partnership with the local Youth Court

Conclusion

Outcomes have demonstrated that participants have increased their water confidence, awareness and gained vital water safety and survival skills. This project has identified that not 'everyone' in New Zealand possess the skills and behaviours to stay safe in aquatic environments. By targeting specific ethnic groups that are over represented in drowning statistics, Wai Wise is tackling this issue. In addition to producing drowning prevention outcomes, there are wider social and health outcomes for the participants. The final 3-year evaluation results will be presented in more detail.

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An Ethnic Perspective of Water Safety Education and Prevention in Aotearoa/New Zealand

Alexander Brunt (Water Safety New Zealand)

Background

New Zealand is a multicultural nation with a diverse set of ethnic groups that make up the population. Although the number of drownings over the last 20 years has declined, Maori, Asian and Pacific People are overrepresented, having high drowning rates on a per capita basis within New Zealand. A lack of swimming and survival ability, knowledge and understanding of New Zealand water environments are contributing factors to these statistics.

Aims/Objectives

For each ethnic group specific and targeted strategies have been developed and employed. This has enabled a coordinated and sustained approach to water safety education through addressing cultural practices and activities around water.

Methods/Implementation

Maori - Kia Maanu Kia Ora

- Supported by New Zealand Post;
- Resources for Kohanga reo (early childhood centres) and Kura Kaupapa (primary and secondary schools);
- Provision of portable pools into key demographic communities;
- Presence at specific ethnic/cultural national events such as Waka Ama and Kapa Haka;
- Develop and use community leaders in priority regions within a targeted communications campaign;
- Development of a specific skill based resource for delivery based organisations to utilise.

Pacific Peoples

- Establishment of a Pacific Action group and a three year strategic plan;
- Appointment and utilisation of Ambassadors such as Oscar Kightley;
- Targeted church roadshows in key demographic locations;
- Running and being present at specific events for Pacific people ;
- Development of targeted resources e.g. 'Without A Father' a DVD based on a true life story;
- Delivery of a specific communications strategy through local radio stations.

Asian

- Development of a National plan with community leaders;
- Presence at events such as Moon Festival Celebration (Chinese) and the Korean Cultural Day;
- Media communication through Chinese and Korean newspapers, magazines, websites, radio and television;
- Provision of professional development for key cultural groups.

Results/Evaluation

The longest of the three strategies addressing the incidence of Maori drowning has achieved a 33% reduction in mortality rates since its inception in 2003. Over nine years it has set a benchmark within New Zealand for targeting ethnic drownings and its resources are used across most water safety disciplines. The Pacific Peoples Strategy has increased awareness of water safety messages and ensured the development through national entities of community engagement projects which has had a considerable impact. Currently the strategy for the Asian community is still in its infancy and as such no evaluation has been completed.

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A Paradigm Shift in Life Saving: A UK Perspective

Cliff Nelson (Royal Life Saving Society UK)

„Water activity presents significant health benefits“

„Playing in deep water creates a significant risk of drowning“

Both statements are evidently axiomatic and yet contradictory. This paper explores issues surrounding both statements in the context of water safety and presents RLSS UK's new vocational award, the National Water Safety Management Programme (NWSMP), as a solution to improving the water safety and reducing drowning statistics.

In a similar way to the two contradictory statements above, there exists a dichotomy between research extolling the benefits of exercise in the outdoors and an increasing litigious society in which we live. The UK government's 'Blue Gym' initiative encourages people to engage in activity near or in water to gain both psycho-physiological benefits offered by the aquatic environment. In contrast a fear exists amongst the outdoor industry and particularly within the education sector that managing groups around the water margins places the leader at risk of litigation

Research suggests most drownings that occur during managed group activities, around or in water, could have been prevented through better risk management and planning. The research demonstrates the need for a paradigm shift, transferring the focus away from 'lifesaving' to 'water safety management' and 'prevention'. RLSS UK has recognised this challenge by identifying the need to reconcile promotion of open water activity with appropriate water safety training. To ensure that RLSS UK accurately provide the level of training required, a consultation panel was created to assist in the development of a new vocational water safety award, including representatives from the government, educational and environment sectors and outdoor industries.

The resultant product is the National Water Safety Management Programme which is a suite of inter-linked modules, creating the flexibility to design bespoke awards for specific needs. The architecture of the award has been designed around a core module, Water Safety Awareness (Level 1) that provides the foundation knowledge base. Level 1 is geared towards teachers/leaders taking children on a field trip around water without any intention to enter the water by providing the necessary skills to set up risk management plans to safeguard the group. Candidates may choose to progress to Level 2 and select from a menu of environment specific modules, including beach, river and still water. On completion of Level 2, qualified candidates would be equipped with the skills to take a group into the water environment to engage in low level activities such as rock pooling or pond dipping. Candidates are also provided with basic land based rescue techniques. For the more adventurous, candidates can progress to Level 3, the 'In-Water Rescue' module, providing in-water rescue life saving techniques for those supervising group activities in deep water.

The NWSMP was released in July 2012 and over 80 Instructors across the UK have qualified and the programme has received recognition for the Government's Health and Safety Executive, Expedition Providers Association and Royal Geographical Society. It is intended that the NWSMP vocational training award will help in reducing the number of drowning in the UK and abroad, through better water safety management and prevention.

„Vision Zero“: no more drowning victims among children in Switzerland

Lorenz Wenger (bfu - Swiss Council for Accident Prevention), Ch. Müller, O.Brügger

Background

Among children, drowning is the second leading cause of death due to injury in Switzerland. Lack of supervision of children is the main risk factor. Falling into water is the most common type of accident leading to drowning for 0 - 9 year olds.

Aim

The bfu Water Program aims to prevent any more children dying due to drowning accidents („Vision Zero“). We also support and promote children's ability to rescue themselves, which can be achieved by attending a Water Safety Check (WSC).

Methods

The bfu launched a nationwide, three-year water accident prevention campaign in 2011. The campaign makes parents and caregivers of children aged of 0-9 years aware of possible hazards in, on and near water. The main message of the campaign: „Kids always in sight! Toddlers within reach!“ The three-year campaign will finish at the end of 2013. The bfu and its partner organisations chose public swimming pools as the ideal main communication platform. This is where most people can be reached in the context of „recreational water activities with children“. Furthermore, the „hot spots“ at lakes and rivers were issued with the campaign messages. This strategy involved several stakeholders and partner institutions such as the Swiss Bathing Attendant Association (SBV - Schweizerischer Badmeister-Verband), the Association of Swiss Public Baths VHF, Association of the Swiss Swim Sports Federations (swimsports.ch) and the Swiss Life-Saving Society (SLRG - Schweizerische Lebensrettungs-Gesellschaft) to mention but a few. Together with these partners, the bfu developed interventions to be implemented in the above-mentioned public areas throughout the campaign period: information flyers, posters, give-aways and T-shirts for staff, a promotional road show in public pools throughout the country. Beside the partner activities, the main messages of the campaign were ported over selected media channels and platforms (road show, billboards, radio and fairs). Cost of the campaign is CHF 1.2m (USD 1.3m) over the three years.

Results

At the time of writing this abstract, the campaign is starting its final year of the three-year period (2011 - 2013). Although it is too early to publish any final conclusions, the following indications provide initial results:

- Nationwide presence of the main message „Kids always in sight! Toddlers within reach!“
- Self-rescue ability: +26% increase in Water Safety Check passes during the first year of the campaign
- 60% ordering rate for campaign shirts among Swiss pool attendants
- >90% awareness of the campaign among Swiss pool attendants
- The effect of the campaign in terms of drowning deaths cannot be proved due to the low number of cases

Discussion

The involvement and participation of key stakeholders as disseminators is essential to generate wide support for the campaign. Nevertheless, advantage must be taken of the mass media to additionally convey the main messages to the public. The challenge is to find the right balance between supporting our partner organisations for their commitment and investing for a reasonable impact by the mass media.

Implementation of the Water Safety Check in the public school system is another important cornerstone in turning „Vision Zero“ into reality.

Another key aspect of the evaluation that needs monitoring and comparing with the baseline study is the quality of supervision of children after the three-year period of this prevention campaign.

Conclusion

Three years is a relatively short period of time to achieve any behavioural change (non-stop supervision of children in, by and on the water). Current discussions with a national private insurance provider are expected to lead to an extension of our three-year water accident prevention campaign (or of certain elements), which would otherwise terminate at the end of 2013.

Adult Supervision - Protective or a Hazard? Issues in Prevention of Immersion Deaths of Rural, Urban, and Aboriginal Children and Youth, Canada, 1991-2010

Dr. Peter Barss (Interior Health Authority; Red Cross; University of British Columbia School of Population and Health), Jane Hamilton (Canadian Red Cross), Karlyn Olsen (Canadian Red Cross, University of Toronto School of Public Health), Shelley Dalke (Canadian Red Cross)

Introduction

Automatic passive protection of children and youth by safe and user-friendly built environments is generally to be preferred over a need for constant vigilance. However, it is not feasible to eliminate all risks of natural environments, while certain hazards of the built environment persist in many communities, especially for rural and aboriginal peoples as well as city dwellers who travel to or near rural bodies of water. Adult supervision has generally been considered desirable, but our data suggest that if quality is poor, presence of an adult could be hazardous.

Methods

Data from the Canadian Surveillance System for Water Related Fatalities for the years 1991-2010 were analyzed by age group and supervision. This database is based on coroner and medical examiner reports from all 13 provinces and territories. Data analysis was completed by spreadsheets and statistical software, for about 2000 deaths of 0-19-year-olds.

Results

Adults were present in 22% of fatal immersions of infants, 13% of 1-4-year-old toddlers, 39% of 5-9-year-olds, 37% of 10-14-year-olds, and 51% of 15-19-year-olds. Considering age, 39% of infants less than 1-year-old drowned alone and 39% with minors under 18 years, for 1-4-year-olds 63% and 22%, 5-9-year-olds 24% and 32%, 10-14-year-olds 16% and 38%, and 15-19-year-olds 16% and 16%. As for other factors, 54% of rural, 58% of urban, 56% of aboriginal and 54% of non-aboriginal children and youth died alone or in the presence of minors, without adults. One or more adults were present in 33% of rural, 36% of urban, 33% of aboriginal, and 27% of non-aboriginal deaths of 0-19-year-olds. Victims 0-19-year-olds were alone or only with minors in 94% of deaths in bathtubs, 79% in swimming pools, 49% in rivers/streams, and 43% in lakes and ponds.

Conclusions

About 80% of infants and toddlers drowned alone or with only a minor present, suggesting that presence of adults is crucial for prevention in scenarios such as adult-size bathtubs and inadequately enclosed home pools. On the other hand, for older children and youth, 40-50% drowned in the presence of adults, suggesting that in some situations the presence of an adult(s) might have been a factor in the deaths. This could occur such as by encouraging participation in boating or aquatic activities when current, weather, boats, safety equipment, swimming ability, and experience are inadequate for conditions. Observed differences in supervision were minimal by rural/urban residence and by aboriginal/non-aboriginal ethnicity. This all indicates that, notwithstanding the need for passive measures of protection, a universal water safety approach be developed, implemented, and evaluated with a view to improving effectiveness and completeness of adult supervision of young male and female children, as well as knowledge and attitudes of older male children and youth and their fathers who engage in activities such as boating and aquatics.

Learning's from a Grass Roots Campaign to Reduce Drowning in the UK

Di Standley (Royal Life Saving Society UK)

Overview

This session will provide opportunities for the transfer of best practice, learning points and identifying successful approaches in drowning prevention campaigning and messaging.

Background

Around 400 people drown in the UK each year (one in 157,000), and thousands suffer near-drowning experiences. Drowning is the third highest cause of accidental death amongst children in the UK. The Water Incident Database Report, 2011 reveals that 46 young people under the age of 19 died unnecessarily in 2011.

As the UK's drowning prevention charity, the Royal Life Saving Society UK (RLSS UK) is dedicated to promoting water safety and is the country's leading education and training skills enterprise for water safety, aquatic supervision and drowning prevention. RLSS UK recognised that a targeted approach to water safety education was essential in achieving maximum effect to help reduce the number of drownings in the UK and, therefore, created the Drowning Prevention Week campaign.

Drowning Prevention Week is a national campaign which aims to promote water safety messages within local communities and the media and help reduce incidents of drowning in the UK. The week acts as a vehicle to distribute drowning prevention messages in a concentrated time frame, particularly to primary school children and the media.

Activity

The campaign uses positive messaging to promote having fun and staying safe near water. Schools, leisure centres, clubs, and communities are encouraged to hold events and programmes to distribute water safety messages throughout the week. In conjunction, case studies and water safety messages are distributed to the media and social media. To help implement the campaign strategy, the charity utilises its network of volunteers and members in order to establish links with their local communities and media.

The UK's 20,000 schools are proactively contacted to encourage them to take part in the campaign by delivering classroom, assembly or pool based water safety classes.

Political audiences and Ministers of Parliament (MPs) in areas with particularly high incidences of drowning are contacted for lobbying purposes and to support the campaign with their constituencies. Partnerships have been built with key partners such as the Amateur Swimming Association (ASA) who actively support Drowning Prevention Week and allows summer 'learn to swim' events to act as spring boards for the campaign. Businesses are also approached for corporate sponsorship.

A range of resources have been produced to aid participants including: School lesson plans, assembly activities, pool session plans, media packs, posters, leaflets and top tips.

Participants are also encouraged to raise money for the charity's drowning prevention programmes through the campaign's fundraising element 'Top Trunks'. The 'Top Trunks' initiative invites people to come up with new and interesting ways to raise money for the campaign and highlight its messages, using eye catching swimwear.

The following are some examples of how people can participate:-

- Leisure centres and swim clubs across the UK incorporate water safety into scheduled swimming lessons held throughout the campaign week
- Organisations delivering water safety messages to their databases and via social media
- Volunteers displaying or distributing water safety leaflets and posters
- Schools delivering classroom lessons or assembly activities
- Schools and nurseries running fundraising activities
- Volunteers hosting stands at events
- Leisure centres or RLSS UK clubs hosting lifeguarding events or competition showcases

Outcomes and Learnings

The campaign is measured and evaluated through a variety of mediums including media coverage, events held, school participation, funds raised, visits to the website and social media response. Year on year we seek to increase the profile of the campaign and engage more people in the delivery of water safety messages.

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A water safe municipality

Karin Levin (Swedish Life Saving Society)

The Swedish Lifesaving Society has during several years, had a close and important collaboration with many government agencies. Together we have been able to raise both awareness and knowledge of water safety all around Sweden. Although we in some ways have been successful in our efforts, the ambition and prevention work in the water safety area amongst the municipalities differs a lot, and there are many parties that don't have the knowledge of working efficiently in the field of water safety at all.

To help and to assist the municipalities in their prevention work we, The Swedish Lifesaving Society, initiated the project „A water safe municipality“. The project is based on six criteria's that altogether form the base of what we call „A water safe municipality“. The criteria's can be fulfilled either individually over a period of several years, or all at the same time. The later of the alternatives demands a bit more help and support from us, which consist of telephone support, statistics, guidance in various laws and court cases and education.

Regardless how the municipality chooses to approach the project, the essence is that the party is working towards fulfilling the criteria's and thereby contributing in making the municipality more water safe.

The first criterion is focused on the prevention work that is implemented in the municipality. According to the criterion, every municipality needs to clearly state who is in fact responsible for the prevention work and what target within water safety is. This applies to maintenance of equipment and facilities, information and supervision in accordance to the law. A plan also needs to be generated and there need to be continuous documentation and follow up of both water safety and risk assessment.

The second and third criterion is to manage the goals that are set by The National Agency for Education and analyze how the municipality is fulfilling them. The curriculum clearly states, that in 6th grade, a student must be able to swim 200 meters, of which 50 of them on their back. The student must also have basic knowledge in swimming- and ice safety and be able to handle emergency situation in and around water. In 9th grade, in addition to the qualifications above, the students must also be able to perform CPR. This is goals which need to be fulfilled in order to get a valid grade in physical education.

The fourth criterion is to handle the indoor swimming pools and recreation centers (not spas). The municipality is responsible for the education and knowledge of the working staff and all staff must have an adequate safety education in order to prevent accidents.

The 5th criterion is managing the importance of correct information to the general public. They party must inform about water safety in channels such as web pages, in the indoor swimming pools and on any other way they find suitable. The information should consist of both swimming, ice and boat safety.

The last criterion regulates the general safety material in the municipality. There should be a safety depot with material such as life jackets, ice prods and other relevant water safety materials. The general public should also have the possibility to lend the material during a limited period of time.

When the municipality has fulfilled all six of the criteria they can apply to the Swedish Lifesaving Society to be approved formally as an „A water safe municipality“.

Child drowning prevention in Thailand

Suchada Gerdmongkolgan (Ministry of Public Health), Som Ekchaloemkiet

Background

In Thailand drowning has been the first major cause of death in children in the past several years. This is higher than the deaths with a result of infection, twice higher than road traffic injury, and many times higher than dengue fever. Each year approximately 1500 Thai children (4 children/ a day on average) under the age 15 die of drowning.

Objectives

To advocate child drowning prevention in Thailand.

Method

Since 2006, Thailand by the Ministry of Public Health has embarked on a policy driven and implemented child protection drowned. The magnitude of child drowning problems were proposed by mass media and communication especially with focusing on disseminated information that accompanied with important and attractive situation such as Songkran Festival, Loy Krathong Day and flood disasters. The advocated policy was to execute the public policy to be substantial. Implementation of the specific measure showed the interest of executives. Operations initiated since 2007.

Results

The Ministry of Public Health and relevant agencies established child drowning prevention measures such as formation of child drowning prevention committees, instituting a child swimming policy, designating a Child Drowning Prevention Day, and establishing a policy that in every hospital parents who bring children to be vaccinated should be given knowledge about child drowning prevention. In addition, prevention programs for children drowned in the First Responder. After the implementation, the mortality rate of child drowning decreased from 11.1 in 2006 to 8.4 in the year 2012 respectively.

Conclusion

Widespread information dissemination to the public should also influence executive and other relevant agencies to perceive the significance and lead to assignment of priority and the appearance of policy concerning child drowning prevention. Besides, some of the specific measures had such a clear result, executives now see the importance of the measures and child drowning prevention has become a top priority national issue.

Drowning Statistics in Germany

Dr. Detlev Mohr (German Life Saving Society DLRG, ILSE)

Drowning is one of the major causes for unnatural death in Europe especially for children as well as for elders. Nearly half a million people drown each year worldwide. The drowning figure of Europe was about more than 37.000 reported by WHO in year 2000. Nearly 5.000 of the drowning victims were children. Every second victim in Germany was a senior person 50 years of age or older. One of the main messages of the World Water Safety Conference in Porto 2007 was: Drowning needs more attention. Prevention needs better and more information about the real reasons.

The DLRG has been collecting data on cases of drowning in Germany since the year 2000. The collection is based on press cuttings. The cuttings are identified on the base of specified keywords by a large press cutting agency with partners in Europe.

In most cases, the data collection procedure enables an exact classification of fatal water accidents and their circumstances.

The parameters are

- sex
- age
- date of the accident
- place of the accident (ocean, lake, private or public pool, etc.)
- assignment to regions
- what has happened and
- contributing factors (boats, surf boards, inflatable toys, alcohol, ...).

The national drowning statistics based on ICD classification can not give answers to the questions where and how to prevent.

Death in the water has more causes than those of drowning according to ICD. The real drowning figures are higher as in the official national statistics of death. A statistics on the base of collecting press cuttings gives a lifesaving federation information for strategic decisions and activities in prevention. The objective of the analysis is to gain knowledge about where what preventive measures must be taken in order to reduce the number of fatal water accidents significantly in the future.

Fatal accidents are reflected in media reports to a particularly great extent. Therefore, press cuttings generated from such reports offer an abundance of information about causes and circumstances of deaths by drowning as well as background information about the people concerned.

The national death statistics should be completed with data from press analysis. The objective of any drowning statistics is to gain knowledge about what preventive measures must be taken and where they must be taken in order to significantly reduce the number of fatal water accidents in the future. The method is not expensive.

The data can give information about drowning during different activities (swimming, surfing, sailing, diving, etc.) and dangerous locations. Thus, the evaluation and presentation of the results in the standard categories is carried out to a large extent on the base of the IDB (injury data base) code as well. About non lethal drowning injuries in Germany does not exist any comprehensive statistics. There are only estimations of the dark figures available as well as for deaths late after the drowning accident based on research data of studies in smaller regions, which will be referred by the author.

The report compares the different reporting systems and shows what kind of cases of drowning are better represented in the press cuttings statistics than in the national drowning statistics based on the certificates of death with ICD classification and vice versa.

Using analytical software to help manage a nation's drowning preventative campaigns

Lt Cdr John Leech (Irish Water Safety)

Irish Water Safety is currently developing an analytical software programme to help us measure the number and type of drownings in Ireland, it is now almost completely finished. Like other countries Ireland has a large amount of data in relation to its drowning situation. We have spent the last two years inputting this data in to this software programme which itself was developed in Ireland. It is called D4h a multi-award winning Emergency Response Team Management Software which is currently being used in a number of countries worldwide.

We will have data on drowning received from our Police Force dating back to 1988 inputted in to the system in the next few weeks and in plenty of time for the conference. This will allow us draw up cases on where people have drowned in Ireland and display this information on a Graphic Information System. It will allow us identify the types of drowning and allow us build a demographic picture of both the national and local situation in Ireland which we have not achieved before.

It allows us record drowning in a standardised format, we believe that it is best practice record keeping. When utilised as a profiling tool it helps us understand drowning scenarios which in turn allows us take actions to prevent further drownings at these locations. It enables ease of optimal record keeping with minimum amount of work load to achieve a high degree of knowledge on our nations drowning situation.

It has an excellent records search capability and has a great potential for report building and statistics output. The outputs have a direct relevance to Irish Water Safety's core mission of raising awareness and drowning prevention.

Evaluation of child drowning prevention in Thailand

Som Ekchaloemkiet, Suchada Gerdmongkolgan

Background

Drowning is the first leading cause of death for children age lower than 15 years. The mortality rate per 100 000 children aged 0-14 years is between 9.3-11.5, (2004- 2008). A survey on the swimming ability of Thai children under 15 reveals that only 16.3% of them can swim.

Objective

To evaluate of general swimming and safety swimming program.

Methodology

This study is the Quasi-Experimental Research, which has the objective to evaluate the 3 group of children's the ability to swim and skills to make them survive when they have crisis during swim. These groups of children were given the different swimming courses.

Result

The result of the study showed that after completion of the courses, there were no significant differences among 3 groups of children in terms of the ability to swim, when they were tested to swim for 25-meter distance. However, in terms of ability to perform safety and rescue swimming, the children in group 1 demonstrated more effective than other children from group 2 and group 3 respectively.

Conclusion and Discussion

In summary, we found that the children who took part in the course that specific for safety and rescue swimming had more ability than ones who took part in general swimming course. Therefore, the safety and rescue swimming courses (survival swimming curriculum) should be promoted widely throughout the country, and this will help to reduce the death of children due to drowning.

Child drowning prevention in Europe: Putting evidence into practice

Joanne Vincenten (European Child Safety Alliance), Morag MacKay

Drowning is the second leading cause of unintentional injury death for children in the EU, with huge inequalities existing in rates between countries. Despite the fact that evidence-based measures to reduce drowning exist, they are not always adopted, implemented and enforced.

Aim

To assess uptake, implementation and enforcement of national level policies to prevent drowning in children in 31 European countries in 2012 and progress over 5 years of assessments.

Methods

As part of the Child Safety Report Card assessment process, data for 16 indicators assessing national level policies to prevent drowning were obtained in 2011-2012 using English language survey tools. An overall score out of 5 was calculated for drowning prevention for each country as well as examining individual indicators. Where possible 2012 scores were compared to scores from 2007 and 2009 to assess progress.

Results

The average score in 2012 was 2 stars (range 0.5 - 4 stars). Laws regarding lifeguard certification and minimum number of lifeguards required in different settings varied greatly both across countries and within countries. Nineteen countries report a policy that makes water safety education (including swimming lessons) a compulsory part of school curricula, but again implementation varies greatly within and between countries and is often limited by lack of facilities. Eight countries have a law requiring barrier fencing for private pools, but only France reported it was well implemented and enforced. Only 5 countries require use of personal flotation devices for children while on the water and only four of those indicated the law was enforced. 18 others have a law but only require that the PFD be present. When progress was examined over time, nine out of 14 countries where data were available for 2007 and 2012 improved their drowning scores and seven out of 11 countries where data were only available for 2009 and 2012 improved their drowning scores.

Conclusions

Currently many of the recommended national level policies in water safety are not adopted, implemented or enforced in the majority of countries assessed. While the Child Safety Report Cards are a crude measurement tool, they have become an accepted benchmarking tool and have proven to be useful advocacy tools driving action toward evidence-based good practices. They highlight policy gaps at a national level, differences between countries and areas where consensus at a European level might benefit drowning prevention.

Breaking Cultural Barriers to Asian Women Swimming

Christina Fonfe (Sri Lanka Women's Swimming Project)

Background

In Asia, females are chaperoned, wash whilst clothed at the well and are indoctrinated to avoid water. Western dress and tourist social behaviour in tropical locations hardens cultural diktats against local women wearing 'immodest' swimwear, while local men actively court skimpily clad tourists.

Most Asian women have little experience of large bodies of water. Tight, wrap-around dresses hinder agility and they cannot rescue a child or save themselves from drowning. In many rural and coastal areas, local drowning deaths do not even appear as such in national statistics.

Target Population

Women were chosen because they constitute the largest non-swimming group in the community and are able to pass their knowledge directly onto their own children at no cost. Teenage girls were included as future mothers. Teaching children directly was excluded because that introduces a decade of delay before any of them are old enough to become swimming teachers. Furthermore, two complete generations of older girls and women would be excluded from learning to swim and thus lack even water awareness.

Aim

The aim is to investigate how cultural barriers to women learning to swim can be overcome and assess the socio, cultural and economic benefits that teaching women and teenage girls to swim brings.

Obstacles

There are four obstacles to overcome: male head-of-household resistance, persuading women, lack of suitable swimwear and paucity of suitable swimming locations.

Implementation and Swimming Methods

The community-based Sri Lanka Women's Swimming Project (SLWSP) www.icanswimcanyou.com began teaching women and teen-aged girls in Weligama to swim from Feb 2005. The Project now covers 50km of the rural South Coast between Galle and Matara. Using Stallman's principles of float-and-breathe (2) and Laughlin's stroke-glide-breathe (3), women aged 72 down to 13 quickly master effortless front crawl. The women are declared „swimmers“ when they pass the 'International Can Swim Safely' Standard (4) a 10 minute float and 100m non-stop swim. The Project has taught over 2,500 women and teenage girls, is on-going and provides a model for further expansion.

Overcoming Culture & Couture

That 80% of the tsunami casualties were women and children (1) remains a great motivator in changing attitudes. Focus on teaching female school teachers quickly injected positive swimming experiences into the school and community. Swim-suits worn with leggings preserved modesty. Initially, women's lessons attracted predatory male spectators but this was solved by totally excluding men from walled-in swimming areas.

Socio, Cultural and Economic Impact

With secure, all-female environments in private locations in the community, the first social impact was apparent within a week. As soon as the women could swim, they wanted to be photographed swimming to prove to fellow villagers they could. A huge leap in self-confidence and esteem followed with improved fitness and, finally, sheer enjoyment in just swimming. Overriding all was a keen desire to pass these skills onto others. Early identification of teaching talent was made by tasking individuals to bring a friend and have that individual teach the new person the last lesson received. Potential teachers were given extra formal training, including rescue and CPR, certified as student swimming teachers to international standards and employed. For the first time in their lives, these rural women experienced micro-economic independence and their social status soared. Some now work abroad and support their families at home. Finally, even expectant women have learned that swimming is a healthy family activity.

Conclusion

Teaching adults to swim has accelerated the process of reducing drowning by giving them the skill to pass on down through family into the community. Female confidence, self esteem and new micro-economic activity all benefit the community. 2,500 parents and potential parents can now swim. There is greater water safety awareness and a previously feared environment is now a healthy, recreational asset.

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Do drowning rescue reports reflect the incidence of drowning in The Netherlands ?

MD PhD Joost Bierens (KNBRD Reddingsbrigades Nederland), Ernest Briët, Paul Vasseur

The Dutch Maatschappij tot Redding van Drenkelingen (Society to Rescue People from Drowning), was established in 1767 by eminent burghers of Amsterdam who wanted to do something about the large numbers of drownings in their city. From its inception, the mission of the Society has been to take initiatives in prevention, education and research of drowning and to award medals to rescuers who saved the lives of drowning victims. To this end the Society permanently collects communications about life-saving actions, mostly from regional news media and internet alerts. After an initial signal the staff of the Society tries to create a complete case description. The case description is used to decide on the type of award that will be bestowed upon the rescuers: an appreciative letter, a certificate, or a bronze, silver or gold medal. Briefly, this decision is based upon the drowning risk for the victim and upon the effort and the danger of the rescue operation to the rescuer¹.

In order to get an impression if the drowning data collected by the Society provides a representative sample of drowning in the Netherlands, we have compared the number of rescues known by the Society, with the number of fatal drownings in the national death statistics. Also a comparison has been made for each of the 12 provinces to detect regional difference in the willingness to report drowning incidents.

Methods

The number of rescues awarded by the Society was obtained from the archives of Society. The number of fatal drownings was retrieved from the national registration of causes of death of the Dutch Central Bureau of Statistics (CBS)².

Results

During the 7-year period (2005-2011), the Society awarded 212 rescues. In the same period the CBS recorded 565 fatal drownings. On average, for each drowning reported by CBS, MRD awarded $0.45 \pm 0,2$ rescues (mean \pm sd). In figure 1, the numbers have been plotted for each province. It appears that also when related to drowning per province, the correlation between the MRD and the CBS data is strong ($R^2 = 0.93$).

CBS death statistics can be considered as a good reference of drowning deaths for two reasons. First, since death is an unequivocal clinical endpoint, its registration can be assumed to be reliable and complete. Second, while many causes of death are liable to mistakes and differences of interpretation, we assume that this in general does not apply to death by drowning in the Dutch statistics. The fact that drowning has been involved can hardly be overlooked.

Conclusion

We conclude that it is very well possible that the drowning cases reported to the Society are a representative, or at least indicative, sample of drowning deaths in the Netherlands. The differences in absolute numbers, of both fatal drownings and rescues, per province obviously reflect the population and its water surface. The correlation between drowning reports to the Society and CBS data on drowning deaths reflect an in general consistent willingness to report drowning incidents, However there may be some differences in correlation between provinces. The willingness to report rescues to the media is significantly lower than average for the province of Gelderland and higher than average for Friesland. Now that we have an estimate for the ratio of awarded rescues to the number of drowning deaths, the challenge is to study one region in depth to get a better estimate of the number of rescues and drowning incidents that are not reported to MRD.

References

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Silent drowning - a prevention movie

Marcel Zbinden (Swiss Lifesaving Society)

In spring 2012 the Swiss Lifesaving Society (SLRG) launched a moving prevention film to combat cases of children drowning. It received a gold award at the Corporate Media & TV Awards in Cannes.

In Switzerland drowning is the second most common cause of accidental death among children after traffic accidents. Non fatal drowning occur even more often and can result in severe, life-long disabilities. The SLRG' emotional and moving prevention film, launched to coincide with the 2012 outdoor swimming season, is aimed at the general public, and in particular at parents of toddlers and young children. The SLRG objective is to anchor the message in the viewer's consciousness that small children should always be accompanied when they are near water and that the supervisor should be within arm's reach.

The just under 4 minute long film, entitled „Silent Drowning“, was made in three languages - German, French and Italian - within the scope of the SLRG kindergarten project „Das Wasser und ich“ [Water and Me]. It was realised by Biel-based film agency element.p and directed and filmed by Daniel Reichenbach. The agency understood the SLRG' concerns perfectly, expressing them brilliantly in the film. The film received over 60 000 clicks on the SLRG homepage and YouTube in the first nine months after its release.

Child drowning and Swim learning in rural Bangladesh

Dr. Animesh Biswas (Centre for Injury Prevention and Research CIPRB), Dr Aminur Rahman (CCIPRB),
Dr Jahangir Hossain(CIPRB), Dr Fazlur Rahman (CIPRB)

Background

The second leading cause of child mortality in Bangladesh under five years of children is drowning and those country has highest mortality in drowning Bangladesh is one of them, the country experienced 18000 children death every year due to drowning.

Objectives

To know perception and superstition in the community on drowning and its prevention.

Methodology

Both qualitative and quantitative methods used. FGDs were conducted with parents of children aged under 5 years, adolescents, students and local leaders. Parents' perceptions were interviewed using semi structured questionnaire. Among two groups of Parents, one group has children who can swim and another group didn't. Parents were asked about their perception on child swim learning.

Results

Among parent who have children with live saving swimming skill, 637 parents were interviewed and it was found that about 92% of the children learnt swim from community swim instructor (SwimSafe programme for CIPRB). About 71% parents mentioned that they sent their children to the swim center, swimming skill can save their children from drowning. More than 97% parents felt that their children can recue other children from drowning. Parents who have children without swimming skill , 560 parents were asked and found that more than 21% perceived their children shall learn by themselves, 24% mentioned lack of person to teach swim, majority of number felt lack of time. However, people has a believe that drowning is a god wills, felt that children can easily learn swim by themselves when see someone to swim in the water. After saving a child from near drowning, most of the people in rural hold the child's both limb above head and moved around. Whereas, females respondent mentioned that they usually stay at home during a near drowning case and started to produce loud sound with pots. Most of the people argued that they practice those activities to remove water from inside of stomach. It was also indentified that local traditional healer also called for treat near drowning case instead to send to a referral centre.

Conclusions

SwimSafe programme plays important role in drowning prevention. All of the parents believe that swimming is very important in drowning prevention. Many of them have inadequate of information about swimming learning facilities in their locality. Some of the community superstitions have identified which is still challenges to address drowning prevention and could be useful for design drowning prevention strategy in rural communities.

Analysis of prevention programs in the field of water safety implemented in Poland

Apoloniusz Kurylczyk (Wodne Ochotnicze Pogotowie Ratunkowe WOPR), Jerzy Telak, Tomasz Zalewski

Projects preventive safety on the water in Poland have a rich history. Were carried out both in summer and winter, focusing mainly on school children and students. The project entitled: Swim with dolphins WOPRus is an example of an educational project which deals with the principles of safe water recreation areas. It is implemented across the country from 2010. among children in kindergartens, in swimming pools and aquatic environments, with the support of funding commercial partner. Blue Patrol (BP) is an example of a series of preventive project implemented by the WOPR in the Westpomeranian Region. The project implemented in secondary schools to encourage young people to use the knowledge gained during the training and competence to safely rest to create the right social attitudes in their environment when using water areas. Youth in training acquire knowledge of CPR BLS, marking that is used for bathing and safety on the water, learning how to help drowning people with rescue equipment, taking care of the aquatic environment and creating attitudes of responsibility for others and care for the safe use of bodies of water. Introduced to the principle of competition is determinative of the best trainees to represent their school at the local, regional and provincial level competition. Participants nominated to represent the school by WOPR in the next years to take an active part in the organization of further training of BP in the school and are nominated or awarded free participation in training courses of WOPR..

„Swim N Survive“ Programme by RLSS (India)

Kavita Sharma (Rashtriya Life Saving Society (India))

India is a populous country with a count of more than 1.2 billion, increasing by the minute. As per Govt. figures accidents, both on land and in water, account for more than 340,000 fatalities every year. UN figures are even greater! We are generally fatalistic and leave much to the will of God. The concept of proactive lifesaving, preservation of life through prevention of accidents and inculcating safety consciousness is of recent origin. Some of the lesser known facts:

1. 80% of persons drowned are children under the age of 18 years.
2. 55% people drown in open and natural water bodies.
3. Unintentional injuries, specifically drowning and falls, lead to substantial mortality in children younger than 5 years of age in India.
4. India accounts for 23% of all global drowning deaths

Ever since its inception 15 years ago, the Rashtriya Life Saving Society (India) has been empowering people with lifesaving skills, safety consciousness and the ability to recognise danger and avert avoidable accidents both on land and in water. The most vulnerable segment of our population is the youth between 15 and 45 years of age and many of the traits in them are fully developed by the time they reach this age group. It is universally accepted that traits and values are best inculcated during the earlier age when children are at school. Once these values are imbibed they remain with the individual for the rest of their lives, adding to their safety value to life.

In pursuance of its objective in drowning prevention RLSS (I) encourages and teaches people, especially the children, how to swim so that they do not drown. Swim N Survive is thus a programme that enhances one's ability to be prepared to face life with a degree of safety and confidence. It also answers the State's concern for attrition of young children through drowning accidents. The outcome of the acceptance and implementation of the programme by the Department of Sports, Government of Kerala in South India has been monumental in encouraging the youth to learn to swim and acquire lifesaving skills. The initiative, as per the feedback, is already enhancing safety of children. Starting with a pilot project in Kottayam district, the Swim n Survive programme has been extended to 5 more districts. We are in the process of building up and reaching more districts with the hope of covering the entire State in a few years.

This is the beginning as we aspire to touch more States progressively along our long coastline and then move into the hinterland of India. This is necessary as we lose too many young lives in avoidable drowning accidents. Lessons learnt in Vietnam have done us well. Using 12 portable pools in six units we are empowering children to be safer in or near water in six districts. The pools are moved from school to school after children from that school and its surrounding community have learnt to swim.

Similarly, in cities such as Pune in the State of Maharashtra which has the facility of swimming pools both public and private, RLSS (I) connects the school to a pool in its vicinity, trains the pool's swim coaches to deliver RLSS (I)'s structured 'Swim N Survive' programme and helps to monitor and assess the students to ensure that the delivery of the programme is of high quality. Some schools which have their own swimming pools have invited RLSS (I) to implement the programme at their pools. Over 40,000 children in Pune alone have been trained to swim and be safe in and around water. This model is now being streamed out to other cities such as Bangalore in Karnataka State and RLSS (I) hopes to reach out to as many states as possible in the next few years.

SWIM N SURVIVE – HIMMAT: Is the basic level programme that gives confidence to a child to be near water. It is for preschool and primary school children between the ages of 3-5 years. Himmat has two award levels to measure progress and sustain interest. SWIM N SURVIVE – JOSH: Is a swimming and water safety program for school children between the ages of 5- 14 years. „Josh“ emphasises on application of skills learnt to be safe, save lives and provide a foundation for participating in a range of aquatic recreation, fitness and sporting activities. There are four award levels in Josh.

Behind the Scenes: Water Related Fatalities Research in Canada

Shelley Dalke (Canadian Red Cross)

The Canadian Red Cross has spent decades looking at why Canadians drown. As a cornerstone of this review, Red Cross developed an 18 year boating -related fatality trend report which provides critical insight into the factors associated with immersion deaths which go beyond the traditional look at yearly episodic data. This study provides valuable public safety information, and also serves as a guide for those in the industry who sell equipment, from boats to lifejackets to fishing supplies, enabling them to assist their customers in remaining safe while continuing to enjoy their activities on the water.

Shelley Dalke of the Red Cross will present this research using the Hadden Matrix of Injury Prevention covering:

- Personal: Gender and age - why this group
- Equipment failures: Capsizing and PFD usage
- Environment: Cold water and changing weather
- Key messages
- Action steps

Presenter's Biography

Shelley Dalke, Manager, National Swimming & Water Safety, Canadian Red Cross. Shelley began working in the aquatic environment in Prince George in 1980. She began her volunteer work with the Red Cross that same year and accepted a position in Water Safety Services in 1991. Shelley was a member of our national Water Safety Revisions team for the Red Cross Swim Program. She lead the team who re-developed the Red Cross Swim programs and most recently is responsible for the production of the 16 and 18 Year Boating Fatality Report for Transport Canada.

Swim to Survive: The Effects of Lifesaving Society Korea for Drowning Prevention

Eunho Shin (Lifesaving Society Korea)

Introduction / Background

Korea has a drowning rate of 700-800 people each year. A majority of these people who drown are in the 40+ age group. The main cause of this is due to economic stability giving a considerable amount of „spare time“ in a five day week period. Many 40+ persons participate in aquatic activities in this spare time. Prior to 1970, Korea was a Low Income Country. This disallowed the citizens of Korea to be educated in swimming. The lack of swimming education was very noticeable. The present swimming education is concentrated only on competitive swimming. Almost the entire sports complex of the swimming educational procedure is to proceed in the teaching of crawl, breaststroke, backstroke and butterfly. This is all according to competitive swimming. But the drowning were occurred by people who are trained swimmers. People become confused when they fall in water deeper than their height because of the lack of survival swimming training. So between Swim to Survive of Lifesaving Society Korea and the General Korean Swimming Education, which system will certify as more effective? When people fall in water deeper than their height, researchers investigate that Swim to Survive effect of Lifesaving Society Korea as the better method.

Methods

1. Select 20 people among the age group of 40+ (Pick subjects that were never taught swimming education)
2. Split them into two groups of 10 people and call them Group A and Group B.
3. Educate them for a total of 8 Hours. Group A will be taught the Swim to Survive Method by LSK. Group B will be taught the General Swimming Education Method.
4. After the 8 Hours, conduct a survey in response to what they learned about drowning situations.
5. Surveys will be graded on a scale using Very Bad, Bad, So-So, Good and Very Good.

Results

Group B had more confidence than Group A in Low Fear of Deep Waters. This research, however, will need an additional factor. For example; a higher number of participants, different environments such as a beach, river or open waters and so on. As of right now it is limited in research but in the future our research field will be extended. This research is positively necessary for Korea in the prevention of drowning.

Mae Shee Loy nam - No more drown for our children, our people and our world...

Major General Adisak Suvanprakorn (Thai Life Saving Society)

Mae Shee Loy Nam, the skill of face-up floating (supine float) is very simple and easy. After the water familiarization, the students have to practice, some can do Mae Shee Loy Nam after 15 minutes of practice, so they can survive even they just start their swimming lesson. This skill will help them learn another swimming skills very easy and safe. In Thailand, Mae Shee Loy Nam was known in secret by nun for long time ago, after they do their meditate more than 10 years, she showed their floating as the miracle, for the donation to build something in their Wad (the church in Buddhism).

Mae Shee Loy Nam is very easy, 99.9% of students can do, at the first swimming lesson. After 10 years of our test and teaching, we have more than 20,000 students who can do Mae Shee Loy Nam and they can float more than 1 hour. We can say, it is human nature to float, by 5 reasons:

1. Lung capacity,
2. Fat,
3. Bone density,
4. Buoyancy Theory of Archimedes.
5. Body position.

Float or sink was up to these 5 reasons, some can float, but some can't. The most important is body position that we can practice, after short time we will known.

Mae Shee Loy Nam is very easy skill to learn, short time to practice, to save our life from drowning.

Thai Life Saving Society, now we're work very hard with Mae Shee Loy Nam to prevent our children from drowning.

Drowning prevention in the community

Kirana Iamsomang (Office of Disease Prevention and Control 3 Chonburi province Department of Disease Control, Ministry of Public Health Thailand)

Research and development model of community prevention in drowning Chachoengsao province 2011-2012

In the situation of the incident rate of drowning deaths among children under 15 years old in Chachoengsao province are still getting the number 1 in 10 of Thailand cause of deaths during 5 years ago (2004-2008). The community of my response had concerning to the issues especially in the child safety and public participation. Tambon Nong - Nae position. Panomsarakham district. Chachoengsao Province is one of the area that child drowning deaths incidence still higher. The cause of death due to the natural sources, many of irrigation canals. Children could go to swimming on a regular basis. This study was a model development in risky group of drowning deaths to develop the model of the community prevention. The study had begun October 2011 and end at September 2012. The study action was begin with the training and knowledge for the drowning prevention and rescue. The subjects were recruited from the local community leaders, public health officials, community leaders, teachers and police rescuers and volunteers. In the area, provide training come together to prevent drowning by the project of Community safety Child drowning incident.

Overall result solution to prevent children from drowning by the community leaders were explore water in available area, water hazard warning signs and fences, a campaigner for how to prevent and correct, knowledge to help drowning and how to swim for his life and both are held in the word of I live in an area that is; in the irrigation canal. By the Local Government (General Nong Nae) had supported a label on how to use life-saving equipment, life saving equipment, the jacket made from materials locally have made a simple example, shoe sponge, plastic bottles, coconut rope, wood, etc. To be installed along the water and deliver the water along the shore for a distance of 8 areas were to know where the children play in the water. The right to know what was the public water supply the schedule for restricted the played by children in the community. The volunteer community leaders who are trained and supervised practice. These results has still raise the awareness and educate the community to have the skills to help themselves and others. It was also a beginning area of study adjacent to the affected another area and the third area will be continuing expansion to the school in the following year as well.

Perception of drowning in Kenya and attitudes attributed to death by drowning

Job Kania (Kenya Lifesaving Federation)

Background

Drowning in Kenya is looked at as some distant accidental event that is sad and unfortunate and left at that (Paul Angar 2011). This sad situation or evaluation has simply fed into this menace and so the data piles up as we add figures of victims to the national data base. The Kenya Lifesaving Federation has tried to keep tabs on drowning accidents and it is the increasing numbers of incidents and victims that has elicited this research.

Objective

1. To determine the factors and issues on perception of drowning in Kenya
2. To get the findings that will influence the formation of policy with aim to improve the methods of intervention aquatic disasters, training and proper management of aquatic facilities.
3. To understand the psycho-social factors attribute to death by drowning.
4. To help Kenya Lifesaving Federation to establish the scale of drowning in the country and call for action by the government and other relevant national/international organizations.

Methods

A structured self-administered questionnaire was developed from January 2012 to determine the factors and issues on perception of drowning in Kenya and attitudes attributed to death by drowning. This questionnaire has ten questions where hard copies were distributed all over KLF branches in the country and also soft copies were emailed all over the country. Some questionnaires were answered orally to assist those who cannot read/write.

Result

The overall result shows that drowning is a serious problem in Kenya but highly ignored, a big percentage have had a friend or relative died through drowning. There are no traditional methods used for drowning intervention but for traditional drowning prevention method existed such as scare tales of ogres, animals in the water for children to be scared and prohibition to swim for children. Little or none cultural aspects associated with drowning. A large percentage are advocating for water safety awareness, learn to swim programs, training and employment of rescuers and a big number of people cannot swim.

Discussion

Drowning can be prevented and efforts should and must be made to promote water safety awareness at all social levels. Schools would be a good point to start from since educating a child is education in a nation. The disciplined forces should be trained on water safety and Rescue as they should be our first line of defense in major emergencies like floods. The industrial training department should enforce water safety training in all institution as drowning never selects its victims.

The emergency rescue service providers must also be trained in water safety and its attendant emergency procedures which will be unique and specific to water environment.

Conclusion

Drowning must no longer be a norm, serious investigations should be carried out and those responsible, if guilty, punished. Compensations to dependants or families of victims should if also be considered where applicable. (Paul Angar 2011).

References

Paul Angar - Drowning in Kenya KLF Lifesaving Commissioner 2011 Report

Assessment of Lifesaving Development in Kenya

Job Kania (Kenya Lifesaving Federation)

Background of the problem:

Lifesaving development in Kenya and Africa in general remains a big challenge. This is due to the absence of lifesaving structures, policies, bodies, and lack of other resources related to the general underdevelopment of Africa.

In Kenya, swimming has for a long time been done in rivers for recreation and competition, even before the advent of the colonialists (Wanderi, 2001). As the British colonialists left, after independence, more and more Africans had not only learnt how to swim but also how to teach formal swimming, having learnt from the whites (Nteere, 1982). Swimming and lifesaving in the country has further been boosted through Kenya YMCA aquatic programs, the formation and activities of the Kenya Swimming Federation (formerly ASAK), Kenya lifesaving federation formerly KLLA, Nairobi Swimming Association and Coast Swimming Association all of which have promoted Swimming and lifesaving to international levels, Other recently formed affiliates of KLF are branches of Nakuru, Thika, Kisumu, Mombasa, Nyeri. These bodies organize and manage swimming and lifesaving events in Kenya.

During the past 10 years, aquatics related activities have become one of the popular recreational activities. More people are engaging in activities in and around water. Properly trained individuals are therefore needed to supervise and guard these activities. Aquatic knowledge and understanding are the primary tools for preventing an accident that could lead to a drowning. The trend toward aquatic activity has generated a new awareness of water fun safety for all age groups. With these has risen drowning cases.

Objectives

1. To assess the lifesaving development level in Kenya.
2. This study will provide information that may be used to develop strategic planning by the Government of Kenya through Kenya Lifesaving development so as to curb water related mortalities.
3. The study will provide baseline data for future research in this field in Kenya and be a source of academic reference.

Method

A structured self-administered questionnaire was developed from January 2012 to assess the lifesaving development in Kenya. This questionnaire has twenty questions where hard copies were distributed all over KLF branches in the country and also soft copies were emailed all over the country. Some questionnaires were answered orally to assist those who cannot read/write.

Result

1. Most respondents stated lifesaving is not developing in their area.
2. Considered drowning as a problem in their areas,
3. Did not know any state legislation on water safety.
4. They all advocated lifesaving /swimming to be taught in all school plus national wide learn to swim program
5. most of them do not know or heard about lifesaving sport.

Discussion

There is no one single solution on how to dispense lifesaving aid development to Kenya without major drawbacks. As we noted earlier the complexity in aid deliverance to Kenya is rather cumbersome. However, there are ways and possibilities easily accessible for KLF to build on capacities in lifesaving in the country. The findings of these assessment and drowning survey in Kenya will be the basis of the financial and other aid assistances dispensation.

Conclusion

The task of lifesaving development in Kenya is a major challenge to KLF and the government itself and will take time to set the right course in achieving the future desired goals. KLF would like to start in number of selected counties because it is unrealistic to do it in all counties at the same time. This way, through a pilot project, KLF could collect experiences and apply them on a wider level.

References

- ¹ Wanderi 2001
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„Todos al agua“ - An intervention towards a comprehensive education on aquatic accidents prevention.

Gustavo Fungi (National Lifeguard Association Uruguay, City government)

Getting into water.

The River Plate is one of the largest estuaries in the world. Uruguay's capital city, Montevideo, is located on its shores under the influence of the river's constant winds. Said winds generate particular coastal dynamics which often implicate high risk of aquatic accidents.

The National Lifeguard Association of Uruguay created a national prevention campaign for aquatic accidents called „Safe summer“. On this campaign lies the background of the intervention project called „Todos al agua“ („Everyone enjoy the water“), School of Aquatic activities for Prevention.

It is developed at a coastal area which comprises eight beaches. Despite the fact that this council's community is culturally related to the sea, most of the population lacks of basic knowledge about aquatic accidents prevention or aquatic competence. Most people cannot afford the fees of a private sport club where to learn swimming skills, and there aren't any public swimming pools nearby.

The city's Lifeguard Service statistics show that the most vulnerable population is thirteen to nineteen year old adolescents (37%). This fact is explained by the fact that at those ages children initiate their independent trips to the beach. This project aims at educate children on aquatic accidents prevention before they start doing it.

Goal.

To democratize access to Aquatic activities for aquatic accident prevention and to promote public awareness about self-care, care for the others, and care about the environment.

Intervention strategy.

The implementation strategy of this project lies on a network that integrates governmental organizations and local groups: parents, sports clubs, the city's Secretary of Sports, the city's Lifeguard Service, the Ministry of Tourism and Sports and the National Administration of Public Education.

These institutions cooperate and support the project by providing the necessary human and material resources, access to the target population, infrastructure and by declaring the project as one of public interest.

Implementation.

„Todos al agua“ is co-managed by the city's Lifeguard service and the National Sports Board (which belongs to the national Ministry of Tourism and Sports).

The aquatic facilities come from collaborations between the sports clubs and the city council.

Children are invited to participate of the project programmes through their Public school as an extracurricular activity. They also can participate in a compulsory way as part of their curricular Physical Education subject, which means that the project is included in its planning.

„Todos al agua“ management is driven by two general coordinators, one by each institution involved, in order to develop the following programmes:

- Lifeguard Junior (at swimming pools), this programme develops aquatic competence for nine to eleven year old children. They attend classes twice a week during 3 to 4 months.
- Sea school (at the Beach), this programme seeks to develop aquatic competence through surf, kayaking, and safety aquatic skills for eight to eighteen year old children and adolescents.
- Both programmes include First aids (CPR) and Coastal dynamics workshops.
- Continuing education programme.

This programme focuses on organizing congresses, courses and workshops related to Prevention education in the aquatic environment. All of the activities are targeted at Lifeguards, Physical education teachers, instructors and athletes from all over the country, seeking to multiply this education area by reaching every potential aquatic educator.

Four children below 14 years-old die every day by drowning in Brazil: How are we fighting against this catastrophe?

Dr. David Szpilman (Brazilian Lifesaving Society)

In Brazil, 20 people die every day. Preventive education on drowning is the most effective action that can be taken to reduce dramatically those numbers but unfortunately countries resources are limited. A number of important considerations are frequently faced as there are many different prevention projects and each project has its own particularities. Some prevention projects can have different costs and benefits depending on how are conducted. Local, regional, national or continental areas can have different or similar ways to raise resources for a project and this expertise must be share on a global perspective. This sharing principle allows one single project to be multiplied easily increasing the benefit with a lower cost for all involved. Sponsorship could be much easier to rise if shown as a success in other part of the world. By having a global list description(ILS-library) of prevention project with costs/benefits, it may allow any lifesaving institution to choose appropriately which one would fit best for their requirements and the mostly impacting projects on prevention of drowning. Our objective is to evaluate and present what Brazilian Lifesaving having been done on prevention taking into consideration the cost/benefits of those prevention actions on the light of evidence-based science.

Conclusion

In Brazil the risk to be injured in the aquatic setting is estimated to be 5.03/100.000 inhabitants(3).As the great majority of seriously injured victims die before reaching the hospital, we have been wasting extensive human and financial resources by being reactive. Government is often too concerned with short term results, rather than viewing prevention in a more comprehensive manner. It is however our duty to provide the governors with good quality information that would make a difference in decision-making. So why is so difficult to convince the government to invest in prevention? First there is a very little information on how many people are at risk, how many incidents(fatal and nonfatal) occur, what costs when injury or death occurs, what it takes to prevent a drowning and if the benefits offered by expenditures on prevention outweigh the costs. Second, a Governor's main seems to be to please as many voters as possible and prevention campaign proposal needs to address those demands considering how many people will be impacted by one single action and with what costs. This is also a concern to private investors too. Finally, regardless of the strength of the project the proposal must reach, at the right time, the right politician in the right way to get approval. Quantifying the impact from prevention action program although ideally it is a very difficult task to accomplish. In this study, there are some bias to be considered. Evaluation was based mainly on 3 points. Total cost is very easy to measure and is very precise. The number of people impacted by the prevention project can be tricky and imprecise although using the same calculation for TV audience. Also important but difficult to measure is the ability of someone to be engage with the message considering the time they need to understand, their previous knowledge, and the quality of the information to a ultimate to affect and change their behaviors. Furthermore, project total Impact factor of project process should ideally be retested to see if match appropriately. Even though all the bias and pitfalls this „proposal impact factor“ study may have, we need to use science based arguments to plan prevention campaign.Join force around a global idea of prevention using cost/benefits and having a trustful source like ILS to endorse it, would target the goal to reduce drowning worldwide easily.National, regional or local approaches can have different as so many variables exist to be considered, but the core idea of highlighting cost/benefits still works.

An impacting tools to reduce drowning among children: The use of fresh water drowning prevention cartoon video, a comic book, a refrigerator magnet and a comic character of 2m tall named KIM - the crab.

Dr. David Szpilman (Brazilian Lifesaving Society), Edemilson de Barros, Márcio Morato, Joel Prates Pedrosa, Onir Mocellin, Jorge Evaldo Cerqueira, Carlos Eduardo Smicelato, Jefferson Vilela, Nuno Leitão, Danielli Mello, Rodrigo da Silva Dutra, Antônio Schinda, Mario L. Verdini, Marcelo Barros de Vascon

The Brazilian Lifesaving Society (Sobrasa) has been working since its foundation on the ways to promote drowning prevention, especially among children. One of our most efficiently tool is a running project at schools around the country where we have been using prevention's beach safety messages presented by a cartoon video (1). These strategies have been so successful along this last years that drive us to do a drowning prevention campaign exclusive to fresh water prevention. The project „Drowning Prevention at Fresh Water“ is an effort to spread the drowning prevention message to children into a funny, uniform, easy to spread and interesting way in Brazil and developing countries. The project has 4 different tools working together during 30 to 40 minutes session targeted to children on age 5 to 9 years old: the lifeguard (1), the video (2), the materials (3) and Kim (4).

1. A lifeguard dressing appropriately carrying his personal equipment make a visit to elementary school class. He explains what is his job and the importance to prevent drowning in 5 minutes.
2. The „Drowning prevention cartoon video at fresh water“ is shown (total time length 6 minutos).
3. All kids receive a comic book to read and fulfill the blank spaces with prevention messages. This book comes with a „refrigerator magnetic“ attached to the comic book, recommending the parents to use at home.
4. When all seems to end, KIM, the crab, arrive dressing as a lifeguard to answer the final doubts.

The Video was a co-partner project with ILS-Americas. Messages transmission is much visual as possible, but also available in 2 languages (Portuguese and English, and in a near future also in Spanish). Contents are based on an international task force on open water drowning prevention - 18 drowning prevention experts from 12 countries - which established guidelines for families and individuals recreating at any open water site (2). Our project prevention messages were focus at rivers, lakes, ponds and pools. When possible, specific messages as lifejacket use, lifeguard importance (using sunglasses and sun protection) and some subtle important messages on prevention were reinforced. Time frame duration is less than 6 minutes, with an introduction information about drowning statistics in Brazil, Americas and in the world, focusing on the main 12 general fresh water prevention messages: 1 - Swim in areas with lifeguards and obey all safety signs and warning flags; 2 - Near or into water, watch your children 100% of time; 3- Learn swimming and water safety survival skills; 4 - Learn safe ways of rescuing others without putting yourself in danger; 5 - Always swim with others; 6 - While in a boat, know how and when to use a life jacket; 7 - Be careful in rivers and lakes: hide currents and holes can drown you in seconds; 8 - Never go in the water after drinking alcohol or heavy meals; 9 - Always enter shallow and unknown water feet first; 10 - Floating objects are an „illusion of safety“, always use a lifejacket; 11 - Kids can drown any where, so fence, cover, flip off, close or vanish any water puddle in or around your house; 12 - „It was just a blink and he gone“ is a frequently happen tragedy, don't let goes to you - be aware - transmit these messages to others.

This project looks to be an excellent strategy to impact children and easily reach distant in-land areas in Brazil and developing countries in helping to reduce drowning.

Water Safety Project Sri Lanka Red Cross Society - Gampaha

Rajeew Gamage (Life Saving Association of Sri Lanka)

Sri Lanka enjoys a world-renowned coastline of long and beautiful beaches and seashore, which unfortunately makes it vulnerable to water related natural disasters and accidents. Gampaha District, which is located on the west coast of Sri Lanka, 30 Km north of Colombo, is also famous for its beautiful beaches and fish industry. After Tsunami occurred on 26th December 2004 which destroyed approximately thirty thousand lives in Sri Lanka, fear of insecurity in water remarkably increased in communities.

In order to alleviate the fear and build the capacity of the vulnerable to acquire proper knowledge regarding water safety, prevent and protect themselves from water related disasters, Sri Lanka Red Cross Society Gampaha Branch began a Water Safety Project as a 3 years pilot project along the coastal belt in April 2006 with support from Japanese Red Cross Society and successfully completed the project in December 2008. The overall goal of the project is „to empower the communities to prevent and manage water related accidents and water related natural disasters in Gampaha District“.

In view and respond to the number of increasing water related accidents reported in relation to inland water resources it was decided that the water safety activities should be expanded inside the country as well as the coastal line where the project originally was being implemented. We submitted this proposal to German Red Cross and the project is taken over by GRC for the year 2009 and ongoing, targeting inland water resource areas.

Over 2000 water related accidents resulting in people drowning occur each year in Sri Lanka. A number of these happen due to negligence, lack of knowledge of potential risks as well as inability or unavailability of rescue efforts.

The Sri Lanka Red Cross Gampaha branch has formed a team who has been conducting these trainings and Life Saving duties over the last six years. Up to now, those trained Life Savers have saved over 450 lives from drowning.

The strategies we used to implement and approach community in this project and activities, method of developing curricula and training materials, the impact of the project on the community and the recognition given by the community and Life Saving Association of Sri Lanka for the service rendered through this project were supportive to the furtherance of the project in the long run.

Drowning prevention strategies in Kenya

Boniface Alielo Imbira (Kabarak University)

Drowning is the process of experiencing respiratory impairment from submersion or immersion in a liquid. It is a global public health issue that requires co-ordinated action and multispectral collaboration for effective prevention. Research has established that Africa has the highest drowning mortality rate in the world. Kenya falls in the middle income countries class in Africa where 90% of each fatalities occur. There are many open water bodies including man made swimming pools that attract many people who are not necessary competent swimmers, however, there doesn't seem to be clear policy with regard to lifeguarding and water safety attendants in the open water bodies. This paper explores the risk of near drowning in Kenyan scenarios as well as overview the surveillance and prevention Measures

The Exit Problem: Do swimmers drown because they cannot exit the water?

John Connolly (The Lifesaving Foundation)

It is generally accepted that more than a half of drowning deaths occur close to safety¹ and that the majority of casualties can swim². Both of these facts raise the possibility that some swimmers drown because having swum to safety they cannot exit the water and eventually succumb to cold and fatigue. One of the early effects of cold injury is a loss of dexterity in the hands and a loss of grip strength³. Extracts from drowning reports, award citations, and rescue reports such as „The second garda (police officer) had to assist the rescuer out of the river due to his exhausted state“ and „I held on until two members of the emergency response unit came to our assistance and pulled us up the ladder to safe ground“ support this hypothesis⁴. The illumination of exit points at night and the provision of exit aids at known drowning places could save lives that are otherwise lost.

References

¹ Report of the Working Party on Water Safety, 1977, Her Majesty's Stationary Office, UK.

² Tipton, M.J. (2003). Cold Water Immersion: Sudden death and prolonged survival. *Lancet*, 362, 12-13.

³ Lifesaving Society (2004). *The Drowning Report 2004 Edition*. The Lifesaving Society, Ontario, Canada

⁴ Avramidis, S., Stallman R., Moran, K. Eds. (2011). *Proceedings of the Lifesaving Conference 2011*. Dublin, Ireland: The Lifesaving Foundation

The risk of drowning in Italy: knowledge to prevent

Marco Giustini (National Institute of Health), E. Funari (SF Mazzola), G. Paolangeli (DG Pezzini), S. Trinca

Two types of risk factors are the main causes of drowning: objective (slope of the seabed, dangerous drops, streams that can push off even experienced swimmers, etc..) and subjective (individual behavior, eg. swimming ability, respect to the basic rules such as not to swim immediately after a long sun exposure, etc.). The behaviors also depend on the received information so the school can play an important role in preventing accidents in the bathing water.

According to the number of people potentially exposed to this risk drowning is a relatively rare but dramatically lethal event. In Italy, in the past 40 years 27,500 people died by drowning. The fatal drowning dropped from about 1200 in 1969 to 426 in 2008. However in the last 10 years, the situation is stabilized, with about 400 drownings per year (ranging between 361 and 443 deaths).

Official mortality data provided by National Institute of Statistics (year 2008) were analyzed. Children (0-13 years) reported 25 fatal cases equally distributed between male and female. Over 14 years the rate ratio between males and females increases up to 15.7 in the age of 30-49 years (male 10,01 vs female 0,65, rates per million inhabitants/year), while the overall drowning mortality rate was 7.03 per million inhabitants/year. Mortality data show that in Italy drowning occur both in coastal areas and in areas far from the sea, but in many cases with rivers and lakes. The regions with the highest drowning incidence and number of involved municipalities were Lombardy (55 deaths and 47 municipalities), Veneto (55 deaths and 41 municipalities), Emilia Romagna (41 deaths and 23 municipalities), Sicily (36 deaths and 20 municipalities).

Referring to the number of drowning per municipality per year, 1 death was recorded in 233 municipalities, 2-4 in 64 municipalities and 5-6 in 8 municipalities. Using a Geographic Information System (GIS) a geographic descriptive analysis was carried out to identify the most affected areas by drowning. Summarizing the data recorded from 2000 to 2008 an Risk Index of Drowning (RID) was calculated taking into account the number and frequency of drowning in each municipality over the period in order to highlight the geographical areas most affected by the phenomenon. According to the RID the high risk areas are those along the north-central Adriatic coast as well as some areas of the south coast of Puglia. In the Tyrrhenian coast there are some clusters of high risk municipalities in Liguria, Tuscany, Lazio, Campania, Sicily, and in Sardinia.

The official statistical sources of data on drowning do not provide information on the causes of drowning, the typology of bathing waters and so on. To reduce this information gap a media screening using Google news application was carried out. The main causes of drowning reported in the media in 2011 were illness (27.1%), unskillfulness (18.3%), accidental falls in the rivers (12.1%). The highest number of drowning was recorded at sea (47.9%), then in rivers or canals (28.0%) and finally in lakes (14.6%).

On the basis of available information, the risk of drowning is particularly high in beaches without life guards, and especially with certain intrinsic characteristics (slopes, rip currents, drops, etc.). In the framework of a promising collaboration, the Italian National Institute of Health and the National Rescue Society are elaborating a project with the aim of ranking these risks along the Italian beaches. This information together with the above described RID will be available in the Water Portal of the Italian Ministry of Health in order to provide adequate information to the public and solicit local preventive measures.

One size does not fit all: mainstreaming a participatory approach in the design of drowning prevention interventions

Tom Mecrow (Nile Swimmers)

Nile Swimmers is a unique drowning prevention initiative created in 2007 with a particular focus on the River Nile in Sudan. The project has grown successfully since then, both in terms of delivery, and ambition through partnership with the Sudanese Sea Scouts.

The dangers posed by the river Nile change significantly throughout its 6,600km course from the mountains of Uganda and Rwanda to the delta of Egypt. Consequently a „one size fits all“ approach is inappropriate.

Nile Swimmers uses a participatory approach to identify local drowning risk factors and training needs of participants. Providing relevant training assists them to develop locally appropriate drowning prevention interventions.

Nile Swimmers is non-prescriptive in the implementation of the training. At the start of the course a discussion workshop with the participants is facilitated to try and identify their local drowning risk factors. Following this, participants work together to develop a cohesive drowning prevention strategy that addresses the specific risks for their communities. A ‚gap analysis‘ is then used to highlight the training they require to implement their strategy. The results of the analysis dictate the content and structure of the training course.

It is crucial that participants leave the training with the knowledge and skills to achieve the following:

1. Identify local drowning problems
2. Identify the underlying risks behind those problems.
3. Develop a locally appropriate strategy to reduce the specific risk
4. Implement that strategy
5. Monitor performance
6. Continue development and modification of the strategy.

These strategies may include: teaching swimming, promoting the use of lifejackets, raising awareness of the importance of supervision, teaching rescue skills, teaching first aid, implementing a boat safety programme.

A participant led approach is important for several reasons:

- It ensures that only relevant training is delivered
 - There limited scope for direct implementation of foreign prevention strategies.
- The participants develop the training package themselves, so they have already taken local ownership of both the problem, and the necessary solution.
- The participants value the training, because they have ownership of it.
 - It is not a scheme imposed by a foreign organisation.
- The training will be multi-faceted, and cover many different drowning prevention strategies rather than only focusing on one solution.

Conclusion

To maximise the effectiveness of drowning prevention strategies, it is essential that the programs delivered are fit for purpose, and locally appropriate. By using a participatory approach to training, Nile Swimmers ensures that the content is locally suitable.

Failure to use a participatory approach may result in either a project which does not fulfil the local needs, or a non-sustainable project that is reliant on foreign support.

As the work in the drowning prevention sector gains momentum, and the number of interventions increases; so too does the risk of well-intentioned, but inappropriate and unsustainable projects being delivered.

It is imperative that community leaders are consulted during the development of the project strategy in order to ensure local relevancy, and community support.

Putting lives on the line: Rock fisher attitudes and behaviour in Victoria, Australia

Rhiannon Birch (Life Saving Victoria), Jennifer Roberts

Background

Rock fishing is considered one of the most dangerous aquatic sports in Australia. Following a spate of rock fishing drowning deaths from 2005-2009 in Victoria, water safety agencies resolved to prevent further drowning deaths in this manner. In all rock fishing drowning deaths from 2000 the incidents involved males, typically aged between 35-59 years, and from a non-English speaking background. In all cases the person was not wearing a lifejacket. Little else is known about the characteristics of rock fishers.

The safety campaign, 'Don't put your life on the line' will deliver a three-year, state-wide public awareness and advertising campaign for rock fishing safety, targeting all rock fishers and specifically at-risk CALD communities. This first stage provided a benchmark of rock fisher's knowledge, attitudes, awareness and behaviours in regards to rock fishing safety in order to measure change over the campaign's duration. This study also surveyed the attitudes of acquaintances (including friends and family) of rock fishers, to gauge whether they can be targeted to influence behaviour.

Aims

To identify safety practices of rocky coast users, specifically rock fishers, including life jacket use and behavioural patterns such as turning their back on the sea, fishing alone etc.; to determine rock fishers attitudes towards rock fishing safety.

Methods

An online, pre-campaign survey of 127 rock fishers and 33 acquaintances was conducted in late 2012. To determine knowledge, attitudes, awareness and behaviours of rock fishers, questions included how strongly they agreed with statements concerning rock fishing-related behaviours and safety precautions, the frequency in which they engaged in safe behaviour, and other factors, including their self-assessed swimming ability, where they sourced information, recall of prior safety messages and demographics. The attitudes of acquaintances regarding rock fisher's behaviour were also measured.

Results

The majority of rock fishers (n=89, 70%) and acquaintances (n=22, 66%) agreed that rock fishing is a dangerous sport. Most rock fishers (n=103, 88%) agreed it is important to wear a life jacket. Those who fished more often were less likely to agree with this, and several other similar statements. Further to this, 90% of rock fishers and 94% of acquaintances agreed that wearing a life jacket whilst rock fishing could save one's life, regardless of experience. Two-thirds of rock fishers (n=86, 68%) would recommend others wear a life jacket and that getting swept off rocks is likely to result in drowning (n=87, 69%). Over 90% of rock fishers agreed it is important to tell someone when going rock fishing (n=114) and to check the weather and tide conditions first (n=117).

Despite these attitudes, there was a clear lack of safe fishing practices among this group. Almost half (n= 29, 46%) of rock fishers never wore a life jacket and half (n= 64, 50%) admitted to turning their back on the sea at least sometimes. Other concerning practices were the lack of appropriate equipment (e.g. rope, non-slip shoes) and planning, with one third (n= 38, 30%) going alone at least half the time. Furthermore, the swimming ability of non-English speakers in particular, was poor.

Discussion and Conclusions

While the majority of rock fishers recognise the dangers of their sport and the importance of fishing with appropriate safety equipment, this does not translate into safe behaviours. Most engaged in risky behaviour on the rocks and did not take adequate safety precautions. Experienced rock fishers in particular felt less need to wear a life jacket, perhaps as they perceived themselves as more skilled and therefore less likely to require one.

This benchmarking survey will help determine how to close the gap between the knowledge and attitudes of rock fishers and identify methods to influence their behaviour to fish safely through advertising campaigns and education of both rock fishers and their acquaintances.

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Water Safety in the Australian Outback!

Lauren Nimmo (The Royal Life Saving Society - Western Australia), Colin Hassell

Making our waterways safe and ensuring that all community members have access to important water safety and drowning prevention information and programs is a major drowning prevention challenge, particularly when you consider the vast nature of Western Australia and the differing environments throughout the state. Western Australia has the greatest area of all the States and Territories covering 2,529,875 square kilometres and accounts for 33% of the continent.

Over the years, the Royal Life Saving Society WA (RLSSWA) Inc. has been committed to taking our water safety, drowning prevention and swimming education programs out into the outback to reduce the drowning toll.

Swim Across Australia

In 2003, RLSSWA partnered with the Department of Sport and Recreation to run the Swim Across Australia - an innovative and unique opportunity to promote the State Government initiatives for physical activity and at the same time, fostering youth leadership opportunities for young people and raising much needed funds for the Society's Keep Watch toddler drowning prevention program.

A purpose built swimming pool was securely mounted on a truck to travel on a 6,000km journey from Geraldton to Sydney visiting 43 towns along the way over 18 days. While in transit the team of swimmers which included volunteers, Olympians, sporting personalities, local identities and community leaders completed one hour rotations of swimming in the custom designed pool fitted with appropriate safety features, fencing and a lifeguard station.

For one swimmer, the trip meant much more. Mark Gubanyi lost his daughter Kaitlyn in a backyard swimming pool drowning incident in 1999 and has since become a Keep Watch ambassador to share his experiences and heartache to promote the importance of toddler drowning prevention and encourage parents to be proactive in ensuring their children are safe when around water.

The Swim Across Australia was a unique and 'one-of-a-kind' event which led to significant awareness of toddler drowning prevention issues throughout the Australian outback and raised much needed funds to ensure that these important messages continue to be promoted in order to reduce the drowning toll in Western Australia. The event was so successful that a documentary was created sharing the experiences of the swimmers, supporters and the reactions of the communities that were visited along the way.

Outback Road Show

People living in regional and remote areas of Western Australia are significantly over represented in drowning statistics and have limited access to water safety, swimming education and drowning prevention programs, information and services. In addition, with the large number of inland waterways such as rivers, lakes, dams etc. in these areas, they experience much greater risk than seen in the big city.

The outback road show was run by RLSSWA to ensure that children living in regional and remote communities had access to learn-to-swim programs and water safety information. The road show travelled from Geraldton to Wiluna and back again visiting a range of communities with populations ranging from as many as 1,000 people to as little as 200 people. The team visited local community schools and provided lessons to children at local waterways where they frequently play and swim. The lessons provided children with introductory swimming skills but also with important survival skills. The program was a huge success - at one town the team was expecting 20-40 people to show up for the lesson but had 300 people attend which was evidence of its success. We are looking at expanding this program into other regional areas throughout the state.

Strategies such as the Swim Across Australia and the Outback Road Show are innovative ways to promote important water safety, swimming education and drowning prevention messages to work towards reducing the burden from drowning and near drowning in outback Western Australia.

The challenge of up-scaling – collecting data in rural areas

Tom Mecrow (Nile Swimmers), Dan Graham (Nile Swimmers)

At present the majority of swimming and lifesaving interventions have focused on relatively small geographical areas. Few interventions have sought to develop cross-border programs that effectively engage a large audience over geographically large (and predominantly rural) areas.

Nile Swimmers are committed to reducing rates of drowning on the River Nile by developing innovative programmatic solutions. Nile Swimmers currently only have active operations in Sudan, but wish to engage with other organisations in the region and expand reach. However, because the River Nile passes through 11 countries and spans over 6,500km some significant management problems need to be addressed:

Without 'on the ground' local staff capable of providing continued monitoring, collecting indicator data for analysis in a central location is difficult. How can you provide an accurate monitoring system to measure impact?

Nile Swimmers have been actively researching the development of a mobile data collection tool that can be used by participants to record details about their interventions (e.g. number of people taught how to swim). The use of mobile technology is growing rapidly in data collection, and examples have been seen in other public health spheres. Generally, Africa has exceptionally good mobile phone network coverage capable of reaching areas that are difficult to access. Given the challenges faced by Nile Swimmers, mobile reporting is an exciting and innovative option to explore, allowing data to be delivered to a central location without paperwork.

Mobile phone technology using a Short Messaging Service (SMS) also reduces the need for a strong command in reading and writing, as responses can be single input. Poor literacy rates in Sudan make mobile technology an attractive option for collecting data in rural areas. It also enables a participatory approach to data collection, as well as reducing the administrative and financial burden of using specialist data collectors.

The use of mobile technology will help Nile Swimmers measure impact, something that has been difficult so far due to geographical constraints.

Open Water Wisdom Campaign to reach Rural and Remote Youth

Shelley Dalke (Canadian Red Cross), Barbara Kusyanto Costade

Introduction

The Open Water Wisdom Campaign delivers water safety education messages and distributes lifejackets in an effort to reduce incidents of water related injuries and fatalities among children and youth. The Canadian Red Cross has partnered with the LifeSaving Society to deliver this campaign. The project started in January 2012 and will be finalized in March 2013. We are currently working on completion of the distribution of the community package of lifejackets and writing the final report.

The focus of this campaign is on providing access to education and equipment for children and youth (0-19) who live in rural or remote communities across Canada and participate in activities and recreation on or near open water.

Methods

The campaign was designed to engage Community Champions in remote and rural communities across Canada. Communities were recruited and encouraged to participate through personal contact, social media, and events to link communities to the campaign.

Community Champions received / will receive:

1. Community water safety education package - This is the package received by the Community Champion (the person of the community who applied on behalf of the community and has agreed to coordinate the community education activities) The contents of the box include: a set of reference sheets, colour and black and white, poster set; letter head sheet/flyer; and two Open Water Wisdom T-shirts for the activity leaders to wear.
2. Community Package of Lifejackets - The communities who qualify for the community package of Lifejackets (criteria- have identified method to ensure free access to community throughout the open water season, will be used to keep children and youth safe when participating in recreation or sport near or on water) receive a shipment of lifejackets based on the sizing distribution they requested.
3. A legacy Community Action Handbook -a ,how to set up future community water safety events' handbook is being created and is intended to include useful elements of the evaluation, notes on the care of lifejackets, further suggestions for activities and how to continue local media efforts. This will also include a DVD of the educational materials file. Additional Posters can also be supplied to communities along with the mail out of this handbook

Results

Approximately 280 communities from across Canada engaged in this campaign. With the exception of Prince Edward Island, all provinces and territories in Canada have at least one participating community.

We have 22 Regional Champions involved in this campaign across Canada. Their role is to promote the campaign through their regional/provincial, and territorial networks.

Distribution of 18,000 lifejackets to participating communities.

Conclusions

Analysis of the participating communities will be available at the end of March. Full conclusion and recommendations can be provided as part of the poster presentation.

Drowning prevention programs implemented in Bulgarian schools

Maya Antova (Bulgarian Red cross), Stoyanova Natalia

„Water Life Saving service“ - Bulgaria Red Cross has been working since its foundation on the ways to promote drowning prevention, especially among children. One of our most effective tools is a running project at schools and kindergartens around the country where we have been using different programs for prevention.

This article is not intended to present all forms of prevention. Aim is to provide information about already running programs. It is important to clarify that the focus of the programs is targeting children up to 16 year (kindergarten and those in primary schools)

Over the past four years WLSS - BRC developed and starts programs that meet the demand and expanding the range of training in water safety. Those programs endeavor to correspond with new forms of training and fast developing technologies.

In 2012, the following programs were consolidated to prevent water accidents:

- „Friends with water“ - the program is aimed to children by grade 1 to 4. The goal is: SAFETY. To get familiar with water, to teach people how to have safety contact with the water in home, on the beach, inland, to assist in water accidents. The program includes and topics such as ecology, arts, science. The program includes theoretical and practical sessions.
- „Water Lifesaving Minimum“ - the program has been expanded and adapted to students from 5th to 12th grade. The goal is SAFETY. To familiarize school students with the general hazards during bathing and swimming, assistance and self-help in water accidents, the basic rules of behavior around water areas (pools, beaches, rivers and open water areas) and the fundamental principles of First Aid (CPR). The program is mainly theoretical.
- „Summer schools“ - the program is aimed to leisure time of school students and young people, mainly realized during their summer vacation. The goal is TO REDUCE AND PREVENT RISK OF WATER INCIDENT by: Acquisition of elementary swimming skills, awareness of the dangers in and around the various water areas, ways to help and self-help in water incident. The program is mainly practical.
- Young Lifesavers“ - the program is aimed to children aged 12 to 16 years, having good swimming abilities. The goal is assisting in water accidents. Candidates are trained in rescue techniques and tactics; it does not entitle them to professional work, and put them in a role of „assistant lifeguards“. The program includes theoretical and practical classes.

It is presented the way of implementation of those programs, funding and collateral of staffing.

Finally are tagged guidelines for improving and expanding the prevention activities of Bulgarian Water Life Saving Service.

Public rescue equipment in New Urban Landscape

Lars Erik Åkersten (Shore Safety AB), Martin Peters

The risk of drowning lurks in „The New Urban Landscape“. Quays and former harbours areas are turned into residential areas.

This lecture focuses on systematic risk management. Small steps make a large difference in preventing drowning at locations available to the public.

Deep water quays designed as harbours, are today developed into attractive waterfront public city areas. Highly populated residential areas, with recreational routes for pedestrians, bicyclists etc. Culture and entertainment events moves on to the quays. These risky locations by the water are opened to the public including children and elderly people.

In Gothenburg a Safety standard for prevention of drowning accidents was established.

1. To be able to get up if fallen into the water.
2. To be able to assist a person in distress without risk to their own life's.

Systematic measures are to be seen as a facility owner responsibility. This responsibility is also logical on an overall perspective for the municipality. Public rescue equipment standards are updated to prevent drowning accidents. Preventive measures with uniform appearance will be recognized by the citizens. As a warning of danger and a guide to what to do in case of emergency.

Shore Safety gives examples on how to carry out this responsibility. Not only for public beaches, but also at quays, harbors' and public facilities. With 50 years of experiences and methods developed for the new urban landscape.

Video Survey on People's Perceptions about the Most Impacting Messages that Raise Awareness and Change Attitude Against Drowning

Dr. David Szpilman (Brazilian Lifesaving Society), Stathis Avramidis

A major challenge to prevent drowning is to convince people that it may happen to anyone. We aimed to identify people's perceptions about the most impacting messages that may raise awareness and change attitude against drowning. Method: A survey questionnaire was distributed during the period 16-30/1/2013 via e-mail and electronic social networking to over 20,000 people from different regions/backgrounds. The survey started showing 5 different videos (in English) that were available in the public domain with a drowning theme, containing a vivid/real testimony, a public statement announcement (PSA) and a prevention animated cartoon.

Results

Participants had completed the survey questionnaire (n=151), from which 76% were in some way involved in lifesaving, water safety or lifeguarding. They were predominantly male (59%) and middle aged 31-45 (51%), either from Europe (36%), South America (31%) and North America (26%), with a high education level (96%). The strongest reasons for completing the survey were to be aware of the drowning burden and the wish to contribute in finding a solution (67%). In a 5-item scale, considering the kind of film that could possibly raise their awareness to the drowning problem, a vivid/real drowning episode video (4.4), followed by an animated cartoon (3.8) and a PSA (3.1) was demonstrated. The film character which raised mostly their awareness was a testimonial of drowning survivors and/or their after effects (4.7), followed by a lifeguard talking about the danger/risk of drowning (3.8). A real testimony by a drowning relative was the film messages that raised mostly people's awareness (4.4), followed by portrayed images of drowning events (4.0). Among the film message suggestions that were made by participants, the most important was to make it as personal as possible, so everyone may feel that it could happen to them. In contrasting positive (e.g., „swim near a lifeguard“) with negative (e.g., „never swim alone“) preventive messages, participants were more confident to seek the positive ones (4.0). They felt more confident that messages would have more benefit of awareness if they would affect indirectly children by adults (4.1) and if they would affect all age groups at once (4.0). Participants expressed that, after watching the videos, their attitude towards drowning changed (62%). From those 62%, „to look for drowning prevention tips“ was mostly preferred (4.2), followed by „to look on how to treat drowning (i.e., first aid, rescue)“ (4.1). Considering the participant's previous lifesaving involvement, differences were noted with female predominance (61%) and with low or no difference on age, continent and educational level on demographics. When considering all questions, the only difference between those 2 groups was the predominant change in attitude towards drowning and the highest score to „look for prevention tips on drowning“ for people not previously involved in lifesaving.

Conclusions

Preventive messages are essential to reduce drowning but their format and content varies. Audio-visual messages seem to touch people deeper because they invoke multiple senses and consequently more emotions. This original study demonstrated that, among educated middle aged people from developing countries, a prevention campaign should first raise awareness of the problem using a vivid/real drowning episode video with a testimonial of survivors and/or their after effects. Then, that the prevention message should be positive instead of prohibitive to affect indirectly children by adults. After watching the videos, participants not previously involved in lifesaving, reported a considerable change in attitude towards drowning and the wish to look for prevention tips that support the value of using videos at preventive education campaign. A future larger study needs to engage participants of younger age and lower education as those groups may be the more vulnerable to drown.

aquamap.ch

Marcel Zbinden (Swiss Lifesaving Society), Philipp Binaghi

In Switzerland nine out of ten people drown in lakes and rivers. The Swiss Lifesaving Society SLRG aims to strengthen prevention in and on unsupervised bodies of water with its online map aquamap.ch.

Switzerland, Europe's „water reservoir“, not only has the continent's largest water fall but also 1500 lakes and many rivers. This explains why, in the 1930's, the country still had over 250 cases of drowning each year - with a population of just some 3.5 million. Thanks to the efforts of the lifesavers the number of deaths and accidents has been significantly reduced.

A study commissioned by the SLRG and published in 2009 found that in Switzerland nine out of ten fatal accidents occur in lakes and rivers.

Since 2011 the Swiss Lifesaving Society SLRG has thus been working on its latest product - the aquamap.ch. It is an electronic map of Switzerland compiled by the SLRG' lifesavers and showing online the safest and most dangerous bathing places in the country. The map's objective is to help people plan their time in the water and thus prevent drowning. Its development and realisation took place in close cooperation with Zühlke Engineering, the company for innovative products and custom-made software solutions.

Aquamap.ch can be accessed via the Internet and is available as a free download app for Android and iPhone.

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Swimming Education

The First Time Problem

John Connolly (The Lifesaving Foundation)

Between one and two thirds of those who drown accidentally are thought to be able to swim¹. In developed countries people learn to swim in pools but most drownings occur at open water locations². Table 1 lists the differences swimmers face between heated swimming pools and cold open water sites. It is the need to deal with many differences together that can overwhelm a swimmer and lead to unnecessary panic. I call this the First Time Problem (FTP) which can be summarised as the first time a swimmer enters cold water, swims in clothing, swims in footwear, swims without goggles, and swims in the dark, should not be when he/she is drowning. It can be overcome by providing swimmers with training opportunities that simulate real drowning experiences. These would help them to successfully deal with the problems thereby reducing the likelihood of panic. Military research has established that with specific training and experiences a tendency to panic can be greatly reduced³.

Cold Water

The immediate effects of a sudden immersion in cold water are called the Cold Shock Response. Panic is a likely consequence of cold shock in those lacking experience of cold water immersion and knowledge of its temporary duration⁴. Analysis of accidental drownings in the United Kingdom shows that only 3% of drownings occur in swimming pools, with 63% in inland waterways and 23% in coastal waterways². The solution to the Cold Shock Response is to float face up during the initial immersion minutes until respiration and blood pressure/blood flow return to safe levels⁵. Trying to swim while hypoxic from Cold Shock can result in sudden total swim failure. Swimmers should learn to float on the back in clothing. Once swimmers realise that they can breathe and are not sinking they are unlikely to panic.

Swimming in Clothing

Swimmers may never have swum in street clothing. Wet clothing hampers arm and leg movements but may have air trapped inside of its layers which aids buoyancy and slows body heat loss during the first minutes⁵. Swimmers should experiment swimming in light summer clothing and in heavy or layered winter clothing.

Swimming in Footwear

Swimming in footwear is a frequent necessity in drowning situations. Plimsolls float whereas boots will need to be removed. Swimmers should experiment swimming in different types of street footwear.

Swimming without Goggles

Without goggles swimmers frequently stop to wipe their eyes and lift their heads up resulting in a lowering of the legs. Swimmers with vision problems might be better swimming backwards which would restore the horizontal body position thereby reducing energy requirements.

Night Time

About a quarter of drownings occur at night⁶ when disorientation can be a problem. Blindfolded swimming exercises can help swimmers deal with the disorientation problem.

Summary

The Drowning Prevention Model identifies four causal factors; lack of supervision, unrestricted access, inability to cope, and lack of knowledge (2) with FTP part of an inability to cope. Education combined with pool training exercises can make a lifesaving difference in open water drowning situations.

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„Lifeguard Junior“ Program- The use of creative and cognitive teaching styles to develop educative competences on Aquatic activities for Prevention.

Ana Ortiz (National Lifeguard Association, Ministry of Sports)

Introduction

In our country, Aquatic education has historically been linked to its projection to swimming as a sport. Taking for granted that its development implies drowning prevention.

From a constructive paradigm, a new conceptualization, becomes necessary to achieve a comprehensive education on drowning prevention.

The „Lifeguard Junior“ program forms part of the School of Aquatic activities for Prevention „Todos al agua“ („Everyone enjoy the water“). Its influence area is a coastal area, in which it is expensive to afford a fee for an aquatic facility and there aren't any public ones nearby. This aspects have built a community where people really love the sea but on the other hand lacks of basic knowledge about aquatic accidents prevention or aquatic competence to fully enjoy it. Understanding the background and the current historical and cultural situation is essential in order to design appropriate educative strategies. Contemplating learning as a beginning of an individual projection, not as an end in itself. From the own possibilities towards a creative and producer of new skills aquatic being.

„Todos al agua“ goal

To democratize access to Aquatic activities for Prevention promoting public awareness about self care, care about the others, and care about the environment.

„Lifeguard Junior“, specific educative competences.

To develop knowledge, actions and attitudes in order to:

- Master and apply basic and specific safety aquatic skills.
- Understand in a general way characteristics of both open water and artificial aquatic facilities.
- Know about the own health care, and how to take care of the others.
- Understand the Prevention concept associated to the whole program.

Implementation

This project is developed within the influence area of the council's community centre nº 7, Montevideo, Uruguay. It's a co- managed program whose implementation strategy lies on a network that integrates both govern organizations and local groups: parents, schools, sports clubs, the city's Secretary of Sports, Lifeguard Service, and the Ministry of Tourism and Sports.

„Lifeguard Jr.“ is put into practice in cooperation with the Primary and Initial Education Council. It involves public school students from fourth to sixth grade who attend 15 to 30 classes as part of their school curriculum or as an extracurricular activity. This program includes a Coastal dynamics workshop and a First aids workshop.

We consider the curricular option a great opportunity to reach the goal of this project. Since 2009, The national curriculum for public schools has considered the subject Physical Education compulsory, and Aquatic activities are included as one of its contents. Regarding the curricular content Aquatic activities it is not precise enough about how to develop prevention issues associated.

Methodology.

The activities provide opportunities to develop aquatic competences. Based on generating conditions to promote the selfdaptation to the aquatic environment. Basic and specific water safety skills (Langerdorfer, 1995) and some knowledge are built from the own actions through cognitive and creative teaching styles (Mosston; Ashworth, 1986) . In order to recognize the own limits and possibilities as well.

The proposal allows children to discover multiple solutions for each progressive aquatic challenge.

Due to its degree of specificity, and lack of national and regional backgrounds, a continuous evaluation is required with the purpose of promoting richer and more meaningful experiences in pursuit of the expected results and as guidance for planning.

Conclusions

„History is there, waiting for us to do something with it“ (Freire, 1997).

Heading towards a comprehensive education on drowning prevention leads to the necessity of creating innovative educative practices based on a comittment to life and to the World.

Swimming and water safety education - an Australian Perspective

Meredith King (AUSTSWIM)

Lifesaving people include those who teach swimming and water safety. AUSTSWIM - the Australasia Council for the Teaching of Swimming and Water Safety, contends that drowning prevention starts with teachers of swimming and water safety through the provision of aquatic education and training.

AUSTSWIM maintains that any goal to strengthen the skills, standards and contribution of drowning prevention people must include, recognise and value trained teachers through their:

1. Contribution to public education and safety
2. Innovation and challenge to reduce the drowning and near drowning toll in Australian communities.

This session features the Australian approach to:

- teacher training
- ongoing professional development
- a collaborative approach to enhancing aquatic education
- providing education for an increasingly ageing and diverse society

The AUSTSWIM model provides teacher training and education for:

- Swimming and water safety
- Infant and preschool aquatics,
- Adults
- Access and Inclusion (people with disabilities, chronic illness, older adults and CALD communities)

This model also assists communities in Korea, Sri Lanka, New Zealand, Hong Kong, Singapore and Vietnam in the advancement of water safety and drowning prevention.

AUSTSWIM Indigenous and CALD Community Training

Meredith King (AUSTSWIM)

Australia's indigenous and culturally, linguistically diverse communities (CALD) feature heavily in annual drowning statistics.

Funded and user pay programs to address swimming and water safety education, knowledge and skills for these specific population groups has had little impact on reducing the incidence of drowning.

The majority of initiatives offered are conducted by existing AUSTSWIM teachers of swimming and water safety who have received training in utilising more traditional teaching methods. While good intentions abound, many of these teachers have little understanding or comprehension of the background, circumstances and realities facing indigenous and CALD communities.

Further their knowledge and appreciation of the learning style of indigenous and CALD populations have been negligible.

AUSTSWIM recognised that an alternative approach was necessary if:

1. The drowning toll within these population groups was to reduce
2. Successful, meaningful and sustainable aquatic education was to be provided

The AUSTSWIM Teacher of Swimming and Water Safety Indigenous Course was created.

The course was primarily created to develop teachers from within indigenous and CALD populations to enable them to develop skills and gain confidence and competence to deliver lessons that would impart the learning elements essential to effective swimming and water safety education.

Content of AUSTSWIM's Indigenous training course is aligned with the course undertaken by the general community. However the method of delivery is vastly different.

Recognising that indigenous and many CALD communities have little experience in the western worlds' approach to education and learning, it was necessary for AUSTSWIM to develop resources that were based on the learning traditions of these populations. The result is that AUSTSWIM now has a course that's capable of providing learning to indigenous and CALD communities through visual aids, storytelling and supported practical experiences.

The emphasis on technical manuals, written work and theoretical assessment has been amended without the loss of subject content and quality.

Indigenous community members now have the opportunity to become qualified AUSTSWIM teachers and to pass onto their elders, peers and next generation a level of knowledge and skill that will assist the reduction and impact of drowning.

AUSTSWIM's Indigenous course also provides employment and career pathway options to indigenous and CALD community members that previously did not exist.

Changes Over Swim Lessons in Parents' Perceptions of Children's Supervision Needs in Drowning Risk Situations

Megan Sandomierski (University of Guelph), Megan Sandomierski, Jeffrey Spence

Objective

The aim of this longitudinal study was to determine how preschool children's participation in learn-to-swim lessons impacts parents' appraisals of drowning risk and need for supervision in drowning-risk situations.

Method

Parents with two through five year old children enrolled in community swim lessons completed the same survey measures up to four times over an eight-month period (i.e., up to 36 swim lessons completed by their child).

Results

Multilevel regression analyses examining temporal relationships between parents' perceptions of their child's swim ability, supervision needs around open water, and children's ability to keep themselves safe in drowning risk situations revealed that as children progressed through swim lessons, parents' perceptions of their child's swim ability and their belief that children are capable of keeping themselves safe around water increased. Further, the relation between parents' perceptions of swim ability and judgments of children's supervision needs was mediated through parents' judgment about their child's ability to secure their own safety near water.

Conclusions

As parents perceive their child to be accumulating swim skills, they increasingly believe that children are capable of keeping themselves from drowning and, as a result, that less active parent supervision of the child is necessary. Implications of these findings for intervention efforts to counter this unwelcome way of thinking that may arise through continued participation in swim lessons will be discussed. Incorporating a parent-focused component into preschool children's learn-to-swim programs to promote more realistic appraisals of children's supervision needs and drowning risks may further enhance the positive benefits that swim lessons have for children's safety.

Implications

The findings of this research have implications for the scope of content of learn-to-swim programs for preschool aged children.

Mind the gap!! Real and perceived swimming competencies in the context of drowning prevention

Dr. Kevin Moran (University of Auckland)

While the role of swimming competencies in drowning prevention may appear axiomatic, its protective capacity is not well understood. Brenner, Saluja, and Smith (2003) have argued that increased swimming competency is almost certain to be protective in a drowning situation and, if so, then differences in swimming competency may help explain why some are at greater risk of drowning than others. Recent studies have suggested a positive relationship between swimming instruction in children of preschool age. Brenner and colleagues (2009) reported that participation in formal swimming lessons was associated with an 88% reduction in the risk of drowning in 1-4-year old children, although the estimates were imprecise and 95% confidence intervals (CIs) included risk reductions ranging from 3% to 99%. Successes have recently been reported in low and middle income countries (LMICs) among children in rural settings (Rahman, Bose, Linnan, Rahman, Mashreky, Haaland & Finkelstein, 2012).

Determining whether the swimming competency has an ameliorating effect on all drowning risk has been difficult to ascertain for two major reasons. First, in the context of drowning prevention, there is no universally agreed definition among water safety experts as to what constitutes swimming competency. Swimming competency is often described in terms of distance swum, but even then, various distances have been used to assess competency. Many water safety initiatives establish arbitrary distances from 25 m to 200 m to identify swimming status. Second, even if we in the drowning prevention sector had a mutually agreed definition of swimming competency and were then able operationalize that definition by developing measures that accommodated all the varied individual and environmental demands associated with drowning, we still have to consider the reality gap between what people think they can do and what they actually can do. In the case of drowning, the notion attributed to Henry Ford that „Whether you think you can, or you think you can't - you're right“ may not be a healthy mind-set. Furthermore, such a mind-set may help explain the persistence of male over-representation in the drowning statistics of many countries, especially those where aquatic recreation is popular.

Much of our drowning prevention research has relied on self-estimates of water competence because of the difficulties associated with in-water testing of real competencies. The value of self-estimation in the reporting of health behaviours, quite appropriately, has been challenged, but nevertheless it has been widely used in drowning prevention studies. Recent studies using self-estimation of swimming competency and drowning risk estimation have indicated a tendency for males to overestimate their ability and underestimate the risk of drowning. In a study of New Zealand youth, Moran (2006) found that significantly more young males than females aged 15-19 years estimated better swimming competency and lower estimates of risk of drowning. Similar results of higher self-estimated swimming competency among males have been reported in young adults (Gulliver & Begg, 2005) and in adults (Gilchrist, Sacks, & Branche, 2000; Howland et al., 1996; McCool, Moran, Ameratunga, & Robinson, 2008; Moran 2008, 2011), but whether this competency is real or imagined is unknown.

In addition to working towards a comprehensive understanding of water competency founded on a universally agreed operational definition and measurement framework, further work is required on identification of the reality gap not only in estimation of personal water competencies but also of its co-conspirator, drowning risk perception. Not only would such a focus help explain why some groups are over-represented in drowning statistics, it would also assist drowning prevention agencies by focusing of the need to address the reality gap between real and perceived competencies and between real and perceived risk of drowning. Only when both sides of the drowning coin have been addressed are we likely to make inroads on this persistent social issue.

Swimming to water competency to water safety: What are we promoting? What should we be teaching?

Prof. Linda Quan (University of Washington School of Medicine), Kevin Moran

Recent research supports the value of educational interventions that focus on teaching swimming and survival skills to prevent drowning of young children in both HIC and LMICs. A strong tradition of swimming and lifesaving instruction in some countries has led to a plethora of programmes both internationally and nationally, promoted by a host of professional and amateur instructors in a variety of settings. However, increasingly it is recognized that the acquisition of swim skills is just one aspect of being water competent; additional skills and knowledge are needed to confer water competency. However, little consensus exists globally as to what water competency is and therefore what water safety teaching should encompass and how it should be taught to most effectively prevent drowning. Thus, despite widespread experience and ongoing practice, drowning prevention and swimming groups have not yet arrived at a consensus position where we all use the same operational definitions, terminology, and can measure or evaluate learning outcomes.

This presentation addresses both the content and the methods of teaching water competency/safety. The presenters review exciting recent research from LMICs and HICs that currently informs our policies and practice around teaching water competency; identify the problematic nature of drowning, a multifaceted, complex social phenomenon in developing and developed countries, that has contributed to a lack of shared intent; delineate the varied components of water competency; and expand and explore the potential scope of what constitutes water competency. The presenters explain why we need a common pragmatic definition and the potential uses and research and programmatic advantages of having a common working definition. In addition, they address the complexity and gains of teaching water competency skills in a variety of aquatic settings with evidence for action highlighted. Finally, they make recommendations to guide leaders of regional, national, and international drowning prevention to work collaboratively in moving drowning prevention to the next level.

Presented in workshop.

Swimming for Safety: Hue Help's Rural Swimming Programme in Vietnam

David Burt (Hue Help)

In Vietnam, drowning is the leading cause of death for children after infancy, according to a 2012 study conducted by the Alliance for Safe Children (TASC) in collaboration with UNICEF.

Hue Help works in Thua Thien Province, Central Vietnam, where the sheer extent of open water environments, the prevalence of flooding each year, the lack of any structured swimming programme and the importance that local bodies of water can hold for the livelihoods of the community means that providing the necessary knowledge and understanding of such conditions is an immediate priority for our Swimming for Safety programme. By providing free swimming tuition for the most disadvantaged children, who are also those most likely to be living in precarious housing in flood prone areas, we can help limit the human cost of extreme weather conditions.

Therefore, in order to build local community resilience to cope during times of flooding, stay safe around open water and to combat the problem of child drowning in the region, Hue Help launched the pilot 'Swimming for Safety' (SFS) project in collaboration with the Swimming Teacher's Association (STA) and the International Federation of Swimming Teachers' Associations (IFSTA) in May 2011 and continued the programme for its second year in summer 2012.

The project was initiated by a swimming teaching training course for 30 local physical education teachers in Phu Loc district, which provided local teachers with high technical knowledge and international certification for them in order to teach swimming and developed a set of lesson plans in line with IFSTA standards to meet the desired objectives.

In summer 2011, these teachers then carried out a swimming course for approximately 1,200 school children (aged 12 and 13) across 10 open water sites corresponding to 10 local schools in Phu Loc district. On top of the swimming training, the programme also equipped the teachers and students with rescue skills and water safety knowledge (e.g. the ability to recognise unsafe areas of open water).

Hue Help worked with the schools by risk assessing the swimming lesson locations, providing the necessary equipment (to create swimming areas in open water and teaching aids), creating a swimming course curriculum which included lesson plans and swimming assessments in collaboration with the STA, and ensuring that all participants were aware of the NOP (Normal Operating Procedure) and EAP (Emergency Action Plan) so that the programme had the highest level of safety standards.

The teachers that had been trained and qualified carried out the course, which includes 18 lessons and 3 assessments. The assessments allow us to monitor and evaluate the swimming ability of the students and the effectiveness of the programme as a whole.

After the pilot programme reached the final swimming assessment (which is the level of competent open water swimmer, capable of swimming 25m as defined by the IFSTA) we recorded a total pass rate of 88% across the participating schools.

Due to the success of the pilot project, we continued the programme in 2012. In this year, we carried out the programme with the same syllabus (which had been modified after a thorough monitoring and evaluation process) in the same schools using the same qualified teachers and teaching assistants. This year the programme managed to surpass the target indicator of an 88% pass rate in the final assessment, and the evaluation produced a 92% pass rate for 2012.

As we continue and expand our programme where it is needed most, we believe that by providing an annual sustainable swimming programme, that focuses on swimming skills, water safety knowledge and awareness to young children we can affect a generational shift in the way the community views its interactions with open water and eliminate preventable deaths by drowning in central Vietnam.

ILSF statement on basic aquatic survival skills – is it applicable?

Daniel Graham (Nile Swimmers), Thomas Mecrow

Nile Swimmers is a unique drowning prevention programme created in 2007 that focuses on the River Nile in Sudan. A core part of that programme has been teaching the participants how to teach swimming.

During the 2011 World Conference on Drowning Prevention in Vietnam, the position statement on Basic Aquatic Survival Skills was finalised, and has since been approved by the International Lifesaving Federation's Lifesaving Commission.

Taking the draft position statement out to the Nile Swimmers in Sudan proved an ideal opportunity for us to examine the potential for the ILSF guidance to positively influence a grass-roots drowning prevention programme.

For reference, the key parts of the current ILSF position statement are produced below (it should be highlighted that these have changed slightly since the draft version):

1. Core Knowledge Set - should encourage understanding of aquatic environments that might be experienced in moving water, breaking waves and strong currents.
2. Enter & Exit water safely are skills that need to be demonstrated.
3. Swimming Skills - includes being familiar in water, submerging using a surface dive underwater, floating in water with airway above the surface of the water (i.e. for minimum of 30secs), gliding, kicking and use of arm pull on either the front, back or side (i.e. minimum of 25 metres)
4. Rescue skills - ability to be rescued through grasping poles and/or clinging to floatation devices to be guided to safety over a distance (3 to 5 metres)

In a workshop session around basic aquatic skills, the Nile Swimmers participants were challenged to develop a list of basic aquatic skills that they considered the minimum required for an individual to be able to ensure their own safety around water.

This discussion took place without them having any knowledge of the ILSF position statement. During the discussion the Nile Swimmers participants identified the following skills as essential for safety:

- Know how to enter the water safely
- Know how to exit the water safely
- Be confident putting their face under the water.
- Being able to float and relax in the water
- Being able to swim for a nominal distance (depending on local environment)
- Know how to be rescued by a rope, pole or a jerrycan

In terms of the practical aquatic skills outlined in the policy statement, the Nile Swimmers identified the majority of the skills - and identified them as essential (with some variation in the durations of floating, and distance of swimming).

There was detailed discussion around the safety of the teaching environment, and how many children should be taught at once. The environmental variation of the River Nile means that the practicalities of teaching swimming safely will vary substantially between locations. The availability of slow-flowing, shallow water with a gentle gradient was recognised as ideal, but not always feasible.

Conclusion

Our on-the-ground experience highlights the global applicability of the ILSF position statement on Basic Aquatic Survival Skills, even in low and middle income countries. It also emphasises the simplicity of the concept and skills involved in developing a swimming program.

Our participatory approach to identifying relevant aquatic skills gave local ownership of the program content to the participants.

Practice using e-learning platform in educational process instructors of swimming

Dr. Alexandr Skaliy (Economic University of Bydgoszcz – WSG), Tetiana Skaliy, Jacek Rudniewski

The process of training future teachers of swimming requires not only the formation of a knowledge base and skills, but also the formation of reaction to experience teaching situations that arise at each session. This process is complicated by the fact that the educational environment is difficult to simulate such situations, and their special creation during real sessions with children can lead to distortion of teaching methods and improper digestion students motor skills. To help in this case, comes a new educational platform. Training future teachers methods of teaching swimming through the Internet - impossible?

In our work will be presented 2-year experience and the effects of using educational platforms during the training of future teachers (instructors) in swimming. We have worked out new methods and teaching aids, as well as tested in practice new learning, which can realize the learning process to a new level.

In the experiment took part 250 students of the Institute of Physical Culture and Health Economics University in Bydgoszcz (Poland). Many of them are still in the learning process started to work as teachers of swimming.

Exploring beliefs about swimming among children and caregivers: A qualitative Analysis

Dr. (PhD) Robert Keig Stallman (Norwegian Lifesaving Society & Norwegian School of Sport science), Per Ludvik Kjendlie (Vestfold University College, Norwegian School of Sport Science), Tommy Pedersen (Sandefjord Community), Trine Thoresen (Vestfold University College), Trond Setlo (Sandefjord Community), Kevin Moran (Auckland University), Robert Stallman (Norwegian School of Sport Science, Norwegian Lifesaving Society, Tanzanian Lifesaving Society)

Beliefs about what swimming really is may influence expectations in the learning situation. Aquatic experts generally agree on key aspects of what should be taught. There may be disparity between the „providers“ and the „clients“. This suggests a need to inform children and caregivers about why certain elements are important and need to be included.

Aims

This study aims to explore the beliefs of children and caregivers about what swimming really is and their beliefs about swimming outdoors in waves.

Methods

As part of a larger study, eleven year old children (N= 101) were asked to express in writing, their beliefs about what swimming is. Their parents were asked to respond to the same question (N=77). Both groups were also asked to express their perception of the difference between swimming in quiet water and outdoors in waves. All responses were individually recorded and anonymously related to the specific subject. The analysis examined a) the total number and frequency of responses, b) the number of different responses, c) the number of responses per subject, d) the frequency of the first choices, e) the clusters created when all responses were reduced to clusters of similar elements.

Results

Very few individuals identified more than 2-3 of the elements normally recommended (10-12). The caregivers had a more nuanced view of what swimming is than the children, with 2.45 (\pm SD 0.45) responses per subject vs 1.64 (\pm SD 0.59) responses per subject for the children. Among 101 children, a total of 164 responses were recorded regarding beliefs about what constitutes swimming, with 31 different responses, the latter reducing to 5 clusters of similar responses. Among 77 caregivers, 181 responses were recorded, with 37 different responses which reduced to 6 clusters. Regarding the relative risk of swimming outdoors in waves, 116 responses were recorded among the children, with 21 different responses, reducing to 9 clusters. Among the caregivers 141 responses were recorded, 34 different responses and 7 clusters. The most common responses (N=164) about what swimming is, among children were: to move through the water (9%), to float (18%), not to drown (18%) and to be safe (18%). Among caregivers, the most common (N=181) were: to move through the water (25%), to stay afloat (18%), to be safe (13%), to keep the head above the surface (4%), and to swim a long distance (4%). The most common responses about relative risk while swimming in open water were: children - easier to drown in open water, waves are very dangerous, there are usually no lifeguards on the beach and surprisingly, there is little more danger in open water than in a pool. Among caregivers they were: currents, waves are more difficult and more dangerous, cold water and more difficult to breathe. Important elements only rarely referred to included breath control, turning, rolling over, swimming with clothes, coping with submersion, resurfacing.

Conclusions

The beliefs of children and parents were less specific and different from expert opinion. Part of the teaching process should be to inform learners about the need for certain items included in the curriculum, based on the gap between the beliefs of the learner and the teacher in regard to what swimming is.

Benchmarking Children's swimming and water safety skills

Associate Professor Richard Franklin (Royal Life Saving Society - Australia), **Amy Peden** (Saving Society - Australia), **Sean Hodges**

Learning swimming and water safety skills during childhood provides a foundation for future aquatic activity and provides a level of water safety greater than for those without any training. The sequential development of swimming and water safety skills provides a scaffold around which future activities can build upon the previous skills. It is however unclear what factors impact on the development of these skills and who may require help in achieving these skills. In 1999 the Royal Life Saving Society - Australia developed a framework to advise those involved in the education of children about what level of swimming and water safety skills and knowledge should be achieved at appropriate education points (e.g. leaving primary school). This Framework, based on the Royal Life Saving Swim and Survive program, was revised and success rates added to the levels, e.g. all children when they leave primary school in Australia (approximate age 12 years) should be able to achieve skills equivalent to Level 4. The Framework was adopted by the Australian Water Safety Council in the 2004-2007 National [Australian] Water Safety Plan. It has then been continued in subsequent strategies, however there is little information about how many children are achieving the desired levels. Methods:

Information for this study was collected from the Royal Life Saving Society - ACT (RLSS-ACT) which delivers the Swim and Survive program in the Australian Capital Territory (ACT) to primary school children (aged 5-13 years) during school hours. A form was collected from the parent or guardian of each child who participated in the program and included information on the child's date of birth, sex, class (year level at school), experience with water and current level of swimming ability. The data was entered into a database system File Maker Pro to help run the program. De-identified data was extracted from the database into Excel and coded for ease of analysis in SPSS.

Results

Of the 7,726 participants in the ACT Department of Education - Schools Swim & Survive Program, 51.3% were female, 3.5% were Aboriginal or Torres Strait Islanders, 76.2% were from public schools (government funded schools) and 10.3% had some form of medical condition. The mean age of participation was 7.7 years (mode = 8 years), however the 2009 cohort were on average significantly younger ($p < 0.01$) than the 2010 and 2011 cohorts (8.2, 7.7 and 7.6 years respectively).

Overall being female (1.6 times; CI 1.3 to 1.9), coming from a private school (3.1 times, CI 2.5-3.9), swimming at least once a fortnight (2.4 times; CI 1.9-3.1), having a swimming pool at home (2.2 times; 1.7-2.9), visiting a public pool (2.8 times; 1.9-4.1), visiting a beach (1.9 times; CI 1.6-2.4) and undertaking private swimming lessons (1.9 times; CI 1.4-2.5) increased the participants likelihood of achieving Level 4. For every increasing year in age there is a 2.6 times increase in achievement of Level 4 (CI 2.5-2.8). Having a prior bad experience with water decreased the child's likelihood of achieving Level 4 by half (47%; CI 24%-94%). Being Aboriginal or Torres Strait Islander was a confounder.

Discussion

Swimming and water safety is a fundamental life skill all children should learn. Similarly, all children should be able to achieve a minimum level similar to reading, writing and arithmetic. This study demonstrated that some children such as those with pre-existing medical conditions, from public schools, who don't participate in aquatic activities, males, without a home pool and who had a bad experience did not achieve the same levels as their peers.

Drowning prevention through enhancement of school swimming opportunities: a reaction to the Amateur Swimming Association's School Swimming Manifesto

Dr. Sarah Melville (Amateur Swimming Association)

Drowning is the third most common cause of accidental death amongst children in the UK. It therefore highlights swimming's importance as a life skill that needs to be acquired by all children as well as a rewarding past time activity. School swimming should be a compulsory part of the curriculum. Recently completed questionnaire based research has identified that school budgets, travel and time restrictions are the main barriers to school swimming being delivered as part of the curriculum. It is extremely concerning that a third of children leaving primary school in England cannot swim the recommended 25 metres and more needs to be done to enforce swimming's importance as integral to the school curriculum. Methods such as interviewing, questionnaires, focus groups and observations have been undertaken by the research team at ASA to determine what the state of swimming is in schools and what is the best way to improve the current situation.

Background:

- Drowning is the third most common cause of accidental death in children in England. 400 people die of drowning every year in the UK
- Swimming is the only sport that can save lives
- Research reveals that astonishingly a third of children can't swim upon leaving primary school. 98% of parents agree that children should learn to swim upon leaving primary school
- A fifth of parents who can't swim have children who can't swim too
- 1 in 6 parents do not take their children swimming
- 200,000 children will leave primary school unable swim equating to 2 million new non swimmers in the next 2 years
- Three quarters of parents don't send their children to extra learn to swim lessons

Research Aims:

Set the scene and identify ways for improvement (ideas and advice on how to implement these ideas) on the following points:

- Delivery of quality swimming lessons in school time, using the correct resource and robust monitoring methods
- Improve training for primary school teachers
- Increase parent involvement and education
- Suggestions & implementation plan for how schools can offer swimming with minimal budget
- Build on the ASA's existing knowledge of youth swimming and parent's involvement in learn to swim schemes. In this regard - build on the ASA's 'Learn to Swim' persona (a form of market segmentation that is unique to the National Governing Body)

Methods

- Literature review of existing resources
- Case Studies using questionnaires, interviews, focus groups and participant observation (Data will be gained directly from schools via head teachers, class teachers, swimming teachers and learning support staff and will give insight into school swimming)
 - o Case studies of best / worst school attainment rates in England
 - o Case studies of innovative methods used across England
- The „Freedom of Information Act“ has sourced 2011/12 school swimming attainment figures
- The ASA's own National Data Collection programme will provide return first hand quantitative and qualitative information from school teachers, school administration staff, school helpers, positive parents, less knowledgeable parents and swimming teachers

Findings:

Due for release in April 2013. These will be discussed in the presentation

Nile Swimmers and uSwim: Achieving scale using mobile technology

Tom Mecrow (Nile Swimmers), Nick Folley (uSwim)

Nile Swimmers is a unique drowning prevention programme that focuses on the River Nile, primarily in Sudan. The project was created in 2007, by the British Council and Sudanese Sea Scouts. The project has grown successfully since then, both in terms of delivery, and ambition.

uSwim is a completely free website that uses video to show people how to teach children of all ages how to swim. The program is an adaptation of the world renowned Aquatic Achievers (who teach over 500,000 lessons per year in Brisbane, Australia) learn to swim program. uSwim facilitates anyone with access to the internet to teach children anywhere learn to swim in a step by step way with a proven methodology. The uSwim program has recently been successfully trialled in Mauritius.

Representatives from uSwim and Nile Swimmers met and shared experiences at the World Conference on Drowning Prevention in Vietnam in 2011. The organisations share a common interest in developing free drowning prevention programs for communities with limited financial capacity or current access to information/resources.

The challenges faced by Nile Swimmers in Sudan, and uSwim in Mauritius have been similar, and methods of best practice have been shared between the two organisations. The uSwim approach of graphically orientated training has been very useful in Sudan, where literacy levels are low.

An exciting development has been the collaboration of uSwim and Nile Swimmers to explore the potential of delivering swimming and lifesaving skills using a video based training program via mobile phone. Nile Swimmers currently provides training to remote rural villagers, with limited scope to deliver regular retraining.

As Africa is developing rapidly in terms of mobile phone coverage and data capacity the use of mobile devices is a natural avenue to explore to provide information to a large volume of people at a relatively low cost. Recent research has already highlighted the effectiveness of DVD videos and posters for CPR retraining. Given the positive results already shown by the uSwim program in Australia, this is an interesting and exciting avenue of exploration which may have significant implications for the delivery of skills training in rural areas.

Conclusion

The collaboration between Nile Swimmers and uSwim is an excellent opportunity to adapt and trial a technology and methodology that has been successful in Australia and apply it to the low-resource context. Despite the characteristics of rural Africa, mobile video technology is widely available, relatively cheap and accessible.

Recognising that the problem of drowning is the same across the world, and that the solutions follow the same few core principles is key to opening minds to the possibilities of international collaboration - bringing experts together to develop high-impact, low-cost solutions to reduce the burden of drowning in a meaningful and locally relevant way.

AUSTSWIM Indigenous Training 2 years on

Melissa Savage (AUSTSWIM)

Background

In 2011 AUSTSWIM NSW secured funding from the NSW Department of Sport, Recreation and Communities to trial the delivery of the NEW AUSTSWIM Indigenous/ CALD Teacher of Swimming and Water Safety qualification to Indigenous communities around NSW.

Aim

To develop and deliver a culturally appropriate AUSTSWIM Teacher of Swimming and Water Safety resource to Indigenous Australians.

Method

The AUSTSWIM Teaching of Swimming and Water Safety qualification delivery has been modified to match the needs of the clients, this has been done by:

- Moving to a practically based delivery method
- Building assessment into delivery
- Visual learning supported through the use of posters/dvd's visual PowerPoint's and interactive resources.

In 2011-2012 a pilot project was run working to train 40 indigenous adults in Northern NSW assisting them in gaining their AUSTSWIM Teacher of Swimming and Water Safety qualification as well as assist in gaining employment opportunities for them.

Outcomes

5 courses were successfully run with a total of 36 candidates attending the training. Of the 36, 22 have now completed their AUSTSWIM Teacher of Swimming and Water Safety license and are working in partnership with their local facilities to secure part time employment teaching children from their local indigenous communities.

Why outcomes matter: Training alone does not work. The goal of the AUSTSWIM Teacher of Swimming and Water Safety training is related to outcomes, we want to make it as streamlined as possible for the candidates undertaking the course to successfully complete the AUSTSWIM Teacher of Swimming and Water Safety License.

Due to the nature of the client groups we were working with it was vitally important that a mentor be appointed to assist the candidate/s complete all requirements. A mentor could be a current AUSTSWIM TSWWS teacher, a swim school coordinator, a person connected to a venue or an AUSTSWIM presenter. Ideally the mentor would be introduced to the candidates prior to or during training so that the candidate has a person who can assist them in completing the remaining steps to gaining their qualification.

Based on the success of the pilot project further funding has been received to extend through all other areas of NSW and nationwide this paper will share many of the insights gained plus the trials and tribulations of delivering to Australian indigenous client groups.

The State of Swimming Skills in New Zealand and Combating Their Decline

Alexander Brunt (Water Safety New Zealand)

Background

Research conducted by Water Safety New Zealand (WSNZ) shows that the swimming ability of New Zealand children is in a downward spiral. WSNZ's Swim For Life initiative empowers New Zealand communities to address the issue that recent data showed:

1. 21% of 12 year olds can swim 200m.
2. 50% of 10 year olds can swim 25m and just 37% can swim 50m.
3. 25% of children are unable to get across 20m of water or manage to keep afloat and tread water.

Proficiency in each of above measurements has decreased on average by 10% from 2001. Subsequently in 2010 a partnership was formed with Sealord to help bring a national strategy to all parts of New Zealand.

Aims/Objectives

The aim of the Sealord partnership is for all New Zealand children to be able to swim 200m by the time they are 12 years old, with all New Zealand primary school children to receive:

- A minimum of 10 lessons of 30 minutes duration, per year for three years;
- Quality instruction and exposure to a fundamental swim and survive programme;
- Children will be instructed either in a private/council facility or a school pool;
- The average cost is \$50 per 10 lessons (compared to market rate of \$145 per 10 lessons).

In order to help achieve this outcome, learn to swim and survive was to be managed at a regional level with significant national support and monitoring.

Methods/Implementation

The Ministry of Education does not provide adequate support to ensure all New Zealand children have the opportunity to learn swim and survive skills at school and the private sector (swim schools) can only account for teaching learn to swim to approximately 10% of children in New Zealand. Regrettably, the main issue facing parents is cost, which for most families is prohibitive. WSNZ has been successful at galvanising relationships and adopting a solution based approach specific to each region. This approach has enhanced national and regional collaboration, enabled greater leveraging opportunities and ensured more efficient and effective delivery to school children.

The Sealord Swim For Life database was developed to capture the swimming ability of every child in New Zealand. The database is a unique information management tool - for national, regional and local analysis. Further investment extended the database capabilities to enable national variable reporting.

Results Evaluation

Since the launch of the Sealord Swim For Life initiative, it has become the most significant water safety project in New Zealand. Sealord Swim For Life has continued to achieve some remarkable results including:

- 17 regional initiatives delivering learn to swim and survive education to primary school children;
- 128,658 students registered on the Sealord Swim For Life database, up 60%, providing dynamic student progression data;
- 10,141 public registrations through the Sealord Swim For Life website, up 21%;
- 809 schools registered: 24% increase;
- Significant increase in press clippings illustrating an increased awareness of the initiative;
- Expanding the capabilities of the database;
- Overall improvement in the swimming ability of New Zealand children;
- New partnership with TVNZ & New Zealand Post has helped increase awareness of the initiative;
- Government endorsement of WSNZ being the lead agency for the learn to swim and survive sector.

In the long term the record indicates the investment into primary school learn to swim and survive initiatives will achieve outcomes needed to improve the swim and survive ability of New Zealand children and create generations of New Zealanders that are safer in, on and around water.

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Sink or Swim: a programmatic response to drowning trends in Victoria

Kate Simpson (Life Saving Victoria), B. Matthews, R. Birch, M. Laird, M. Royal Hebblewhite

Background

Drowning is a leading cause of death of children aged 5-14 years in Victoria, Australia. In the period 2006-2011 there was a 68% increase in the five year average drowning rate in children aged 5-14 years compared to the 2001-2006 average (0.514 vs. 0.306 respectively). Furthermore, of the drowning incidents in the 5-14 age bracket from 2000-2012, a total of 14 deaths occurred at inland waterways in Victoria. The research determined that inland waterways, and particularly rivers, were high risk aquatic environments. In order to arrest this increase in the drowning rate in children aged 5-14 years, urgent work is required including the development of inland waterway safety education in regional areas.

Sink or Swim is a pilot school program launched in 2012. It is a programmatic response to the issue of drowning incidents in 5-14 year olds and the need for inland waterway safety education. Current evidence has guided the program's key messages including 'Never Swim Alone', 'Look Before You Leap' and 'Check It's Ok To Swim - Learn The Conditions'.

Aims

Sink or Swim aims to enhance the student's knowledge and understanding of a range of aquatic environments, in particular inland waterways including rivers, lakes, dams and creeks. It aims to promote key water safety messages and aquatic danger awareness, particularly in high risk Victorian regional areas.

In Year One, the aim is to deliver Sink or Swim to a minimum 6000 primary and secondary school students in regional areas categorised as high risk, to ultimately reduce the drowning toll of 5-14 year olds.

Methods of Delivery

Sink or Swim has two methods of delivery:

- Method 1 – A series of school lesson plans targeted at Foundation to Year 10 students
- Method 2 – A school classroom visit from a lifesaver

Method 1: Designed to empower and support teachers to incorporate water safety education in the school curriculum, by providing comprehensive and engaging lesson plans, that also provide a rich opportunity for extending student learning from a range of curriculum learning areas, including English, Mathematics, Science and History.

Method 2: A one hour interactive Sink or Swim classroom session is intended to reinforce the key water safety messages taught through the lesson plans.

Six Victorian regional areas, that have been identified as 'high risk' for the number of 5-14 year old drowning incidents between 2000-2012, will be offered classroom visits during week long tours of these regions.

Expected Outcomes

Through participation in the program students will:

- o Investigate the varying conditions of different aquatic environments; and the idea that people need to be prepared for these conditions. They will explore the concept that daily and seasonal changes in the environment affect visits to aquatic environments.
- o Be able to identify safe practices in local aquatic environments and make good choices that will keep them, their family and their community safe. They will identify the people in their community who can help them in a range of situations, such as lifesavers and adults, and demonstrate basic strategies to help in an emergency.

Conclusion

The Sink or Swim program provides an example of the translation of research into practice and how this research can be used to drive drowning prevention initiatives. A further strength of Sink or Swim is that ongoing development of the program will continue to be guided by research. In addition, the program's key messages will continue to evolve as new trends emerge in drowning.

While Sink or Swim aims to prevent drowning incidents in 5-14 year olds, it is anticipated that by promoting positive behaviours in this age group, the potential trend for increased drowning across all age groups will ultimately be reduced.

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Self-rescue in cold water – Nordic conditions

Mats Melbye (Norwegian Life Saving Society)

This Presentation is about Self-rescue in cold water - Nordic conditions and skills needed to cope with these conditions

Quantifying the Increased Challenge to Swimming Skill Imposed by Clothing

Dr. (PhD) Robert Keig Stallman (Norwegian Lifesaving Society & Norwegian School of Sport science), Bente W. Laakso (Lillehammer Community, Norwegian Lifesaving Society), Ebbe Hornemann (Maihaugen FolkMuseum)

Most drowning occurs in open water. Most of these are the result of an involuntary submersion/ immersion. Consequently, many of the victims are clothed. Especially in colder climates, activities on and around the water are often performed while well clothed. It is logical then that swimming with clothes should be an integral part of swimming or water competence education. Experience tells us that this is an often overlooked aspect of water safety education and does not receive the attention it deserves. It is often felt that being able to swim in a pool with quiet, warm water is sufficient. We now know however that many fail to meet the increased challenge of an involuntary submersion in open water. The added challenge of waves, cold water, clothing, etc. has been underrated.

Aim

This study aims at quantifying the added challenge to swimming skill imposed by being clothed when swimming.

Methods

In the Norwegian schools, swimming instruction is compulsory. The national curriculum calls for all children to be able to swim by the end of Grade 4. Thus, Grade 4 children (age 10, N=128) were selected in a convenience sample, as participants in this study. All testing was of a pedagogical nature and was an integral and routine part of the teaching situation rather than being an extra add on to the curriculum. All participants had previously completed a combined screening test comprised of a 25m combined test. All had some but limited experience swimming with clothes. The criterion screening test was a 200m combined test of the same nature as the screening test of 25m, i.e. entry, swim on front, stop and rest, swim on back, exit. It should be noted that this test is also the screening test identified by the school curriculum as the desired outcome after Grade 4, i.e. a criterion test for swimming competence. This combined test was structured in such a way that each element could be simply scored and in the end a final score calculated. The children served as their own controls, each swimming the criterion test twice, once clothed and once in swimming costume only. Half of the children were randomly chosen to swim first with clothing and half without. On any test element, when it became clear that the subject had done their best and a score had been recorded despite failure to complete, the subject was instructed to continue with the next element. In this way, all finished in one fashion or another.

Results

When the two treatments (with and without) were compared using Chi-squared, the total score was found to be significantly lower when swimming with clothes than when in swimming costume only. Of the elements of this screening test, those which influenced the final score most were: stop and rest, roll or fall into the water, swim on the back, in descending order of influence, i.e. stop and rest caused the greatest challenge and had the highest rate of failure.

Conclusion

Swimming instruction must not assume that swimming indoors in quiet water is sufficient. The added challenge of an outdoor involuntary submersion is underestimated here as only the effect of clothing was tested. The real challenge would be considerably greater. Swimming with clothes is an essential part of any teaching program.

Learning & Teaching Swimming: The evidence of time, place and a good teacher – examples from Norway

Dr. Dagmar Dahl (University of Nordland, Institute for sports science)

Introduction

Swimming education is an important topic in Norway, a country with a long coast line and lots of lakes. Not just in terms of the lifesaving aspect but also for health care and physical training swimming is regarded as basic ability. The Norwegian government outlines the aim that all school children should have learned to swim by the end of the 4th form. The reality is often quite different from that ideal, in 2003 just half of the children in the 5th form were able to swim 200m (NSF/NSSR 2004). Usually schools and Swimming federation blame first of all the bad teaching conditions in terms of lack of access to swimming halls and lack of time. Notably in bigger cities that seems to be one of the main reasons. But is this the only one? In this paper we will look at the importance of the teaching quality, i.e. who is teaching swimming and which education those teachers have received.

Methods

This qualitative-descriptive study is carried out by using questionnaires, meta-analysis of former studies, qualitative interviews and observations of schools swimming lessons.

Results

In a random inquiry amongst BA- sports students at two universities in Northern Norway the result shows that it is not the number of pool lessons which is the problem, but the quality of the teaching process and the teacher's own abilities. When looking at the PE- teacher-education one can find a wide range of varieties how the swimming teacher training is organized. While some universities offer classes with duration of 8 hours, there are others with 56 and more lessons and special training in practical teaching. Supplementary teacher trainings for swimming offered in Northern Norway are overbooked and show the need for further education.

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Self-Rescue and Baby Swimming: Combining the child's perspective with a drowning prevention intention.

Torill Estelle Hindmarch (Norwegian Life Saving society)

Baby swimming has been conducted in Norway for over 30 years. Goals for this activity include learning to swim, good motor development, family bonding and general wellbeing. Part of the activity has been to submerge very small babies for short periods in order to teach them breath control. A verbal cue was also given. The idea being that they would develop an automatic response and hold their breath long enough for move back to the pool side. Other countries have subjected children to back floats which also functioned as submersions, relying on another survival reflex that would stimulate the arms to be stretched out wide thus bringing the child up into a back float. What these programs do not take into account are:

1. The effects of stimulating a survival reflex, (stress etc.),
2. Developmental changes and effects on buoyancy.
3. Forcing the child.
4. Strengths of child initiated learning
5. Transference of skill to other situations.

We devised several methods of executing dives and cues to teach the babies to hold their breath. The obvious conclusion that many parents drew is that dives were necessary for good swimming skills. Paradoxically when the baby had breath control and able to achieve some degree of autonomy, they seemed reluctant to let go. Often the child was prevented from doing the activities that might increase aquatic competence yet forced into activities that served to discourage the child from active participation.

Some instructors began to notice that this practice did not always have a positive outcome.

1. Children on beginner swim courses (previous baby swimmers), reluctant to take their face in the water.
2. Toddlers who refused to participate in class and lessons became a conflict zone.
3. Over confident toddlers throwing themselves into the pool, unable to return unaided (unable to judge they own limitations).
4. Parents not engaging or taking cues from their children.
5. Parent's uncertainty affecting the child.
6. Parents favouring activities that led to risk taking behaviour.

We looked at our teaching methods and at what other countries were doing in the pool. Research in in Early Years Education (EYE) revealed the importance of including the child in learning situations. Dialogue was an important part of this. More importantly we needed to educate the parents in this field as well as in water safety skills.

We used the opportunity to devise a structure to our program that is driven from a drowning prevention perspective, giving the parent's relevant information on water safety and also an understanding of the child's perspective.

By introducing a new award system we have created a structure which gives instructors a new focus and a strategy to reach key goals in self- rescue and aquatic behaviour. The awards focus on skills that give a wide and varied competence in the water. They lead the pupils and instructors outdoors to complete some of the tests, thus acquainting children with the challenges of open water.

There is a great need for research in this area of swimming education as different schools of thought argue over what is safe or not. We have families with us for several years. This gives us possibilities to see the effects of our structure changes. We also have a unique opportunity to evaluate and compare the effects of previous methods through contact with earlier pupils. This will give us further material on which to develop our strategies and give the best possible aquatic education for our children and their families.

Children's interest in participating SwimSafe program result from largest drowning prevention program in Bangladesh.

Dr. Mohammad Jahangir Hossain (International Drowning Research Centre-Bangladesh – IDRC-B),
Aminur Rahman (Centre for Injury Prevention and Research, Bangladesh – CIPRB), Fazlur Rahman,
Saidur Rahman Mashreky, Tom Mecrow

Background

Drowning is a leading cause of child mortality in Bangladesh. Considering the magnitude of the problem CIPRB introduced a lifesaving and swimming teaching program as a drowning prevention initiative in Bangladesh in 2006. Over 270,000 children have been taught lifesaving swimming skills since its inception.

Objectives

To explore the perception and participation of children in the lifesaving and swimming teaching program in rural Bangladesh.

Methodology

A cross sectional survey conducted in 3 sub districts of Bangladesh. Among the 350 SwimSafe centres 40 were selected randomly and from each of the centres 3 to 4 children were interviewed.

Results

Among the 130 children 88.5% were informed about swimming learning program by a Community Swimming Instructor (CSI). Sixty nine percent of children mentioned that a local CSI encouraged them to learn survival swimming under the SwimSafe program. In response to the question of why the children learned swimming using the SwimSafe program, 56% of children answered that the process of learning with SwimSafe was very good. They answered that the average waiting time to start swimming after enrolment was 8 days (SD+7.822). According to their opinion the average duration to learn life saving swimming was 15 days (SD+6.217). More than 92% (n=121) of children mentioned that they have learned the swimming skill without any interruption. The average distance of a swimming centre from a child's house was 138 metres (SD+123.228). 63% of the children said that when they go to a Swimming centre they return home by themselves. 96% of children said that nobody discouraged them in participating in a swimming learning program, and the other 4% said that their parents were initially unwilling because they thought their children were too young and were scared about them drowning.

Conclusion

The SwimSafe program appears to have been accepted by the community as a good way of teaching children survival swimming. Children consider the program a good way to learn how to swim and the ease of accessibility within communities strengthens it as a program that could have high rates of participation. Further studies are needed to know whether the perceived swimming skills gained by children are an accurate reflection of their actual ability to swim.

How good is good enough? Swimming competency and open water drowning prevention

Teresa Stanley (WaterSafe Auckland) , Dr Kevin Moran (University of Auckland, New Zealand)

Introduction

Recent concerns about swimming competency have highlighted the differences between real and perceived swimming ability, and what swimming competency actually means (Moran et al, 2012., Stallman et al, 2012., Laakso and Stallman, 2011., Junge et al, 2011). Anecdotal evidence suggests that many open water drowning fatalities involve victims who are described post-incident as being good swimmers. Furthermore, rescue victims on current reality television series (such as Piha Rescue in New Zealand, Bondi Rescue in Australia) often describe themselves as good swimmers. Given that the thrust of many drowning prevention programmes is to improve the practical swimming competency of participants (often children in the first instance), the critical issue in open water drowning prevention is how good is good enough, especially in an environment that may be considerably more challenging than the one in which swimming competencies were learned and practised. It is the purpose of this study to report on the beliefs of adults as to their current water competency and estimation of drowning risk associated with open water activity.

Not a lot is known about how adults construct their understanding of their ability to survive the risk of drowning. Traditionally, swimming competency has been defined in terms of how far a person can swim and other survival skills (such as survival floating) have not been included, and the conditions under which the ability to swim over the distance have tended to be benign closed water environments such as heated swimming pools. Environmental factors such as temperature or water movement may not be considered when defining ability.

Method

This initial study will seek information on a range of self-reported swimming competencies (their swimming survival skill base) and when they were learned (their swimming history), the currency of their swimming competencies (their current aquatic fitness), their exposure to open water (their swimming experience), their perceived levels of confidence in open water (their coping skills), and any life threatening submersion experiences (LTSEs) they may have had. The study will use a self-complete written survey of approximately 300-500 respondents over the age of 18 years. The sample will be randomly selected from the general adult population.

Results

It is anticipated that the study will provide a public perception of what constitutes a good swimmer and how that relates to drowning prevention of themselves and others. It is also anticipated that the results will reinforce the findings of previous studies of public under-estimation of drowning risk and over-estimation of ability to cope with that risk, especially among males.

Swimming School for all. Increase water safety through education of bilingual swimming teachers

Karin Levin (Swedish Life Saving Society), Mona Lisa Wernesten

Background

Drowning is the third leading cause of death, next to traffic accidents and self-inflicted harm amongst children¹. Drowning accidents occur during all of the four seasons: both indoors, e.g. in swimming pools and outdoor, e.g. in the sea/or in Sweden's many lakes. Swimming ability, increased water security and supervision of young children are, by fact, the most effective way to prevent drowning.

Several studies conducted by the Swedish Life Saving Society and the Swedish National Agency for Education show that children and adolescent in Sweden with a non-Swedish background, have a very low swimming ability². This is partly due to the absence of a tradition of swimming in the country-of-origin, but also relates to significant problems to seek and find information about where and when the education or classes are held, due to difficulties in language and ethnic background.

Experiences from incidents involving near-by water activities show that children with a non-Swedish background are exposed to considerable risks when they want to resemble their Swedish equals.

The risk of drowning is considerably higher for preschool children with single parents, for children originating from the Middle East and for children with neurological disabilities, epilepsy in particular. To prevent further drowning, pre-school children need a more intense supervision, immigrant children and their parents need swimming education, and a higher awareness of the increased risks for children with epilepsy is required.

Project description

Educate 10 swimming teachers with non-Swedish background, who will be able to communicate with children in Swedish, but more importantly, be able to use their mother tongue as a compliment to the communication. The reason for this work method is to ensure that the targeted children can assimilate the knowledge and in the long run lower the number of drowning related accidents among children with a non-Swedish background.

Through this bilingual method, we can also increase the opportunities for these children to be able to participate in out-door life in general and to feel secure and safe near water.

As a complement to these educational opportunities, the project aims to support regular swimming schools with information and educational material. This material will be sent by mail, by The Swedish Life Saving Society, free of charge. We will also visit and support swimming schools to coach them in their general work towards children's swimming ability.

Future

After 10 active months in this inspiring project, we can easily state that the necessity for projects such as this one is much greater than we could ever imagine. We see it as one of our highest priorities that the project continues and develops.

We, The Swedish Life Saving Society, will continue to allocate resources to maintaining activities such as them stated in the project description. We will continue coaching, helping and supporting the teachers already educated by the project, to secure their continuous work in the field of water safety and swimming ability.

We will continue reaching out to the target group with general information of the swimming schools whereabouts, through flyers and other printed material. We also aim to carry out information meetings for parents interested in knowing more about water safety and swimming ability.

In general, the project have had a massive impact in both media and through the country in general. We think that this will contribute to the projects long after-life.

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Staying afloat: Addressing a lack of swimming ability in Victorian children

Rhiannon Birch (Life Saving Victoria), Bernadette Matthews, Kate Simpson

Background

Drowning is a leading cause of death of children aged 5-14 years in Victoria, Australia. Between 2006 and 2011 there was a 68% increase in the 5 year average drowning rate in children in this age group compared to the 2001-2006 average (0.514 vs. 0.306 per 100,000 respectively). Two key issues thought to contribute to drowning in the 5-14 age group are: a lack of swimming ability; and a lack of understanding of water safety and knowledge of the risks leading to individuals placing themselves in high risk situations in and around water.

There is little existing information on children's swimming abilities and water safety knowledge and this study aims to provide a benchmark for these abilities in the primary school years; an ideal time to target children in order to create positive behavioural patterns.

Aims

To estimate the swimming ability of Victorian children exiting primary school based on parent and teacher assessments; to use these results to assess barriers to participation for students and schools and to guide the programmatic and campaign response to increase the swimming ability and water safety knowledge of children leaving school.

Methods

Surveys of 253 teachers and 212 parents of Year 6 students (11-12 years old and in their final year of primary school) were collected. The parent survey evaluated the swimming and floating ability of each child, their participation in lessons, swimming frequency and demographic information. The teacher survey estimated the swimming and floating ability of students, identified barriers to schools running swimming programs and compared the swimming ability of children born in Australia with those born overseas. To determine approximate numbers, teachers provided the total number of students in their class and then estimated the proportion of these students able to attain certain levels relating to each question.

Results

When estimating both the distance children can swim and the length of time for which they can float, parents consistently provided higher estimations of their children's abilities than teachers. Parents estimated that almost two thirds of children (63.7%) were able to swim 50 metres or more. Teachers however, suggested that just 40.2% could swim 50 metres or more. Parents estimated that over half (60.4%) were able to float or tread water for 5 minutes or more, whereas teachers estimated just 31% could achieve this. Furthermore, many teachers (68.3%) noted the swimming ability of students born outside Australia was lower than an average swimmer.

Parents estimated almost two-thirds (62.3%) of students had swum regularly (at least once a fortnight) throughout 2012, including in formal and school-run lessons. However, teachers estimated 16.8% of these were poor swimmers and that 8.6% could not swim. This translates to over 5000 Victorian children leaving primary school each year unable to swim alongside 10,000 poor swimmers.

Teachers estimated that 36% or approximately 23,000 students, lacked sufficient knowledge of water safety issues to avoid getting into hazardous situations in and around water. Teachers rated program cost as rated as the greatest barrier to schools providing swim instruction (34.6%), followed by an already crowded curriculum (18.9%).

Discussion and Conclusions

Despite a disparity between parent and teacher assessments, thousands of Victorian children are potentially leaving primary school with below-average swimming abilities and lacking sufficient water safety knowledge. Addressing this issue is key to reducing the incidence of drowning deaths among children by providing them with greater access to quality aquatic education.

This research will guide the development of programmatic and campaign responses to improve the swimming ability of primary school leavers. This will include in-school water safety education programs, particularly in regional areas, which focus on risk identification and behaviour modification.

Swimming as a part of physical education in the Danish primary - and Lower secondary school

Pia Holmen (Danish Swimming Federation)

The presentation will introduce results of a three-part study conducted in 2011-2012 by Institute of Sport Science and Clinical Biomechanics at University of Southern Denmark, and will present how the Danish Swimming Federation will continue to work with swimming as a part of physical education in the Danish primary- and lower secondary school.

The learning objectives for the conference-audience are to understand:

1. How the overall picture of swimming is in the Danish municipalities and primary- and lower secondary school.
2. How the Danish Swimming Federation will continually try to ensure that the Danish pupils learn to swim.

Denmark has more than 7000 kilometres seaside and closely surrounded on all sides by water. By law, the Danish municipalities are obliged to provide swimming as a part of the physical education in the Danish primary- and lower secondary school, but the aims presented in The Ministry of Children and Education's Common goals 2009 offer a broad framework for this part of physical education being realized. For the reason that many municipalities have had to cutback their budgets, recent years unfortunately have seen a worsening of conditions for swimming instructions and a marked variation in what is offered to pupils.

Swimming as a part of physical education in the primary- and lower secondary school is crucial for the ability to be safe in- and around water, and the Danish Swimming Federation sees it as their great responsibility to ensure, that children and young people learn to swim. Therefore, funding by the Danish Swimming Federation and the Sports Confederation of Denmark, Institute of Sports Science and Clinical Biomechanics at University of Southern Denmark studied the conditions governing swimming activities- and the organizational approaches to swimming in the Danish primary- and lower secondary school system. By those, the overall ambition was to take possession of important knowledge that can support decisions, including politically decisions, about the continued organizational development of swimming as a part of physical education in the Danish school system.

Learning of rescue technique saved child lives in rural Bangladesh-Review case studies

Dr. Animesh Biswas (Centre for Injury Prevention and Research Bangladesh – CIPRB) Dr Aminur Rahman, Dr Jahangir Hossain, Dr Fazlur Rahman

Background

SwimSafe programme learn children of 4 to 10 years on life saving skills including rescue which helps to reduce risk of childhood mortality due to drowning in rural communities.

Objectives

To know the effect of learning rescue technique in drowning prevention of children in rural community

Methodology

Qualitative case studies were performed in one of the sub district of Bangladesh. Three cases were chosen those who learnt swim and rescue others from near drowning.

Results

In one case study, 8 years old Akash knew from SwimSafe learning lessons how to rescue if anyone drowns. One day when Akash found his younger brother Sagar fall in the canal and Akash saved his life by lying on the floor and put forward a bamboo stick, pull it and started to shout for help. Similar case was found from another young 8 years old girl China who saw her friend fall into submerged water body during playing. China thrown a rope like thing towards her friend and rescued. Whereas during swim learning process an eight years child named Maun slipped from the safe banks of a local canal where he was bathing into the deeper flood waters, his elder 9 years old brother Sin, instinctively jumped in after him. While they hadn't yet been able to take part in a course because of the high demand for the classes within his own village, they had given them some basic instruction on floating and Sin helped Maun to float on the water.

Conclusions

SwimSafe programme is most powerful preventive vaccine for children: children can save their own life and can save others. The rescue technique in life saving swimming can save a large number of childhood mortality due to drowning.

Can You Swim? Project: Evaluation of perceived and real water safety skills of children and adolescents aged 5–16 years old

Dr. Ana Catarina Queiroga (CIF12D, Faculty of Sports, University of Porto), Jennifer D. Blitvich, Keith G. McElroy, Kevin Moran, Ricardo J Fernandes, Susana Soares

The absence of a universally agreed definition of what constitutes water safety skills and competence in a drowning prevention context combined with the dependence on self-reported aquatic skills rather than objective measurements in water safety research, has meant that much of our understanding of the protective role of swimming in drowning prevention is speculative. While some studies have tried to show the relationship between swimming skills and the risk of drowning in young children and young adults, little is known about the relationships between real and perceived water safety skills among children and adolescents aged 5-16 years old.

Following discussions during the 2007 World Water Safety Conference held in Porto, Portugal, a pilot study was initiated in Australia, Japan, New Zealand and Norway. Individual and collective results were presented at the 2011 World Conference on Drowning Prevention [1-4], held in Danang, Vietnam, and were recently published [5,6]. Initially the project compared the real and perceived swimming and survival skills of young adults.

The present study extended this focus to consider aquatic skills of children and provided the opportunity to compare variations in skill level with increasing age. In high-income countries, drowning risk is typically low among school aged children and increases during late adolescence and early adulthood [7]. This study provides the opportunity to determine over what age range aquatic skills were developed and how children's perceptions of their skills varied with age.

The main purposes of the present study were to:

- identify the key components of water safety skills and competence specific to children and adolescents aged 5-16 years old,
- establish and validate protocols for their practical assessment, and
- establish and validate a survey instrument to measure perceived level of skill

Participants in this study were children and adolescents aged 5-16 years old enrolled in swimming lessons at Public Swimming Pools in Portugal.

Results will demonstrate the range in aquatic skills across the age range included in the study and elucidate the issue of whether children's perceptions of their own skill level became more accurate with increasing age. Further findings, their implications on drowning prevention and future research directions are discussed.

Drowning Prevention through swimming teaching - The unique Icelandic system

Assistant Professor Hafthor Gudmundsson (University of Iceland)

Introduction

Iceland is a small island far in the North Atlantic Ocean (64-66°N). Through the ages fishing industry has always been one of the main industries. Fishermen were drowning by the dozens every year on all the small boats around the island in the far past. Swimming teaching started was seldom heard of until 1900 but in 1940 a new law was implemented in Iceland, requiring all children should receive full swimming teaching through the schooling. This was not possible in the beginning but soon all towns started building swimming pools and started teaching swimming. At this time drowning rate started to go down and from this time we have had a very unique teaching plan through our school system.

Aim

The main aim is to introduce the Icelandic drowning Prevention system through the schools. Very old belief, that good all-around swimming skills would save lives is still the main belief today. Using that Icelanders should have appropriate and relevant swimming and water safety skills and understand the principles and practices of water safety. The Icelandic system emphasises the ability of young children being capable of saving lives through correct swimming teaching methods. Children starting from 4th grade and up participate and learn how to rescue their friends in life threatening situation in water. I will share some of the ideas I have in our unique school curriculum.

Overview

According to the Icelandic curriculum children receive mandatory swimming lessons at school from the age of 6 until 16, or 10 years of elementary school swimming, up to 300+ hours. The Curriculum requires students to be competent in both back and front swimming strokes, entering the water in different situations. Lifesaving skills are taught from grade 4 including use flotation devices, treading water and doing resuscitation.

At the conference, drowning statistics regarding drowning accidents and lifesaving figures will be presented substantiate how our curriculum has saved lives.

The skill level of swimming beginners – past, present and perspective ...

Dr. Detlef Beise (Universität Leipzig - Institut Bewegungs- und Trainingswissenschaft der Sportarten II), Dr. Harald Rehn (German Life Saving Society DLRG)

Summary

Based on recent and historic research, multiple current findings and results about swimming abilities of the younger generation are critically reviewed and assessed. Included are the results of knowledge tests and controlling procedures for qualitative and quantitative determination and assessment of the degree of coordinative abilities under variable flow conditions in the water. Consequently ten problem-oriented theses are developed, showing possibilities of adequately advancing the teaching and learning of basic swimming skills and competences for beginners. Therefore performance skills are demonstrated and empirically substantiated.

A semantic excursion shall contribute to an understanding of a range of different terms and synonyms for the initial swimming exercises:

Processes of learning, practicing, training, teaching, floating, and swimming:

„Buoyancy“

„Floatability“

„Safe Swimmer“,

„Athletic swimmer“,

„All-round swimmer“,

„Recreational swimmer“ ...

On basic methodological questions constructive answers are given:

What kind of swimming should be learned first?

What are the possibilities and principles of learning how to swim under the conditions of deep and shallow water?

How can a test of knowledge be involved in the acquiring process?

The main goal: Safe performance in deep water and enduring swimming abilities...

In evaluating research, we attempt to figure out the necessary level of knowledge and skills as well as other performance-determining factors that are needed for confident swimmers. The focus concentrates on the relation between the development of skills and requirements, and their methodological realisation.

The auditorium is challenged to build an opinion and find solutions for two typical everyday life situations used as examples.

The results of an evaluated knowledge test, which was conducted with pre-school children and can be recommended for the purposeful use in the process of teaching swimming, will be introduced and reviewed.

The purposeful coordination of movements in the water, with all its characteristics and power effects, is an integral part of the motor functional learning process of swimming at a sensitive age. It implies the joyful and versatile design of the training process.

For the first time, a seemingly simple set of exercises shows possibilities of analysing and capturing the degree of coordinative skills in the water. First results with participants (students, pre-school and school children, athletes) are on hand. In this connection gradually different (anti-) flow paces, which can indirectly also be evidence for safety and risk of residency and movement in the aquatic environment, were created.

Based on the results, the connection of the degree of basic skills and acquired swimming techniques in beginner's swimming as well as the stage of development of coordinative abilities within the younger generation (pre-school and school age) can be characterised and applied based on this complex controlling procedure.

Swimming and Water Safety Programs for children between 5 and 14 years old in Australia: Survey of swim school managers, swimming teachers and parent's perceptions

Amy Peden & Melissa Savage (Royal Life Saving Society - Australia), Ana Catarina Queiroga, Justin Scarr, Penny Larsen, Susan Sturt

AUSTSWIM and Royal Life Saving Society - Australia have conducted research to enhance the understanding of children's swimming and water safety skill acquisition and achievement levels from varying perspectives, namely swim school managers, swimming teachers and parents. As aquatic skills gained in the formative years are essential for safe aquatic participation and underpin drowning prevention strategies, further understanding provides guidance for the development of aquatic programs, delivery and implementation strategies and training programs for teachers. The first national survey explored the operations of swim schools across Australia as assessed by over 350 swim school managers, owners and coordinators. The final report of this survey [1], found that although aquatic programs administered at public and private pools and aquatic facilities were accessible by the general public there were several barriers to participation including: distance to water/ swimming facilities, cost of lessons/ pool entry and access to qualified instructors and pool space. Responses justified the implementation of a second survey exploring attitudes of teachers of swimming and water safety delivering programs for swimming and water safety skills in the aquatics industry in Australia.

A national survey was sent to all teachers of swimming and safety within AUSTSWIM's database and the reach expanded to include other industry contacts as well as using online promotion and social media advertising. The results of over 6,300 teachers were analysed [2] and besides characterizing several vocational issues, the research found that, in general, teachers of swimming and water safety agree that the skills children should acquire were adequate and reflect the content of Royal Life Saving - Australia, Swim and Survive program Level 4 equivalent to the National Water Safety Framework.

Even though there had been substantial growth in the aquatic industry providing greater access to swimming and water safety lessons, there are many children who are not achieving the benchmark competencies equivalent to Swim and Survive Level 4 prior to leaving primary school as stated in the Australian Water Safety Strategy 2012-2015. In fact, it has been observed that some children are not participating on a regular basis or missing out on learning to swim entirely. Little is known about why this is the case, or how parents perceive swimming and water safety programs and their understanding of the importance of acquiring aquatic skills. Some researchers have recently begun to study the impact of participation in swim lessons on parents' opinions of children's drowning risk, swimming ability and supervision needs [3,4]. Preliminary results suggest that, while being able to swim may protect children from drowning, participation in swim lessons may produce undesirable effects on parent's beliefs relevant to children's drowning. Results of stage 1 and 2 of this project, especially of the second, further confirmed the relevance of studying and comparing the perceptions of parents whose children are enrolled in swim lessons in Australia with other parents whose children are not.

In light of the previous, additional research was conducted to expand on the findings of the first two surveys through the distribution of a third survey targeting parents of children aged between 5 and 14 across Australia. The latter survey aimed not only to understand more about the effectiveness of swimming programs, but also to characterize the group of children accessing swimming and water safety programs and whether there is sufficient opportunity to overcome the barriers identified in the previous surveys.

Detailed information on the findings of the 3 stages of the project and a discussion of the linkages between the three surveys will be presented.

Definition concerning swimming ability and drowning rates

Assistant Professor Hafthor Gudmundsson (University of Iceland), Riitta Vienola

Introduction/Background

Swimming has always been a very popular leisure activity in the Nordic countries. Drowning accidents are though far too common and the Nordic countries are working steadily at towards safer swimming. One of the important measures that has taken place is by increasing swimming ability and knowledge of the danger associated with swimming in different waters.

This abstract is submitted as a work in progress, as of now the Nordic countries have collected data on swimming ability and a poster presentation with a Definition concerning swimming ability and drowning rates in the Nordic countries will be presented.

Aim/Objectives

The main aim of this study is to show the importance of good swimming ability in the elementary school system and compare that with drowning fatalities. The Nordic countries do not all have the same teaching system for school teaching. The research will examine the connection between the different swimming ability levels in the school system and drowning rate.

Methods

Children of 6th grade in elementary schools will swim 200 meters where part of the distance will be on the back (50m.) Information is collected about their ability. This test is part of the Nordic swimming definition of being able to swim. On the other hand the drowning rate in the Nordic countries will be collected and compared between the countries. A correlation will be performed on those findings to show if there is a direct connection between the findings.

Results

The results on the swimming ability test will be correlated with drowning rate in the Nordic countries for comparison. Water safety has always been a strong part of swimming teaching so therefore it may be possible to see some trends in this case. Furthermore the results are aimed to further increase the knowledge of the importance of being able to swim in the drowning prevention community.

Discussion/Conclusion

Nordic countries are very concerned about swimming ability as water is a big part of our daily life. All countries are connected to the ocean and most of them also have many lakes in particular in Finland.

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Finnish Baby Swimming

Malla Grönlund (FS – The Finnish Association for Swimming Instruct), Tytti Soini

In this presentation we would like to tell you about Finnish Baby- and Family Swimming which started in 1981, its beginning, development and the principles that guide our activities today. Baby Swimming has been practiced in Finland for over 30 years and during this time we have managed to utilize the up-to-date research findings in this area. The original idea of child-centered activities has remained and this idea, guided by different branches of science, has developed to a hobby that sincerely appreciates children's own voluntary functioning.

These days the child-centered way can be seen in Finnish Baby- and Family Swimming as a holistic approach as well as an individual style of instruction which takes into account the stages of child development and where the child's own creative play is in the center. It is the instructor's and the parents' responsibility to create the pool environment in such a way that it enables a versatile and age-relevant play.

The challenges in the environment that enable creative play have to be optimally related to the child's readiness and the child has to be given enough time to stop and wonder all the things that grab her attention. The child needs to have the freedom to choose activities that suit her and if she wants, she can also totally disagree with the instructor or the parent. It is also important to remember that the more „faulty performances“ there are in a swimming session, the more learning experiences the child gets. The child also needs to feel safe both physically as well as emotionally. It is important that the child doesn't need to be afraid of things happening during the session which she is not ready for or cannot have influence over.

When the adults manage to create this type of learning environment, it is both fun as well as fast and efficient for the child to learn new skills. The child develops a close relationship with water and her water safety skills also improve significantly. At the same time adults are also offered to great chance for amazing learning experiences as well as new realizations!

Knowledge management: Survival swimming program by using mobile pool in primary

Saluckjit Sakunrak (Surin provincial health office, Thailand)

Drowning in children is one of the main causes of death in Surin province, a province located in the North East of Thailand. Because most children do not know how to swim; therefore, they have no skill to help themselves while drowning. In addition, there is no standard pool in community locals and many schools have no swimming program for students. Based on children's behavior, they like to play in the water with friends during their school break or vacation. So, The number of children drowning increases in this period. Our team members try to find out how to prevent children from drowning. We have discussed and considered of the easy way to take into action. The main point is how can children have survival skill in swimming. and have a right skill to help people or their friends from drowning. Our team have taught children in easy steps ,save time and not dangerous by using mobile pool in school. We keep knowledge management by team network . with the corporation from Hospital ,Health station, School, Local administration which work in Province ,district and sub-district. We learn how to be a good teamwork to help children. We make the best practice in school and set a leader student to a coach helper and also help friends in survival swimming program. Moreover, we have developed a survival swimming program for teacher , train teacher in every district ,co - operate in school program. All of this is a concrete success that all school can apply and can teach in the process of teamwork and solve the problem of drowning in Surin. The 4 years of success ,between 2010-2013, is our proud and we are pleased to share and exchange our useful experience to the others.

Water Safety Education Proposal

LeeAnne McQueen (Swim Savvy)

Swimming is rarely seen by government, the media, our local swimming organizations or individuals as a life-skill, but rather as a sport, and an elitist one at that due to the vast costs involved in building and maintaining the necessary sporting facilities.

While it is my personal belief that swimming is an essential life-skill that forms an integral part of a well-rounded education, the reality is that teaching every child in the country to swim is an unrealistic aim at this point in time. But a lack of swimming facilities should not prevent us from prioritising water safety education in schools and at public bathing spaces. A large scale, interesting and interactive awareness campaign is essential in order to reduce drownings in the immediate future.

With this in mind I have developed an interactive approach (and interactive materials) to promoting water safety skills which has the potential to uplift entire communities. This approach is far-reaching, it makes use of existing lifesaving and educational structures in South Africa, it aims to address issues of personal safety and social responsibility, and it aims to create employment. It is in line with the Specific Aims of our Department of Basic Education's Life Skills Curriculum, such as developing knowledge of and sense of responsibility towards personal health, safety and social wellbeing.

This interactive approach to promoting water safety will work on 3 levels. Each level makes use of the materials I am currently developing under the brand 'Swim Savvy', including workbooks for children, training manuals for teachers, as well as posters, badges, certificates, videos and clothing. These 3 levels include:

1. A 'Water Safety Show' to be presented via lifesaving organizations to Pre- and Primary School children, incorporating a 'Water Safety Pledge'. Each child will receive a badge as a reminder to encourage children to be 'ambassadors' for water safety in their homes and communities.
2. Implementing a focus on water safety, and an annual revisiting of the water safety pledge mentioned above, as part of the National Curriculum's Life Skills programme for every year group in the Foundation, Intermediate and Senior Phases. Teacher training in this regard should be provided by the Department of Basic Education with the assistance of Swim Savvy and lifesaving organizations.
3. Training existing and future lifeguards in how to teach basic swimming skills by using a 3-tiered approach:
 - a. Volunteers, i.e. Senior Phase and FET school children, members of interested organizations, groups of volunteers from the corporate world, or individuals from the community are trained to become 'Water Safety Mentors', signing up to help create awareness, to monitor public bathing spaces, to teach basic swimming skills or to assist in water safety presentations.
 - b. From the age of 16, 'Rookie Coaches' can be employed by the relevant authorities after meeting certain criteria. Their main purpose would be the continued education of the public about swimming and water safety by running ad-hoc training in basic swimming skills to users of the facility at which he or she is stationed.
 - c. Volunteer or Professional Lifeguards should be trained and required to work a certain number of hours through the 'Rookie Coach' programme before achieving their Lifeguard status. Their knowledge in this area will further assist their cause of preventing drowning, and will open up future employment opportunities in water safety education.

I believe that by combining the materials I have created and will be creating with the resources of Lifesaving organizations, the Department of Basic Education, and many other interested organizations and individuals who are committed to water safety education and/or will benefit from helping to prevent unnecessary drowning, this is a realistic approach which can be implemented fairly efficiently, quickly and cost-effectively in the very near future.



Lifesaving Education

A Model to Help Prevent Shallow Water Blackout in Swimming Pools

Rachel Griffiths (Aquatic Safety Research Group), Tom Griffiths

Dr. Tom Griffiths and Rachel Griffiths will present a „breath-holding continuum.“ The continuum is a model for safe breath-holding activities in swimming pools, risky breath-holding practices in pools and extremely dangerous breath-holding training, drills, and practices in swimming pools. Risky and dangerous breath-holding practices underwater can lead to shallow water blackout and death. Shallow water blackout in swimming pools is an international phenomenon and a growing problem worldwide. Shallow water blackout occurs when a swimmer passes out underwater from oxygen deprivation as a result of competitive, repetitive, and/or prolonged breath-holding. A myriad of medical maladies, genetic drowning triggers, also can facilitate drowning in good swimmers as a result of unsafe breath-holding practices. This presentation will utilize case studies and video to help illustrate this potentially deadly, yet little known phenomenon. The model will help demonstrate which activities can be practiced safely, such as blowing bubbles when learning to swim, to which should be avoided altogether, including strenuous exercise followed by prolonged breath-holding (i.e. attempting to breath-hold for three lengths underwater). The presentation will address why good swimmers drown at aquatic facilities and how shallow water blackout can be prevented.

Escape and Rescue from Submerged Vehicles

Kim Tyson (Lifesaving Resources, LLC)

Each year within the United States alone, there are over 1,500 submerged vehicle incidents resulting in over 600 drowning deaths. Other countries certainly experience the same or similar statistics and tragic incidents.

This presentation identifies the problem of submerged vehicle incidents and presents several educational principles that should be taught to every driver and First Responder on how to rapidly and safely effect a self-rescue for the driver and occupants. This presentation also presents information on the barriers facing First Responders when they respond to such incidents.

Research for the Development of Lifesaving Education

Garry Seghers (The Swimming Teacher's Association STA)

As one of the UK's leading providers of fully accredited qualifications in water and swimming pool rescue and pool safety, we are proud that our range of lifesaving qualifications have set the quality standard within the industry and are used worldwide.

However, in order for Lifesaving Education to progress, continued research must be done to ensure best practice is being promoted.

Often the perception of the way in which a child would sink when drowning is inaccurate. When carrying out research in order to create a manikin with accurate buoyancy characteristics of a seven year old child, it became clear that often children do not sink as you would expect them to. In fact children with certain body types can float at the surface whilst drowning.

Research such as this can have a significant impact on Lifesaving Education and in turn, help prevent drowning. In this session Garry Seghers, Qualifications Development Manager and UK Principle Expert in Buoyant Aids for Swimming Instruction, will discuss how essential research and development is in order for Lifesaving Education to progress.

Willingness to administer mouth-to-mouth ventilation by rural villagers in Bangladesh

Tom Mecrow (Nile Swimmers), Aminur Rahman (Centre for Injury Prevention and Research Bangladesh)

Cardio-Pulmonary Resuscitation (CPR) has been developed to resuscitate victims of cardiac arrest, and is now widely accepted as an integral part of the chain of survival in high income countries. The success of CPR is crucially time dependent, and the promotion of bystander training in resuscitation is essential in order to increase likelihood of immediate CPR.

In 2011 the International Drowning Research Centre - Bangladesh (IDRC-B) undertook a study to assess the feasibility of teaching CPR to rural villagers in Bangladesh as part of a wider research project to examine the efficacy of CPR in reducing the number of deaths due to drowning. Mouth-to-mouth ventilation was taught alongside chest compressions as instructed by the European Resuscitation Council advice for resuscitation of drowning victims.

A study of the literature on CPR effectiveness in high-income countries suggested that the impact of CPR at the population level may be significantly reduced by the willingness of bystanders and health professionals to administer CPR in an emergency scenario.

The willingness of trained responders to administer CPR (including mouth-to-mouth) is critical in the large-scale rollout of a CPR scheme targeting cardiac arrest due to drowning. As a largely muslim country it was our hypothesis that in Bangladesh ,willingness' to administer mouth-to-mouth ventilation in the event of drowning may be influenced by cultural values and relatively conservative religious beliefs.

Results

Our results suggest that in Bangladesh the gender of the victim has a significant influence on the ,rescuers' willingness to administer mouth-to-mouth ventilations in nearly all scenarios. Bangladesh is a predominantly Muslim society and conservative attitudes limit physical interaction between sexes after puberty and before marriage. Discrimination due to sex was apparent even when considering close family members, however the proportion of participants willing to administer mouth-to-mouth ventilations on close family was still high >79% (willingness to Mother, Father, Sister, Brother).

Outside the immediate family the impact of gender discrimination was much greater. In adolescents there was a distinct variation between the willingness of a boy and girl to administer mouth-to-mouth ventilations on their grandfather (80% vs 47% respectively) and grandmother (63% vs 81% respectively), yet such inequity was not observed in the adult population where the willingness to perform mouth-to-mouth was greater than 85% in all circumstances .

There was significant variation in the willingness of the male and female participants in both adolescent and adult age groups to perform mouth-to-mouth on an aunty or an uncle of the opposite sex. The reason for this may be in the use of the words aunty and uncle in Bangladesh. Friends and distant relatives are often referred to as aunty or uncle, perhaps creating ambiguity surrounding the relationship of the victim to the rescuer. The results show that both adolescent and adult participants were less likely to administer mouth-to-mouth on a friend of the opposite sex.

Conclusion

The success of any population based CPR program that is aimed at delivering a timely intervention largely depends on the willingness of lay people to act on their training. This study suggests that in Bangladesh although the age and sex of a victim has a significant influence on the willingness of a person to perform mouth-to-mouth ventilations, the proportion of lay-people willing to give mouth-to-mouth ventilations is higher than in a number of studies conducted in high-income countries. Furthermore, our study also suggests that the proportion of people willing to conduct mouth-to-mouth ventilations may be higher than we recorded following formal CPR training.

Creating a Universal Drowning Chain of Survival: Need and Evaluation

Dr. David Szpilman (Brazilian Lifesaving Society), Bo Løfgren, Jonathon Webber, Linda Quan, Joost Bierens, Luiz Morizot-Leite, and Stephen J. Langendorfer

Drowning involves principles and interventions that are not found in other emergency medical situations. Preventative behaviors as well as critical response steps can be part of an effective educational strategy. One such educational strategy in emergency response medicine has involved promoting icons in the form of a „chain of survival.“ The relevance of a specific drowning chain of survival was first debated during the World Congress on Drowning (Netherlands, 2002). The recognition that drowning education had several unique characteristics resulted in „survival chain“ formed by 6 links. Since then, the „drowning chain of survival“ have been used successfully around the world to guide education, and actions to take among lay, rescue and health professionals (Wilson-Saliba & Szpilman, 2007; Szpilman, 2011). More recently, similar initiatives have been proposed that include separate preventative and response sets of icons (Quan, et al., 2012).

The objective of this session is to:

1. Examine conceptual, practical, and educational values associated with chain(s) of survival especially for drowning prevention and response;
2. Discuss the benefits and detriments to a standardized/universal drowning prevention and response chain of survival that meets International Organization for Standardization (ISO) compliance;
3. Discuss how one or more final drowning chain of survival could be comprised; and
4. Identify ways to evaluate whether proposed drowning chain(s) of survival meet the needs of all layers of prevention and response as well as comply with ISO.

Drowning principles and interventions that are not found in other emergency medical situations.

First aid and advanced life support in the aquatic environment often requires specific skills and knowledge that were not taught in regular first aid/CPR education. The target group needing drowning education included all lay and professional persons playing, living, or working around the water (Szpilman, 2007; Deakin, 2012). It has been estimated that 85% of drownings may be prevented by adequate supervision, swimming instruction, water safety education and awareness, availability of water safety equipment including life jackets, CPR training, presence of lifeguards, and appropriate water safety legislation and regulations (Quan, 2007; Moran, 2011). When preventative measures fail, potential responders need to be able to perform necessary hierarchic steps to interrupt the drowning process. The first challenge is to recognize someone in the water at risk of drowning and appreciate the need and how to activate the lifeguard and emergency medical system (EMS) appropriately. It is critical that lay persons take precautions not to become another casualty by engaging in inappropriate or dangerous rescue responses (Venema, 2010; Orlowski, 2001). If not initially recognized and a successful rescue performed, then basic life support may need to be initiated on the drowning while still in water. In those cases, immediate in-water resuscitation provides the greatest benefit if provided safely and effectively (Szpilman, 2004). Cervical spine injuries are much less frequently associated with drowning than other trauma. Transporting drowning casualty from the water and positioning them on land require unique adaptations. Upper airway management is always challenging in drowning due to vomiting and the amount of water that has been aspirated. In most drownings the heart tissue is healthy and stops beating only due to hypoxia after a period of apnea (Szpilman, 1997; Orlowski, 2001). It is imperative that cardiopulmonary resuscitation follows the „traditional“ mnemonic of Airway-Breathing-Circulation (ABC) rather than the more-recently proposed CAB sequence (Kitamura, 2010). Initial ventilation breaths may be ineffective in drowning due to the presence of water in upper airways (Baker, 2011). The ERC has recommended five initial ventilations to increase oxygenation and minimize hypoxia prior to initiating compressions. The most common cardiac rhythm in cardiac arrest following drowning is asystole instead of ventricular fibrillation. Recommendations for when to start and stop resuscitation are different from non-drowning-related cardiac arrest and the rate of success for reviving child drowning is potentially higher than for other causes (Grmec, 2009).

Since 2002, much new and important information has arisen. This „discussion and brainstorming session“ intends to identify additional information as well as to obtain feedback from drowning prevention experts.

Waterwised Education

Prithiviraj Ramharai (Surf Life Saving Mauritius)

Surf Life Saving was formed in 2010, with the aim of providing volunteer beach patrol in Mauritius, as our island is surrounded by sea, yet 85% of locals don't know how to swim. Back to Mauritius in 2006, with Australian qualifications in sports development, specialised in the aquatics industry, Swimming and Water Safety (Austswim), Green License Coaching (Swimming Victoria), I have decided to make a step ahead in networking with Australia for supporting Surf lifesaving which has been set up. In 2011, Surf Life Saving has been recognised by the Government of Mauritius, where media has been promoting Surf Life Saving, sponsors have approached Surf Life Saving like DHL, Espace Marin. In 2012, as CEO of Surf Life Saving, I was asked to represent Surf Life Saving in Dorset Poole at the RNLI and a month after at the NSRI South Africa, to collaborate and learn the Education Program to be implemented in Mauritius, where drowning can be reduced. At Surf Life Saving- Mauritius we combine Sports and Education to reduce drowning. Since the creation of Surf Life Saving, we have 30 unpaid volunteers are team up to reduce drowning in Mauritius on weekends. We do take part in the National Day Celebrations. Actually, Surf Life Saving is signing a collaborative (no legal binding) documents with the National Coast Guard in Mauritius, to work in collaboration.

Life Saving and Water Safety Education Program for Children who live in rural communities in Sri Lanka

Asanka Nanayakkara (Life Saving Association of Sri Lanka)

Life Saving Association of Sri Lanka conducted a special programme of about Life Saving & Water Safety training for Children who are living in rural villagers in Sri Lanka. The training camp was organized and conducted among rural area schools in Sri Lanka. The main Aim & objective of this programme was to develop the school Children and expand the life saving services to reduce drowning accidents in rural villagers in Sri Lanka. Most of the children for this training were located near Lakes or other water reservoirs in the rural villagers in Sri Lanka. This Project was started in year 2012 April and in aim to develop the program in to a successful major cause for the future.

Barefoot kick speed in rescue towing

Dr. Ana Catarina Queiroga (CIF12D, Faculty of Sports, University of Porto), **AC. Queiroga, JA. Abraldes, R. Stallman, RJ. Fernandes, S. Soares**

One of the most universally accepted principles for safe rescue towing is the need to keep continuous visual (and, if possible, verbal) contact with the victim. The literature abounds with descriptions of a variety of towing techniques, with and without a towing aid. Almost universally among these, are many in which the rescuer adopts a side lying position (see especially RLSS Commonwealth, American Red Cross, DLRG). This body position allows both constant overview of the victim as well as ease of viewing the destination - an apparently optimal situation. The kick used during the towing in the side-lying position is determinant for the quickness of the rescue. So, to choose and appropriate kick it is important to consider, among others, the speed attained with the kick. It has been advocated by many lifesaving organizations worldwide, mainly in Australia, New Zealand, United Kingdom and United States of America, that „scissors“ kick is the best leg kick for side-lying positioned towing. However, to our knowledge, the biophysical characteristics of the scissors kick have never been described. Recently, with an eye to lifesaving competition, both flutter and dolphin kicks have been compared with fins to without fins. This underpins the need to more closely scrutinize techniques appropriate for real rescue. While the latter are both superior with fins to without, it remains to compare these three kicks (scissors, flutter, dolphin) without fins - the most common situation in a real rescue situation. In light of the above, the aim of this study was to analyse the speed production and fatigue during barefoot flutter, dolphin and scissors kicks in a side-lying position rescue towing. To the best of our knowledge this is the first thorough comparative study of this kind. To that end, a group of experienced lifeguards performed a total of 3x25 m all out efforts towing an ILS standard rescue mannequin, each using barefoot flutter, dolphin and scissors kicks. Subjects were connected by a line to an electromechanical speedometer to determine the instantaneous velocity-time curve. All trials were randomly ordered and subjects experienced a minimum recovery time of 30 min between trials. In each trial the rescuer assumed a side lying position, with the ear on the down side was in the water and the line of sight was perpendicular to the line of direction. The towing technique used was one hand on the back of the head/neck and with the elbow fully extended. The free arm was extended in the line of travel and was passive throughout. Age, anthropometric (weight, height) and speed variables (maximum, mean and minimum speed) were measured. Fatigue index was calculated based in the speed decay. All towing trials were recorded from above water (one camera). A full characterization of the outcome of the trials, as well as the discussion of its implications to swimming rescues, will be further developed during the presentation. The findings from this work will allow clarifying the appropriate kick for the particular situation of towing barefoot.

The review of the RLSS UK Senior Lifesaving Awards Programme, and the inclusion of Lifesaving Sport as an integral element of every lifesavers development

Mike Dunn (Royal Life Saving Society UK)

In 2011 RLSS UK launched a significant update to the UK lifesaving awards programme following an extensive review.

In conducting the review a number of key issues were addressed, including the national drowning statistics, drowning research, programme participation, and the inclusion and integration of Lifesaving Sport.

The review highlighted that 56% of drownings in the UK could be prevented with improved knowledge of self-rescue and survival skills, and also showed that rescue skills would not be effective in at least 34% of drownings. In addition, the success of the Bronze medallion was not reflected across the higher awards, with only 10% of candidates' continuing on to a second award after completing the Bronze Medallion.

At the time of the review, lifesaving sport had also struggled to hold the interest of lifesaving trainers and candidates, with many clubs being reluctant to engage with the competitive side of lifesaving. To the uninitiated, Sport was commonly viewed as a distraction from achieving lifesaving awards and having little benefit to candidates outside of the main awards programme.

The new awards programme completely re-focussed the skills balance and progression for lifesaving candidates. Self-rescue and survival skills take primacy in the initial learning of all candidates in the early stages, and only the most experienced candidates go on to learn direct contact rescues. This both ensured that all candidates learn the skills which will save the highest number of lives, and also improved the candidates' progression through the awards programme, encouraging them to learn lifesaving skills more fully and over a longer period of time.

A sport skill element was included in all 12 of the new awards, as well as 3 sport specific awards within the programme, ensuring that all candidates experience lifesaving sport during their participation.

The bronze, silver and gold Survive & Save Programme sport awards build on the skills introduced in the Rookie Lifeguard Programme sport awards, to progressively introduce the skills, techniques and personal fitness required to compete in ILS pool events.

The impact on competition has been significant. 2013 saw the introduction of appropriate prerequisites for speed based competition. Athletes are now required to achieve a sports award, ensuring that they are actively engaged with the award programme, which requires them to learn the skills and knowledge that could one day save a life.

As a result, every single athlete, candidate and lifesaving instructor has a manual containing a basic introduction to Lifesaving Sport skills, ensuring all instructors and clubs have the tools to introduce Lifesaving Sport. This introduces those who have engaged in the humanitarian aspects of lifesaving into the attractive lifelong sport of Lifesaving; while simultaneously teaching athletes humanitarian skills, which can help us all to achieve our main aim - reduce the rate of drownings.

The aim of this presentation is to discuss the development of the programme, the rationale of the review, and its impact over the first year.

Implementing eLearning in lifesaving education: Some lessons learnt from SLSA

Olivia Harvey (Surf Life Saving Australia)

In 2009, Surf Life Saving Australia (SLSA) partnered with an external learning management system (LMS) provider to develop a suite of programs for delivery of eLearning programs. Development work around implementing the SLSA eLearning platform has included: integrating the LMS with other SLSA I.T. platforms; endorsing a strategy to support the use of eLearning; and developing accredited and non-accredited training resources for delivery online and in blended mode.

eLearning is often considered synonymous with distance education. Although some debate exists around the differences between distance education and eLearning (Guri-Rosenblit 2005), the enhanced technological capacity afforded by online and mobile computing power has seen a significant transformation in the delivery of education world-wide, allowing educators to send learning materials to students who are not in the classroom. Semi-structured interviews conducted with education personnel from the Surf Life Saving (SLS) movement in 2012 aimed to determine the extent to which eLearning was perceived to be useful for lifesaving education. The results highlighted that the most significant advantage of eLearning is the capacity to reach students outside the classroom. Respondents emphasised that eLearning also had the potential for reducing the time required to deliver training by SLS educators, most of whom are volunteers.

For participants, the increased use of online applications in education ensures flexibility around location and time of access to learning (Guri-Rosenblit 2005; Roe, Carley and Sherratt 2010). The advent of mobile computing platforms such as smart phones and tablets is further revolutionising how people are accessing learning; effectively making it possible for learners to access material at any time (Wagner 2008). A survey of SLS members, also in 2012, asked to what extent eLearning would be beneficial for lifesaving education. The results emphasised that this flexibility in accessing learning was the most highly desirable aspect of eLearning. Both research projects demonstrate overwhelmingly that it is the flexibility created by eLearning that surf lifesavers, lifeguards and education staff are most interested in.

The key question raised by educators though is: does the use of online technology in education improve learning outcomes? Criticisms of eLearning have included: less participation from students in learning overall (Handal, Groenland and Gerzina 2011) and that it relies too much on learners to manage their own learning (Dorit and Simone 2007). The 2012 research showed clear correlations with the view that increased flexibility for participants does not always mean that the participants will do what is required. Other concerns raised in the SLSA studies were: that eLearning is superficial; that skills would not be retained; and that it would be too easy to cheat.

Yet eLearning has been shown to have distinct advantages for learning outcomes. One study of community first aid training (US) has demonstrated that online learners had better skill development and skill retention in areas that required precise technical knowledge than face-to-face students (Cason and Stiller 2011). Another study showed that online scenario based training in the emergency services was highly effective at helping improve decision-making for complex situations in a safe environment (Taber 2008). A study of the Australian Army indicated that the increased use of self-paced interactive learning in the classroom gave instructors more time to concentrate on practical skill delivery (Newton and Ellis 2007). In the SLS context, the effectiveness of eLearning has not been tested as all participants are ultimately assessed in a practical context.

This paper will discuss the approach to implementing eLearning adopted by SLSA and the research findings of a small scale research project designed to evaluate the effectiveness of developing eLearning for surf lifesaving. The Bronze Medallion Evaluation Project has been designed to test how eLearning materials are helping trainers deliver learning in SLSA's flagship entry level lifesaving qualification .

Development of a new lifesaving award - the Silver Medallion Aquatic Rescue

Amy Teale (Surf Life Saving Australia), Matthew Thompson

This presentation will discuss the development of a new SLSA member education award, from needs analysis through to implementation, using the Silver Medallion Aquatic Rescue (SMAR) award as a case study. It will also discuss how this award fits into the overall SLSA education pathway.

SLSA issues approximately 9000 Bronze Medallions/Certificate II in Public Safety (Aquatic Rescue) annually. Following this entry level qualification lifesavers go on to compete approximately 17,000 higher level awards per year. The SLSA education pathway is broadly divided into five streams - First Aid Awards, Aquatic Rescue Awards, Beach Management Awards, Powercraft Awards and Training Awards. Wherever possible awards are aligned to the Australian Qualifications Framework - meaning that along with an SLSA award a candidate receives nationally recognised units of competency and qualifications. In the case of the SMAR two units of competency are issued: PUAOHS002B Maintain safety at an incident scene and PUASAR011C Search as a member of an aquatic search team. These units form part of the nationally recognised qualification PUA31310 Certificate III in Public Safety (Aquatic Search and Rescue). By gaining a number of SLSA awards, members can receive this Certificate III qualification.

Following review of incidents which revealed the limitations of traditional Search and Rescue (SAR) methods, SLSA undertook a review of emerging techniques in SAR internationally, with particular focus on procedures for SAR of submerged or missing persons in the surf environment and methods employed by SLS, other agencies and ILS member organisations.

A needs analysis revealed the following gaps in existing SLSA training

1. Lack of training and education in SAR techniques outside of beach management or powercraft award streams
2. No training and education available for 'advanced rescue skills' including rock rescue and pier rescue
3. No development pathway for 'Scanning Techniques' critical to effective surveillance and prevention

It was decided that a new award was required in the Aquatic Rescue award stream, that would cover this content. The scope included:

- Aquatic SAR as a participant
- Advanced aquatic rescue skills including rock rescue and pier rescue
- Enhancement of 'surveillance skills' and knowledge of scanning techniques

Comprehensive internal consultation processes were followed to facilitate input from all stakeholders on the proposed content of the new award and to inform the development of delivery and assessment methods. Course resources were developed by a working group and subject matter experts and an initial trial of the course was held in April 2012 which was attended by 18 candidates representing all States and Territory. From July 2012 the course commenced a national roll out for a trial period of 12 months. Following this an evaluation of its uptake, impact, and the course materials will be completed, results of which will be presented here.

Also to be reviewed further is how this award sits within the overall SLSA education pathway. Possible future directions include using some of the theory content of the SMAR award to enhance the Basic Beach Management award, and reassessing the content of the Gold Medallion (Advanced Lifesaving) award. A periodic content review of the Bronze Medallion is currently underway. Challenges include ensuring sufficient numbers of people undertake the award initially, particular as the number of people qualified to deliver the award is limited at this stage.

Children's Lifesaving School

Karin Levin (Swedish Life Saving Society), Mona Lisa Wernesten

We, The Swedish Lifesaving Society, are working very closely with The National Agency for Education and we have always had a close cooperation regarding the general education in water safety in the schools.

As a part of this process, we've particularly been active in the development of the guidelines regarding swimming and water safety. After several years of discussions and lobbying, in 1997, we managed to make sure it is, by law, mandatory to teach each student how to swim and how to act safe around water. The goal that is set by The National Agency for Education and The Swedish Life Saving Society is that the students must be able to swim 200 meters in 6th grade (age of 12).

The guidelines also states how the students should develop within water safety from the 1st to the 6th grade. To ensure that the teachers are following the educational development and that students are learning water safety, that stretches from basic to more advanced exercises and knowledge, we are sending out essential information and guidance to teachers and students free of charge. This concept is called the Children's Lifesaving School.

We initiated the Children's Lifesaving School in 1993 as a step to reach our main goal - that no one must drown due to a lack of knowledge in water safety. Every year we send out about 100 000 booklets containing water safety to all students in class 1 to 3, all over Sweden. The booklets are based on three main fields: swimming, boat and ice safety and by using this information that we hand to them, the children learn how to make emergency calls, how to help a person in distress in the water, how you can be safe in the boat or on the ice, or to how to throw a life buoy. We try to teach them about water safety as a whole and about everything that makes them safe in, around and on water. We estimate that more than 1 million students, parents and siblings have through Children's Lifesaving School learned about water safety and lifesaving.

In 2010, we started to update and modernize Children's Lifesaving School and the educational booklets that the students received. The result was a new concept based on three inspiring characters called Livia, Bojan and Sam. The three characters have been highly appreciated and we have received enormous feed-back from teachers, students and parents. The new concept has a more modern cut and is more adapted to keep up with new technology. The first versions of these booklets were sent out in the fall of 2011.

The next phase in the project is to continue develop the concept towards more interaction with the students. We have now started the process to create a working group, solely consisting of children. A process called „For Kids, By Kids“.

Using Lifeguard Audits to Improve Scanning and Emergency Response Teamwork

Jill White (Starfish Aquatics Institute)

Background

Pool lifeguards are often seasonal employees working in a first-time job. The performance of these lifeguards can be greatly improved by subjecting them to unannounced audits. During an audit the scanning and vigilance are assessed, professional behaviors observed, and simulated rescue scenarios are conducted to simulate the response using the Emergency Action Plan (EAP) of the facility.

Method

The Starfish Aquatics Institute conducted over 1000 site visits to conduct audits on over 6000 lifeguards since 2007.

Results

The overall performance at a facility steadily increased over time, despite the changeover in staff over the years.

Discussion

Discussion will focus on the procedure for effectively conducting an audit and the relationship between the results and expectations of the job.

Conclusion

The lifeguard audits served as a motivation for individual lifeguard performance and accountability as well as served to develop a workplace culture of high expectation for vigilance, scanning and team-based response to drowning scenarios.

The impact of continuous formation in lifeguard operations

Dr. Alexandre Tadeia (Portuguese Lifesaving Federation)

After adopting the 2 hour per month strategy of continuous formation by the existent bibliography, becomes necessary to check if that quantity of monthly formation for Lifeguards is technically sufficient and also know which is the operational technique status of Lifeguards who doesn't have continuous formation, after 4 months of his basic education.

Teaching Swimming and Life Saving at Open Water Venues

Brendan Mc Grath (Irish Water Safety), Seamus O'Neil

The Nordic Lifesaving Federation was founded in 1945. The founding members were Sweden, Norway, Denmark, Iceland and Finland. The Faroe Islands were also accepted as a member even though they are not an independent country but a territory of Denmark. In the beginning the Federation organised a Conference every three years. In the Nordic Lifesaving Conference in Sweden in 2008, the countries present decided to start yearly Nordic Meetings. The previous 3-year cycle was too slow to get changes implemented and work done, and the amount of items to discuss was getting larger.

The purpose and the structure of the Federation were widely discussed at the Nordic Meeting in Helsinki in October 2012. It was decided to discontinue the old Federation and to replace it with a Nordic Lifesaving Group. The rules of the new Group are still to be approved by member federations. That should be done by fall, before the next Meeting in Denmark in 2013. The old rules were seen as too rigid and outdated: The new Nordic Group wants to be able to act quickly and to work flexibly with issues that its members consider important. The new rules should reflect that.

Traditionally, Nordic countries have meant Sweden, Denmark, Norway, Iceland and Finland. The Nordic Meeting in 2012 agreed to enlarge the group to also include the Baltic countries i.e. Estonia, Lithuania and Latvia. There has been co-operation, trade and exchange around the Baltic Sea for centuries, so why not in lifesaving. Representatives from Estonia already participated as observers in the 2012 Meeting. Members or observers from these countries as well as other countries interested in Nordic issues are welcome to participate in the Meetings.

The purpose of the Nordic Meetings is to share information. All the Nordic countries share the same goals: to increase swimming ability and to reduce drowning through prevention. We all provide education, training and information. One common natural issue for the Nordic and other northern countries is cold water and ice. The Nordic countries are surrounded by water and some have plenty of lakes or rivers.

Sharing best practice and other experiences helps other countries to replicate the practices. It is a good forum to ask for advice and to circulate ideas. With the knowledge of what has been done in the other countries, it is easier to try something already proven, or to avoid making the same mistakes. The Meetings also help countries to develop for example youth and competition activities. Some countries are more advanced in some areas, so by sharing knowledge and experience, we can all progress.

One important purpose of the Nordic co-operation is to be more powerful in our contribution to ILSE and ILS. As not all Nordic countries have representation in ILSE and ILS or their board and commissions, we can keep each others up-to-date when there is at least one Nordic representative in every ILSE body and ILS board.

Promoting the Nordic Definition of swimming ability is a good and concrete example of the work we have done together. In 1996, the Nordic Lifesaving Federation members agreed on a common definition of swimming ability: A person possesses swimming ability, if after falling into deep water so that her head initially goes under water, is then able to get back to the surface and swim 200 meters at least 50 of which on her back. It is used as the official measurement for the Swimming ability studies and to measure children's swimming skills. The definition has now been adopted by ILSE.

The Nordic Group encourages other Federations to do more together. By doing a presentation at the WCDP 2013, the Nordic Group wants to share its background and tell about its ways of working to other federations and people involved in lifesaving. We believe sharing makes us all stronger.

Lifesaving Education in Uganda

George William Mukasa (Uganda Lifesaving Federation), Job Kania, Abel Ddamulira

The Journey of Lifesaving Education in Uganda to open up a new chapter of Swimming safely and sensitisation of the Public on how to prevent drowning and other water related injuries in and around water bodies in Collaboration with other stakeholders in the Public health management.

Life Saving and Water Safety in Sri Lanka

Asanka Nanayakkara (Life Saving Association of Sri Lanka)

The Life Saving Association of Sri Lanka is the controlling body for life saving in Sri Lanka, affiliated to The International Life Saving Federation (ILS), Commonwealth Life Saving (Royal LS-UK) and also is an approved charity. The Life Saving Association of Sri Lanka is also registered as a national body with the sports ministry.

Our main objective is to reduce drowning and water related accidents. Up to date our recorded rescues mark nearly 3900 lives saved. We have a proud record of training nearly one million members of public including school children, armed forces and police force, all free of charge.

The American Red Cross Volunteer Lifesaving Corps: 100 Years of Lifesaving

Andrew Schmidt (Lifeguards Without Borders), **Matt Duffy** (EMT-B), **Justin Sempsrott** (MD)

Nestled in northeast Florida, Pablo Beach (now Jacksonville Beach) was a booming seaside town at the turn of the 20th century. There was little public health infrastructure, no lifeguards, and the nearest hospital was 20 miles inland and only accessible by train. Many beachgoers were unskilled in the water and often overwhelmed by the rip currents that formed along the shore, frequently resulting in fatal drownings. The list of tragedies grew in number until public outrage came to a head in 1912 after the drowning of a prominent young nurse. The citizens of Pablo Beach and Jacksonville demanded that something had to be done to protect human life and make the beaches safer.

Local physician Lyman G. Haskell M.D. and Jacksonville's city playground director, Clarence McDonald answered this call. Together, they solicited expert swimmers from the local YMCA, trained them in basic lifesaving technique and banded together to watch over Pablo Beach and rescue those in peril of drowning. With no funds for the guards, and driven by a passion for saving lives, they became the Volunteer Life Saving Service and built a lifeguard station at the end of Beach Boulevard, known then as Coast Guard Station #1. This same site has been home to the lifeguards for over 100 years.

After two years of dedicated service, the Volunteer Life Saving Corps attracted the attention of Commodore Wilbert E. Longfellow and the American Red Cross. It was during Commodore Longfellow's crusade to „Waterproof America“ that the Red Cross came to charter what became the American Red Cross Volunteer Life Saving Corps on April 17, 1914.

Lifesaving was especially risky in those early days. Guards were leery about wasting precious moments negotiating through the surf tethered to a ring buoy, but the alternative, approaching a panicked swimmer without flotation, was extremely dangerous. This problem was solved by a young Jacksonville lifesaver named Henry Walters. Walters developed a three-chamber buoy he called the Torpedo in 1919 and it still stands as a template for the plastic buoys used today by lifesavers all over the world. His design was so good, in fact, that these metal buoys were still in use in Jacksonville Beach as recently as 1992.

The ARCVLSC was well on its way to capturing the hearts of not just northeast Florida, but the nation. The Corps, as it's members call it, was featured in the 1939 issue of Life Magazine and their techniques were taught in the leading lifesaving manuals of the day. Corps members continue to be at the vanguard of lifesaving today, turning their attention to reducing the global burden of drowning alongside organizations like Lifeguards Without Borders. With their volunteer ethic, members of the ARCVLSC are well-suited to the task of encouraging lifesaving operations in developing nations where municipal, financial, and operational resources are limited.

So it has been that for over one hundred years the beaches of the largest coastal city in the United States has been under the vigilant watch of a corps of volunteer lifeguards. Records from those early decades are scant, but the ARCVLSC has put in an estimated 1.4 million volunteer hours and recorded over 3,000 rescues and assists to date. Today we carry the distinction of being the only remaining volunteer based lifesaving corps actively chartered by the American Red Cross. In honoring our traditions, we continue to rescue those in peril of drowning and resuscitate those apparently drowned, regardless of time or place.

When is it time to take your clothes off?

Brendan Donohoe (Lifesaving Foundation)

Individuals when entering water have the option of retaining or discarding clothing. Examples of these situations may vary from recreational, where a body of water has to be crossed, to stressful, where a river floods creating a civil emergency, or an emergency, where a rescuer decides to enter water. In these situations the swimmer has the option of remaining clothed when in the water or discarding clothing at various stages prior to entering or during the time in the water. The amount of drag caused and the effort required to swim will be dictated by the amount of clothes being worn.

A standardised format of dress was identified as part of research relating to immersion in water (Barwood. M., 2011). This arrangement of clothing is representative of winter dress in Ireland and will be used in this research.

This research intends to identify a guide to a swimmer as to the distance at which there is a speed advantage represented by time or energy saved by discarding clothing. Research has not been identified which answers this question. The process consists of a comparative study of the performance of swimmers, of various ages and ability, swimming a distance of 100m in swimming costume compared with the performance of the same task performed in winter dress. Their performance will be assessed recording intermediate and overall time to evaluate performance. The time required to undress from clothed to swimming costume will also be recorded. This will allow a time be calculated which represents the time required in a rescue scenario.

A quantitative assessment will also be made by recording resting pulse prior to commencement and the rate on completion of the task to evaluate the effort involved.

An opportunity to undertake a qualitative survey is provided by using a questionnaire prior to and post task to establish their perception or expectation of the task and the reality of the ease or difficulty when it has been completed.

Reference

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PRIDE in Education

Pamela Simon (Surf Lifesaving New South Wales, Australia)

Surf Life Saving NSW (SLSNSW) is the state's major water safety and rescue organisation, and with over 70,000 members is one of the largest volunteer movements in the state. With over 5000 people rescued last year and more than 100000 preventative actions performed, the role of surf lifesavers in NSW is essential to saving lives.

SLSNSW have been certified as a Registered Training Organisation, delivering Certificate II, III and IV in Public Safety under the banner of the Australian Life Saving Academy NSW, including a number of Health Training Package Units of Competency.

SLSNSW rolled out a PRIDE in Education campaign with the aim to re-invoke pride in our Educators, reminding all those involved in the Academy how vital their role is, and how much their contributions are valued. The campaign strived to refocus attention on our goals and how we can all work towards achieving them. The campaign was a great success, and will now be rolled out Nationally.

What is PRIDE? SLSNSW believes Pride to be Personal Responsibility In Delivering Excellence. Through pride comes responsibility and we are all responsible for striving for, achieving and maintaining excellence in all that we do.

The campaign has six themes, all areas that require individual contemplation and attention. It was delivered as a road-show across the state in a series of face to face interactive presentations to trainers and assessors, with posters being left for display in prominent club training areas. (two samples attached)

What we do in the Academy directly affects the quality of the lifesaver on our beaches. Educators have the ability to shape learners: not just their skills and knowledge, but their attitudes too. If learners see their Educator not following policy or not setting a good example then they may follow that lead and not see the value in the organisations high standards, consequently losing sight of our ultimate goals.

Educators are leaders. They set the standards for their learners in respect to performance, behaviour and attitudes. As an Educator they set and maintain organisational standards: if their standards slip, so will the standard of our lifesavers. What kind of Educator are you?

Acute stretches stretches at the performance of 25 meters swimming crawl in style on lifeguards

Dr. David Szpilman (Brazilian Lifesaving Society), Paulo Nunes Costa Filho, Marcos Tadeu de Almeida, Carlos Araújo Marques, Marcelo Pinheiro de Oliveira, Fábio Braga Martins, João Paulo Menezes dos Santos, Alexandre Palma

Among the studies focused on the sports of swimming, some of them intended for training to increase the performance of the individual as a means to improve and optimize the physical capabilities influential in this sport. In this context, stretching is a common practice in flexibility training, but there is a lack of specific information about the methods of stretching mainly geared to non-athletes. The literature states that flexibility is one of the fundamental physical abilities to perform well in individual swims.

Objective

To investigate the influence of three methods of acute stretching promotes improvement in performance of Lifeguards (LG) of the Fire Department of the State of Rio de Janeiro (CBMERJ) in a test speed of 25 meters crawl.

Methods: A sample of 34 non-athletes LG without experience in flexibility exercises, aged 25 ± 4.52 years, body weight of 71.31 ± 12.54 kg, height 173 ± 8 cm, body mass index (BMI) of 23.73 ± 2.63 kg/m² and body fat percentage (BF%) of $11.23 \pm 5.06\%$. Lifeguards from the Fire Department of Rio de Janeiro were randomly selected and divided into four groups: A (n = 8), B (n = 8), C (n = 9) and D (n = 9); being evaluated with the test of 25 meters crawl, following the experiment with the model of Latin square in four different situations: warming 5 minutes followed by 2 minutes rest and 25 meters test (T1); warming 5 minutes followed by 30 second rest, the static method with 3 repetition 30 second of the stretching (with 30 seconds rest between repetition on each members), followed by 2 minutes 25 meters and test crawl (T2); warming 5 minutes followed by 30 second rest, the ballistic method with 3 cycles of 15 repetition with 30 seconds of stretching on each members, followed by 2 minutes rest and 25 meters test crawl (T3); warming 5 minutes followed by 30 second rest, the method Proprioceptive Neuromuscular Facilitation (PNF) with 3 cycles of 6 repetition contraction with 6 seconds of stretching on each members, with 2 minutes rest and 25 meters test crawl (T4). The tests were conducted in a semi-Olympic pool (25 x 12.25 meters) and methods of stretching were conducted to reach the muscles used during the development of the above style. To assess the differences between the times of 25 meters crawl, we applied the statistical analysis one-way ANOVA followed by post-hoc Tukey. Data were expressed as mean, with a confidence interval (CI) of 95% and p-value of 5%.

Conclusion

This study concluded that among the three systematized acute stretching, the ballistic method (T3) was the biggest change that gave statistically significant ($p = 0.05$) when compared with other methods or without intervention in improving the performance of LG, however for the anthropometric measures was not significant difference evidenced between groups ($p = 0.05$).

Operation ALIVE: Prevention of Vehicle Submersion Drownings

Gordon Giesbrecht (University of Manitoba, Winnipeg, Canada)

In North America, between 350 and 400 people drown per year in submersed vehicles accounting for up to 10% or all drownings. Operation ALIVE (Automobile submersion: Lessons In Vehicle Escape) conducting ~150 vehicle submersions with human occupants, provides practical knowledge on escaping a sinking vehicle. Fatalities often occur because of poor understanding of what to do and incorrect actions, such as waiting for the vehicle to fill with water, trying to open doors instead of windows and calling for emergency help via a cell phone. Thus many of these deaths are preventable.

A typical intact car will float between 30 seconds and two minutes before it is completely submerged, however it is only possible to exit during the first minute before water rises high enough to push against the side windows. During this period you need to remain calm, roll down the window and exit the vehicle immediately. Using a cell phone to call for help is contraindicated because it will use up the "one-minute window for escape". In parallel to the public education program, we have also rewritten emergency dispatch protocols to change the focus from establishing a location to send help to, to actively instructing occupants on how to escape through the windows themselves.

AUSTSWIM EDUCATORS IN AQUATICS



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Pool Safety

NDPA Seal of Safer Pool Practices

Kim Tyson (National Drowning Prevention Alliance), Kim Burgess (National Drowning Prevention Alliance)

The National Drowning Prevention Alliance (NDPA) has developed a national program to address the drownings in Public Pools, specifically Class C. Class C pools are generally hotel or apartment pools that typically do not have lifeguards on the deck.

According to the Center for Disease Control in the US in 2009 - 3517 people died from unintentional drowning. From that number 877 were children 1-18 and from that number 450 were age 1-4. Over half of all child drownings are occurring in the 1-4 age group.

The concept is to address the facilities that are nonguarded to make them safer. We understand that there is no such thing as safe. The NDPA has adopted the Safer 3 message. The Safer 3 message is a comprehensive initiative designed to dramatically reduce drowning incidents in the Class C and public pools facility by:

- Recognizing the risks associated with water related activities,
- Implementing strategies to reduce and manage those risks,
- Responsibly maintaining those risks.

The main concept of the the Safe 3 message is based on the definition of safe. Safe means you are free from risk of harm or danger. When it comes to water, specifically unguarded water, we know this simply isn't true. There are always risks when you are in, on or around the water. The letter „r“ in the word „Safer“ reflects that difference. Risk is found in 3 main areas:

- Water
- Patron - (child, parent, caregiver, adult) and
- Response

We address eight key areas of the Class C or public pool facility that have been identified as risk areas of concern. They are:

- Barriers
- Water Clarity and Safety
- A Signage System
- Supervision
- Safety
- Communication
- Rescue Equipment
- Emergency Medical Response

Once the Public Pool facility has adopted the required standards and practices they submit a completed checklist for review. Our partner the Independent Pool and Spa Service Association (IPSSA) will send out a representative to verify the facility has met all of the standards.

The facility will then get their „Seal of Approval“ for being a safer facility. This program is designed to cut down the number of drownings in unguarded pools. It should also help in risk management of the facility that should cut down insurance cost related to these drownings, either fatal or non-fatal.

Innovative Equipment

Garry Seghers (The Swimming Teacher's Association STA),

In this session Garry Seghers, Qualifications Development Manager and UK Principle Expert in Buoyant Aids for Swimming Instruction, will discuss how vital it is for there to be innovation in pool safety equipment and how, with the right training, this can contribute to reducing the risk of drowning in any aquatic environment.

As one of the UK's leading providers of fully accredited qualifications in water and swimming pool rescue and pool safety, STA has commissioned the manufacture of bespoke safety equipment, for example the STA Torpedo Buoy. It is designed to act as a reaching, throwing, non-contact or contact rescue aid as well as being capable of aiding the support of back boards.

STA identified that the traditional torpedo buoy sometimes posed an issue, in particular for women, when holding them across the chest and under the arms. When used to assist with spinal board practice, there was often an imbalance if the buoy was not positioned completely accurately. As a result, the dimensions were considered and a new flexible design was created. The flat design with equal sized 'wings' reduces the need for five people performing a spinal board rescue to four. It is also invaluable in the event that a two man spinal rescue needs to be performed as well as proving a more comfortable buoyancy aid, particularly for women.

Taking into account feedback from industry experts, course tutors, candidates and leisure facilities, there is a clear need for innovation in order to develop the most effective equipment for aquatic environments possible.

Health and safety standards of swimming pools in Nairobi, Nakuru and Kiambu Counties in Kenya

Job Kania (Kenya Lifesaving Federation)

Background

Swimming pool hygiene and safety has been a great concern to many who uses pools facilities in Kenya.

Many cases have hit the Kenya headlines in T.V stations and on major National Newspaper where death due drowning in many pools in Nairobi and Nakuru has featured several. A month does not end before a fresh case is reported.

These deaths in these pools has been attributed to poor health and safety standards of pool facility concern e.g. the water quality at time of accident reveals that the pool was green hence poor visibility in locating the victim in one case the fellow swimmers did retrieve two dead bodies in a pool and brought it to the attention of the lifeguards concerned and another case friends and relative notified the lifeguards of their missing colleague at the closing time after discovering his clothes, that when the lifeguard made a search under water and just to scoop a nineteen year boy. Reasons for his inaction, the pool was green. Why did he allow people to use the green pool, the management want financial returning at the end of the day, week and month hence he could not stop people from using the pool.

Objective

1. To determine factors attributed to death by drowning in relation to poor health and safety standards.
2. To establish a policy formulation which may stimulate better methods of intervention on improvement of safety standards, training and proper management of aquatic facilities?

Methods

KLF audit reports of aquatic facilities inspection done from 2008 to 2012 around Nairobi, Nakuru and Kiambu counties were used. The audit report was further summarized into ten sections to assess the compliance or non compliance of the aquatic facilities.

Result

In Nairobi 40 pools scored 0-20% compliance, 25 pools ranged 21%-40% compliance, 15 pools got 41-61%, 13 pools ranged 61-80% and only 7 pools ranged 81-100% compliance.

In Nakuru 12 pools scored 21%-40% compliance and only 4 pools obtained 81%-100% compliance.

In Kiambu 11 pools received 21%-40% compliance while no pool reached the range of 81%-100% compliance.

Discussion

The relevant authorities that supervises and manage public swimming pools must be licensed to operate them and have an overseeing authority that will supervise and monitor their safety and compliance to general and specific safety and hygiene standards as established by them. Staff working at these stations must be trained and certified to work in their various stations and authority should be established to monitor and enforce this.

Conclusion

Public swimming pools, both hotel and learning institutions must engage competent personnel who are trained and certified. Such personnel can then be held liable for incidents that occur within their jurisdictions. We must act together on this to keep the swimming pools the fun place they are support to be and not and not turn them into death wells (et Paul Angar 2011)

References

Kenya lifesaving federation audit records on inspection of aquatic facilities.
Paul Angar - Drowning in Kenya KLF lifesaving commission report 2011.

Physical fatigue after a water rescue in a swimming pool reduces CPR quality

PhD Roberto Barcala-Furelos (University of Vigo)

Unintentional drowning is a leading cause of death worldwide. It is ranked eight as the cause of death for individuals under 20 years old¹ worldwide, and is the second cause of accidental death of young people in Europe. In Spain, a country with around 2.700 beaches and 400.000 swimming pools, there were 2.067 accidental deaths caused by drowning, submersion and suffocation in 2010.

According to the World Health Organization, the presence of lifeguards in swimming areas is of utmost importance in order to prevent and reduce the number of deaths by drowning, given that the use of aquatic environments for leisure and health-related activities is becoming increasingly popular.

The rescue of a drowned person is one of the most delicate interventions a lifeguard may need to perform, since the respiratory failure caused by the drowning event will trigger a cardiac arrest. Deaths by drowning in pools with lifeguards are not common, but do occur. In the event of a cardiac arrest, the European Resuscitation Council and the American Heart Association both recommend cardiopulmonary resuscitation (CPR) to be performed as early as possible, but also emphasize that the quality of the reanimation must not be disregarded. Furthermore, the ERCGR - European Resuscitation Council Guidelines for Resuscitation 2010 recommends that the rescuer be relieved after two minutes of reanimation due to the fact that the CPR delivery triggers fatigue in that rescuer⁹. The decrease in CPR quality due to physical fatigue is being studied for many years, but most scientific studies that address the subject focus on „at-the-hospital“ or „pre-hospital“ CPR performed by medical personnel, in scenarios where the rescuers start the reanimation without having previously become fatigued. However, in the case of other emergency teams, such as fire fighters or lifeguards, it is likely that the rescuer will already be worn-out when starting the CPR procedure. Studies such as those by Claesson et al⁵ and Barcala-Furelos et al evidenced the negative effects of fatigue on the quality of CPR delivery after beach water rescues but, to the best of our knowledge, a similar study was not performed addressing this issue after a swimming pool rescue. Given that anecdotal evidence points to the fact that swimming pool rescues involve less physical effort than those performed in a beach, it is important to evaluate whether the findings from previous studies hold true in a swimming pool environment.

Objective

The aim of this study was to analyse the influence of physical fatigue resulting from a swimming pool water rescue in the quality of CPR delivered by the rescuer.

Methods

We used an intragroup design, with 27 lifeguards. Quality of CPR delivery was evaluated for two minutes for all subjects while they were at rest (Test 1), as well as after a swimming pool water rescue (Test 2). A Resusci Anne(r) SkillReporter(tm) (Laerdal Medical Limited, United Kingdom) manikin was used to retrieve reports on CPR delivery compliance.

Results

Rescue-related physical fatigue had a significant influence on the total number of chest compressions (at rest: 137 ± 2.0 ; exhausted: 151 ± 2.1 ; $p < 0.001$) as well as in the ratio of correct chest compressions (at rest: $86.3\% \pm 3.8$; exhausted: $69.6\% \pm 6.3$; $p = 0.030$).

Conclusions

Physical fatigue triggered by a swimming pool water rescue negatively influenced CPR delivery quality. This shows that the detrimental effects of physical fatigue on CPR delivery remain important, even in a swimming pool environment. Training programs should reflect this finding, and focus on enabling lifeguards to deliver proper CPR even while exhausted and during long periods of time.

Drowning prevention in public and semi-public pools: Learning from over 10 years of insurance claims investigations at YMCA pools to save lives in the water

Gareth Hedges (The Redwoods Group), Michael Oostman

The Redwoods Group is a social enterprise that uses the power of insurance to serve non-profit entities with a social mission. We use the data from our insurance and claims operations-over 40,000 incident reports per year-to help our partners operate more safely, reducing injury and saving lives.

For over 10 years, The Redwoods Group, in conjunction with Oostman Aquatic Safety Consulting and other partners, has conducted on-site investigations following aquatic injuries at our partners' pools, usually within 24 hours of the event. Through these investigations we have learned the risk factors associated with drowning injuries in these sites, and the types of solutions that have proven most effective in preventing them.

This presentation will:

1. Describe the investigation process following an aquatic injury, focusing on:
 - a.) Factual investigation for claims defense purposes;
 - b.) Risk management recommendations and follow-up;
 - c.) Data collection; and
 - d.) Helping the staff, victim or victim's family, and community heal after a tragic event.
2. Share the data, trends, and solutions for reducing risk of drowning in public and semi-public swimming pools. Specifically, it will address what we have learned from the data, including:
 - a.) The demographics of drowning injuries, medical events, and breath-holding injuries in swimming pools;
 - b.) Risk factors for drowning injuries;
 - c.) Effective lifeguard behavior;
 - d.) Effective emergency response systems;
 - e.) Non-swimmer protection; and
 - f.) The role of non-lifeguard supervision

Explore future options for partnerships between public and private organizations-including insurance companies-to leverage data to influence safer behaviors, and ultimately to save lives.

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Aquatic Management Assessment Tool

Roy R. Fielding (University of North Carolina at Charlotte)

This is a type of checklist that helps aquatic venues assess where they stand in relationship to what they MUST, SHOULD and/or COULD do in relationship to best practices in the field. The checklist is designed to help operators of aquatic venues review current practices and compare with the following list. The intent is to reduce the risk and liability of an aquatic venue by preparing a comprehensive plan to be ready to prevent, control and/or response in the case of an emergency. The operational structure includes:

1. The Aquatic Venue and surrounding area
2. The staff and chain of command
3. The programming of the venue
4. The water treatment component
5. The safety and emergency plans
6. The aquatic equipment
7. Hiring, requirements and training procedures of staff
8. Community Involvement

This is meant to be a living document to be improved upon as time goes on.

Optimising Swimming Pool Safety through Maximising Lifeguard Performance: A New Era in Lifeguard Qualifications

Alex Blackwell (Royal Life Saving Society UK)

Overview

This session would provide opportunities for the transfer of best practice, learning points and identifying successful approaches in the review or development of Pool Lifeguard qualifications.

Background

The Water Incident Database Reports, 2009, 2010 and 2011 reveal that 25 people died in swimming pools between 2009 and 2011, with 68% of deaths occurring in children under 9 years old. In each year recorded, deaths in swimming pools have increased significantly.

As the UK's drowning prevention charity, the Royal Life Saving Society UK (RLSS UK) operates a trading subsidiary, IQL UK, whose primary focus is dedicated to the management and development of the National Pool Lifeguard Qualification (NPLQ). In aiming to reduce or eradicate avoidable deaths in swimming pools, IQL UK embarked upon research of pool operators and trainers to establish the validity of the NPLQ and ultimately how effective UK Lifeguards were in preventing drowning. The outcome of this research resulted in the development of a brand new pool lifeguard qualification which has positively challenged the calibre of pool lifeguarding in the UK contributing to zero drowning in UK pools in 2012.

Activity

The NPLQ was first successfully developed in the early 1990s to accommodate the needs of pool operators and lifeguards and to specifically address the short falls in lifesaving qualifications within a pool environment. Subsequently the NPLQ became by far the most widely attained pool lifeguard qualification in the UK. Seven editions of the NPLQ have each been updated to include changes in medical research and more commonly resuscitation protocols. No real correlation between updates and the number of pool deaths had previously been considered.

Research revealed that lifeguards' training focussed heavily on rescue and resuscitation techniques and that the training lacked a focus on early intervention action by lifeguards; understanding the legal implications and consequences of not following the training given and; links to site specific arrangements for pool safety both in the in the context of the law and as a duty of care.

The development of the new NPLQ addressed the notion of a lifeguard taking a much greater responsibility in this context, in essence guiding the lifeguard in understanding their personal actions, and/or liability, and the profound significance of safeguarding life.

Consequently the NPLQ structure now takes a lifeguard through a journey of responsibility, linking operators responsibilities with the actions of the lifeguards, understanding the pool environment, the associated hazards and the skills to guard against these through supervision, huge emphasis is given to early intervention promoting prevention rather than cure and culminates with rescue and medical techniques as a last resort rather than a primary focus:

Section 1.: The Role of the Lifeguard, Swimming Pool and Supervision

Section 2.: Intervention, Rescue and Emergency Action Procedures

Section 3.: Cardio Pulmonary Resuscitation, Automated External Defibrillators and First Aid

To maintain this focus we provided a comprehensive on line management tool to enable pool operators to manage the on-going competence of lifeguards in this syllabus.

Outcomes

Throughout 2012 over 4000 trainers met face to face with the authors of both the research and the new qualification, thus raising the profile of the role of the lifeguard and seeking to gain 100% buy-in to a new era in pool lifeguarding. Since delivering the new qualification the RLSS UK has been inundated and overawed by the positive feedback on how this qualification has impacted on the calibre of lifeguards and most importantly has resulted in zero drowning in UK swimming pools in 2012.

References

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Update on Progress of the U.S. Model Aquatic Health Code

Jill White (Starfish Aquatics Institute)

Background/Introduction

The U.S. Centers for Disease Control and Prevention (CDC) is working with public health and industry representatives across the United States to build a Model Aquatic Health Code (MAHC). In the United States there is no federal regulatory authority from public swimming pools and recreational aquatic venues such as water parks and no uniform standards governing the design, construction, operation, maintenance, and safety of swimming pools. Existing code requirements for safety, drowning prevention, and responding to Recreational Water Illness (RWI's) can vary significantly. The MAHC will provide data-driven, knowledge based risk reduction guidelines. The effort steps from a CDC-sponsored workshop convened in February, 2005. In May, 2007, a ten member Steering Committee was established to plan MAHC development.

Progress

Several modules have been posted for public comment and the code is in final stages of development.

Conclusion

The MAHC will serve as a model for state agencies in the U.S. needing guidance to implement a swimming pool code in their jurisdiction to help improve safe operations. The process will create a repository of best practice for operation, including the potential for collaboration on an international effort.

Prevention of drowning in a portuguese wave pool (case study)

Dr. Alexandre Tadeia (Portuguese Lifesaving Federation)

Due to the high number of drownings recorded in the Wave Pool of the Aquatic Complex of Santarém - Portugal, there was a need to study and create a prevention plan for the infrastructure. This wave pool showed an average of 28 drownings in the summer (June 1 to September 15) due to poor swimming ability of their users and to the high power oscillation of the water, not having registered any deadly case yet. This case study shows the plan that was created for the pool.



Scuba and rescue diving

Breath-hold freediving – another name for competitive drowning?

Daniel Graham (Nile Swimmers)

Freediving is the recreational activity and sport of breath-holding diving. Common perception is that it is about travelling deeper and deeper under the sea on rocket propelled sleds - taking the human body to the very limits of physical performance. In fact, many thousands of people practice freediving at relatively shallow depths for recreation, for spearfishing, and for pearl diving.

Since 1992 AIDA has worked to establish a competitive structure, and freediver training program, and training structure. In the early stages of freediving training, there is a significant focus on safety practices, and teaching the diver to look after both themselves, and their dive buddy.

Inevitably, freediving carries with it an element of risk - as does every single sporting activity in the world. Due to the extreme nature of the record attempts - there is a disproportionate level of media attention focussed on freediving when things go wrong.

Freediving is a very difficult activity to scientifically test - with each record attempt, there are fears that the diver will die. The very first time a diver went to 50m - many experts thought he would die either from lung barotrauma, or from being crushed. The current world records have breached 200m in depth. It is clear, from the diversity of theories expressed by the various freediving schools, that there is little scientific evidence to explain how humans are capable of surviving at such extreme depths.

As a result of this, the experts of the freediving community appear to differentiate themselves from almost all other areas of similar research that could impact on the safety of the activity - for example resuscitation and other areas of dive medicine.

If you remove the motivation and reason for being underwater - then freediving is very simply competitive drowning. The concept is to stay for as long as possible underwater and to drown (under the 2002 definition of drowning) but to achieve no morbidity or injury.

It is completely understandable why the freediving community is reluctant to do this, as clearly it is not a positive light in which to present the sport to new freedivers. However, by removing the differentiation, and speaking about freediving in these terms, we start to be able to draw parallels between many areas of research - and therefore increase the safety of the activity for everybody. Implementing global best practice, rather than just expert opinion is highly desirable.

AIDA, and the other organisations that concern themselves with underwater activities are well placed to open this discussion and increase the safety of the activity.

Water and Dive Rescue in the National System of Rescue in Poland

Magdalena Zielinska (Wodne Ochotnicze Pogotowie Ratunkowe WOPR)

The publication compares the ILS diving training programs with programs carried out by the Polish Life Saving Federation (WOPR), State Fire Service and the General Maritime Office in Gdynia.

The article describes the principles of organization the Water and Dive Rescue in the National Firefighting and Rescue System in Poland.

- Division the rescue activities to the basic (on the water surface) and specialized level (underwater)
- A specialist level is divided into three sublevels of operational readiness (different levels of readiness are described)

The basic operating parameters such as:

- The units foreseen to perform water rescue
- Operational readiness standard
- The scope of water rescue
- Eligibility requirements for the rescuers
- The minimum equipment standard.

The elaboration present the rescue teams' network development plan within the National Firefighting and Rescue System. The plan is illustrated on the maps with selected operating factors. The location of specialized Water and Dive Rescue Teams with the distinguish between declared operational readiness levels and the areas protected by each team have been analyzed.

The article presents statistics on the number of conducted water rescue and dive rescue operations detailing the activities carried out in which the specialized diving equipment have been used by the Water and Dive Rescue Team.

The analysis allowed to implement conclusions and to develop a specific standard that could provide support for the process of development of the water rescue and rescue diving system.

fit2dive – a field test for assessing specific capabilities in SCUBA Diving

David Loosen (German Sport University Cologne), Fabian Steinberg, Tobias Dräger, Uwe Hoffmann

SCUBA diving today is a popular aquatic sport with a variety of target groups ranging from professional diving to recreational diving. Due to the special environmental conditions for divers, the medical examination, especially concerning the cardiovascular, the respiratory and the nervous system is essential to prevent serious incidents. To ensure maximum safety while working and exercising underwater, key components influencing the underwater performance should be assessed. Exercise modalities such as cycle ergometry, used to evaluate physical fitness of divers do not mimic the specific movements of fin swimming underwater and therefore have limited potential rating diving performance. Assuming that fin swimming is a main part of a diver's activity, there is no specific testing procedure for divers available. Also, other factors such as equipment configuration, buoyancy and technical ability can influence water resistance and have great impact on SCUBA diving performance. Thus, the diver can be seen as a „system“ consisting of the components mentioned above. To meet these requirements of the „system diver“ there is a need to develop a specific diving capability assessment procedure.

The fit2dive-test, a standardized field test to assess and rate the „system diver“ was developed. The test consists of an incremental protocol that is performed in a pool (<5 m depth). The underwater swimming speed is increased stepwise by 0.2 m·s⁻¹ starting with 0.4 m·s⁻¹ until the test subject's subjective exhaustion is attained. Time of break-off (fit2dive-time), swimming technique (e.g. range of motion (ROM) of hip and knee joints) and equipment configuration is recorded via a standardized checklist by a specially trained dive instructor. First tests assessing the specific capability of underwater fin swimming with SCUBA with 325 (74 female and 251 male) recreational divers, showed that subjects with the highest hip and knee flexion had lower fit2dive-times (373 ± 119 s; p<0.01) than those in the normal hip and knee flexion ROM category (448 ± 104 s). Further, divers using full foot fins had significantly higher (p<0.001) fit2dive-times (474 ± 97 s) than divers with adjustable strap fins (375 ± 104 s). The results allow identifying weak factors such as underwater swimming technique or equipment configuration.

The result of the fit2dive-test helps SCUBA divers to rate themselves and therefore in the selection of an adequate open water diving spot to prevent overexertion from e.g. expected currents. Moreover, the tested diver learns how to deal with exhaustive situations under water. Both aspects are important contributions to make recreational diving safer.

Arterial blood pressure in SCUBA underwater swimming

Dr. Uwe Hoffmann (German Sport University Cologne), Nils Bury, Rainer Meyer

Water immersion affects arterial blood pressure (BP) particularly through redistribution of blood volume, facial cooling, and thermo-regulation effects. Therefore, the responses to typical efforts in SCUBA diving are of vital interest. However, little information is known about the BP reaction under water and its consequences for diving safety and diving fitness. Aim of this study was to collect blood pressure data during a standardized underwater swimming test with SCUBA and to compare these data with cycle ergometry in the same range of exertion.

21 subjects performed an underwater swimming test at 0.4 m s⁻¹, 0.6 m s⁻¹ and 0.8 m s⁻¹ for 3 min each in a pool of 5 m depth with SCUBA. After each workload the subjects stopped swimming for 2 min and the BP measurement was initiated on the bottom of the pool. After 5 min of recovery an additional measurement was performed. All subjects also performed a cycle ergometry in supine position at workloads of 50 W, 100 W and 150 W. BP measurements followed the same protocol as in the underwater experiments.

Heart rate (HR), systolic and diastolic blood pressure (BP_{sys}, BP_{dia}) were measured with a full automatic blood pressure monitor based on an oscillometric method (Mobil-O-Graph; IEM, Germany). For underwater applications, the device was encapsulated in a waterproofed box which was equalized to the ambient pressure.

Comparing similar steps in workload no significant differences in HR were found between underwater swimming and ergometry. In contrast, both BP_{sys} and BP_{dia} were found to be lower in the underwater swimming test. The differences of means ranged between 3 and 22 mmHg.

It can be concluded that dry ergometry results on BP control cannot be extended to underwater swimming. Therefore, further studies monitoring divers with BP dysregulation are recommended.

Recreational SCUBA-Diving – a motivation for health sport?

Dr. Uwe Hoffmann (German Sport University Cologne), Heike Gatermann, Karlheim Schmitz, Ingo Meßer

Recreational SCUBA diving may be seen as outdoor activity to enhance the activity level of sedentary people. If SCUBA dives include some distances of underwater swimming the workloads might be comparable with walking or hiking. The perspective of eventful dives may also be a motivation for regular finswimming training. The motivation might be enhanced by yearly performance ratings. In 2013, the German Underwater Federation (VDST) relaunched their finswimming badge (Leistungsabzeichen Flossenschwimmen) in conjunction with a nationwide campaign of the German Olympic Sports Confederation (Deutscher Olympischer Sportbund, DOSB) of the German Sports Badge (Deutsches Sportabzeichen, DSA). In this way we link, in an ideal way, the tradition of an almost 100-year-old history with the fitness idea of modern society. Finswimming is now one option to fulfill the criteria of the DSA in the endurance category. The requirements of the finswimming badge vary by age and gender and covers 4 disciplines: 25m sprint, 100 m, 400 m and 800 m distances as representatives of different endurance requirements ranked in three levels: Bronze, Silver, Gold. The overall rating will be given by the lowest rating in all disciplines.

The advantage of finswimming as activity is obvious: Training activities can be varied in a wide range from snorkeling to activities with SCUBA. Both the perspective of an increased safety in SCUBA dives and the effect for health may motivate even those people who are dissociated from other sports. Typical examples are obese people due to the fact the buoyancy compensates the body weight significantly. The combination of SCUBA diving and finswimming gives a chance to improve their work capacities also for other sports. Another positive effect is the increase in water safety. In summary, this variety of in-water activities related to SCUBA diving gives an excellent example how to improve health and safety by attractive training offers.

VDST statistic of SCUBA and apneic diving incidents

Dr.med. Heike Gatermann (German underwater federation VDST), Dr. Konrad Meyne

As largest national non-profit diving organization the German underwater federation (VDST) with over 76.000 members operates an own 24-h medical hotline with a related accident insurance. 26 medical doctors are honorary working for the hotline throughout the year.

The diving activities of VDST members range from weekly open water dives in fresh water to dives during their holidays. This might vary from divers' activities in other countries and even other groups of recreational divers. Most of open water training is performed in domestic dive spots. By the hotline, all activities domestic and abroad diving activities of the members including the diving instructors are supported. Therefore, the number of contacts, the related consultation and the insurance cases may give valid information about the frequency of incidents during diving and its quality.

In average over the last 5 years, 310 hotline contacts per year were protocolled. The number of incidents during diving must be related to the distribution of VDST members in terms of gender, diving experience, age, depth of the dive and other characteristics. For example, it turns out that with regard to gender distribution in the membership incidents in male divers are more frequent than in females. Both the frequency in incidents and fatalities showed that divers in the age 40 to 50 y are more critical than other age cohorts. A closer analysis of fatalities give valid and important information for potential causes.

Another aspect is the comparison with other leisure activities since recreational diving is label as ‚risk sport‘. Comparing frequencies of incidents during recreational diving with other leisure sports it must be concluded, that SCUBA and apneic diving is no risk sport. However, this statistic allows to improve the future training, standards for diving, equipment and medical screening for the fitness to dive .

Body temperature, heart rate and lung function after dives with regulator and full-face-mask

Dr. Bernd Winkler (University of Ulm, Department of Anaesthesiology), CM. Muth, K. Tetzlaff, A. Koch, W. Kaehler, R. Leberle

Full-face-masks (FFM) prevent the diver's face from cold and enable nasal breathing. The aim of the study was to evaluate the effect of FFM on body temperature, heart rate and lung function.

21 divers performed two cold water dives (4 °C, 25 min, 10 m) - one with a full-face-mask and the other with a diving mask. Spirometry was performed before and after each dive. Oral, tympanic and skin temperatures were measured before and after each dive. Diving depth, ambient temperature and heart rate were measured during the dives. Well being and cold sensation were assessed after the dives.

Significant decreases of pulmonary function parameters, heart rate and oral, tympanic and skin temperature occurred after FFM and diving mask dives. After FFM dives oral and tympanic temperatures decreased significantly less than after diving mask dives. While well-being and cold-sensation were significantly improved with FFM dives compared to mask dives, no differences were obtained between exposures for heart rate or lung function.

During cold water dives the use of FFM appears to reduce the cold sensation and enhance the well-being of the divers. Even though protecting the face from cold water and heat loss, FFM do not reduce cardiac and respiratory effects of cold-water SCUBA dives.



Rescue Boat Driving

IRB's in Surf Lifesaving Denmark Past – Present and the Future

Michael Iwersen (Surf Lifesaving Denmark)

In 1999 Surf Lifesaving Denmark was created as a co-operation between the Danish Swimming Federation and the foundation TrygFonden. Today SLSD is a professional Lifeguard Service operating 34 Lifeguard stations with 180 employed Lifeguards during the summer. Since the beginning in 1999 SLSD has developed in many areas. This oral presentation will focus on the IRB development in SLSD. Key areas will be to show how SLSD has used best practice to develop and find the most suitable IRB equipment and IRB training standards. Being a small country and a new Lifeguard service SLSD has had the privilege to develop fast. An important reason to this has been the ability to use best practice and adapt it to the Danish conditions. The presentation will headline the Past, Present and future IRB development in Surf Lifesaving Denmark.

Inflatable Rescue Boats (IRB) – A review into IRB operator injuries and methods for prevention and skill enhancement

Shauna Sherker (Surf Life Saving Australia)

Introduction

Inflatable Rescue Boats (IRBs) play an important role in the Australian surf lifesaving movement; both in saving lives in the water and as a surf sport.

Developed and introduced in Australia in the 1970's as a more effective and quicker way of saving lives in the water, today they are the rescue 'workhorse' of lifesaving patrols. All 310 Surf Life Saving Australia's affiliated clubs own and operate at least one IRB and on average nearly 3000 rescues are carried out every year using an IRB.

In the past 10 years, SLSA has noted a significant increase in the number of injuries being sustained by IRB operators. In this time SLSA has conducted two national reviews (2001 and 2009) to ascertain the nature and cause of IRB injuries and to implement methods to assist with injury prevention and improve operator performance.

The IRB Review conducted in 2001 specifically addressed IRB injuries sustained during IRB competition. The IRB Review conducted in 2009 adopted a holistic approach and included all lifesaving activities and IRB competition. This paper will specifically look at the 2009 IRB Review.

Aim

1. To describe the nature of IRB injuries;
2. To identify key risk factors of IRB operations and key causes of IRB injury;
3. To develop and implement strategies to reduce any identified risk and strengthen safe IRB operations.

Methods

This study entailed an epidemiological study of IRB injuries in Australia from 2003-2009, using SLSA's incident reporting database (SurfGuard).

In addition, an expert panel was formed to review key risk factors of IRB operations and key causes of IRB injury; and to develop and implement strategies to reduce any identified risk and strengthen safe IRB operations. The IRB Review Panel reviewed literature on IRB injuries.

In-field studies were conducted to trial and evaluate all available IRB equipment (including different hull styles, out-board motors, fuel cells, propellers and guards).

Key findings

Despite encountering some complications with the data set, it was identified that IRB crewpersons are overrepresented, with 55% of IRB injuries. The most common injury is to the IRB crew's right foot/ankle/knee (51%) and included fractures, sprains and strains. Males in the age group 15-20 are also overrepresented in IRB injuries (36%).

A link was established between injuries to the right lower limb of the crewperson and the use of the right crew foot strap whilst negotiating the break.

Discussion

SLSA's IRB Review Panel put forward more than 20 strategies for reducing injury including improvements to IRB training and education, new operator techniques, changes to gear and equipment, improvements to sport/coaching standards, the general culture of safety within the SLS movement and improvements to injury data collection. Most strategies have since been implemented including the removal of the right crew foot strap, change to adjustable foot straps and the development of a new crewing position.

Conclusions

An injury data analysis will be conducted again in early 2013 to evaluate the IRB review process and identify any areas that need continued focus or to be re-addressed.

SLSA faced a number of key issues during the course of this review, including lack of funding for academic research and to implement some of the recommendations, data quality and the attitude/response of our 45,000 active lifesavers to significant change in the IRB environment.

The next steps in ensuring continued IRB operator injury prevention will be discussed. Any outstanding recommendations and future plans for data analysis will also be noted.

Special boats for special missions – Development and capabilities of flood rescue boats

Martin Diederich (German Life Saving Society DLRG), **Jens Schmidt**

Climate change and associated extreme rain scenarios are leading to an increase in flooding, and not only in central Europe. Typical rescue boats cannot be used without limitation in such scenarios. Shallow waters, underwater obstacles as well as size-to-payload ratio are factors limiting their usage. Within this talk the authors will present a new type of boat that has become more and more common in Germany in recent years; a boat that can deal with these challenges and can play to its strengths in urban and rural areas.

Outline:

- Overview of extreme rain scenarios in Germany that have required rescue boat operations
- Basic challenges for rescue boat operations in flooded areas
- Gap-analysis for the usage of common rescue boats in flooded areas
- Emphasize additional requirements for flood rescue boats
- Development of flood rescue boats, using „Land unter“ as an example
- Pros and cons of flood rescue boats
- Typical usage and market penetration in Germany
- Conclusion

DLRG crew education and operational procedures for inflatable rescue boats (IRB)

Henning Otto (German Life Saving Society DLRG)

The presentation will show the status of IRB education and operation in Germany. The first IRB has been introduced in Germany almost 10 years ago. DLRG had to find a way to include the knowledge needed for IRB Rescues and IRB competitions in the existing education for rescue boat crews. I will show explicit the extra education on top of the great basis DLRG provides with the rescue boat operators license and the lifesaver education.

Points explained are:

- The IRB: how DLRG sees it and how and where we use it
- Crew education in germany
- Contents of IRB courses

As conclusion I will point out the position of the use of IRBs in the water rescue strategy of DLRG and the aim for the future.

Open sea regatta safe guarding

Dr. Dirk Holtkamp (German Life Saving Society DLRG)

Open sea and inland waters sailing events have a long history within Germany. More than 125 years ago the first sailing event started in Kiel (Schleswig-Holstein, Baltic Sea). This was the beginning of what is today the world's biggest sailing event „Kieler Woche“ with more than 5,000 sailors attending for a whole week. During the last 25 years the DLRG accompanied this event as Lifesaver. Within these years the DLRG developed a concept how to support and lifeguard events on different racing areas. Also design and equipment of the rescue boats changed during this time period. Today different boats are available for sailing regattas during the whole year, not only for the „Kieler Woche“ but also for other events at the Baltic Sea. Some of the boats are developed for rough conditions, so they can be used at all German coastal waters, regardless if it's the quite calm Baltic Sea or the even rougher North Sea.

Nearly ten years ago the DLRG also started a program for the Lifesaver to learn more about different sailing boat types. The DLRG has not only the function as Lifesaver but also helps at typical yacht racing problems like bringing boats back to the harbor during calm or take care of crashed boats and so on. More than 60 Lifesaver are working every day during this event. The presentation will show the actual concept, boat types, assignment of personnel and tactical boat coordination as well as cooperation with the Regatta Organization and Weather Forecast Services. It will give you an overview, how to - using „Kieler Woche“ as an example - handle big sailing events.

New Zealand Experience with Inshore Rescue Boats

Graeme Cullen (Surf Life Saving New Zealand Inc), **Andy Kent** (SLSNZ)

A general overview of the NZ experience with the development with Inshore Rescue Boats (IRB's), in particular looking at:

- Development of the design and specifications.
- Current design features and operational capability.
- The value of standardisation.
- Training and support programmes.
- Level of use in the NZ environment.
- Strengths and weaknesses.
- Where to in the future?

IRB Sport – a sport for real lifesavers

Adam Wooler (Surf Life Saving GB)

Since its inception in the 1960's the Inflatable Rescue Boat (IRB) has gone on to have the biggest impact on surf rescue techniques since the introduction of the Malibu rescue board. Since then, the IRB has proved itself to be the single most important piece of lifesaving equipment available to the modern day lifeguard service and it is IRB Sport that has played a significant role in the development of both the IRB itself and the skills of those who crew it. Advances in hull design to increase speed and efficiency as well as considerable research & development into propellers and propeller guards have improved the operational effectiveness of the craft. IRB Sport places lifesaver and machine in simulated real-life situations giving them experience they may never gain on patrol duty until it is needed at that crucial moment. It refines techniques and requires fitness, awareness and an in-depth understanding of the craft and motor which undoubtedly leads to crews better prepared to save lives. Being one of the only true 'team' sports in lifesaving it brings together a driver, crew and patient who must act together to effect a rescue at high speed in often challenging conditions. It also brings crews together who share information, ideas and best practice for both IRB rescue and IRB sport with each other and their peers.

In recent years there have been concerns over safety, which have been rigorously addressed by amongst other things an investment in coaching and official development programmes. The rapid growth of IRB Sport in the northern hemisphere as well as consistently high participation levels in Australia and New Zealand have led to both European and World IRB Championships being conducted. With the recent introduction of an international IRB Teams event, the stage is set for IRB Competition to become a key part of lifesaving sport at an international level for years to come.



Risk Assessment

Lifeguarded

In denial - exploring the real risks around water in Africa

Daniel Graham (Nile Swimmers), Thomas Mecrow

Nile Swimmers is a unique drowning prevention initiative created in 2007 that focuses on the River Nile in Sudan. The project has grown successfully since then, both in terms of delivery, and ambition through partnership with the Sudanese Sea Scouts.

The dangers posed by the river Nile change significantly throughout its 6,600km course from the mountains of Uganda and Rwanda to the delta of Egypt. Consequently a „one size fits all“ approach is not appropriate, and would not work.

Nile Swimmers uses a participatory approach to identify local drowning risk factors and training needs of the participants. Delivering appropriate training enables them to create locally appropriate and sustainable drowning prevention interventions.

A key part of this training is the ability to risk assess the aquatic environment, and from there, develop an appropriate drowning prevention strategy to implement on a local level. Teaching Risk Assessment in a low income country is clearly very different to teaching in a high income country.

Throughout all of the programs run by Nile Swimmers, it has been evident that the perception of the risk of drowning is completely out of proportion to the actual risk. Indeed, many Nile Swimmers participants simply do not consider drowning to be a risk. This idea stems from several different sources.

Firstly, there are other risks that are ‚scarier‘ so although the actual risk level may be lower, the perception is that the risk is greater. This applies to risks in the Nile such as hippopotamus, crocodiles, baradas (a type of electric catfish), and bilharzia.

Secondly, there is low level of understanding (across the world, not just in low income countries) about the dynamics of the aquatic environment. In high income countries there are many campaigns focussed around rip-currents for example, because they are misunderstood or not perceived as a risk.

Thirdly, there is a fundamental misunderstanding of the physiology of drowning. Many participants believe that death is caused by drinking the water, rather than inhaling the water. Indeed, in many cultures - traditional drowning ‚remedies‘ have focussed on getting water out of the casualty - by spinning them, by heating them up, by burying them, or by inducing vomiting. There is a lack of understanding that rather than getting the water out, the casualty needs to get air into their lungs.

Conclusion

Therefore, in order to teach risk assessment and risk management strategies that are meaningful and useful in low income countries - it is essential that the fundamental misconceptions (outlined above) are addressed and corrected. Otherwise, the risk assessment results will end up completely skewed. The challenge is to address those misconceptions in a culturally acceptable way.

Without an accurate and locally valid risk assessment - a participatory approach to implementing a drowning prevention program will not achieve success. The local risk assessment is the first step in the implementation process - and will help to ensure local ownership of the problem, and ownership of the solution.

Rescue number system in Denmark

Helen Witt Qvist (Surf Life Saving Denmark), Erik Bech

In Denmark we have approx. 7.500 km. Coastline - this is of course fantastic, however it is challenging the procedures of rescue along the coast. One of the hurdles is to call 1-1-2 for help. Not because there is lack of cellphones or emergency phones, but because it is difficult to tell the operator where the accident is. A beach in general does not have an address simply because it often stretches for many kilometers. Sometimes a beach might have more than one name - an official name and local name. As a result of that situation it has unfortunately been occurring that emergency vehicles has been directed to a wrong location, which is obviously very problematic in regards of making the best effort to help the victims in an accident as fast as possible.

A working group consisting of the Danish National Police, the Ministry of Environment and Surf Life Saving Denmark came up with a national rescue number system, which started to be implemented in the beginning of 2010. Since then the system is spreading to all of the country and the plan is to have all the Danish beaches numbered in the summer of 2013.

Since Denmark is a fairly small country, the country is divided into 11 police districts. All the districts have their letter - fx A, E ect. This is also reflected in the rescue number system, which in a particular police district begins with a letter and is followed by a 3-digit number.

The signs are mainly placed at emergency rescue access points at the beaches, however at some beaches, in particular the very long beaches, there are additional signs along the shore to direct the emergency vehicles as close as possible to the people in need of help.

The rescue number system along the Danish coast and also at lakes, have up-graded the safety level of the beaches and indeed the feeling of being safe for the public visiting the coastline and the lakes.

In regards of a further development of the rescue number system it is obvious to expand the system to marinas, hiking trails, parks, national parks and forests. All geographical positions, which are difficult to explain, must be the natural extension of the already existing system.

Border to border – assessing the risks of an entire coastline

Adam Weir (Surf Life Saving Australia)

An average of 92 people drown in Australian coastal waters every year. New South Wales (NSW) accounts for almost 50% of the national coastal drowning toll. There have been 292 coastal drowning deaths in NSW between July 2004 and July 2013. Over 53% of these drownings can be attributed to swimming/wading (29.8%) and rock-fishing (23.4%), with almost all occurring at unpatrolled locations or outside of patrol operational times, where no expert assistance is immediately available.

Accidental drowning deaths in the coastal aquatic environment can be accounted for through a number of causal factors known as the 'drowning chain' (ILS, 2008).

Elements of the drowning chain include:

- Lack of knowledge, disregard or misjudgement of the hazard;
- Uninformed, unprotected or unrestricted access to the hazard;
- Lack of supervision or surveillance; and
- An inability to cope once in difficulty.

Australian CoastSafe is undertaking an ambitious project funded by the NSW Water Safety Black Spot Fund. 'Project Blue Print' is a coastal public safety risk assessment for every beach and rock platform in NSW. This project will be fundamental in addressing the coastal drowning issue in NSW in the short, mid and long term.

This paper aims to provide details on the scope of the project, the risk management methodologies applied to guide the recommendation of drowning prevention strategies and the tools developed to deliver this project.

Over four years the assessment team will cover 1,590 km of coastline, which includes 600km (38%) of rocky coastline and 990km of sandy coastline (62%). A total of 892 beaches will be assessed as part of the project. Whilst on the coast, qualified CoastSafe Assessors use sophisticated tools, developed by Surf Life Saving Australia to collect and assess data on an unprecedented scale. All collected data is geocoded and can be analysed using Geographic Information Systems (GIS) and incorporated into mapping systems of land managers.

Using advanced mobile technology, CoastSafe Assessors audit and assess numerous aspects of the NSW coastline which have been identified as factors which contribute to the usage, hazardousness and risk. These include:

- Hazards - such as rips, dangerous currents, sand banks, rocks, reefs, manmade structures, litter and debris, erosion, predatory wildlife, etc.
- Access - identification of all methods of accessing the assessed location, both formal and informal
- Existing Signage - audit and recording of all signage laying within the assessed area, and where appropriate the level of compliance of existing signage with relevant Australian Standards and Guidelines
- Recommended Signage - positioning and placement of any recommended signage, including the removal or consolidation of existing signage
- Facilities - audit and recording of all facilities and structures in place within the assessment area that attract visitors and encourage use of a location
- Existing Rescue Equipment - audit and recording of all existing public and emergency rescue equipment within the assessment area
- Recommended Rescue Equipment - positioning and placement of any recommended public rescue equipment
- Supporting Services - audit and recording of external supporting emergency services and their ability to respond to emergency incidents at the assessed location

Further to this, the assessment of all coastal water access-ways and locations in NSW will provide a suite of assigned individual access/location numbers (emergency marker system) which can be added to existing or future signage. SLSNSW will work with key emergency service stakeholders to align this information into the various (000) CAD systems - to improve emergency response.

The project will provide a 'Blue-Print' for NSW from which an effective drowning prevention strategy can be developed to meet the National/State goal to reduce drowning deaths by 50% by 2020 based upon clear evidence and data, engagement of all relevant stakeholders and the application of effective risk mitigation and drowning prevention initiatives where and when they are required.

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Aquatic Risk Management – Events to Picnics

Adam Weir (Surf Life Saving Australia)

Risk management is a key element of the strategies to reduce injury and loss of life or other adverse impact in the aquatic environment. It is a central component of the drowning chain and used to identify threats to life and strategies to mitigate those threats in a targeted and effective manner. Surf Life Saving Australia (SLSA) has been providing commercial coastal public safety risk management services to government and non-government organisations for more than a decade. At the same time there has been an increasing requirement for our members to assess and manage risks for events and member activities. Historically these assessments have involved complex paper based forms and there has been a wide variation in the quality of assessment being produced.

To meet these increasing demands and enable easy and accurate risk assessments to be performed SLSA has created risk assessment tools for the mobile devices based upon the ISO 31000:2009 Risk Management: Principles and Guidelines standard.

This presentation will present two applications and explain how they feed into the decision-making and risk management processes of surf life saving.

Aquatic Event Risk Management Application

To ensure continuous improvement and leading development, SLSA looked at ways in which decision making at large events could be improved. Although risk management processes were put to good use previously, the paper based approach was not ideal due to the scale of large events and the difficulty in processing numerous paper forms in an efficient and accurate manner to facilitate timely decision making. The Aquatic Event Risk Management App was developed to address these issues, improving competitor safety by enabling real-time reporting and more informed decision-making. Real time reporting minimizes recall bias. That is, the information collected is more likely to be precise as there is no time lag and reliance on memory.

Coastal Public Safety Risk Assessment iRisk Application

Commercial coastal public safety risk assessments collect enormous amounts of information about the area being assessed. This information is then used to compile a report that identifies hazards, evaluates risk and recommends risk mitigation strategies to land managers. Assessors in the field traditionally have needed multiple items of equipment to complete the task, such as, dictaphones, cameras, hand held GPS receivers, notebooks and pencils. In dangerous environments this can be a lot of equipment to carry around. It has also been time consuming switching between equipment and recording all the information required on paper. Once this information has been collected there was then the task of transcribing data and compiling a report that often took weeks to complete depending on the size of the area being assessed. The Coastal Public Safety Risk Assessment iRisk Application has been developed to address all of these issues. This application was awarded the Innovation Award at the 20th NSW Coastal Conference and also received a 2012 Australian Mobile Award for best in-field application.

Although there are many advantages to the development of applications and incorporation of new technology, there are also some disadvantages. These include the initial costs of development, expertise in the use of these devices, and also the demand to maintain compatibility with a continually shifting platform of devices and operating systems.

Although these applications have been developed by SLSA for the purposes of aquatic risk management and drowning prevention they have much wider applications and could be used to assist in other industries where the safety and wellbeing of employees, volunteers and visitors is paramount.

Determining Pool Lifeguard Positions Based on Zone Verification

Jill White (Starfish Aquatics Institute)

Background

The number and positioning of lifeguards at a public pool has the greatest potential to reduce the risk of drowning. Unfortunately, many facilities use outdated techniques to determine the number of lifeguards and their placement such as the number of swimmers in the pool, water surface area, water volume or other methods. The most effective way to assign lifeguards is to create zones of protection that are based on the ability of the lifeguard to see the area from the water surface to the bottom during scanning as well as the ability to get to the furthest area of a zone quickly - ideally within the first 30 seconds of drowning or distress.

Method

Zone verification involves a systematic method for determining the appropriate placement of lifeguards. First, the pool should be divided into sections that can reasonably be scanned and a rescue contact made with a person who is drowning or in distress within about 30 seconds. Next, these zones are evaluated by placing a manikin or other submersible object such as a shadow silhouette in each corner and potential blind spots within the zone to verify that the object can be seen by the lifeguard from the stand or station.

Discussion

Features such as curves, walls, stairs, play structures or areas of glare can create blind spots that create risk of a victim being hidden from the view of a lifeguard. The results of a zone verification provide insight into the feasibility of the lifeguard being able to see and then respond to a drowning or distressed person within the critical first 30 seconds. When this benchmark cannot be reasonably achieved, risk assessment to determine options such as a different position for the lifeguard, the reconfiguration of zones and addition of additional lifeguards, or restricting access should be considered.

Conclusion

Methods of assigning lifeguards to zones of protection that do not involve assessment of the ability to see the entire 3-dimensional water area (bottom to top), and then get to that area quickly, miss the opportunity to place lifeguards in appropriate numbers and locations to offer the best chance of early intervention.

Risk Assessment and Standardisation of safety information as a base for a safer Europe

Dr. Klaus Wilkens (German Life Saving Society DLRG)

Between 500.000 and 1 Mio. people drown world-wide every year, in Europe 35.000 to 40.000, in Russia nearly 17.000 (WHO-Statistic). For reducing the number of drownings it is necessary to identify and evaluate the different risks. For reducing the risks, it is necessary to develop a standardized method for the evaluation of the bathing places and the basic information for the public with flags, signs and information boards. How these aspects can be fulfilled, will be shown in the presentation. With the realisation of this concept, the number of drownings in the European countries can be reduced by 10-15.000. The risk assessment and a better standardized information will make leisure time and the holidays in and at the waterside safer and more attractive, especially for families with children.



52°58'5"N
9°26'42"W

 CALL SIGN

**WATER
WHISPERER**

 ETA

**12:30
OCT 12**

 NUMBERS

**2 ADULTS
2 CHILDREN**

 PURPOSE

FISHING

Designed in close cooperation with SAR professionals, SafeTrx is a vessel tracking Smartphone application that fills a critical gap in the maritime situational awareness picture.

“ SafeTrx helps take the Search out of Search and Rescue. It encourages all sea users to plan and execute their trips better, safer and gives assurance to friends and partners ashore ”

Chris Reynolds, Director, Irish Coast Guard (IRCG)

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Water Rescue Services

Development of efficient lifesaving report system in Japan

Takahiro Kazama (Japan Lifesaving Association)

A lot of drownings have occurred on the shores of Japan, and more than 200 honorable lives have been lost every year. The preventive measures against drowning accidents are required. A great deal of effort has been made on the lifesaving activity, but the lifesaving activity is still insufficient in Japan. The shores where lifesavers are working are only about 20% in Japan. And also so far the study of lifesaving system and analysis of the causes for drownings in Japan has been superficial. To improve this situation, it is important that various high quality lifesaving data are acquired and analyzed.

The purpose of this study is to develop efficient lifesaving report system in Japan. Our investigations covered two parts.

First, we examined analysis of present state of lifesaving report system in Japan. So started by considering what is an efficient lifesaving report system. Main purpose of getting lifesaving data is that JLA (Japan Lifesaving Associate) and each local clubs can connect results of report analysis to drowning prevention. From results of report analysis, JLA has to be able to understand and analyze the nationwide patrol system and causes for drownings. Also, in order to use the results, JLA should show the necessity and importance of lifesaving activity to society. In the other hand each local clubs have to be able to understand and analyze the local patrol system and causes for drownings under present condition. And then compare with the national examples. But present lifesaving report system in Japan is not enough for these purposes. For example data definition is unclear, there are complicated and inefficient lifesaving report systems etc.

Second, to accomplish these purposes, we developed new efficient lifesaving patrol system with below target points.

1. Easy and Objective data acquisition system by On-site Life Savers
2. Sustainable report system
3. Easy and direct access to relevant drowning prevention data.
4. Data showing the necessity and importance of lifesaving activity to society.

As the result of examination, we have put together only two main reports, The LIFESAVING REPORT and the RESCUE REPORT. The LIFESAVING REPORT includes the base patrol data, for example number of lifesavers, working hours and days, number of visitors, number of first aids, preventive actions and emergency cares, how many equipment (rescue boards, tubes and IRB etc.) does your club use on your patrol etc., And also we clearly defined the difference between preventive action and emergency care clearly in order to get objective data.

The RESCUE REPORT is the club reports detail information to JLA when drowning accident occurs. After the report, JLA dispatches the special investigating commission to this club if needed. And also JLA holds the rescue meeting to discuss about causes for drownings during the Japan Surf Life Saving titles.

As a result, we can have started to develop efficient lifesaving report system since 2012 summer season in Japan. Now we are analyzing data and this system. We will show you more detail information at the presentation.

Patch and dispatch: The role of surf lifeguards in the provision of first aid on New Zealand Beaches

Dr. Kevin Moran (University of Auckland)

Introduction

In the 5 years from 2007-2012, New Zealand surf lifeguards provided first aid treatment to almost 9,000 beachgoers, an average of 1,772 cases per annum; more than the average number of rescues ($n = 1,343$) performed each year (Surf Life Saving New Zealand [SLSNZ], 2012). In Australia, surf lifeguards treated almost 200,000 beachgoers in the 4 years from 2007-2011, an average of over 45,000 patients per annum, an increase of 24% in that time (Surf Life Saving Australia [SLSA], 2012). This study describes the nature and extent of non-drowning related injuries occurring at patrolled surf beaches attended by surf lifeguards.

Method

Incident report forms (IRFs) that are routinely completed by surf lifeguards in New Zealand as part of their patrol activity were the data source for this study. Demographic data collected included age, gender, and ethnicity. Incident details included date, time, location of incident, prior activity, and the reason for needing assistance. The nature of the lifeguard response was described in terms of first aid and rescue equipment used, and subsequent patient monitoring. The nature of the injury sustained was described in six categories (such as cuts/abrasion, fracture, jellyfish sting). The patient outcome was reported in seven categories (such as referred to doctor, left in stable condition, assisted from beach).

Results

Of the 8,437 Incident Report Forms (IRFs) relating to beach injuries/illnesses completed by surf lifeguards from 2007-2012, 57% of the patients were males; one half (52%) were aged less than 16 years, with children aged 11-15 years accounting for one quarter (24%) of all first aid incidents.

Volunteer lifeguards, who patrol on summer weekends and public holidays, were the most frequent type of lifeguard service provider ($n = 4508$; 53%), with regional lifeguards employed during the weekdays during busy summer months providing 42% of first aid responses ($n = 3580$). Callout lifeguards (usually engaged in after-hours emergencies) and special events lifeguards (used in aquatic sports such as triathlons) also contributed to the provision of first aid ($n = 145$; 2%). Almost one fifth of injuries were to members of surf lifesaving clubs ($n = 1503$; 18%).

Most injuries (82%) were minor and patients left the scene in a stable condition, although some required assistance from the beach (4%). One fifth (18%) of incidents were sufficiently severe for further medical intervention to be recommended or required. Almost three-quarters of cases (71%) required the use of first aid disposable supplies (such as wound dressings and saline solution). One quarter (24%) required no first aid equipment but more serious cases required oxygen therapy (4%), immobilisation (3%), or defibrillation (<1%). Importantly, lifeguards had used defibrillators in 22 cardiac arrest cases.

Discussion

Non-drowning related injuries are a frequent occurrence at beaches patrolled by surf lifeguards in New Zealand. While more than half (54%) of injuries were sustained in the water, almost one third (32%) were attributed to land-based activities and cuts/abrasions accounted for almost half (47%) of all first aid incidents. While rescue from drowning retains a critical focus of lifeguard supervision and training, it would seem appropriate that, in addition to maintaining the highest standards of core BLS and resuscitation skill development, an additional advanced wound care/soft tissue injury module should be instituted.

Conclusion

First aid responses for both water and land-based incidents at the beach are an important front line role performed by surf lifeguards. The diversity and frequency of such incidents suggests that lifeguards may require additional skills especially in the treatment of superficial soft tissue injuries. Further research on the first aid skills and training that surf lifeguards currently possess, as well as follow-up studies that track the health status of patients (with respect to the outcome of medical referral and post-treatment complications such as infection) are required.

Rip current related drowning deaths and rescues in Australia 2004-2011

Barbara Brighton (Surf Life Saving Australia), Shauna Sherker, Robert Brander, Matt Thompson, Anthony Bradstreet

Rip currents are a common hazard to beachgoers found on many beaches around the world, but it has proven difficult to accurately quantify the actual number of rip current related drowning deaths in many regions and countries. Consequently, reported estimates of rip current drowning can fluctuate considerably and are often based on anecdotal evidence. This study aims to quantify the incidence of rip current related drowning deaths and rescues in Australia from 2004 to 2011. A retrospective search was undertaken for fatal and non-fatal rip related drowning incidents from Australia's National Coronial Information System (NCIS), Surf Life Saving Australia's (SLSA) SurfGuard Incident Report Database (IRD), and media reports for the period 1 July 2004 to 30 June 2011. In this time, rip currents were recorded as a factor in 142 fatalities of 613 coastal drowning deaths (23.2%), an average of 21 rip current related drowning deaths per year. Rip currents were related to 44% of all beach related drowning deaths and were a factor in 57.4% of reported major rescues in Australian locations where rip currents occur. A comparison with international operational statistics over the same time period describe rip related rescues as: 53.7% of the total rescues in the US; 57.9% in the UK; and 49.4% in New Zealand. The range 49-58% is much lower than 80% -89% historically cited. These results are likely to underestimate the size of the rip current hazard because we are limited by the completeness of data on rip related events; however this is the most comprehensive estimate to date. Beach safety practitioners need improved data collection and standardized definitions across organisations. The collection of drowning data using consistent categories and the routine collection of rip current specific information will allow for more accurate global comparisons.

Predictive Index for Dangerous Rip Current Generation at Haeundae Beach, Korea

Ph.D. Jooyong Lee (Sungkyunkwan University)

Haeundae beach draws one million visitors every summer season, and more than 100 people are rescued from rip currents every year. Beachgoers are unexpectedly carried away seawards, as far as 50 ~ 100 meters away from the shore, where swimming is restricted for safety reasons. Rescuers have strengthened lookout measures at several spots where dangerous rip currents have occurred.

The determination of a predictive index for rip currents is vitally important for the protection of human life. Such an index allows governmental agencies to issue rip current warnings directly to the public, and allows for the establishment of preventative measures according to the magnitude of the rip current threat.

We apply a modified rip current predictive index suitable for Haeundae - using wave height, wave period, and incident wave angle from the north. Compared with wave data acquired for the summer of 2011 and 2012, the result of NE-RiPS-H (the NEarshore Rip current Predictive System at Haeundae) index is reasonable and appropriate.

Data was collected in intensive field experiments carried out at Haeundae Beach from June 28th to August, 2011. Additional intensive field experiments carried out at Haeundae Beach from June 9th to August 28th, 2012. These in-situ measurement data used to improve the reliability of rip current predictive guidance.

In the past few years, rip currents have been observed at Haeundae Beach. Using incident wave conditions, we have verified a rip current predictive guidance method established for Haeundae beach. NERIPS-H has been proposed to predict dangerous rip currents in advance during swimming seasons. Although the forecasting system developed provides good estimations of the occurrence and intensity of rip currents, several improvements need to be implemented. The lack of wave data will be addressed in additional intensive field surveys.

An Observation system for investigating rip currents in Haeundae beach can provide basic data for rip current generation in terms of oceanophysical phenomena which can be used to improve economic value of costal monitoring systems and warning systems. Moreover, marine disaster prevention techniques will be advanced with the results of this study.

Analysis of Unintentional Drowning Incidents of Visitors at Lake Mead National Recreation Area, 2000-2012: Identifying Priorities for Prevention and Planning

Justin Sempstrott (Lifeguards Without Borders), Howard R.D. Gordon, Ed.D (MPH), Mary Hinson, Autumn Paulson

Background

Protecting 1.5 million acres of land and 200 million acres of water, Lake Mead National Recreation Area (LMNRA) is the sixth most visited park and the third largest unit of the National Park Service, outside of Alaska. LMNRA includes Lake Mead and Mohave Reservoirs, portions of the Colorado River, and surrounding desert uplands of Nevada and Arizona. Approximately 8-10 million visitors recreate at LMNRA yearly. Its name conjures up images of water and the lake delivers 290 square miles to boat, fish, sail, and water-ski within its sandstone borders. Boating is the major form of water recreation during the summer months when lake temperatures soar around 80F. A recent report indicated that unintentional drowning accounted for 37% of fatalities in U.S. National Parks during 2007-2011. In the same report, LMNRA accounted for the highest number of fatalities throughout the park system in 2007-2011. In order to reduce unintentional drownings, Lake Mead personnel are interested in understanding the burden of the problem.

Methods

Retrospective chart review of LMNRA Incident Reports from January 1, 2000 - December 31, 2010. Access to drowning reports was approved by the Chief Ranger at LMNRA. Inclusion criteria: water-related recreational fatalities (n=116). Exclusion criteria: suicide, homicide, and files with unknown or unspecified „cause of fatality.“ Data collected: date of incident, time of injury, gender, age, race/ethnicity, pre-death activity, and primary contributing factor (s) of each incident. Geographic Information System was used to plot location. Data was coded and processed through the Visitor Injury Data System. Statistical Package for the Social Sciences, Version 20 for Windows was used to analyze data. Primary outcome measure was which visitors (based on demographics) are more likely to be victims of water-related fatalities at LMNRA.

Results

Of the 116 incidents, local visitors (Nevada) accounted for 58.60%, other states accounted for 37.1%, and international visitors accounted for 4.3%. Fatalities involving males totaled 86%. Ages ranged from 4-70 years with a mean of 35.67 years (SD=16.01). Thirty-eight percent of fatal drowning victims were 25-44 years old. Swimming and diving incidents appear to be equally common among visitors 15-24 and 25 to 44 years old at 19% each. Whites and Hispanics accounted for most of the fatalities when compared to other ethnic groups. Over 50% of Whites were victims of boating incidents, and 35.3% of Hispanic visitors were victims of swimming and diving fatalities. Fatalities peaked during August and were lowest in March and November. May, June, and August accounted for most of the fatalities (58%). Fatalities were most common on Saturdays and Sundays (56%) and most occurred between noon and 6PM (62%). Yearly trends revealed increases in 2006, 2008, and 2009. There was an average of 10.54 drowning deaths per year. Eighty-two (71%) of the victims were not wearing a personal flotation device (PFD) at the time of their death. Visitors within the 15-24 (31%) and 25-44 (40%) age groups were less likely to wear a PFD at time of death. The relationship between unintentional drowning and PFD usage was moderate, negative, and significant ($r=-.376$, $p<.01$).

Discussion

During 2000-2010, unintentional fatal drowning incidents at LMNRA were more likely to occur during the summer months between noon and 6:00PM, on Saturdays and Sundays, in males aged 15-44 without a PFD, and occurred within the areas of Callville Bay and Boulder Beach. These findings appear to correlate with the peak time of outdoor recreation in the National Park Service units and correspond with summer holidays. These statistics serve as baseline measurements to garner future research and support while integrating intervention methods. This may include the enforcement of increased PFD usage and education, increased number of ranger presence and patrol during peak hours, placement of educational signage and employment of lifeguards at high risk areas.

Back to basics: Developing a beach lifeguard training program for the low-resource environment

Tom Mecrow (Nile Swimmers), Steve Wills (Royal National Lifeboat Institution)

Lifesaving organisations in many high-resource countries gain significant financial support from governmental, non-governmental and private organisations. Technically advanced and expensive rescue equipment including helicopters and jet skis are often available for immediate use, and standard issue equipment usually includes rescue boards and tubes. As such, lifeguard courses that are developed in high-income countries are wholly unsuited for environments with limited resources. Associated syllabuses and teaching resources contain complicated technical language, rescue techniques that can only be conducted with expensive rescue equipment and examples of incidents purposefully selected because they suit the high-income environment.

As a result, courses that are directly transferred from the high-resource to the low-resource environment often struggle to become sustainable, and create dependent relationships with their donors to fund expensive equipment and regular refresher training.

In 2011 the Cox's Bazar Surfing and Lifesaving Club requested assistance from the Centre for Injury Prevention and Research (CIPRB) to train beach lifeguards in Cox's Bazar, Bangladesh. Cox's Bazar is a 'tourist city' that attracts hundreds of thousands of Bangladeshi tourists each year, primarily from the capital Dhaka. During festival periods the city beach plays host to nearly a million people.

Drowning deaths are a regular occurrence in Cox's Bazar. 'Lifeguards' who are working on the beach have received no formal lifeguard training, have no equipment other than a whistle, and are poorly paid.

The Centre for Injury Prevention and Research Bangladesh (CIPRB) collaborated with the Royal National Lifeboat Institution (RNLI) to develop a beach lifeguard training program specifically designed for the low-resource environment of Cox's Bazar.

Beach lifeguard manuals from a number of lifesaving organisations were reviewed for their content. Rescues that required specialist equipment were reviewed and either removed or adapted for use with locally available materials. Methods of operational best practice were also adapted to ensure they were suitable for the environment.

The results of the review were used to inform and develop a new provisional 'low-resource' beach lifeguard syllabus. CIPRB and RNLI instructors delivered the provisional course to 15 new lifeguards in Cox's Bazar in March 2012. Lessons learnt from the delivery of the course were used to revise the course syllabus.

Two training manuals were developed to support delivery of the syllabus:

1. A student manual: Mainly pictorial, using very simple language where needed.
2. An instructor's manual: A more detailed version of the student manual, also containing basic supporting information on how to develop the operational capacity of a lifeguard organisation and intuitive lesson plans.

The new beach lifeguard resources were reviewed in August 2012 by 11 international participants from 6 low-and middle - income countries (including Uganda, India, Senegal and Bangladesh) at the RNLI future leaders course in Poole, UK. Following revision the resources were then piloted and then finalised in Bangladesh in September 2012, and used to train over 60 new beach lifeguards and 6 instructors.

The first edition of the manual has been published as an open-source document and is endorsed by a number of international organisations has been translated into a number of languages.. It has been effective in Bangladesh, and is also being adapted in a number of other counties, including Thailand and Senegal. The manual has been translated into a number of languages.

Conclusion

- Resources from high-resource countries are often inappropriate for use in low resource settings. Lifesaving and lifeguarding organisations in low resource countries require resources that are appropriate for their local environment.
- Collaboration with local organisations who understand the availability of resources is a vital component to the development of any lifesaving or lifeguarding resource.
- Promoting international collaboration and review, and disseminating resources as open-source material encourages the sharing of best practice and maximizes the opportunity for use.

Measurements of Swimmer Response in Rip Currents

Dr. Robert Brander (University of New South Wales), Robert J. McCarroll, Ian L. Turner, Jamie H. MacMahan, Anthony Bradstreet

Rip currents are strong, narrow offshore flows of water that occur on many of the world's beaches characterized by waves breaking across a wide area. As such, they represent a significant hazard to beachgoers with hundreds of drownings and tens of thousands of rescues attributed to rip currents worldwide each year. The patterns and dynamics of rip current flow have important implications for the type of escape strategies that swimmers could adopt if caught in a rip current. Recent studies have indicated that rip flow is often contained within the surf zone, re-circulating onto shallow sandbars. However, this finding has yet to be tested on a wide range of beaches under different wave conditions and different types of rip currents. Combining physical measurements in a variety of conditions with various escape strategies allows insights into the safest response by individuals caught in a rip. Over the last two years, experiments have been conducted at 4 beaches in New South Wales, Australia (Bondi Beach, Shelly Beach, Cronulla Beach and Bulli Beach) involving measurements of both rip current flow and swimmer response.

In each experiment, rip current speed and trajectory have been measured using GPS devices attached to PVC drifters while swimmer response was monitored by GPS attached to swimmers who entered rip currents in groups to simulate various escape actions. These included floating with the rip current and swimming in a parallel direction to shore at various offshore distances within the rip current(s). Measurements have been conducted in channelised rip currents along open sections of beaches and in topographic rip currents situated adjacent to rock platforms. Results show that the nature of rip flow, not surprisingly, is complex and variable being strongly related to the rip channel bathymetry and the wave conditions on the day. While tight re-circulation was observed in some of the rip currents, a high degree of offshore flow exits was also observed, particularly during short-lived pulsations in the flow and in topographic rip currents. This complexity and variability is reflected in the measurements of swimmer actions. In some rip currents, both floating and swimming parallel provide easy and quick escapes, in others both are possible, but are not necessarily 'easy' or quick. There are also situations where only one action is appropriate. Based on measurements of 100's of individual actions, neither strategy is clearly more likely to result in a successful outcome across all of the different types of rip currents tested.

Furthermore, our study presents a number of issues for other disciplines involving human physiology and psychology. For example, what is more preferable for an individual to escape a rip current, a 3 minute swim or a 7+ minute float? Swimming may be more energetically demanding, however the prospect of staying afloat for several minutes while drifting offshore, and hoping recirculation occurs, may be more anxiety inducing. To successfully escape a rip current, many informed decisions about rip currents have to be made by swimmers. However, in most cases it is unlikely that swimmers have an appropriate knowledge base of rip current behavior in which case choosing the most appropriate escape strategy becomes problematic. For this reason, we advocate that even more preventative efforts must be made to motivate people to swim in lifeguarded areas and to educate people about rip currents so that they do not enter them in the first place.

A water Rescue controlled trial: What is the best rescue equipment for a lifeguard to use based on different surf/water conditions?

Dr. David Szpilman (Brazilian Lifesaving Society), Roberto Barcala-Furelos

It is worldwide accepted that lifeguard would do a fast, safety and harmless rescue to himself and to the victim using lifesaving equipment. Based on this non-scientific but practice concept many different rescue equipment have been suit to speed up the rescue, protect lifeguard from been grabbed, and help floatation resulting in an anecdotal evidence of more safety and tireless rescue. Although much different lifesaving equipment exists, fins, rescue-tube and rescue-board are the most currently ones used by lifeguards services as a personal floatation device to provide a water rescue. Furthermore, to accomplish a well done job, in a few drowning cases lifeguard still need to provide cardio-pulmonary resuscitation(Szpilman,2012). The European Resuscitation Council Guidelines for Resuscitation 2010 recommends that CPR support by lifeguard be replace in 2 minutes by a medical team due to a possible fatigue resulted from the rescue effort demand. All research on CPR rescuers fatigue concerns health professionals. A few studies (Claesson,2011;Barcala-Furelo,2012) had analyzing the effect of the fatigue on the quality of CPR in lifeguards after a water rescue. However, no study had considered these particular situation using different rescue equipments and surf conditions. Our primary objective is to investigate and compare the use of three different rescue equipments and no equipment by lifeguards, in different surf/water conditions, to determine if there is a significant difference between them and which equipment is more appropriate for each specific surf condition. A second objective will compare if lifeguard fatigue's effect play a role at the quality of CPR after a water rescue considering those different rescues equipment and surf conditions.

Material and methods

All subjects will be lifeguards and no number limitations. Each 4 lifeguard participants will produce a total of 32 samples: Each lifeguard will do 4 laps using different equipment situations with a 30 minutes rest between them in the same day and 2 distinguish surf conditions trials (less than 0.5 and 0.5 to 1.25m wave high) in different days. Test distance from shore will be 100 m. The test consists of a ground displacement of 10 m running, 100 m swimming, 100 m towing the victim and transportation to dry sand. All lifeguards will be quality tested on CPR techniques before and after water rescue. All lifeguards will be tested in CPR quality and have your heart and respiratory rates and acid lactic blood sample taken before and after the rescue.

CPR performance: In order to achieve the aim of our study, lifeguards will perform two CPR tests according to the ERC Guidelines for Resuscitation 2010: T1 consist of doing 5 min of CPR before the rescue test. Mouth to mouth ventilation will be evaluated without any material. In the second CPR test - T2 - lifeguards will perform the same a 5 min of CPR after the rescue. There will be no ventilations in the water as the objective of the study is to evaluate the influence of fatigue generated by a water rescue in the quality of CPR. The CPR instrument will be a Laerdal Resusci Anne(r) with PC Skill reporting software version 2.4. This model records the compressions and ventilations differentiating whether they are correct or not. In order to verify the compressions, the manikin checks the depth, the frequency, the hand position and the re-expansion of the chest. The ventilations are checked by measuring the air volume and the flow rate.

Lifeguard Rescue Reporting System

Roy R. Fielding (University of North Carolina at Charlotte)

The Lifeguard Rescue Reporting System has been available since 2009 in the United States and Canada since 2010. This system has been endorsed by the USLA, the Canadian Red Cross and the American Red Cross Scientific Advisory Council. The Canadian and American Red Cross organizations encourage lifeguards to report the rescues that they make. Well over 1000 rescues have been entered into the data base. The following items regarding rescues made by lifeguards are collected with the system: time of day, environmental conditions, equipment used, location of the guard, others needed, distance to the entry, distance traveled in the water, type of rescue made, first aid given, injuries to the patient, patients outcome, how the victim was recognized, depth of the water, attendance at the time of the rescue, patients activity at the time of the rescue, and the levels of certification of the rescuer. The University of North Carolina at Charlotte's Department of Kinesiology is hosting a reporting system to gather information about how lifeguards respond to all types of water-related incidents on the job. The goal is to help training agencies learn more about what actually is taking place when lifeguards are called upon to respond to an emergency, such as conditions at the time of the rescue, how the lifeguard identified the emergency and the type of equipment used in the rescue. This reporting system is designed to collect long term data to help aquatic professionals to understand if certain trends are taking place in the varying aquatic venues. The system does divide into three aquatic areas:

1. Open Water,
2. Water Parks
3. Swimming Pools and Spas.

The most complete and current data regarding these rescues would be reported to the conference.

If you wish to preview the Lifeguard Rescue Reporting System:

To preview the single entry rescue system use following link - http://uncc.surveymshare.com/survey/preview/home?survey_key=AQAK6KA&code=d9c6ef

To preview the multiple entry rescue system use following link - http://uncc.surveymshare.com/survey/preview/home?survey_key=AQAK9LA&code=66f08c

From reactive to proactive – building capacity within Sudanese Civil Defence

Daniel Graham (Nile Swimmers)

Nile Swimmers is a drowning prevention organisation committed to reducing drowning on the River Nile. We partner with a number of organisations to achieve our goals. Our flagship program in Sudan is run in collaboration with the Sudanese Sea Scouts and the Khartoum Civil Defence.

The Khartoum Civil Defence is part of a wider civil defence network in Sudan that includes the Khartoum River Police. They collect and shared data on drowning statistics on the River Nile in Khartoum State, and share our goal of reducing the number of drowning deaths on the river.

The Khartoum Civil Defence has limited resources spread over an extremely large length of the River Nile and its tributaries, in the most densely populated area of Sudan. Consequently their tactics for preventing drowning has been based upon limiting access to the water by putting policemen on busy public beaches. As the river Nile is essential to local people for washing, cleaning and farming, people are now forced to access the river from more dangerous entry points (more remote). Due to their limited understanding of effective drowning prevention interventions their principle role over recent years has been to recover dead bodies.

Since 2007 the Nile Swimmers Project has given lifesaving instructor training to members of Khartoum River Police. Recipients have received instruction in basic lifesaving skills, risk assessment, search and recovery techniques. This regular exposure to the techniques used by Nile Swimmers has developed interest and enthusiasm from the commanding General of the organisation, who would like to develop in-house training capabilities.

In 2011 a Memorandum of Understanding which formally acknowledged the scale of the drowning problem in Sudan was signed. The MOU encourages the Khartoum Civil Defence to use the expertise of the Sudanese Sea Scouts to develop a formalised water-safety training structure for the River Police. This has the potential to become an income generating relationship capable of funding a community based drowning initiative.

The Civil Defence - as a government funded institution - is in a good position to influence other organisations using the Nile, who could also play a role in wider community focused drowning prevention initiatives.

Conclusion

The long term sustainability of Nile Swimmers made significantly more viable with the support of local government institutions. There is a risk that local government seek to stifle a project that is not driven by them, however in our experience a 'soft approach' of keeping them regularly informed of our activities and inviting them to view Nile Swimmers activities has resulted in the Civil Defence approaching Nile Swimmers seeking partnership.

Our approach now means that throughout the hierarchy of the Khartoum Civil Defence drowning is recognised as a major cause of death. Steps are now being taken within the organisation to build capacity and address the issue, with the support of local community organisations.

Surf-Lifeguard Preemployment Test: 16 years of comparative Data

Carl Martinez (U.S. Department of the Interior, U.S. National Park Service, Gateway National Recreation Area)

There is now a worldwide effort under way to find science-based physical-fitness standards for surf-lifeguards. The United States National Park Service Surf-Lifeguard Preemployment Test provides one example of the type of test sought. This paper presents 16 years of comparative data concerning this particular test. This data may be of potential use to others worldwide who (a) are considering the implementation of science-based physical-fitness standards for their respective surf-lifeguard operations, and (b) would welcome reviewing the track record of one such set of standards.

Experiences of swimmers caught in rip currents

Dr. Robert Brander (University of New South Wales), Dale Dominey Howes, Danielle Drozdowski, Wendy Shaw, Amelia Roberts, Shauna Sherker (Surf Life Saving Australia)

Every year, thousands of people are caught in commonly occurring rip currents on Australian beaches. These strong, narrow offshore flows that extend from close to the shoreline, through the surf zone and often distances beyond, are also responsible for 21 confirmed drownings per year in Australia. While much is understood about the physical behaviour of rip currents, comparably little is known about the experiences of people who are actually caught in them. Improved knowledge of rip 'survivor' demographics, their rip current awareness prior to the incident, choice of swim location, types of safety information recalled, reactions, methods of rip escape, ultimate outcomes and perceptions of their experience are vital for improving existing and future public rip current education interventions. Here we report findings from an ongoing study that has utilised a mixed methods approach, combining surveys and semi-structured interviews with rip current survivors. This project aims to both qualitatively and quantitatively improve our understanding of the demographics, background knowledge and overall experience of people who have been caught in rip currents in Australia. The survey has also been trialled in New Zealand and the United States. The outcomes will provide insights into the appropriateness and efficacy of existing and future rip current safety advice and strategies. The survey was promoted through various Surf Life Saving Australia (SLSA) networks, social media networks and via mainstream media (newsprint, radio). Hardcopy surveys, of the same online survey, were administered at various beach locations in New South Wales, Australia, coastal tourist parks, and at university campuses. To encapsulate the rip survivors experiential narratives, face-to-face and telephone interviews were undertaken providing in-depth accounts of rip current experiences. As of January 2013, approximately 1500 online surveys (www.ripcurrentsurvey.com), 175 hardcopy surveys and 30 interviews have been completed. Survey data has been analysed using SPSS and interview data coded using NVIVO.

Survey responses were dominated by an informed group of participants who could identify pictures of rip currents and were self-rated competent swimmers. Even so, they still got caught in rip currents and despite recalling standard safety messages, most panicked and tried to swim directly back to shore. Sample sizes were also obtained for self-rated poor/weak swimmers, rural inland residents, and university students allowing a comparison of experiences between swimmers of varying capabilities, beach visitation and familiarisation, and backgrounds. Emergent themes relate to the actual perception of the rip current hazard, with a complacency by informed and competent swimmers about the risk associated with rip currents. These findings contrast an increased awareness of the rip current hazard amongst rural beachgoers. Regardless of the background knowledge and swimming ability of people caught in rip currents, the onset of panic can override recalled safety messages of how to respond when caught in a rip. Future rip current education should focus on elements that will inform beachgoers of the importance of avoiding rip currents and specifically reduce the onset of panic if caught in a rip current. Numerous themes emerge from the interviews including both positive and negative comments related to the geography of place (familiarity/unfamiliarity with the beach), beach culture, swimming confidence, education and knowledge of rip currents, safety messaging regarding rip currents, and embarrassment.

Guidelines for water rescue on water based events

Jens Bothe (German Life Saving Society DLRG)

Development of a field manual with guidelines for the water rescue on water based events like boat races, blobbing and concerts. As there were no guidelines or formulas to help the officer-in-charge or the organizer of the event to calculate the needed number of rescuers and rescue equipment the idea was born to develop a field manual. The guidelines bring a standardized approach on analysing potential risks and threats of an event and helps on dimensioning the needed measures and life saving appliances.

The first version provides resources and tools for risk assessment, for the use of tactics and the calculation of operating resources and components. The guide is aimed primarily at lifesaving managers hedging events on and around the water. It is also addressed to the water sports organizations as organizers and the approving authorities.

Analyzes on weaknesses in securing events have shown that almost always the cause lays in the absence of or poor communication between the parties involved. The ongoing communication and even before an event is therefore the backbone of the field guide.

The speech will show the difficulties in the creation of generic guidelines and formulas and how the issues were solved.

Swiftwater rescue - A special task to German lifeguards

Jens Bothe (German Life Saving Society DLRG)

After a two year pilot phase, at the beginning of 2006 the DLRG resolved on a three level training concept to qualify as a DLRG swiftwater lifeguard, which is foreseen as a supplement to lifeguard training. Drawing on the American „Swiftwater Rescue Technician“ the „German swiftwater lifeguard“ is a lifeguard specialising in fast flowing water, white water and floods.

In this presentation the DLRG swiftwater rescue training and the organization of DLRG swiftwater rescue teams will be introduced. There are a lot of special risks and hazards in swiftwater or white water, so these specialists have to use special safety equipment and have to train special skills.

The negative effects of the climate change include an increased risk through flood-like inundations inland and increasingly frequent coastal inundations.

Rescue and emergency services - and lifesavers above all - have to be prepared for this future development. The dangers and difficulties of operations in fast flowing waters and floods are varied and can only be mastered with special operational items, optimised equipment and qualified forces.

The training courses for swiftwater lifesavers are a step in the right direction!

Generation of Rip Current under Calm Sea Condition around Coastal Structures

Toshinori Ishikawa (Japan Lifesaving Association)

Many cases of drowning are caused by the rip currents. In this study, firstly, we analyzed actual situations of drowning on the shores of Japan using the analysis of lifesaver's rescue-report. Secondly, we carried out field measurements of rip currents and a numerical simulation, calculation of the near-shore currents around coastal structures.

Japan Lifesaving Association (JLA) operates on approximately 200 beaches. Then, the regional life saving club makes patrol logs, first aid reports, rescue reports and the resuscitation reports at each beach from 1998. In these reports, the detailed data regarding accidents on beaches are described. According to an analysis of rescue reports, many drowning happened caused by the rip currents under a calm sea condition with waves under 1m in height. It seems that the user judges the condition of the sea from wave conditions that are confirmed visually. Then, these currents often occur around coastal structures. In Japan, there are many coastal structures such as ports, fishing ports, artificial headlands, jetties, detached breakwaters.

Next, we carried out two times of field measurements of rip currents with coastal researchers and engineers on Sagara-Sun-Beach. In the field measurements of 2007, the waves and rip currents were observed near the breakwaters based on the field data. Then we analyzed the data from the viewpoint of the safety of the beach users such as sea bathers and surfers. As a summary of results, a steady rip current around 0.25 m/s generated along a breakwater under calm sea condition yielded dangerous situation to sea bathers and the degree of the dangerousness depended on the water depth as well as current velocity. In 2010, we investigated a rip current generation under calm sea condition, i.e. good condition for sea bathing. A two-week continuous measurement of near-shore currents was carried out at two stations near the breakwater of a fishery harbor. Then, we analyzed characteristics of the rip current such as time variation, spectral features and vertical structure based on the data. Also, we discussed generation mechanism of the rip current associated with wave properties and wind conditions. As a result, sudden velocity increase up to 0.2m/s was observed for 1 - 2 hours under very calm condition, which did not show very clear relationship with wave and wind conditions.

Furthermore, we investigated other beach. In Chigasaki beach, Drowning happen around the artificial headland and the fishing port. We analyzed the near-shore currents around coastal structures using a numerical simulation using observed data such as wave height, wave period and water level. As a result, the breaking zone is spreading long-shore, and it is relatively calm around the head land and the fishing port by the wave sheltering effect of these structures. However strong currents occur on these areas. Therefore the swimmer can not accurately assess the dangers.

In order to reduce drowning, comprehensive countermeasures are necessary. We must publicize the hidden dangers of rip currents and other dangerous factors to beach users and swimmers. As an example, Warning to users using a signboard about the dangers that coastal structures produce. Then, the examination in a design of the coastal structures for safety of the user is necessary. However, it is a problem that coastal protection and shore use are sometimes incompatible (trade-off).

Rip Current Education: An evidence based approach to inform targeted prevention programmes

Eleanor Woodward (Plymouth University), Prof Paul Russell (Plymouth University), Dr. Emily Beaumont (Plymouth University), Ross Macleod (RNLI)

This work aims to provide the UK with its first rip current education programme through the use of comprehensive lifeguard incident reports and public questionnaires in order to reduce incidents and drowning on UK beaches. The wider project is a research collaboration between Plymouth University and the Royal National Lifeboat Institution (RNLI), and contributes to the increasing worldwide rip current research efforts.

It is widely reported that rip currents are a major cause of drowning worldwide, and that the majority of lifeguard rescues are from rip current related incidents. The problem is global and in recent years various research has been undertaken to increase understanding about the physical nature of rip currents (e.g. 1) with parallel research being undertaken in the emerging social and behavioural aspects surrounding rip currents.

UK beaches are popular leisure and tourist destinations and with the enhanced popularity of watersports and improved wetsuit technology, year round water use continues to rise. This has resulted in extended lifeguard coverage from peak holiday months to 7 months of the year. In the UK, two thirds of all lifeguard rescues are due to rip currents, highlighting the need for lifesaving services as well as public education to prevent fatalities and promote understanding of rip currents.

Using nearly 6000 detailed RNLI lifeguard incident report forms for 2006-2011, thorough analysis was undertaken to determine certain locations most prone to rip currents, demographic profiles of those most frequently caught in rips, the activity being undertaken and environmental conditions most associated with rip currents.

The results from these incident reports outline the UK's key rip current demographic to be male teenagers (13-17 years). In addition, people bodyboarding and people in non-patrolled areas of the beach are at higher risk. The location of the majority of incidents is on Atlantic facing beaches of Devon and Cornwall in the Southwest of England mostly occurring in the peak holiday months of July and August.

In addition to lifeguard incident data the use of two other different types of survey were used to strengthen our research aim, increasing our resources to develop a clear rip current education campaign. Through the use of semi-structured face to face questionnaires on a mixture of popular resort and rural beaches with high rip current incidents, 408 beach visitors were interviewed, enabling further exploration of public awareness levels of rip currents. An online survey is underway focussing on assessing rip current survivors experience and responses, both physical and emotional, of being caught in a rip current. The surveys obtained 1205 responses in 2011 and 1250 in 2012 targeting key water users such as surfers and those water users inadvertently caught in rips.

The mix of quantitative and qualitative research approaches described above have been used with breakthroughs in the physical understanding of rip currents to inform and develop an effective and targeted rip current education programme. Specifically, an awareness campaign has been developed to target key demographic groups, certain activities, and specific locations.

The RNLI continues to expand its lifeguard resources across the UK, building relationships with local communities and having a nationwide influence on drowning prevention. Applying both the RNLI and Plymouth University's extensive connections with international lifesaving organisations such as Surf Lifesaving Australia and worldwide academic institutions, the operation to inform specific beach user groups of the rip current hazard has begun with the hope of reducing incidents and saving lives.

Revising a Lifeguarding Program - Case Study Canada

Perry Smith (Lifesaving Society Canada)

Canada has recently revised its Lifeguarding Program and has documented the steps and process. Revising programs allows for reflection on goals and opportunities, research, statistical analysis and quality assurance measures. This revisions process allows for stakeholders such as; Government, Pool Owners, Industry Leaders, Lifeguard Instructors and Trainers, Lifeguards and Lifesavers to come together to collaborate on making „good lifeguards better“.

This is a long term investment that takes several years creating surveys, hosting focus group sessions, field testing skills, piloting and developing an implementation process.

This session will review the steps and process, share surveys and session outlines, Items and Must Sees performance criteria, evaluation tools and promotional and communication materials.

Presenter

Perry Smith, Training Programs Director, Lifesaving Society Canada.

Perry has been a Lifesaving Society volunteer for over 30 years. He is an active Instructor, Trainer, Examiner, and Technical Official and Referee with the Lifesaving Society, Canada. Perry has been a member of the Lifeguard Revisions Committee.

Education of Senior Life Guards in the DLRG and Normal Operational Procedures on DLRG Life Saving Stations

Juliane Brandt (German Life Saving Society DLRG)

Senior Life Guards have an emphasised position in Water Rescue Service. The Presentation will give an Overview about the various tasks of Senior Life Guards and the different steps of Education in the DLRG. In the DLRG the people are not only older and experienced people, but they go through a special education which the guidance of people and management of applications should make easier to them. There are in Germany miles long seashores which are guarded by a team and thus gather fast a group of more than 20 lifeguards who must be led. Beyond it I explain Normal Operational Procedures in the DLRG including Normal Operational Plans and Emergency Actions Plans, which are essential for the work of Life Guards und Senior Life Guards and helps them to manage the various hazards, prevent accidents and to manage them.

I will end with a view of future developments and planned changes.

Rip current hazards on large tidal beaches

Dr. Timothy Scott (Plymouth University), Dr. Martin Austin (Plymouth University), Prof. Gerd Masselink (Plymouth University), Prof. Paul Russell (Plymouth University), Peter Dawes (RNLI)

Growing visitor pressures on beach resources means the role of beach safety management is becoming increasingly important along much of the macro-tidal, high-energy Atlantic coast of the UK, which experiences mean spring-tidal ranges of 4.1-7.4 m and average significant wave heights of 1.2 m and 2.7 m in summer and winter, respectively. Rip currents are responsible for two-thirds of all individuals assisted/rescued by the Royal National Lifeboat Institution (RNLI) lifeguards (2006-2011) along this coast which displays strong seasonality. Pronounced low-tide bar/rip systems constantly vary over a range of timescales and beach morphology is typically at its most three-dimensional during busy spring/summer periods driving heightened rip current risk.

The Dynamics of Rip currents and Implications for Beach Safety (DRIBS) research project, is a partnership between Plymouth University and the RNLI, part funded by the Natural Environment Research Council (NERC). The DRIBS team conducted comprehensive rip current hazard analysis of all rip current incident records (2006 onwards) coupled with numerical model hindcast wave, wind and tidal data from the UK MetOffice for a sample of high risk beaches in Devon and Cornwall. These findings led to an extensive set of field experiments at Perranporth Beach in the southwest of England to investigate rip current dynamics over a range of environmental conditions and time-scales. The aim of this research was to better understand high-risk, high-exposure rip current events to inform public education programs (see Woodward et al., this volume) and support lifeguard training and risk assessment.

Rip currents were observed on a low-tide bar/rip beach at Perranporth during 2011. Surf-zone hydrodynamics were measured using multi-sensor arrays for 87 tides, 25 days of which rip circulation patterns were monitored with GPS drifters. Experiments observed a wide range of wave (average wave height = 0.4 - 2.4 m) and tidal conditions (max tidal range > 7 m), over well-developed macrotidal low-tide bar/rip systems. Rip current speeds in excess of 1 m/s (> 4 km/hr) were measured and rip current circulations exhibited a wide variety of behaviours with drifter surf zone exits ranging from 0 - 50% during days when rip system was active. This is the first time temporal variation of rip behaviour to this extent has been documented.

This study provides a comprehensive analysis of open-coast rip current behaviour within a high-energy macrotidal context. Combining field measurement, numerical modelling and lifeguard incident records enabled the identification of the key environmental forcing mechanisms controlling mean rip current behaviour and the quantification of the level of control this has on rip current hazards. Findings from this study indicate that the behavioural variability in rip current circulation has a significant affect on risk to bathers. This work has provided new insights into rip risk in the UK and led to the development of a rip current hazard forecast model, in partnership with the UK MetOffice.

The Need for First Responders to be Trained and Equipped to Perform Domestic Animal Rescue

Kim Tysom (Lifesaving Resources, LLC)

Each year, numerous Fire, Rescue, EMS, and Law Enforcement personnel are injured while responding to and attempting to rescue animals who have fallen through the ice or into other bodies of water. Just recently within the U.S., two parents and their 16-year-old son drowned while trying to rescue the family dog, who happened to survive the incident.

This presentation talks about the problem, hazards and risks associated with animal rescues and presents information on how rescues should be performed in a safe, rapid and effective manner. This presentation advocates that First Responder organizations need to Plan for, Train for, and acquire the Resources required to safely and effectively Manage these types of incidents.

A Prospective Analysis of Lifeguard Medical Team Interventions in Ecuador during 2011 Carnaval

Justin Sempstrott (Lifeguards Without Borders), Andrew Schmidt, D.O.; Allie Moriarty, B.S.; David Slattery, M.D.

Background

Drowning remains a leading cause of death globally. The true burden is unknown because of underreporting. Carnaval, a large-scale event in Ecuador, draws large sections of the population to the coast and historically has multiple drowning deaths. Objective: To prospectively quantify preventative, rescue, and first aid (FA) interventions by lifeguards (LG's) protecting the beaches in Ecuador during Carnaval.

Methods

IRB-approved, prospective observational study. Inclusion criteria: Any rescue, prevention, or FA encounters by LG's. LG's were trained on the 18 item data collection form and dictionary, and completed the form after every intervention. Elements collected included: age, gender, time of day, injuries, contributing factors, disposition, and mortality. The primary measure was the proportion of the 3 types of interventions. We secondarily characterize the LG rescues. Data were entered into a database by trained/monitored research assistants. We report descriptive statistics as appropriate.

Results

During the 4-day event, LG's performed 246 unique interventions: 153 preventative maneuvers on 2,141 swimmers, 94 water rescues, and 29 FA interventions. The mean age was 22.7 years- (range 3-60yrs). The rescued swimmers were predominantly male 36/52 (69%; 95% CI= 55,80 %). The time-of-day analysis revealed a bimodal pattern with peaks during the 11 am-12 noon and 1 pm-2 pm time periods. Rip current was a factor in 52/94 cases (55%;95%CI = 45,65%); Alcohol was a factor in 4/47 (9%;95% CI= 3,21%) rescues. None [0/94(0% 95%CI=0,5%)] of the rescues required resuscitation, and only 2/94 (2%; 95% CI= 1,7%) required transfer to a hospital. There were no drowning deaths. Limitations: Beach crowd estimates and number of individuals impacted by preventative interventions were not adjudicated.

Conclusion

The majority of LG interventions were preventative in nature and there were no drowning deaths. Most rescues occurred in the late morning/early afternoon, and involved male, non-intoxicated swimmers. Our data may provide insight for others planning future large water events.

Lifeguarding, a Portuguese reality

Leonardo Springer

Located 20km east of Lisbon on the mouth of Tejo river, Carcavelos beach has a 1.5km stretch of sand with a set of unique characteristics: facing SSW, a mild beach gradient, good public transport accessibility, sidewalk promenade, extensive car parking, water temperature ranging from 15C - 20C and air temperatures in the range of 10C - 40C. Characteristics that render this beach a very enjoyable urban sport and recreation area, where it is usual to find surfers and swimmers, except from December to February, on a daily basis. On the beach sidewalk promenade the 13 bars and restaurants, beach concessions open year round, are according to Portuguese law obliged to contract lifeguard services during the beach season, from May until the end of September.

Carcavelos beach has during summer usually calm seas, however winter conditions create big swells changing sub aquatic morphology creating renowned surf and rip currents that are still active in the beginning of May and June. On one occasion, the 23rd May 2011, warm temperatures (25C) and a summer swell fuelled 5 rip currents, that combined with unaware and uncooperative beach population make surf rescue critical, lifeguards recorded 30 rescues and another 20 were rescued by surfers, fortunately good team management prevented a drowning deaths that day. During summer, beach population reaches an average daily quota of 25.000, with an additional 10.000 children in the mornings during the week from beach camps from July to August. On the weekends during the holiday season, from the 15th of June to the 15th of August, these numbers can raise up to 50.000 beach users. During the winter season, from November to March, brings big swells and surfing conditions that attract surfers, body boarders, windsurfers, kite surfers and other sea sports fans, as well as surf schools, counting up to roughly 400 surfers at the beach on the weekends.

During the high season 14 lifeguards patrol the beach, during the weekends another 2 lifeguards are on duty and additional lifeguards are employed to reinforce surveillance specifically for the children summer camps. Beach lifeguard management, with a team of over 40 individuals, is a 5 month hectic activity that relies on motivation and staff knowledge. Efficient management requires good human resources, good rescue equipment, but above all good communication between every individual team member and external partners - Cascais Maritime Authority, Lifeguard Institute - Instituto de Socorros a Náufragos (ISN), Cascais Municipality and Carcavelos beach concessions. In 2008, Portuguese legislation introduced the concept of continuous beach, changing the until required 2 lifeguards for every 50m in a beach concession, if an beach rescue plan was established. From 2010 onwards the lifeguard Institute – Instituto de Socorros a Náufragos (ISN), certified lifeguard associations to produce integrated beach rescue plans and allowing these to operate as lifeguard managing entities, under its approval. Integrated beach rescue plans, pioneered in Carcavelos, advocate the use of radios, beach towers, quad bike, personal watercraft (PWC) and rescue equipment such as: trauma kit, O2 kit, Automated Electric Defibrillator (AED) and 1st aid kit, thus optimizing resources and improving outcomes. Since 2010, ASAMAR - Associação de Salvamento Aquático (aquatic rescue association), manages the lifeguard service on Carcavelos beach. Since then it has identified problems and proposed possible preventive measures to decrease incidents.

<http://www.youtube.com/watch?v=cd7TjSikRsA&feature=youtu.be>
July 2013, Carcavelos beach, Friday evening until Sunday morning time-lapse

Emergency Medical Service Activation For Drowning Incidents in Lake Mead National Recreation Area 2008-2011

Justin Sempsrott (Lifeguards Without Borders), Ryan Hodnick DO, Khaye Rufin BS, Ross Berkeley MD, David Slattery MD

Background

Protecting 1.5 million acres of land and an additional 200 million acres of water, Lake Mead National Recreation Area (LMNRA) is the sixth most visited park and the third largest unit of the National Park Service, outside of Alaska. Approximately 7 million persons visit LMNRA yearly. A recent internal report indicated that unintentional drowning incidents accounted for 37% of fatalities in U.S. National Parks during 2007-2011.

Objective: Describe the nature, timing, and location of drowning incidents requiring Emergency Medical Service (EMS) activation within LMNRA

Methods

LMNRA, with mixed Basic and Advanced Life Support response. Inclusion criteria: All Park Service EMS responses in the LMNRA from 2008-2011. Exclusion criteria: Responses with no patient care record (PCR), and incidents with obvious death criteria. Design: Structured, retrospective review. Two trained/monitored reviewers extracted data using a uniform data tool and explicit review process. Data were entered into a data base (MS Access). Chart abstraction accuracy was adjudicated by 100% final review. We report data using proportions and 95 % Confidence intervals as appropriate.

Results

From 2008-2011, there were 959 EMS calls during the study period. 30 (3.1%) represented drowning incidents. 21 (70%) [52.1,83.3] occurred on the weekend. The vast majority of drownings occurred in males n=23/30 76.7%[95%CI 59.1,88.2]. The mean (SEM) age was 29.1 years (SEM 2.79). The age distributions (n;(%)[95% CI] were: 1-14 yrs =3(10%)[3.5,25.6]; 15-24 yrs =11 (36.7%)[21.9,54.4]; 25-44 yrs =10 (33.3%)[19.2,51.2]; and >45 yrs = 6 (20%) [9.5,37.3] 16 (53%)[36.1,69.8] were Nevada residents and all were from the USA. When the activity prior to drowning was known, it was most commonly swimming or diving n=21 (70%)[52.1,83.3], and drowning due to boating n=2, cliff diving n=1, SCUBA n=1 were uncommon. The median (IQR) response time was 9.5 (22-72) minutes and the median (IQR) scene time was 28 (27-190) minutes. 6 (20%[9.1,37.7]) were transported by Helicopter.

Limitations: Retrospective review of a single system; small number of drowning incidents.

Drowning incidents most often occurred on weekends in 15-44 year old males while swimming, which is consistent with previously published data. Understanding the challenges faced by providers in a remote environment will guide future education, which may need to focus on prolonged field care of drowning patients.

Resuscitation experience identified by Focus Group Studies

MD Sanne Moen, Berg vd JP, Bongers M, Hoogeveen RM, Puts MWJ, Bierens JJLM

Introduction

Series of quantitative research are conducted in which skill acquisition, skill retention, willingness and effectiveness of lay person CPR is measured. No data exist if lay people felt prepared well enough after a resuscitation experience (RE). In this pilot-study, we explored if a focus group study allows the collection of such qualitative data from lifesavers (LS) and rescue boat crews (RBC) with a RE.

Study design

Focus group interviewing technique is combined with a tested digital questionnaire to allow triangulation of data. The study methods are tested during one session with 4 LS/RBC with RE before 2011. Next, a pilot-study is set up to include all LS/RBC with RE between 15-6-2011 to 15-8-2011. Extensive social media is used for a maximum yield. All resuscitations (n=8) and LS/RBC with RE (n=12) are identified, of which 3 RBC with RE in 2 fatal cases participate. All data are recorded by field notes, video and audio and analyzed by two researchers. In a separate session, 5 researchers identify general themes.

Results

General themes identified during the test and pilot-study are:

- RBC feel generally well prepared for a resuscitation but mentioned that they would have benefited from training related to dealing with vomiting, providing oxygen, team dynamics and the obstructions caused by their survival suits.
- RBC not directly involved in rescue and CPR step back, while there assistance is needed
- RBC feel that they are responsible for both the resuscitation, the organization of the resuscitation scene and dealing with bystander, including family of the patient, an aspect they were not prepared for by training.
- Resuscitation by RBC benefits from an experienced leader at the scene.
- RBC feel there is need for more attention to the emotional aspects of a RE afterwards, and feel that resuscitation instructors at the RBC station should take responsibility as soon as possible.

Conclusions

- Focus group research is useful to reveal how RBC experience resuscitation.
- Social media are an excellent means to identify LS/RBC with RE. Probably due to the bad weather that year there are far less RE than expected.
- The study design needs to be adapted to facilitate sufficient numbers of LS/RBC with RE to participate .

Ocean drowning reports and associated weather and ocean conditions

Charles Paxton (University of South Florida), Jennifer M. Collins

This research explores weather and ocean conditions associated with ocean drownings. Many of the ocean drownings are attributed to rip currents. A rip current is a near shore circulation in which breaking waves run up onto the beach then retreat rapidly in deeper channels back toward the sea. Rip currents pose a significant threat to beachgoers, particularly tourists, and can pull even the strongest swimmers out to sea. The primary factors attributed to rip current formation are variations in the local beach bathymetry and longshore waves of varying height. The rationale for this study is highlighted when rip current deaths are put in context to deaths from other weather related deaths. In the United States during 2010, rip current deaths were responsible for 64 deaths around the country which was a greater number than the deaths associated with lightning, tornadoes, hurricanes and the cold winter during that year. The methodology followed for this study includes a review of demographics from over 500 rip current drowning reports along the coasts of the contiguous United States. Then for each of those reports, an analysis of associated ocean and weather patterns is conducted using buoy data and weather patterns from NCEP/NCAR reanalysis data. It is important to understand the evolution of these drowning events with respect to the trends of wave height, wave period, tidal fluctuation, pressure patterns, and resulting surface wind fields. Prior research indicates that tourists are the primary victims and rescuers often become the victims. Another important aspect is the characteristics of the victims such as ocean familiarity and details related to the drowning such as location of the incident with respect to the sand bar locations. Ocean condition and ocean drowning reports from various world agencies vary considerably in content. The content of those reports is discussed and reporting suggestions provided with regard to the utility of each parameter when used in future communication and research into ocean drownings.

An analysis of 508 lifeguard rescues at King County, Washington, public park beaches from 2008-2012

Prof. Linda Quan (University of Washington School of Medicine)

We reviewed 508 rescue records nine beach parks and collected data on: incident date and time of day; victim gender and age; availability of parent during rescues for victims under age 18; victim symptoms after rescue; possible neck/back injuries; disposition to hospital; cause of incident; rescues by recorded water depth; whether victim disobeyed park rules; relationship of water temperature to rescue frequency; number of active and passive patrons present at time of rescue.

Analysis of rescue operations with the use of personal watercraft on the Polish coast

Jakub Friedenberger (Wodne Ochotnicze Pogotowie Ratunkowe WOPR)

Between years 2003 - 2013 Polish Voluntary Water Rescue in Poland bought dozens watercraft with platforms. This gave the opportunity to better protect bathers on the Polish water areas including the coast. In 2008 a new training system for jet ski operators (lifeguards) has been introduced in Association. About 300 lifeguards that operate on jet ski on water of Baltic Sea are now certified and foremost - qualified for lifesaving with the use a PWC. This change resulted in numerous saved lives.

PWC turned out to be a very fast, versatile and efficient way of rescuing drowning victims. Nowadays when training programs have been improved, certified lifeguards are capable of going out into operation in almost every weather condition.

Wilderness Lifeguard Training

Jill White (Starfish Aquatics Institute)

Background

Traditional lifeguarding courses fulfill rescue and safety training for pools and other controlled settings where the water is clear and the bottom is even. However, in backcountry scenarios, water can be murky, bottoms uneven, and lifeguard skills for controlled setting may be inappropriate. Traditional lifeguard equipment is not readily available, and the time to obtain medical care can be well over an hour - making training on how to improvise a necessity.

A wilderness lifeguard training program has been developed in the United States by Landmark Learning, LLC and endorsed by the Starfish Aquatics Institute. Wilderness StarGuard® teaches participants how to evaluate site safety, screen the ability of swimmers, and improvise rescues using equipment most backcountry travelers are likely to carry with them.

Methods

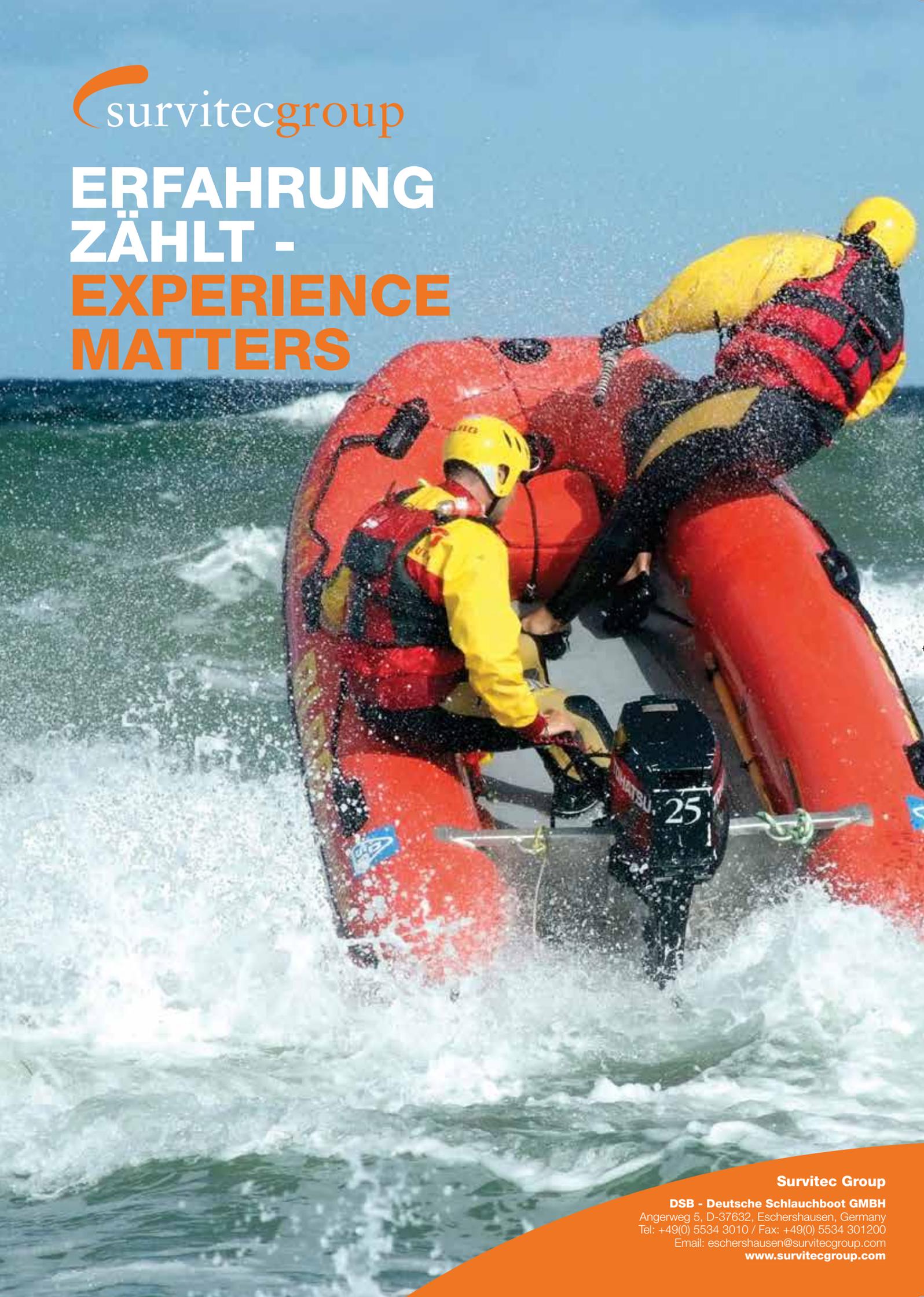
The training program is designed to meet the needs of wilderness trip leaders with a focus on prevention. This remote application to aquatic rescue courses can be taken alone as a primary training, as an add-on module to a traditional lifeguard course.

Discussion

Discussion will describe course content, rationale for techniques and the value to backcountry guides, canoe trip leaders, private expedition groups, college/university outdoor education programs, hiking club trip leaders, wilderness therapeutic programs, and adventure race safety personnel.

Conclusion

Lifeguard and aquatic safety training specific to a wilderness environment fills a void in education programs and provides practical methods for reducing risk and managing aquatic emergencies when definitive care is more than an hour away.



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Sea rescue

Modeling impact of response times, environment and incident type on survival at sea

Michael Wright (Greenstreet Berman Ltd), Cath Reynolds (Royal National Lifeboat Institution)

This paper will present the results of a ground breaking study into how the time taken to reach casualties, sea surface temperature, environmental factors and the type of incident interact to affect the probability of survival of casualties at sea in the UK and Eire. Data from 1994 to date for every incident attended by Royal National Lifeboat Institution lifeboats has been analysed. This data includes the time taken to reach casualties, the type of vessel or person at risk, the cause of the incident, sea state, sea swell, visibility, weather condition, windspeed and whether casualties survived or died. A map of sea surface temperatures was developed and added to the dataset. A multivariate analysis was completed to explore how each factor was associated with the probability of survival for each category of incident. The results of this work can be used, in the UK and Eire, to assess the benefit of different lifeboat resourcing strategies, such as different locations and different types (speeds) of lifeboat. The results also highlight the impact of environmental factors on survival and so inform the content of drowning prevention work.

Analyzing causes of drowning and serious incidents at sea: The RNLI's new Sea Incident Causal Analysis Process (SICAP)

Michael Wright (Greenstreet Berman Ltd), Howard Ramm Royal National Lifeboat Institution), Cath Reynolds (Royal National Lifeboat Institution)

For any drowning prevention campaign to be effective it is essential that the nature, cause and circumstances of fatal and serious incidents to be understood. Information on the causes of incidents helps to identify the main factors that need to be targeted and helps to inform the development of the content of campaigns. This paper will describe the development and implementation of a new incident review and causal analysis process for incidents at sea in the UK and Eire. The process aims to go beyond recording deaths and their associated activity to record a battery of vital information on the direct and underlying causes. The process includes multi coding of the activity, recording environmental conditions, casualty profiling (age, gender, experience, competence), assessment of human error and behaviours, profiling casualties risk perception and safety attitudes, casualty response, use and condition of safety equipment such as lifejackets, and search and rescue. The process covers the entire chronology of incidents from initiation, identification and alert of a casualty, self rescue, survival and search and rescue stages. The development, piloting and experience of using this approach will be described along with any emerging results.

Preventing drowning at sea: RNLI's new coastal safety strategy

Michael Wright (Greenstreet Berman Ltd), Howard Ramm (Royal National Lifeboat Institution)

This paper will describe the scope, content and progress of a new coastal safety initiative being developed and implemented by the Royal National Lifeboat Institution. Having assessed the risk of drowning and serious incidents at sea the RNLI reviewed the scope and content of this prevention work. From this review a new strategy is emerging. The risk based strategy draws on lessons learnt from successful public safety campaigns in the areas of fire safety in the home, road safety and drowning prevention. Key elements of the emerging strategy include time based setting targets to reduce deaths and serious incidents, cross cutting risk communication to raise public and stakeholder awareness of the risk and cause of drowning, working with partners such as sports governing bodies to reach and influence people, increasing understanding of water related hazards and promoting specific safety measures. The campaign involves a combination of cross cutting and some activity (such as sailing versus kayaking) specific interventions. A range of services, such as lifejacket clinics and onboard safety advice, are provided to enable people to act on the safety advice and so build on the awareness achieved by risk communication messages. Risk communication can involve a combination of mass media, such as television news, and local face to face interaction with individuals and groups of people. The design of the initiative is underpinned by research and theory of risk communication, safety promotion and behavioural science. Emphasis is placed on ensuring people understand risks and hazards, to prompt and enable them to make informed decisions about safety and only then to provide advice and services to support people in implementing safety actions.

The IMRF mass rescue operations project

David Jardine-Smith (International Maritime Rescue Federation IMRF)

The International Maritime Rescue Federation (IMRF) represents the global maritime search and rescue (SAR) community. Our Members work together to improve global search and rescue, sharing ideas, technologies and lessons learned, in the common humanitarian aim of saving life in the world's waters. The IMRF has consultative status at the International Maritime Organization (IMO - the United Nations specialised agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships).

One of the IMRF's current projects is on mass rescue operations. According to the IMO, a 'mass rescue operation' is 'characterised by the need for immediate response to large numbers of persons in distress such that the capabilities normally available to the SAR authorities are inadequate'.

A mass rescue operation is one of the most difficult that those who provide maritime SAR services will ever have to face. It is also, by definition, one which will mean working with resources beyond those normally employed in maritime SAR. Anyone involved in emergency response on or near the water may find themselves part of a mass rescue operation. It is vital to be as well-prepared as we can be.

The IMRF project aims to raise awareness of this need to prepare; to share experience in support of it; and to help audit progress in planning and training. To these ends we are providing an international focus on mass rescue at, or by, sea; and a forum for discussion. We are identifying specific problems which will benefit from further research & development; and potential amendments to international regulation and guidance. And we are beginning to compile a dynamic, web-based library of practical data to help those preparing themselves for their part in mass rescue operations.

The IMRF has held two very successful international conferences on the subject: a third is planned for 2014. We have recruited a bank of subject-matter experts from among our Members and other interested organisations, primarily to help provide and monitor our online library of resources. We are developing a mass rescue operations workshop package, so that we will be able to provide planning and training workshops locally or regionally on request: a number of such workshops have already been held. And we will continue to work on this subject with the IMO and other interested parties.

The IMRF & IMRF Rescue Boat Guidelines

Michael Vlasto (International Maritime Rescue Federation), Remmi Pedersen

„The International Maritime Rescue Federation (IMRF) represents the global maritime search and rescue (SAR) community. Our Members work together to improve global search and rescue, sharing ideas, technologies and lessons learned, in the common humanitarian aim of saving life in the world’s waters. The IMRF has consultative status at the International Maritime Organization (IMO - the United Nations specialised agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships).

„One of the IMRF’s current projects is the development of rescue boat guidelines to document and implement an internationally recognised, simple, justifiable and scalable framework for safe and effective maritime SAR operations. Filling an identified need „The guidelines are a supporting tool to motivate and enable users to develop and improve their service“ says Rolf Westerstrom CEO of SSRS.

The project commenced in 2010 and will be completed ready to be launched in the final quarter of 2013.

For the purpose of this conference we would like to provide a presentation on:

- The process of developing the guidelines utilising the skills and knowledge of our member organisations
- The principles applied to the rescue boat guidelines
- The introductory workshop for organisations intending to use the guidelines
- The IT interface developed to enable the rescue boat guidelines

„We will be pleased to report further on our work at the World Conference on Drowning Prevention, 2013.

„For further information in the meantime, please contact the IMRF project manager, Remmi Pedersen, at r.pedersen@international-maritime-rescue.org , or visit www.international-maritime-rescue.org

Offshore windfarms - challenges for maritime emergency response services

Udo Helge Fox (German Maritime Search and Rescue Service DGzRS)

Maritime emergency response services (MERS) face new challenges. Wind farms have been set up off the coast and expand further into the deep sea. Traditionally developed to respond to ships in distress or ditched aircrafts processes focus on operations at the water surface. Several incidents in the German maritime search and rescue region have shown a need for new strategies and different technology for dealing with seriously injured people located up to 120 meters above sea level.

Synergies between the provision of a lifeboat and lifeguard service - Reflections from the RNLI

Prof. Jonathan P. Guevarra (Department of Health Promotion and Education, College of Public Health, University of the Philippines Manila), **Richard C. Franklin** (Royal Life Saving Society), **Juanita A. Basilio & Lita Orbillo** (Family Health Office, National Center for Disease Prevention and Control, Department of Health, Philippines), **John Juliard L. Go** (Office of the WHO in the Philippines)

The RNLI provides both a lifeguard and a lifeboat service and is rapidly gaining experience on how to best bring together the best of both services. This presentation aims to share some of the lessons we have learnt on the synergies that can be developed between the two types of service provision.

Medical and fitness

The fitness requirements of a lifeguard are significantly different from that required by for lifeboat crew, however, the rigour establishing a fitness testing regime ensures that both groups are fit for work and reduces the risk to the individuals.

The RNLI is in the early stages of surveillance research for lifeguards and the lessons that can be applied to the marine environment are already evident. To borrow a catchphrase from our Australian colleagues, 'if we can't see you we can't save you' is applicable to all SAR environments.

Equipment and infrastructure

One of the great successes of the two lifesaving streams working together has been the adapting of proven rescue craft such as the current Rescue Watercraft (RWC) and Inshore rescue Boats (IRBs) for lifeboat crew operations. The RNLI now has three configurations of IRB (beach/surf, flood, and estuary/marine).

Due to the equipment maintenance demands of the lifeboat service, in particular the larger more complex All-weather Lifeboats, the lifeguard service is able to benefit from a higher level of technical support than a standalone lifeguard service would normally establish.

With coastline real estate always at a premium the opportunity to share facilities is always a potential benefit and increases the cost effectiveness and community value of any build programme.

Training

Casualty care training has proven to be an area of common ground for lifeguards and lifeboats who now share a core casualty care course with only slight variations to accommodate different equipment.

The skills that the lifeguards bring in training for small rescue boat operations operating in the surf and launching off beaches has added value to the training that lifeboat crews receive in the operation of their daughter boats.

Bringing together the skill sets of lifeguards and lifeboat crews is proving a productive experience in training for flood rescue with lifeguards having high level in-water skills and the lifeboat crews having an established skill set in flood boat operations.

Drowning prevention

The benefits of sharing data on incidents and risk assessments is of obvious benefit in terms of gaining information with minimal gaps on which to base future plans.

For lifeguards having a pro-active preventative focus to drowning prevention comes as second nature, for a response service such as the lifeboats this is something which we can learn from to support our sea safety initiatives.

The bringing together of the two streams has two significant benefits; firstly it provides for a joined up service from the beach to the open sea and secondly it allows the organisation to deploy the assets that are the best fit for the risk profile of a given location.

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Disaster prevention and rescue

LV Sachsen
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The importance of Flood Rescue Techniques in basic Lifesaving Training

Richard M K Tan (Singapore Life Saving Society)

One consequence of global warming and climate change is the occurrence of floods in areas that were not flood-prone before and also the increasing severity of floods that do occur. In addition, there appears to be also an increase in the frequency of floods. Lifesaving training traditionally concentrated on rescue skills in the still water and open water environments. However, those techniques are not completely appropriate for performing rescues in floods or swift water.

This paper emphasises the importance of including flood rescue techniques in a basic lifesaving training programme. It also presents the highlights of the author's research into flood and swiftwater rescue so far and also gives the author's tentative suggestions as to what flood rescue skills might be included in a basic lifesaving training course.

A European Union Mechanism for Civil Protection tsunami disaster exercise: outcomes for the Hellenic Red Cross

Georgios Marios Karagiannis (Hellenic Red Cross), Georgios Ioannis Tzikas

EU POSEIDON 2011 was a Simulation Exercise Program co-funded by the European Union Civil Protection Mechanism financial instrument under the 2008 call for proposals. It was the first tsunami disaster exercise program in the European Union. The objective of this project is to enhance civil protection preparedness in dealing with a devastating earthquake and ensuing tsunami, through the cooperation of civil protection agencies at local, regional, national and European levels. The Decentralized Administration of Crete (Greece) was the coordinating beneficiary, while the program consortium included the General Secretariat for Civil Protection (Greece); the Foundation of Research and Technology (Greece); the Hellenic Red Cross - Samaritan, Rescuer and Lifeguard Section (Greece); Cyprus Civil Defense (Cyprus); Protection Civile Sans Frontières (France); and Télémédecine Technologies S.A. (France). Exercise participants included all Greek emergency services on the island of Crete (Police, Fire/Rescue, EMS, and Coast Guard) and local and regional civil protection services in Crete.

The scenario of this exercise program was an earthquake in the Greek arch, which would not only cause damage to the island, but also create a tsunami that would hit most coastal areas of Crete. This scenario was similar to the seismic event of 365AD which occurred in the southwest of Crete. Under this scenario, the two major cities of Crete (Heraklion and Chania) are affected, and the tsunami can destroy coastal areas in the southwest of Crete. Tsunamis have predominantly been associated with high visibility events such as the Indian Ocean tsunami of December 2004 and the Japan earthquake, tsunami and nuclear disaster of March 2011. However, 10% of all tsunamis occur in the Mediterranean Region. With 140 million people living in coastal areas with high population density and large numbers of tourists around the Mediterranean coastline, a major tsunami could have devastating consequences.

The EU POSEIDON 2011 Simulation Exercise Program included three exercises: a Table Top Exercise (TTX), a Command Post Exercise (CPE) and a Full Scale Exercise (FSE). All three exercises took place in Crete in 2010 and 2011.

As a member of the program consortium, the Hellenic Red Cross Samaritan, Rescuer and Lifeguard Section (HRC/SRLS) was represented in the Exercise Planning Team from the outset of the program. In addition, a delegate of the HRC/SRLS was part of the Joint Exercise Control Group. During the Command Post Exercise and the Full Scale Exercise, the HRC/SRLS Local Departments in Crete were called to provide disaster services, including first aid and emergency care; search and rescue; shelter and mass care; and logistics. Overall, the HRC/SRLS provided critical services and HRC volunteers answered to a number of agent-generated and response-generated demands during all exercises of the program.

The exercise program helped to demonstrate important capabilities and identify opportunities for improvement in the civil protection mechanism at all levels. Some of the strengths and recommendations were of particular interest to the HRC/SRLS. Perhaps the most important strength from this standpoint was that HRC volunteers helped to overcome many logistical barriers by complementing government disaster services. In addition, HRC/SRLS staff and volunteers established and managed the Base of Operations very effectively. On the other hand, a key internal recommendation was that to develop regional command structures, as there is currently not an intermediate command level between Departments (local level) and the Section HQ (national level).

Overall, this exercise program was a highly rewarding for the HRC/SRLS. First, the fact that a humanitarian non-profit organization such as the Hellenic Red Cross was strongly involved in an EU Civil Protection Mechanism was a lesson learned by itself. In addition, the exercise program helped to identify both strengths and areas for improvement for the HRC/SRLS, which can greatly improve their operational capabilities in the future.

Disasters in developing countries - International Rescue vs Local Resiliency

Daniel Graham (Nile Swimmers)

Following major aquatic disasters such as recent tsunamis, and widespread flooding many high-income countries have developed expert technical rescue teams. The intention may be to provide international aid at short (24 to 48 hours) notice, or to provide in-country resilience.

In aquatic disasters, the majority of deaths occur within the first few minutes and hours of the event either through drowning or other traumatic injury. The only way to reduce the amount of deaths in a disaster is either to increase local resiliency and capacity, or to reduce the time taken to respond to the incident.

The sad reality of international disaster response teams, whilst they are very well intentioned, the deaths that they prevent are very few and far between - whilst setup and deployment costs are often measure in tens of thousands of dollars.

In economic terms of lives saved per dollar spent - international rescue teams do not make any sense in aquatic disasters, and are questionable in other technical rescue disciplines such as Urban Search And Rescue (for example earthquakes, and building collapse).

Research by The Alliance for Safe Children on the tsunami in 2004 shows that children whose mothers could swim were between 15 and 20 times more likely to survive the disaster than those with mothers who could not swim. No international rescue team, nor local rescue team has the speed of response to be able to produce survival statistics of that magnitude. This underlines the importance of teaching basic survival swimming skills to large numbers of people that live in aquatic risk areas.

In order to reduce the deaths in aquatic disasters, it is imperative to build local resiliency - often prior warning and evacuation is a hugely cost effective intervention, followed by rescue teams with the basic skills to keep themselves safe in the hazardous disaster zone who are able to access the area almost immediately post-disaster.

That local resiliency may be initially developed by outside organisations, but a key objective must be the long-term sustainability of that capability. Very simple things such as the availability of spare parts for repairing equipment when it gets damaged may mean that expensive resources are simply abandoned due to the difficulty of accessing spares for repairs.

Very often, the local communities have a good general understanding of the aquatic disaster - it has often occurred within the collective memory of the community. From that foundation, a participatory based approach - aimed at the community identifying the resources and support that they need is a very cost effective and locally appropriate method for development.

Review of Current Tsunami Countermeasures regarding Lifesavers

Toshinori Ishikawa (Japan Lifesaving Association), Tsutomu Komine, Takahiro Kazama, Masao Kawachi

On March 11, 2011, the northeastern Pacific coast of Japan was hit by a large tsunami that was generated by a great earthquake. The maximum inundation height was 19.5 m, the tsunami reached more than 5 km inland on the plain area, and the maximum run-up height measured 40.4 m. As a result, the coastal area was severely damaged and there were a lot of fatalities. This event occurred in an off-season of beach use. All the lifesavers in the tsunami damaged areas could safely evacuate to safer areas. It is estimated that most lifesaver's lives and beach user's lives would have been jeopardized if the tsunami had hit the coast during the summer. There are tens of thousands of beach users in one area of the beach during the summer in Japan. Countermeasures against a tsunami on the beach and the actions of lifesavers at the time of the tsunami warning are important.

In this study, we investigated current Tsunami countermeasures regarding Lifesavers based on two times hearing surveys with all Lifesaving clubs, and we clarified problems. Then, we proposed an action guideline of lifesavers for Tsunami.

As a result in 2006, communication between the local governments, the public emergency response organizations such as fire departments, police departments and lifesavers were lacking, and most clubs had not been carrying out evacuation training.

As a result after the tsunami disaster of 2011, hazard maps were mostly ready. Hazard maps contain the information that is necessary for evacuations such as the estimated inundation height and area, the evacuation areas, and routes. Although most lifesavers knew about evacuation routes and areas, the cooperation with the local governments and the public emergency response organizations still lacked. On the other hand, only part of the clubs carried out periodic evacuation training with the local government and local people, but some clubs in high risk areas took the lead in carrying this out. They considered the effectiveness of the evacuation method based on characteristics of the beach such as the necessary evacuation time of the situation from the ocean and the beach, and the safe evacuation route necessary for beach users who are barefoot to avoid injuries.

In addition, a problem due to the lifesaving activity of Japan, which is the volunteer activity mainly composed of university students, was submitted. Also, in most cases, beach users were not considered in the hazard map due to evacuation obstacles.

In order to reduce the risk of a tsunami disaster, comprehensive tsunami countermeasures are necessary in the high risk areas. Also, lifesavers have to develop the ability to survive during a tsunami. Therefore, we proposed an action guideline of lifesavers for Tsunami. As a summary of guidelines, Lifesavers have to take enough prevention measures such as the examination of the transmission method and the practice of evacuation for Tsunami with local governments and beach users. Also, at the time of the tsunami warning, Lifesavers have to become „the model of an evacuee to lead local people and beach users to safe areas“ in cooperation with the local government and the public emergency response organizations.

Physical protection of dikes by DLRG Rescue Divers in areas of flooding

Klaus Schneider (German Life Saving Society DLRG)

The physical protection of dikes in areas of flooding is one of the most important tasks for all organizations which are involved in the protection of population in case of a flood at our rivers or coasts.

In 1997 at the Oder and later in 2002 at the Elbe we had the situation, that DLRG Rescue and Disaster Response Units from all parts of Germany took part on operations to protect dikes along the rivers.

DLRG rescue divers collected large experience in physical protection of dikes by laying foils on the seaward side. If you find a spring on the inland side of the dike, it's an extremely dangerous situation. The dike will be hollowed out with high risk of breaching.

If such damages in the seaward surface of a dike are recognized in good time, placing foils on the seaward side of the dike can prevent the dike from becoming soggy.

Laying foils on the seaward side of the dike in a flooded area is a job which can be done by the rescue divers of DLRG Rescue and Disaster Response Units.

The aim of this topic is to show how Rescue Divers can protect dikes even if they are already flooded on the seaward side. Which material and technics are needed for such operations and which safety procedures are necessary during such an operation.

New Challenges for the civil protection system and the BBK

Christoph Unger (Federal Office of Civil Protection and Disaster Assistance BKK)

The Federal Office of Civil Protection and Disaster Assistance (BBK) was established on 1st May 2004 within the remit of the Federal Ministry of the Interior. Germany now has a central organisational element working to ensure the safety of the population, combining and providing all relevant tasks and information in a single place.

The work of the Office includes carrying out the tasks of the Federation with regard to civil protection (previously: „civil defence“, in particular supplementary civil protection, health-protection measures, protection of cultural property, emergency drinking water supplies), planning and preparation of measures to provide emergency supplies and carry out emergency planning, planning and preparation of cooperation between the Federation and the Länder with regard to special hazards (coordination of crisis management), planning/conceptual prevention for the protection of critical infrastructures, basic and further training, and training in civil protection and disaster relief, disaster medicine, alerting and informing the population, expansion of research into civil protection, in particular research into CBRN hazards, enhancing citizens' ability to help themselves, conceptual and planning tasks in the area of international cooperation with the participation of all national civil defence agencies.

With the multiplicity of services which it provides, the new Office sees itself as a federal service centre for authorities at all levels of the administration, as well as for organisations and institutions working in civil protection. It applies an interdisciplinary approach to all types of security measure for the protection of the population, and combines these measures to become an effective protective system for the population and the resources which are vital to individuals' survival.

The Civil Protection System in Germany

MD Norbert Seitz (Federal Ministry of the Interior)

Executive Summary/Essentials

For the purpose of non-police danger prevention, Germany traditionally maintains a vertically structured emergency preparedness and response system that relies essentially on volunteers and is based on the principle of subsidiarity with the Federation, the Länder and the local authorities co-operating closely with each other and with the major relief organisations and the fire brigades. Primary responsibility for civil protection lies with the Länder. The Federation has only limited responsibility for civil protection in case of military conflicts. To be more specific, I should like to highlight the following aspects:

Federal Structure

In Germany, civil protection is subject to the stresses and strains that are inherent to federalism. National emergency preparedness is not organised centrally, instead it is a responsibility shared between the Federation and the Länder (including the municipalities).

This vertical structure is effectively reflected in a dual terminology. Civil protection versus disaster management. Civil protection is the legislative task and responsibility of the Federation (cf. article 73, paragraph 1 item 1 of the Basic Law). The responsibility of the Federation is strictly limited to protecting the civilian population in case of military crises. Civil protection is the civilian annex to the military defence mandate. This reference to war implies that there is a clear distinction between civil protection as a sub-category of national defence and so-called peacetime disaster management. The latter is part of general danger prevention and thus an exclusive responsibility of the Länder (cf. article 30 of the Basic Law).

Event though responsibilities are divided in line with Germany's federal system, civil protection (which is a responsibility of the Federation) and disaster management (which is a responsibility of the Länder) are not strictly separate and do not form isolated systems that exist independently of each other. There are no independent civil protection structures at the Federal level or independent disaster management structures at the Länder level, nor are there any parallel or duplicate structures. In case of defence, the Federation relies on the disaster management structures of the Länder whose resources are reinforced and supplemented for this purpose by the Federal Government which does not only fund additional vehicles and equipment but also provides the material and human resources of the Federal Agency for Technical Relief (THW). By the same token, the Länder rely on these supplementary resources that are provided by the Federal Government in case of peacetime disasters and accidents (dual benefit). In practise, civil protection and disaster management are intertwined, they build upon each other, they are interdependent and form an integrated whole. There is a system in place which encloses and interconnects civil protection and disaster management.

A system based on volunteers

What is specific about the German national emergency preparedness system is the fact that it relies on honorary and voluntary helpers who form the backbone of the system. The German civil protection system depends on the approx. 1.8 million voluntary helpers of the relief organisations (German Red Cross, Workers' Samaritan Column, German Lifesaving Federation, St. John's Ambulance Service, Maltese Voluntary Agency), the fire brigades and the THW. A relief system operated exclusively or primarily by full-time staff would never be able to ensure the same level of presence throughout the country which is so typical of the German system and accounts for its particular strength.

Bottom-up force build-up

Depending on the emergency scenario, the resources of the national emergency preparedness system are built-up on the basis of a bottom-up approach. This build-up capability makes the system efficient and cost-effective.

Responsibility for preventing and controlling everyday hazards (including regional neighbourhood assistance) lies with the local authorities. The backbone of this local operational danger prevention and control system is formed essentially by the fire brigades which provide fire and NBC protection as well as technical assistance.

Surf Life Saving Queensland and Emergency Management

Ralph Devlin (Surf Life Saving Queensland)

Surf Life Saving Queensland (SLSQ) has helped keep Queensland's beaches safe for over 100 years and is the state's peak beach safety and rescue authority. SLSQ is also one of the largest volunteer based community service organisations in Australia with over 36,000 volunteer members.

The extreme flood events in 2011 brought over 100 years of SLSQ's historical emergency care and aquatic rescue training to the flood affected communities of South East Queensland, including Brisbane, the state's capital.

DLRG as a part of disaster prevention in Germany

Dr. Klaus Wilkens (German Life Saving Society DLRG)

The Deutsche Lebens-Rettungs-Gesellschaft (DLRG = German Life Saving Society) is a non-governmental, incorporated welfare organisation with more than 1,2 million members and supporters. DLRG educates swimming, lifesaving, first aid, paramedical staff, specialists for rescue diving and motor rescue boats. It realises at more than 5.000 places in Germany a water rescue service and supports the disaster prevention and the disaster rescue service. In addition lifesaving sport is part of its activities.

The flooding of rivers arise from the snowmelt and extreme weather conditions with heavy rainfalls in the mountains and in the inland. Smaller floods we have in Germany almost every year at the rivers Elbe, Oder, Rhine, Danube, their feeders and some smaller rivers.

In Germany the disaster prevention is in the responsibility of the Federal States, which co-operate with the voluntary and professional fire brigades, the Technical Emergency Service and five NGO's (Red Cross, Samaritan Corps, St. John, Maltese, DLRG) assisted by the army and the police. DLRG is specially involved in actions concerning water rescue.

Nation-wide there are approximately 50 000 voluntary DLRG helpers, more than 1200 cars and more than 1.000 motor rescue boats, on request of the involved Federal States..

In cases of disaster the voluntary helpers of DLRG are assembled to special units. These water rescue units consists of approximately 30 helpers with six vehicles and four rescue boats as base – rescue divers included. The needed number of units (sometimes added by special forces) drive well organised to the disaster area.

The voluntary helpers of DLRG must be well trained, so that they can fulfil their res-cue work with high professionalism.

At the side of the "normal" helpers DLRG has some 2.000 qualified rescue divers, who are involved in the water rescue service, disaster prevention and civil protection. They have got a special education for missions in disasters after the "normal" rescue diver education. In case of a flood disaster their special task is the protection of endangered parts of the dykes.



Medical Aspects

Breath-Holding - Physiology, Hazards and Community Education

Neal Pollock (Divers Alert Network)

Breath-holding is a normal part of every respiratory cycle and an integral part of many aquatic pursuits. Strategies to increase breath-hold time are easy to employ but can also increase the risk of unexpected loss of consciousness. The best protection against undue risk is a complete understanding of the hazards and solutions. Problematically, in place of proper education, discordant efforts have been promoted nationally or internationally by some to re-label „hyperventilation“ as „work up breathing“ or similar to avoid the negative connotation and by others to simply ban breath-holding in aquatic environments. Neither strategy promotes greater thoughtfulness, a critical goal for techniques that require no equipment to implement. This presentation will review the physiology of ventilatory control and breath-hold, describe how and when the variable hazards can develop during breath-hold, review incident data collected by Divers Alert Network, and recommend strategies to promote awareness and safety for those involved in breath-holding or potentially overseeing breath-hold activities. The needs of individuals, groups and aquatic leaders will be considered.

Drowning and first aid procedures in rural Bangladesh- a qualitative study on community perceptions on the practice of CPR

Sarah Sinclair

Drowning is a major, but often neglected, public health problem. In 2004, approximately 175 000 children and youth under the age of 20 years died from drowning. Of these deaths, 98.1% occurred in Low and Middle Income Countries(LMICs) and it has been shown that the 1-4 year age group has the highest risk. Bangladesh is one of the countries that is most affected by drowning with approximately forty-six children dying per day. The World Health Organization(WHO) recommends that „immediate resuscitation, prior to the arrival of paramedical personnel, should be promoted everywhere.“¹ Recognizing the urgent need of drowning prevention interventions, The International Drowning Centre in Bangladesh has therefore implemented a CPR program in rural Bangladesh during the last year to prevent deaths from drowning. This study aims to investigate community perceptions on practice of CPR following drowning incidences in rural communities in Bangladesh.

A qualitative study design was used consisting of interviews, focus group discussions, observation and review of the First Responder Training Manual. Fieldwork was conducted in May 2011 with the support of the International Drowning Research Centre, Bangladesh. The main findings from this study found that First Responder Course was accepted and welcomed by community members. The findings also indicated that the community is aware of safe rescue practices and are accepting of mouth-to-mouth resuscitation and chest compressions as an effective treatment measure for drowning victims. Social and cultural barriers such as gender and blame may limit the success of the CPR program. Findings indicated many community members share their knowledge of CPR with friends, neighbours, classmates and family members to try and convince them that CPR is less harmful than many traditional practices.

This thesis highlights the need for further research on the effectiveness of a CPR program in a LMIC setting. Recommendations include the collaboration with traditional healers and the need to develop and disseminate culturally appropriate messages about the use of CPR instead of harmful traditional practices and promote the concept of bystander ethos.

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¹ WHO | World report on child injury prevention [Internet]. [cited 2011 Jan 21];Available from:http://www.who.int.ep.fjernadgang.kb.dk/violence_injury_prevention/child/injury/world_report/en/index.html

Developing first responder training programme to prevent child drowning in a rural community in Bangladesh: Is it feasible?

Dr. Aminur Rahman (Centre for Injury Prevention and Research, Bangladesh CIPRB), Tom Mecrow, Saidur Rahman Mashreky, Sheikh Jamal Hossain, Justin Scarr (RLSSA), Michael Linnan, Fazlur Rahman

Introduction

Drowning is the leading cause of death in children aged 1-17 in Asia including Bangladesh. In high income countries (HICs) many drowning victims survive till hospitalisation and studies suggest that victims are more likely to survive following early bystander CPR. In LMICs including Bangladesh drowning victims almost never receive immediate life support as both the bystander and EMS concepts are non-existent. As a result when drowning victims are brought to hospitals in most of the cases they are already dead by that time. Considering this situation this study was designed to develop and implement a first response training programme in Bangladesh.

Objectives: To develop and implement a first responder training programme, assess the feasibility to train lay persons with low literacy in the rural communities in Bangladesh, and to explore the acceptability of the training programme in the community.

Methods

A context-appropriate first responder training programme including cardiopulmonary resuscitation (CPR) was developed and community people of 20 villages in Raiganj, Bangladesh were trained over a 14 month period. The programme was evaluated through post-training assessment of the participants' knowledge and skills and trainers' performance evaluation. Focus group discussion (FGD) was conducted to explore community leaders' response to the training programme.

Results

The first responder training programme including CPR was established in Raiganj. The materials developed for the training include - First Responder Training Manual, posters and a training video. Among all participants 88% qualified post training assessment. The passing rates in adolescents and community volunteers were higher than the community leaders. Among the participants who were re-tested three months after training, more than three-quarters could retain most of the skills of CPR. The FGD revealed that the community leaders considered the training program useful for the community and they expressed their intention to support the programme.

Conclusion

Developing a first responder training programme comprising CPR, in a rural community of Bangladesh with low literacy rate, is feasible. The adolescents and young adults should be targeted as potential candidates for being first responders. By utilizing context-appropriate training programs community people in Rural Bangladesh and in similar low resource settings could achieve the competencies of a first responder.

First-aid and CPR through Community-based swimming instructors in Rural Bangladesh

Dr. Mohammad Jahangir Hossain (International Drowning Research Centre, Bangladesh), **Aminur Rahman** (Centre for Injury Prevention and Research, Bangladesh), **Saidur Rahman Mashreky** (Centre for Injury Prevention and Research, Bangladesh), **Fazlur Rahman** (UNICEF Bangladesh), **Imtiaz Ahamed** (UNICEF Bangladesh), **Tom Mecrow** (Centre for Injury Prevention and Research, Bangladesh)

Background

First aid service is an important part of any healthcare system and it can not only stop the progress of severity of a case but also can save life. First aid is unfortunately ignored in many low-income countries. In Bangladesh the access of physician in rural areas is very difficult so first aid can contribute in reducing unavoidable death and disability.

Objective

Assessment of the first aid services provided by community-based swimming instructors in rural areas of Bangladesh.

Methodology

In 2012, to deliver first aid services in the community under SwimSafe program 526 community swimming instructors were trained in Bangladesh, among them 258 were male and 268 were female. All swimming instructors were selected from the community and trained intensively for 2 days using manual adopted from IDRC-B. Manikins were used during CPR session. After successfully completing the training all instructors were delivered a manual and a record-book. All instructors were requested to keep record on first aid services they provided. After the training 3-6 months Information were collected from the instructors for analysis. For the collection of the information on CPR a structured questioner was used.

Results

Out of 526 trained community instructors 180 instructors provided first aid services among 1,252 patients. Number of injury due to burn was 182, most of them treated with clean water before starting other treatment. Injury due to fall and cut were 714 and most of them treated with antiseptic and wrapped with bandage. The instructors provided first aid to 26 patients with snake bite, 40 patients with shock, 26 patients with electrocution, 59 patients with animal injury and 61 with drowning. No incidence of fatal drowning found during the swimming sessions. Among the drowning cases 32 patients were treated with recovery position. The instructors performed CPR to 21 patients among them 12 patients were due to drowning. After providing first aid 832 patients were referred to village doctors, paramedics, registered doctors and hospitals for further treatment.

Conclusion

Bangladesh is a disaster-prone area; so, expanding first aid program through community volunteers will be effective in reducing mortality, morbidity as well as progression of any complications of injury.

Supraglottic airway devices in a Lifeguard service

Dr. Patrick Morgan (Surf Life Saving GB, Royal National Lifeboat Institution)

During a cardiac arrest the main treatment is cardiopulmonary resuscitation (CPR), this being a combination of chest compressions and rescue breathing. Minimisation of interruptions to chest compressions is associated with improved survival. A potentially reversible cause of cardiac arrest in the casualty involved in a drowning event is positive pressure ventilation of their lungs with supplemental oxygen. The minimum standard is expired air ventilations, the gold standard being a breathing tube (endotracheal tube) placed into the trachea and its position confirmed with end tidal capnography (EtCO₂). Placement of these tubes requires significant skill and maintenance of competence, it is recognised that in-experienced practitioners can produce prolonged interruptions to chest compressions and other complications. The alternatives that lie between these options are mouth to pocket mask ventilations; bag-valve-mask (BVM) ventilations; and Supraglottic airway devices (SADs). Bag valve mask ventilation also requires significant skill retention and often causes interruptions to chest compressions¹. The frequency with which our lifeguard service experiences cardiac arrest in the beach environment is insufficient to retain these competences. In addition the use of BVMs by non-medical professionals has been shown to be less effective than standard approaches². SADs are rapidly and easily inserted in resuscitation resulting in minimal interruption to chest compressions and have proven useful in the pre-hospital management of cardiac arrest³. To date there is only one case of unsuccessful use of a SAD, with some success with BVM after a drowning event in the literature⁴. In the casualty post drowning event they present a unique option for airway management for those rescuers not skilled in endotracheal intubation and in whom maintenance of proficiency in bag valve mask ventilation is difficult.

This presentation will discuss the benefits and limitations of SADs in drowning and their introduction into a lifeguard service and subsequent use. At present there is poor quality data regarding the use of SADs in pre-hospital management of a drowning event and further research is required.

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Role of Hyperventilation in the drowning process

Dr. Patrick Morgan (Surf Life Saving GB, Royal National Lifeboat Institution)

The drowning process is considered a continuum from the trigger causing the event to occur to the final end point of cardiac arrest and subsequent death. Hyperventilation may contribute to the drowning process either as a voluntary action prior to immersion; as seen in shallow water blackout¹, or as an involuntary action; due to anxiety or increased sympathetic nervous system outflow secondary to a noxious stimulus such as pain from trauma or cold water immersion^{2,3}.

The role that hyperventilation plays in altering the casualty's physiology within the drowning event will be discussed. This will include the potentially neuroprotective effects of selective brain cooling, electrolyte channel conduction alteration and its role in amplification of Autonomic conflict and cardiac arrhythmias.

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Sudden death whilst swimming - the cardiac channelopathies

Anthony J. Handley (Royal Lifesaving Society)

There are several reasons why someone should die suddenly whilst in the water, including underlying heart disease, epilepsy, hyperventilation (over breathing), and trauma. Most of these conditions can be detected at post mortem examination. There remain, however, a small, but significant number of deaths, particularly in younger swimmers, in which no physical cause can be found for unexpected drowning. For some time, it has suspected that some, if not all these cases may be due to an electrical abnormality in the heart.

Recent research has thrown more light on these so-called cardiac ion channelopathies.

This presentation will briefly summarise the causes of sudden death in the water and then concentrate on what is now known about the channelopathies, the mechanism of death, the frequency of occurrence, and the implications for those responsible for lifeguarding possible victims.

A new helicopter-based strategy to achieve real in-water resuscitation

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Drowning is a common cause of accidental death in children and young adults. The current resuscitation guidelines recommend in-water resuscitation under certain circumstances. However in-water resuscitation is currently limited to ventilation since chest compressions during swimming are expected to be inefficient. However, chest compressions are frequently essential to achieve a return of spontaneous circulation.

We therefore developed a new concept which achieves to subsequent goals:

- Fast transfer of rescue divers to the drowning victim via helicopter
- Rescue of the drowning victim visible from the water surface
- Rescue of the victim even if submerged to a depth not reachable with breath-hold diving
- In-water airway management
- Initiation of in-water ventilation
- Initiation of in-water mechanical chest compressions
- In-water application of adrenaline

We demonstrate the new concept, the technical equipment and the techniques used to achieve these goals. Furthermore, we present the results of a first pilot evaluation study.

Evaluation of in-water resuscitation performed by lifeguards and laypersons

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Objective

Drowning is associated with a high mortality and morbidity and a common cause of death. In-water resuscitation (IWR) in the case of drowning accidents has recently been recommended by certain resuscitation guidelines. IWR has been discussed controversially in the past, especially with regard to the delay of chest compressions, efficacy of ventilation and hazard to the rescuer. The aim of the present study was the assessment of the efficacy of IWR.

Methods

In this cross-over manikin study, 21 lifeguards and 21 laypersons performed two rescue maneuvers in an indoor swimming pool over a 50 meter distance: In random order, one rescue maneuver was performed with in-water-ventilation and one without. Tidal and minute volumes were recorded using a modified Laerdal Resusci Anne and time consumption, submersions, water aspiration and physical effort were assessed.

Results

IWR resulted in a significant increase in rescue duration, submersions, water aspiration and physical effort in both, lifeguards and laypersons. Lifeguards achieved significantly better ventilation characteristics and performed both rescue procedures faster and with lower side effects. IWR performed by laypersons was insufficient with regard to both, tidal and minute volumes.

Conclusions

In water resuscitation is associated with a delay of the rescue procedure and a relevant aspiration of water. IWR appears to be possible when performed over a short distance by well-trained professionals. The training of lifeguards must pay particular attention to a reduction of submersions and aspiration when IWR is performed. IWR by laypersons is exhausting, time consuming and inefficient and should probably not be recommended.

New Tools for In-Water and Under-Water Ventilation of a Drowning Victim: The EMX-SCUBA and a gas powered self-purging underwater suction system

MD James DuCanto (Anesthesiology Associates of Wisconsin), MD Bernd E. Winkler, (Department of Anesthesiology, University of Ulm), Anna Magdalena Eff, MD Sebastian Eff, MD Ulrich Ehrmann, MD PhD Andreas Koch, PhD Wataru Kähler, MD PhD Claus-Martin Muth

A hybrid oxygen-powered resuscitator (Oxylator EMX-SCUBA or "OxyStein") has been developed that permits reliable underwater ventilation of a test lung and simultaneous removal of water from the airway tubing. Multiple bench top and swimming pool tests have confirmed that this combination of a self-contained resuscitator with a gas powered self-purging underwater suction system is capable of ventilating a submerged simulated lung set with the simultaneous removal of water from the system. These tests also revealed that the Oxylator FR-300B and Oxylator EMX-SCUBA can function as underwater SCUBA units if a water-tight seal can be achieved with a mouth piece or tight fitting resuscitation face mask. These details are of importance for the potential of these devices to be utilized as rescue devices in flooded tunnels and mine shafts, both for breathing and non-breathing victims.

The initial tests of this unique system were conducted with an Oxylator FR-300B device. Initial tests in a shallow (0.5 meter) water filled container confirmed that the system is capable of ventilating a test lung underwater when water is not allowed into the breathing circuit. A second test of the Oxylator FR-300B was performed in a swimming pool of 4.2 meters depth, utilizing the device as a SCUBA unit. The investigator was equipped with a full SCUBA tank and buoyancy compensator prior to the test, along with the continuous attendance of a rescue diver in full SCUBA gear. The investigator utilized the FR-300B with a SCUBA regulator mouthpiece fitted to a 22 mm connector, briefly diving to 4.2 meters depth with the Oxylator set to Automatic ventilation mode (Figures 1 and 2). Breathing effort was found to be „easy“ through the device, despite the Oxylator pressurizing the breathing system to 20 cm H₂O with each ventilatory cycle. Exhalation resistance was also judged as „easy“ during this test. No entrainment of water in the breathing system or substantial resistance to inhalation or exhalation were encountered. A second test of the Oxylator FR-300B repeated the first dive using a tight fitting resuscitation mask with straps in lieu of the SCUBA mouthpiece. A subsequent underwater test at 4.2 meters depth with a Laerdal resuscitation mannequin revealed that the Oxylator FR-300B encounters failure to function when water is allowed into the breathing circuit and test lung. This observation led to the creation of the Oxylator EMX-SCUBA, which is able to clear a short ventilator tubing flooded by water.

The gas powered self-purging underwater suction system is derived from the LSP Aspirator system which utilizes a venturi flow port which produces negative pressure in the suction jar while gas is diverted through the venturi port. An in-line suction system that is commonly used for intensive care ventilator patients was used to create a closed system by which the LSP Aspirator could remove the water from the system as the Oxylator and LSP demand valve provided gas flow to expel the water and ventilate the test lung. As the test lung was ventilated, it often provided additional water which could be removed by the in-line suction unit, or through the exhalation port of the Oxylator and demand valve.

In summary, we describe a new development in resuscitation equipment that vastly expands the ability of rescue personnel during In-Water rescue, and opens up the possibility of Under-Water ventilation rescue for victims that cannot be immediately brought to the surface of the water for resuscitation. This represents a new and unique ventilation system that deserves further study.

Efficacy of a novel rescue-tube utility for in-water resuscitation

Yannick Lungwitz (University of Ulm), Benedikt Nussbaum, MD James DuCanto, MD PhD Andreas Koch, PhD Wataru Kähler, MD PhD Michael Georgieff, MD PhD Claus-Martin Muth, MD Bernd E. Winkler

Introduction

Drowning is a leading cause of accidental death in young adults, adolescents and children. In-water resuscitation has been recommended under certain circumstances. IWR has been discussed controversially by emergency physicians and water rescue authorities. As IWR can represent a substantial physical challenge to the lifeguard, a novel rescue tube device with an integrated automatic emergency ventilator might facilitate IWR. The aim of the present study was the assessment of the efficacy of IWR with the help of the novel rescue tube device.

Methods

Eighteen lifeguards performed a rescue maneuver over a 100 meter distance in open water. All subjects performed the procedure four times in random order: With no ventilation (NV), mouth-to-mouth ventilation (MMV), Oxylator-aided mask ventilation (OMV) and laryngeal tube ventilation (LTV). Tidal volumes and one-minute-volume were recorded using a modified Laerdal Resusci Anne. Furthermore, rescue time, water aspiration, number of submersions and subjective exertion were assessed.

Results

OLTV with the novel rescue tube device resulted in efficient and consistent ventilation over the whole rescue distance with the highest minute volumes (average 7.6 l/min) and a mean tidal volume of 477 ml. MMV and OMV provided a less efficient ventilation with lower minute volumes. Additionally, minute and tidal volumes decreased in the course of the rescue process with MMV and OMV.

NV was the fastest rescue maneuver (mean 217 sec) while IWR prolonged the rescue process independent of the way of ventilation, however to a different extent. OLTV was associated with the longest preparation time (average 39 sec) but also with the fastest transport time among the IWR rescue maneuvers. MMV and OMV were rated most exhausting and only moderately efficient whereas OLTV was considered less demanding - comparable to NV - and far more efficient by the lifeguards. Although all IWR methods led to frequent submersions of the manikin, aspiration of substantial amounts of water only occurred during MMV.

Discussion

IWR has been reported to be associated with an increased survival rate and an improved neurological outcome. However, possible disadvantages of IWR are increased exhaustion of lifeguards and aspiration of water. In this study, we demonstrated that the novel rescue tube device used with a laryngeal tube provides an efficient, stable ventilation associated with hardly any aspiration of water and being less exhausting than MMV and OMV. A further advantage of the novel rescue tube device is the possibility to use 100% oxygen for ventilation.

Efficacy of ventilation and ventilation utilities during in water resuscitation

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Introduction

Drowning is one of the leading causes of accidental death. The 2010 guidelines of the European Resuscitation Council recommend in-water-resuscitation (IWR). IWR has been discussed controversially by emergency physicians. The aim of the present study was the assessment of the efficacy of IWR.

Methods

Eighteen lifeguards performed a rescue maneuver over a 100 meter distance in open water. All subjects performed the procedure four times in random order: With no ventilation (NV), mouth-to-mouth ventilation (MMV), bag-mask-ventilation (BMV) and laryngeal tube ventilation (LTV). Tidal volumes, ventilation rate and one-minute-volume were recorded using a modified Laerdal Resusci Anne. Furthermore water aspiration and the number of submersion were assessed.

Results

NV was the fastest rescue maneuver (advantage ~40 sec). MMV and LTV were evaluated efficient and relatively easy to perform by the lifeguards. While MMV (mean 199 ml) and BMV (mean 481ml) were associated with a large amount of aspirated water, aspiration was significantly lower in LTV (mean 118 ml). Efficacy of ventilation was consistently good in LTV, only initially acceptable due to water aspiration in MMV and continuously poor in BMV.

Discussion: A retrospective study of Szpilman et al. Reported an improved outcome due to IWR in 46 drowning victims. According Perkins et al. 7-9 ventilation can be performed in a swimming pool efficiently. Based on our recent findings, the efficacy of MMV has to be questioned in open water accidents which raises the question whether IWR is useful at all. If IWR is performed, the use of adequate utilities is urgently recommended.

Submersion accidents-Emergency Medicin-Intensiv Care and Prevention

Dr. med. Ulrich Jost (German Life Saving Society DLRG)

Not all submersion accidents are lethal at scene.

Especially in developed countries a numerable part of these patients will die during hospital stay. This can not be differentiated by the ICD (International Code of Diseases).

Another part will survive neurological compromised. One third of whom in a vegetative state!

The WHO estimated that per one dead person came three to then who had to be hospitalized. For Germany we do not have reliable data concerning this problem. But we know from a M. D. thesis and from telephone interviews with the responsible persons of rehabilitation centres that each year as many severely neurological compromised patients as dead people result from submersion accidents.

Despite ambulances staffed with specially trained physicians, a helicopter assisted rescue system, a network of highly equipped emergency rooms and an intensive medicine using therapeutic hypothermia, extracorporeal circulation, protective lung ventilation and a standardized management of sepsis this ratio did not change in the last years. With the help of a series of case reports the problems will be discussed.

Finally a lot of harm and cost may be saved by better prevention.

Should we have AEDs at swimming pools?

Anthony J. Handley (Royal Lifesaving Society)

There has been much discussion, and some controversy, regarding the cost-effectiveness of automated external defibrillators (AEDs) at swimming pools, and the training of lifeguards in their use. This paper will review the medical literature on the incidence of sudden cardiac arrest in facilities that include a swimming pool, how many incidents are related to swimming itself, and the characteristics of the victims. Recent evidence will be presented to support the provision of AEDs at such facilities. An attempt will be made to guide those responsible for making a risk assessment of benefit versus cost.

Management of a Suspected Spinal Injury by a First Responder – An Evidence Based Review

Dr. Natalie Hood (Surf Life Saving Australia)

Although spinal injuries are uncommon in a drowned victim, aquatic first responders, especially those working at surf beaches and swimming pools, need to be able to recognize and manage situations where a potential spinal injury is suspected. Diving accidents and dumping surf are the leading causes in a water environment.

Spinal immobilization techniques have long been accepted as the standard of care in a suspected spinal injury despite the lack of evidence that immobilization benefits neurological outcome. There have been recent papers published that describe the potential risks and harm of spinal immobilization.

In 2012, the Australian Resuscitation Council (ARC) and Life Saving Victoria (LSV) each undertook independent reviews of the medical literature examining the evidence for and against spinal immobilization. These reviews highlighted that most of the studies have been performed in healthy volunteers, cadavers or on manikins, rather than in trauma victims. The majority of the studies were rated as fair or poor quality due to either small numbers, a study bias, lack of randomization or blinding, flawed methodology or participants lost to follow-up.

Based on the evidence found in these reviews, it appears that immobilization does prevent movement, although the clinical significance of this movement prevention is unknown. Potential risks of adopting spinal immobilization include; that it is uncomfortable, it can mask injuries, delay time to treatment and lead to complications including pressure injuries, respiratory compromise and raised intracranial pressure.

Findings from the literature reviews were summarised into an evidence worksheet and subsequently used to write an evidence based guideline for the ARC on the Management of a Suspected Spinal Injury. LSV was able to use the findings to review the Surf Life Saving Australia spinal management training package, making it evidence based and highlighting the importance of when and how to immobilize patients along with the importance of constantly monitoring the victim for any potential side effects or harm.

The most important message is the promotion of spinal injury awareness, to suspect the potential of harm to the spinal cord in trauma situations, and thus handle the victim carefully with attention to spinal alignment. Spinal immobilization techniques continue to be used in practice. Using an evidence based approach, first responders need to be aware that all efforts to stabilize the suspected injury need to be balanced against any potential for further harm and patient discomfort.

Use of supraglottic airway devices

MD Kasper Adelborg, Bo Løfgren

Drowning victims of retirement age in Australia

Amy Peden (Royal Life Saving Society - Australia), Professor John Pearn (Royal Life Saving Society - Australia, Royal Children's Hospital Brisbane)

To be effective, drowning prevention programmes must focus on specific, targeted groups and be directed at those at risk. In contradistinction to moderate success in the reduction of drowning rates in children, drowning rates in those of senior years remain unacceptably high. The statutory and sociological age of retirement is commonly 65 years of age in many nations. Many studies have highlighted citizens of senior years as a priority life stage for targeting much needed reductions in drowning deaths. In particular, the Australian annual National Drowning Report has highlighted the continuing large number of drowning deaths that occur in older people in aquatic environments. Drug and alcohol ingestion have implications for many facets of aquatic safety, resuscitation, forensic analysis and preventative programmes.

Whereas some 30-70 percent of younger adult drowning victims have a significant blood alcohol concentration, drug profiles in victims of more senior years have not been reported. This senior age group is characterized by an increasing incidence of underlying medical conditions, many with multiple co-morbidities. The extent to which pre-existing medical and surgical disease predispose to drowning risks has remained unknown.

We report here a 10 year (2002-2012) total population survey and analysis of underlying medical conditions in drowning victims aged 65 years and over in Australia; and a compilation and analysis of blood toxicology reports obtained as part of the coronial and forensic investigations of each drowning victim.

Primary case finding has identified every drowning victim in Australia aged 65 years and over, for the period 1 July 2002 to 30 June 2012. This total population survey and analysis comprised data obtained from all State and Territory Coronial Offices, the National Coronial Information System (NCIS) and from media reports. Data on medical conditions, as a coroner's determination of the cause of death, were obtained from Coronial Findings, Autopsy and Police Report documents. Data on the presence, type and blood concentration of drugs and alcohol were also obtained. The Australian population at the mid survey point (2007) was 21,015,936; of which the population of 65 year olds and over was 2,758,930 (13.1%).

We have identified 514 people aged 65 years and over who have drowned in Australia in this 10 year period. Our analysis indicates that 352 victims (68.5%) had an underlying medical condition of which the rank order was: cardiac conditions such as coronary artery atherosclerosis; hypertensive heart disease; dementia; and depression. Our study has revealed that a prior medical condition was significant in the chain of events which resulted in fatality in 53.4% of cases (188 victims). Contributing co-morbidities included: cardiac disease (69); Dementia (53); non-specific frailty (38); Depression (15); Orthopaedic disorders and musculoskeletal disease (10); Epilepsy (9); Parkinson's Disease (7) and Blindness (6).

The data indicates that over 16.7% of drowning victims of senior years had a recordable level of blood alcohol at the time of their fatal immersion. In 57 cases (66.3% of those with a positive blood alcohol reading, or 11.1% of all drowning victims in this study), a blood alcohol concentration above 0.05g/L was recorded, the legal limit for driving in Australia. The highest blood alcohol level reported (0.34g/L) was over 6 times the legal limit. We report that 34.8% of victims had a therapeutic or sub-therapeutic level of drugs in their bloodstream. Positive readings were identified for both alcohol and drugs (judged to be significant in this context) in 8.4% of cases.

Drowning statistics in citizens aged 65 years and over have remained high over the 10 year period of this study. The preservation or initiation of aquatic activities is important for both health and for lifestyle fulfilment, in senior years. We believe that drowning risks are small in those who enjoy aquatic recreational or fitness programs; but that greater advocacy is needed to highlight the risks of those with pre-existing medical conditions. Co-morbidities which contribute to drowning risks include cardiac disease (13.4% of all drownings); dementia (10.3%); and non-specific frailty (7.4%). One in ten of all senior victims who drown are impaired by alcohol; and at least 1 in 12 have a significant blood alcohol concentration combined with a therapeutic drug which, by synergy, is likely to contribute to a drowning fatality. This study has identified further specific risk conditions which lend themselves to potentially successful advocacy for drowning reduction.

Ventilation with Boussignac CPAP in drowning syndrome

Dr. Riccardo Ristori (Società Nazionale di Salvamento)

Aim of the study

Verify the First line therapy role of Boussignac CPAP ventilation in drowning syndrome (limited to conscious semi-drowning) performed by lifeguards

Materials and Methods

In the period between June and August 2012 in collaboration with the SNS (National Society of Rescue) lifeguards has been carried out the study of a ventilatory technique with proven capabilities in hospital setting, in conscious victims of drowning syndrome performed by lifeguards.

CPAP (Continuous Positive Airway Pressure) is a ventilatory technique suitable for victims who require respiratory assistance, but who are conscious and can breathe spontaneously; it recruits all the alveoli preventing their crushing caused by the inhalation of liquids under drowning, favoring metabolic exchanges.

Were included in the study victims of drowning syndrome with level of consciousness as to give consent to the administration of oxygen by Boussignac CPAP with respiratory rate > 25 breaths in a minute.

The parameters under observation of the study were: respiratory rate, heart rate and saturation recorded at baseline, after 5 minutes and after 10 minutes (coinciding with the arrival of advanced life support).

Results

The Boussignac CPAP was proven to be easy to use, with small footprint and connectable to normal cylinders for oxygen therapy.

If applied in the early stages of dyspnea it was seen that improve rapidly the symptoms of respiratory effort as tachypnea and tachycardia.

Conclusions

The use of Boussignac CPAP by lifeguards is useful and effective, after appropriate training could be used by all lifeguards.

Bloodborne Pathogen Exposure Control for Lifeguards and Lifesavers

Leonardo Manino (Equipo Profesional de Salvamento Acuatico EPSA)

Blood agents are pathogenic microorganisms such as viruses or bacteria that are carried in the blood and can cause disease in people. The types of agents are, malaria, syphilis, brucellosis, enterovirus, leptospira and salmonella also other mortals as the hepatitis B virus (HBV) human immunodeficiency virus (HIV)

These agents are transmitted through contact with infected human blood and other body fluids such as semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid and / or amniotic fluid.

Without being damaged skin forms a barrier against blood borne pathogens. However, infected blood can enter the system according to open wounds, cuts, abrasions, acne and any kind of wound or broken skin such as sunburn with blisters. They can also be transmitted through the mucous membranes of eyes, nose or mouth.

Infection of health providers including Lifeguards and Lifesavers through exposure to bodily fluids of another person is really low, but it could happen.

However on the other hand there are recorded cases of exposure or contact with these agents more accurately with medical waste on beaches, suggesting the possibility of infection. For example Phillip et al (1994) have reported between 1988 and 1991, 40 cases of injuries caused by needles on British beaches. In Palm Beach, Florida USA three cases have been reported to Lifeguards in a period of 10 years (J. Fletmeyer).

This particular infection can occur through exposure to blood or oral secretions which may possess different pathogens causing diseases mentioned above. The best way to prevent infection by pathogens that may possess the victim is using personal protective equipment (universal precautions) Personal protective equipment (PPE) should be available to all health providers including lifeguards and lifesavers.

Personal Protective Equipment (PPE).

The appropriate PPE must be provided by the employer to reduce the risk from exposure. If the chance of exposure is high as for example in CPR, intravenous placement, birth and trauma, the rescuer should wear the PPE before beginning to treat the patient or victim.

Disposable gloves (latex, vinyl, nitrile). Gloves should be a component of the briefcase common equipment in a kit and must be placed before attending an emergency in which they may be exposed to blood or other body fluids. For situations in which involves a large amount of blood is important that gloves are placed so that they are tight and resistant, in cases of multiple victims (trauma) should change gloves between victim and victim if the emergency allows. While wearing gloves avoid handling personal items such as pens, eyewear, watches, etc. which may become contaminated. The gloves contaminated with blood or other body fluids must be discarded as soon as possible, taking care not to touch the skin with the outer surface thereof. These should be disposed of in places intended for that purpose.

Masks, gowns and goggles or eye shield, these three elements must be present in any vehicle or briefcase personnel responding to a medical emergency or rescue. These protective barriers should be used in accordance with the level of exposure. Minor scratches or small amounts of blood do not merit the same protection used in a profuse arterial bleeding victim. The management of the patient or victim is not bleeding and not exposed bodily fluids do not deserve to use personal protective equipment routinely. Masks and goggles should be used together in situations which can splatter blood or body fluids. Gowns or aprons should be used to prevent clothing is splattered with blood.

Talking about the resuscitation equipment, it not has been documented transmission of Hepatitis B or HIV during rescue breathing. Also, because of the possibility of risk of transmission by saliva of other infectious.

Increasing Automated External Defibrillator (AED) Survival Rates

Caleb Brown

David Lloyd Leisure introduced Automated External Defibrillators (AEDs) in all clubs in 1998. Overall survival rates from out of hospital cardiac arrests to hospital discharge were good; ranging year on year from 56% to 72% with nearly 100 lives being saved by the prompt and competent use of AEDs by David Lloyd Leisure team members. With a desire to increase survival rates a full review of AED training was conducted in 2010, which led to a new AED programme being launched.

A full review of the company AED programme was conducted over a 12 week period in 2010. This review was completed by reviewing the business AED policy and training processes line by line and reflecting upon a number of AED usage events, which occurred in the previous 2 years.

The David Lloyd Leisure AED policy stipulates that an AED must arrive at the scene of all first aid incidents, regardless of severity, within 1 minute of the alarm being raised. The response policy is tested on an ongoing basis by club management teams during every first aid incident and externally audited on a six monthly basis. During the review it was established that the AED incident response was excellent with the AED arriving on the scene of the majority of incidents within 30 seconds of the alarm being raised and well within the policy guidance.

Although achieving high survival rates it was felt that the training programme lacked direct focus on the core survival outcome drivers. A great deal of training time was spent on topics that, although informative, did not influence potential survival outcomes. As a result a new AED training programme was instigated purely based on the guidance expressed by the Resuscitation Council UK (RCUK), the European Resuscitation Council UK (ERC) and medical research in the resuscitation field.

The new annual AED training programme was formulated to be delivered succinctly over a two hour contact training time period for team members with an existing cardiopulmonary resuscitation (CPR) awards. The programme was launched within the company in January 2011 with 100 trainers being updated and 1750 team members being trained in the new programme.

Following the instigation of the updated AED training programme survival rates from out of hospital cardiac arrest to hospital discharge increased substantially to over 75% and peaking at 88% in 2012.

After every AED usage event a full post incident review, including AED data download, and debrief is conducted both with the purpose of providing support and guidance to the AED usage team and to ensure that the learnings from the event influence and further develop future AED training programmes. This provides a continual checking, balancing and review process for the AED programme, challenging prescribed training outcomes to ensure that they are relevant to survival outcomes. An AED training review is also regularly conducted to reflect publicized AED use and relative survival rate data to ensure that the AED programme is aligned to current medical opinion. This in turn generates a degree of fluidity within the David Lloyd Leisure AED programme, developing and striving for greater AED success and survival rates.

In conclusion the implementation of the updated David Lloyd Leisure AED programme led to a marked and substantial increase in out of hospital cardiac arrest survival rates, peaking at 88%. A consistent and continual review of post AED usage data and medical guidance is vital to ensure that optimum survival rates continue to be achieved.

Infrared ear thermometry in water-related accidents – not a good choice

Dr. med. Ulrich Ehrmann, (Department of Anesthesiology, University of Ulm) Erik Shank, Balázs Hauser, Peter Radermacher, Michael Groeger, Claus-Martin Muth

Hypothermia in near-drowning victims is a serious problem that impacts clinical decision-making. The purpose of this trial was to determine the reliability of tympanic temperature measurements compared to oral temperature measurements after immersion in water. After ethical approval was obtained, we studied oral and tympanic temperature in 25 volunteer swimmers (aged 18-49 years). Sublingual (Fixotherm; Tradesell Europe, Eglharting, Germany) and tympanic (First Temp Genius; Sherwood Medical, Sulzbach, Germany) temperature measurements were performed before entering the water, after 45 min of immersion in water, and 15 min after leaving the water. During the immersion phase, the ears were temporarily immersed. A control group (the same 25 volunteers) had to swim for the same amount of time without ever immersing their heads in the water. The trial was performed in an indoor swimming pool at 28 degrees C water and 30 degrees C air temperature. The oral temperature did not change over time in either group. The tympanic temperature was significantly lower after immersion compared to baseline in the „immersed“ group (33.7 degrees C vs. 37.5 degrees C, $p < 0.001$), increased significantly in the recovery period, but remained significantly lower than baseline (36.0 degrees C vs. 37.5 degrees C, $p < 0.001$). At baseline, the oral temperature was lower compared to the tympanic temperature. This relationship reversed after immersion and remained reversed until the end of the trial in the immersion group. The control group maintained oral temperatures lower than tympanic throughout the study; furthermore, the control group had no clinically relevant change in oral or tympanic temperature over the time (tympanic temperature: 37.4 degrees C vs. 37.2 degrees C, $p = 0.06$). Our data suggest that in water-related accidents such as near drowning, the values of body (core) temperature obtained via use of infrared ear thermometry are unreliable, and should not be used for clinical decision-making.

Association of water temperature and Association between water temperature, submersion duration and drowning outcome

Prof. Linda Quan (University of Washington School of Medicine), CD. Mack, M. Schiff

Aim

Evaluate the roles of water temperature and submersion duration in the outcome of drowning victims.

Methods

Subjects were those who drowned in open water (lakes, rivers, and ocean) in three counties in Washington State between 1975 and 1996. We performed a case control study to assess the association between age, reported submersion duration, and estimated water temperature and drowning outcomes. Cases were victims with good outcomes (survival with normal or mild/moderate neurologic sequelae). Controls were victims with bad outcomes (death or severe neurologic sequelae or persistent vegetative state). We used Poisson regression to estimate odds ratios (OR) and 95% confidence intervals (CI).

Results

Of the total 1,093 open water drowning victims, most were male (85%), white (84%), and with a mean age of 27 years. Most drownings occurred in lakes (51%) and in cold ($>6-16$ °C (44%)) or very cold waters (<6 °C (34%)). Most (78%) had bad outcomes (72% died; 4% survived with severe neurologic sequelae). Of those with good outcomes, 88.2% were submerged < 6 minutes, 7.4% 6-10 minutes and 4.3% for 11-60 minutes. Victims with good outcomes were 61% (95% CI 0.23-0.65) less likely to be submerged for 6 to 10 minutes and 98% (95% CI 0.01-0.04) less likely to be submerged for 11 or more minutes. Water temperature was not associated with outcome.

Conclusions

A protective effect of cold water for drowning victims was not found; estimated submersion duration was the most powerful predictor of outcome. Recommendations for initiation of rescue and resuscitation efforts should be revised to reflect the very low likelihood of good outcome following submersion greater than 10 minutes.



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Research

International Internal Noise Lifeguard Study

Rachel Griffiths (Aquatic Safety Research Group)

Nearly a thousand lifeguards anonymously responded to an online survey constructed and analyzed by Aquatic Safety Research Group. Dr. Tom Griffiths and Rachel Griffiths will present their original research. The results give new meaning to the RID factor. Frank Pia's original RID factor dealt with secondary duties that distract lifeguards from the primary duty - surveillance. While Frank Pia's RID Factor still holds true today, our findings show that the RID factor also is extremely meaningful when looking at internal distraction. Lifeguards fail to recognize victims due to a multitude of internal distractions. Thoughts and emotions can be just as distracting, and even more distracting than external noise. Also, internal noise is often difficult to identify and difficult to manage. The results of the lifeguard internal noise survey will amaze many aquatic professionals. This will provide a key into major challenges lifeguards face on duty as well as parents while supervising - the distraction of internal noise.

This presentation illustrates how internal noise affects lifeguards in real-life by presenting responses collected from hundreds of lifeguards worldwide. We share results from the lifeguard study including what lifeguards think about when they are lifeguarding and examples of how internal noise distracts lifeguards. Results revealed also will include an up-to-date (2012) percentage of lifeguards who text while on duty! Strategies to help manage internal noise will be provided.

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An accessible drowning database: The new searchable web-based application for drowning incidents in Canada

Barbara Byers (Lifesaving Society Canada)

In 2013 the Drowning Prevention Research Centre in CANADA completed a new web-based database. This new database is the only comprehensive searchable database of national drownings in Canada. It enables simple queries on common selections, detailed customized queries and reports on demand without high level IT assistance. The database provides a link between the data from current year media and internet reports and the data collected from provincial and territorial Coroner's offices. It is incident-based, utilizes a single, simple database, is easy to use, minimizes data entry errors and provides multiple levels of user security.

The Drowning Prevention Research Centre - CANADA, established in 2010 by the Lifesaving Society, is the lead agency for drowning research in Canada. The Centre conducts research into fatal and non-fatal drownings, significant injury and rescue interventions. The Centre undertakes primary research, maintains a drowning database, provides research data to media, governments and stakeholders and encourages the delivery of drowning prevention programs and education.

Data on drowning and water-related fatalities has been collected from provincial and territorial coroner offices since 1987 by the Lifesaving Society and the Canadian Red Cross. Annually, the Lifesaving Society collects data on fatalities from media, police and internet reports. These cases are verified at the time of coroner's data collection (2-3 years later) when coroner's files are closed. The Lifesaving Society publishes the Canadian Drowning Report based on this data.

The drowning data provides a comprehensive fact base on the drowning „problem“ to guide the Society and others in developing drowning prevention „solutions“. This data provides insight on the who, what, why, when and where details about the drowning and risk factors associated with the drowning situation. This information assists in determining the strategic direction of messaging and campaigns.

Presenters: Barbara Byers and Tessa Clemens

As Research Director for the Drowning Prevention Research Centre Canada, Barbara Byers is responsible for leading the collection, analysis and dissemination of water incident research in Canada. This scientific evidence-based data is used to guide the development of drowning prevention initiatives.

Barbara is responsible for developing the strategic and executional components for the Lifesaving Society's annual Water Smart campaign, directed at changing the behaviour of Canadians to prevent drowning and water-related injuries.

Barbara is the Past Chair of the Canadian Safe Boating Council and the current chair of the PFD Task Force and the Educational Programs Committee. She is a member of the International Lifesaving Federation's Child Drowning Committee and one of the principal authors of the 2007 World Drowning Report.

Barbara has been with the Lifesaving Society for 20 years. Prior her position with the Lifesaving Society, Barbara had marketing/advertising positions with Warner Lambert and the Leo Burnett advertising agency.

Tessa Clemens is a Research Administrator for the Drowning Prevention Research Centre Canada. She is also a PhD student in the Faculty of Health at York University, Canada. Her research focuses on drowning epidemiology and prevention.

Complex Quadriplex of Lifeguard Blindness

Tom Griffiths (Aquatic Safety Research Group)

Through years of study, the Aquatic Safety Research Group has revealed four separate and significant forms of Lifeguard Blindness. Dr. Tom Griffiths and Rachel Griffiths will present the four causes of lifeguard blindness. The blindness all lifeguards are challenged by include:

1. Physical Body Blindness;
2. External Distractions;
3. Perceptual Body Blindness
4. Internal Noise.

Physical Body Blindness occurs when a lifeguard is blinded by the „ripple effect“ of surface water agitation, reflection, or refraction. This Physical Body Blindness is documented in the video „Disappearing Dummies.“ The RID Factor described by Frank Pia and utilized in lifeguard training worldwide explicates External Noise through the failure to recognize due to intrusions and distractions. Perceptual Body Blindness occurs when lifeguards see but do not perceive victims due to cognitive errors and biases, which is documented by cognitive psychologists. This research shows how a lifeguard’s cognition can interfere with perceiving an incident in the pool. New research (summer 2012) conducted by Aquatic Safety Research Group illustrates internal noise, thoughts and emotions that can prevent a lifeguard from actually seeing where they are looking. These four causes of lifeguard blindness will be presented in-depth. Strategies to help manage and mitigate these lifeguard surveillance challenges will also be provided. The objective of this presentation is to reveal the research illustrating the significance of lifeguard blindness and motivate research in the area of strengthening surveillance as well as supplementing surveillance with technologies, techniques and equipment.

Characteristics of lifesaving from drowning as reported by the Swedish fire and rescue services 1996-2010

Andreas Claesson, Jonny Lindqvist, P. Ortenwall, Johann Herlitz

Aim

We aimed to describe characteristics associated with rescue from drowning as reported by the Swedish Fire and Rescue Services (SFARS) and their association with survival from the Out of Hospital Cardiac Arrest (OHCA) registry.

Method

This retrospective study is based on the OHCA registry and the Swedish Civil Contingencies Agency (SCCA) registry. All emergency calls (1996-2010) where the SFARS were dispatched were included (n = 7175). For analysis of survival, OHCAs that matched events from the SCCA registry were included (n = 250).

Results

Calls to lakes and ponds were predominant (35% of all calls reported). Rescues were more likely in cold water, <10°C (45%), in open water (80%) and in April-September (68%). Median delay from a call to arrival of rescue services was 8 min, while it was 9 min for rescue diving units.

Of all OHCA cases, the victim was found at the surface in 47% and underwater in 38%. In events where rescue divers were used, victims were significantly younger than in non-diving cardiac arrests and the mean diving depth was 6.3 ± 5.8 m. Overall survival to one month was 5.6% (13% in diving and 4.7% in non-diving cases; p = 0.07).

Conclusion

In half of more than 7000 drowning-related calls to the SFARS during 15 years of practice, water rescue was needed. In all treated OHCA cases, the majority were found at the surface. Only in a small percentage did rescue diving take place. In these cases, survival did not appear to be poorer than in non-diving cases.

Cardiac disease and probable intent after drowning – Swedish registry study

Andreas Claesson, Henrik Druid, Jonny Lindqvist, Johan Herlitz

Aim

The aim of this study was to describe the prevalence of cardiac disease and its relation to victim's probable intent among patients with cardiac arrest due to drowning.

Method

All retrospective autopsied drowning cases reported to the National Board of Forensic Medicine, NBFM, between 2002-2010 were included as well as all out-of-hospital cardiac arrests, OHCA, that matched events from the Swedish OHCA registry (n=272).

Results

Of 2,166 drowned victims, the majority (72%) were males and the median age was 58 years (IQR 42-71). Drowning was judged to have been caused by accident in 55%, suicide in 28% and murder in 0.5%, the intent was unclear in 16%. A contributory cause was found in 21% and cardiac disease as a possible contributor was found in 9% of all cases at autopsy. Coronary sclerosis (5%) and myocardial infarction (2%) were most frequent. Overall, a cardiac disease was found in 14% of all accident cases, as compared to zero cases (0%) in the suicide group; $p=0.05$. Ventricular fibrillation/tachycardia was found as often among patients with cardiac disease (7%) as among patients with non-cardiac disease (7%). This arrhythmia was found in 6% of accidents and 11% of suicides ($p=0.23$).

Conclusion

Among 2,166 autopsied cases of drowning, more than half were judged as being caused by accident and less than one third as being caused by suicide. Among accidental cases, 14% were found to have a cardiac disease as a possible contributory factor. The low proportion of cases found in ventricular fibrillation was similar, regardless of the presence of a cardiac disease.

Testing results may guide us to better rescue techniques

Dr. Harald Vervaecke (ILS), Ulrik Persyn

Extensive testing was done at the University of Leuven - Belgium. A brief summary of the results of the testing is given below.

Resuscitation ability of Laypersons

People presume that all those who followed a CPR course are able to perform a correct CPR while lay people without training are not able to do anything good. In total, 119 persons were tested who did never receive former CPR courses and 119 persons who received CRP courses. 159 persons were male and 79 female. We conclude that training CPR is a better guarantee to a successful resuscitation. Even if one has been trained in CPR, it is noted that CPR techniques should be rehearsed regularly.

Resuscitation ability of Physicians

176 Belgian physicians were asked to perform a CPR. 22 refused the test. From the 154 remaining physicians, 114 physicians (74 %) obtained less than 50% of the points, 32 physicians (21 %) obtained a score between 50 and 70 % and 8 (5 %) physicians obtained a score of 70% or above. While there is a general consensus that physicians are able to do a correct CPR, it seems that such an assumption is incorrect.

Swimming speed while clothed or with fins

160 good swimmers (80 women and 80 men) were tested. Each of them had to swim as fast as possible a distance of 25 meter wearing different types of clothes. It is resolved that (a) wearing shorts, shirts and dresses dramatically reduces the swimming speed, (b) rescuing a person by using fins halves the rescue time and (c) a rescuer can carry four times much weight if he/she swims with fins.

Rescue speed while clothed or with fins

120 good swimmers (60 women and 60 men) were tested. Each of them had to swim a distance of 45 m to a victim of the same height and weight ($\pm 5\%$) and carry the victim 45 m back to the other end of the pool. The conclusions are that (a) wearing shorts, shirts and dresses dramatically increases the rescue time and (b) rescuing a person by using fins halves the rescue time and is preferred.

Towing Capacity

852 students were asked to carry a maximum weight (over 10 m) while the leg technique was judged. We conclude that when a threshold of 6 kg carrying capacity is considered: (a) a rescuer who uses a crawl leg stroke or a breaststroke with two „extended feet“ cannot develop sufficient absolute lifting force. (b) a rescuer with a breaststroke with one „extended foot“ can only safely tow a victim if he uses the one handed towing technique. (c) a rescuer who has a breaststroke action or egg beater kick can easily tow a victim and lift more than 6kg. (d) a rescuer using crawl with fins can tow 2 to 3 persons. (e) a person can carry a load of between 5% and 15% of his body weight, and with fins up to 20% of his body weight. (f) Women can carry relatively more than men despite the fact that they are 10 cm smaller on average and 10 kg less in weight.

Delivery Techniques

A total of 222 good male swimmers from 18 to 20 years, 82 were selected based on several criteria, such as weight, swimming ability and certification. They were grasped by a victim and their ability to deliver themselves was tested. We conclude that heavy test persons can deliver themselves significantly better than light test persons (p 00.1). Certified lifesavers can deliver themselves significantly better than non-certified lifesavers (p 00.1). We further see that: The techniques learned is mostly used. The non lifesaver who swims well and is strong has a 60% chance of releasing himself from the grasp.

Enhancing detection rates of beach lifeguards: Determining the best scanning technique

Dr. Jenny Page (University of Portsmouth), G. Long, P. Dawes, M. Tipton

Background

Some lifeguard training agencies advocate prescribed scan techniques. However, no specific research has been conducted to support these recommendations. One study examined the physiology of the eye and field of vision while scanning to assess which techniques cover 100% of the required zone using the middle 40° of the visual field (1): the assumption being that if a signal is detected in the middle field, lifeguards can then bring it into the inner field (1°) and determine whether a person is in trouble. The study identified three techniques that were considered to be 100% effective at covering the zone¹ but no specific evidence of the actual efficacy had been established.

Aims

The primary aim of the present work was to examine the effect of prescribed and free scanning on coverage of the primary zone (the area where 100% of the swimmers were located) and the detection rates of beach lifeguards. A secondary aim was to examine the impact of an auditory prompt on the detection rates of beach lifeguards when free scanning. The study also used subjective analyses to determine whether lifeguards were able to adopt specific scan strategies, and the degree to which they feel confident that the techniques were effective.

It was hypothesised that there would be a significant difference in the detection rates and eye movement variables across the conditions.

Methods

A mobile eye tracker (ASL Mobile eye) was worn by each lifeguard. They watched five minutes of animated beach footage projected onto a large screen in four conditions: Free scan technique; Parallel scan technique; Spoke scan technique; Free scan technique with an auditory prompt.

The lifeguards were informed that at any point a person or people may or may not submerge. The lifeguards were required to highlight with a laser pen if, and where, a person submerged. The lifeguards were unaware that a pre-defined swimmer submerged after 4.5 minutes in each of the conditions. The person submerged in different areas between conditions. The conditions were presented in a counterbalanced order. The percentage time spent covering the primary zone and the rates of detection of a submerging individual were determined.

Results and Discussion

The detection rates were not significantly different across conditions ($P > 0.05$).

Lifeguards performed significantly more fixations (where the eye was stationary for 100ms or more) in the two prescribed scan conditions compared to the free scan conditions ($P < 0.05$). The mean fixation durations were significantly shorter in the prescribed scan conditions than the two free scan conditions ($P < 0.05$). Lifeguards spent significantly more time in the primary zone in the two free scan conditions than they did in the prescribed scan conditions ($p < 0.05$).

In the final five seconds (as the person disappeared) there were no significant differences in the eye movement variables across conditions.

Lifeguards showed no preference for one prescribed scan technique over the other.

Conclusion

It is concluded that:

1. Most lifeguards can adopt prescribed scanning patterns if they are trained using a short video
2. Lifeguards are equally efficient at detecting swimmers in trouble in the water regardless of the type of scanning pattern adopted
3. Lifeguards cover the primary zone for a greater amount of time when using free scan patterns. This suggests that, at present, training programmes for surveillance do not need to be specifically focused on training lifeguards to use prescribed scan techniques.

References

¹ Hunsucker, J. Davison, S. (2008). How lifeguards overlooks victims: Vision and signal detection. *International Journal of Aquatic Research and Education*, 1, 59-74.

Deaths due to Drowning in India: Need for prevention policies and programmes

Prof. Gopalkrishna Gururaj (Centre for public Health, National Institute of Mental Health and Neuro Sciences)

Drowning is an important cause of mortality in all Low and Middle Income Countries, more so in a highly populated country like India. Drowning deaths can be accidental, intentional or of undetermined nature and are not investigated in a scientific manner. The epidemiology of drowning deaths in terms of burden, characteristics, situation - circumstances and context - and role of other risk factors have not been clearly understood in India and many other Low and Middle Income Countries.

An estimated 3,88,000 persons died due to drowning, of which nearly half of them were below 20 years of age with a global rate of 7.2 / 1,00,000 population. Low and middle Income countries of the world had high rates of drowning with significant variations across countries. In India, nearly 30,000 persons died in acts of drowning as per official reports in 2011. Data from 4 years of Bangalore Road safety and injury Prevention Programme showed that drowning was one of the top 15 leading causes of death among children less than 18 years. Similarly, data from the rural Injury surveillance programme showed that drowning accounted for 13 % of all injury deaths with a mortality rate of 4.8 / 1,00,000 population and was the 3rd leading cause of injury deaths. However, majority of drowning related deaths are often unreported and underreported due to number of reasons and hence, the real numbers are significantly higher. Drowning carries high mortality, especially in India as rescue services are not available readily and people are not aware of the benefits of swimming techniques. Majority of deaths have been reported among young males and predominantly in rural areas.

Children and young adults are highly vulnerable to drowning. Significant number of deaths occurs in rural areas where rescue facilities are not available at times of need. Drowning in urban areas is often related to sports and recreational activities. Specific time periods of the year corresponding to rainy season have reported high rates of drowning in coastal parts of the country. Among the other risk factors of drowning, alcohol and illicit drugs have been implicated in recreational and accidental drowning. Few autopsy studies have found involvement of alcohol, but are poorly documented due to medico legal barriers. Occupational drowning, especially among certain communities involved in travel and transport on watery bodies have also been reported in drowning deaths. Consequently, the coastal belts of India have been recording higher number of deaths due to drowning.

Scientific research has clearly shown that majority of unintentional and accidental drowning deaths are preventable in nature. It requires developing systematic programmes based on data and evidence focusing on developing safe watery bodies, better supervision from parents and caregiver's, raising security levels in recreational places, increased public awareness, informing dangers of risk locations, teaching young people the skills of swimming and rescue operations, limiting availability of drugs and alcohol, developing first care responders and efficient trauma care facilities for survivors. Transportation policies in coastal areas should include water safety as an important component to prevent drowning deaths in India. Drowning prevention should be an integral part of injury prevention, education, welfare and child safety and survival programmes in India and all other Low and Middle Income countries.

Rock Fishing Safety – From Evidence to Action

Anthony Bradstreet (Surf Life Saving Australia), Shauna Sherker, Matthew Thompson, Adam Weir

Rock fishing is commonly described as Australia's most dangerous sport. It involves fishing from rocky outcrops and headlands along exposed coastline. The wave climate has an average swell of 1.5m, which interacts dramatically against these rocky coast environments, resulting in extreme risk of death or injury for anglers.

Since 2000, there has been an average of 8 rock fishing drowning deaths per year in Australia. Rock fishing is the third most common activity leading to coastal drowning death (after swimming/wading and boating) and made up 13.4% of all fatal coastal drowning in 2011-12. The state of New South Wales (NSW) is a primary concern representing 65% of all rock fishing deaths in Australia. Rock fishing also presents significant morbidity with more than 50 hospitalisations per year.

Various groups have attempted to address the issue over this period. In 1997, the Australian Sportfishing Association established a life buoy placement project. Shortly after, an education program was established, which was also supported and enhanced several times as new collaborators were engaged. Unfortunately, the drowning toll was largely unaffected and remained at 8.2 fatalities per year.

It has been proposed that these interventions have prevented fatalities from increasing in the face of increasing participation. Participation rates for recreational fishing in Australia, including rock fishing, are unavailable and an accurate rate of drowning cannot be determined. Nonetheless, throughout this period the public were exposed to sustained media about rock fishing fatalities.

On May 11th, 2010 a tragedy occurred at Catherine Hill Bay just north of Sydney which resulted in 5 anglers drowning in a single incident. These deaths were investigated by the NSW Coroner along with 7 other rock fishing deaths occurring around the same period. All of these victims were of East Asian background, highlighting a trend for rock fishing deaths.

The 2010 coronial inquest echoed previous calls for a research review to be undertaken assessing all currently employed interventions for rock fishing safety, and making recommendations to reduce drowning risk. A strong public desire to address the issue was evident and propagated by regular media coverage.

Surf Life Saving Australia were contracted to deliver the research review to the New South Wales Government, and did so in partnership with the University of New South Wales. The project scope included an epidemiological review, literature review, and stakeholder consultation to inform an assessment of all current rock fishing safety interventions including education, engineering and enforcement.

The resulting report provided 3 recommendations and 33 action items for consideration to the Government across a broad range of subjects. The 3 final recommendations were:

1. Developing a coordinated state-wide rock fishing safety strategy;
2. Implementing a communication and education strategy for general rock fishing safety and to assist the introduction of PFD legislation; and
3. Legislation mandating the use of PFDs while rock fishing.

Each of these recommendations was accompanied by a series of related action items. These action items provided evidenced based considerations for decision makers involved in the implementation of these recommendations.

The report was accepted by Government and published in September 2012. The responsibility for implementing the report has been taken on by the New South Wales Water Safety Council.

The recommendations and evidence analysed are highly relevant for interstate and international stakeholders. Particularly important is the introduction of evidenced based policy advocacy for lifejacket use while rock fishing, and the extraordinary approaches to risk management being undertaken by some land managers to reduce the risk of rock fishing related liability.

Drowning in Brazil – A profile of quarter of million deaths in 32 Years (1976-2010)

Dr. David Szpilman (Brazilian Lifesaving Society)

Introduction

In 2010 the Brazilian population was 191 million inhabitants, of which 1.1 million died. External causes were responsible for 13% of all death, and the first one between 1 and 39 years old. Drowning was responsible for 6.590 (3.5/100.000 inhabitants) death and was the second leading cause of death for all causes among 5 to 9 years old, third among 1 and 4 and 10 to 19 years old, and fifth among 20 to 29 years old. The aim of this study is to determine a 32-year (1979-2010) profile and trends of drowning death in Brazil.

Methods

Drowning rates among Brazilian residents were calculated using death certificates (1976-2010) based on DATASUS - A Public Health Mortality System Information of Brazilian Government <www.datasus.gov.br> using International Classification of Disease for drowning (CID9 [1976-95] and CID10 [1996-2010]).

Results

Including all unintentional and intentional causes, there were 227.272 deaths (4.7/100.000 inhabitants [SD +/-0.7]) and an average of 7.105 per year, due to drowning in Brazil along 32 years (1979-2010). There was an overall decrease in incidence of drowning, from 5.4 (1979) to 3.4 (2010) per 100.000 (graphic 1). The average incidence of death was: Unintentional: 88% (SD+/-5.8), Intentional: 1.9% (homicide 0.6% and suicide 1.3%) and Unknown causes: 9.9%. The unintentional cases incidence decrease from 3.9 to 2.9 deaths per 100.000. The unknown intention cases (Y21) for drowning decrease along these 32 years from 27% to 12%. Among unintentional, drowning in natural waters was the most frequently (39.4%). Pools were responsible for 1.6% of cases (64% residence pools) but among 1 to 9 years old, it represented 52%. Drowning related to bathtub was 0.2% (72% in residence) but appeared as 38% among 1 to 4 years old. Table 1 shows all drowning causes along these 32 years. Drowning rates related to 15-19 year-old individuals were the most frequent (15.7%), followed by 20-24(12.5%), 25-29 (9.2%) and 1-4 (8.2%) ages. Considering all ages, males died 5.2 times more often by drowning than females and represented 83% of the death. There were no sex distinction in death rates to children under 1 year old, but males drown 8.7 times more in the age ranging from 20 to 29. A huge unbalanced on the risk to be dead by drowning was observed among different regions in Brazil, ranking from 2.9/100.000 in Southeast (Rio de Janeiro, São Paulo, Minas Gerais and Espírito Santo) to 4.9/100.000 at the North (Amazonas region).

Discussion

Brazil has one of the largest aquatic recreations in the world. Drowning is still a major public health problem in Brazil. This study has demonstrated a significantly decrease of 37% in drowning deaths from 1979 to 2010 ($p < 0.0001$) (graphic 1). The unintentional drowning was predominantly (88%) and a significantly increase in effective report of death certificate was observed by the reducing of the unknown intention of drowning along the years. Pools and bathtubs were not important considering all ages affected but need a special attention when considering ages 1 to 9 years-old. Preventive education on drowning is the most effective action that can be taken to reduce those numbers but resources are limited. Educational campaigns should be focused on the groups mostly affected or at highest risk, such as young males among age 15 to 29 (37.4% of drowning death), with special attention to natural bodies of water, in the north region of the country.

Drowning mortality in Kenya

Job Kania (Kenya Lifesaving Federation), Anthony Muchiri

Introduction

Death due to water has not been a research topic nor has there been any regular data collected in Kenya in the past, as it is the case in most countries in the developing world. As discussed during the last World Water Safety Conference 2007 in Portugal and 2011 in Vietnam it is extremely difficult to obtain data on drowning in African countries' statistical bureaus despite Africa having the highest estimates of drowning cases in the world (13.1 per 100,000 population) (M.M Peden&McGee). The hypothesis of this study origin from these estimates. It proposes that death by drowning occurs far more often than generally perceived in Kenya; first, because of lack of proper reporting and no available statistical evidence available, second, because swimming and lifesaving skills are limited in the population.

Objective

1. Come up with an estimate of number of deaths caused by water for the year 2010-2012 in Kenya;
2. Establish in which way and to which proportion these accidents are related to inabilities to swim, lack of lifesaving skills, poor maintenance (as for swimming facilities), environment hazards (as floods) accidents road/ferries and other factors.
3. The outcome of the research will be the base to develop a strategic planning for Kenya lifesaving development to be proposed to the Kenya Government and other agencies.
4. To provide Kenya drowning mortality data to the International Lifesaving Federation ILS.
5. To come up with recommendations and propositions how to address the situation.

Methods

Secondary data from the Print media, T.V Stations, Radio Station was used. A media monitoring company (reelforge) was contracted to compile the data.

Results

This will be presented during the world conference on drowning prevention in Germany.

Discussion

Drowning is subject that is not discussed in Kenya; this makes it a complex process from the perspective of epidemiology that requires information to understand these information essential for a successful strategic prevention campaign. This will require a change in the recording system in Kenya as most drowning are classified as accidents in the police stations and hospitals. The fear of police beauracracy makes the witness or rescuers opt not to record the matter with authority. The institutions and families affected will conceal the matter in guarding their image. The media cannot be fully relied on and as such a proper research is required and should be carried out.

Conclusion

A well detailed research paper into this matter is required and should be well funded as to establish a realistic data on drowning mortality in Kenya.

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Reelfolge media monitoring company

Research of the water traumatism within the foreign tourists visited Republik Bulgaria

Assistant professor **Natalia Stoyanova** (National Sport Academy), Associate professor **Stoyan Andonov** (National Sport Academy „Vassil Levski“, department „Water sports“)

Republic Bulgaria is situated on the Balkan Peninsula which is in the west-south part of the Europe. The total length of the national border is 2,245 km. nearly half of which are aquatic - 686 km - rivers (mostly along the Danube) and 378 km - sea. The climate in Bulgaria is moderately continental in the south and along the Black Sea is Mediterranean, characterized by hot summers, especially during the months of June to September.

These geographic and climatic characteristics determine the country's strong tourism development.

Existence of many water areas and the big tourist's flow that go to Bulgaria requires a stable system for the protection the lives of people who is in contact with water.

The aim of our research is to analyze the drowning (causes and circumstances) among tourists visited Bulgaria for the period of six years. Based on this analysis, make some recommendations to help reduce water accidents among tourists in our country.

Fig. 1

The graph shows that for the analyzed six-year period the percentage of foreigners drowned, regarding the total number of persons drowned in Bulgaria varies between 4 and 11.1%, making the average for that period - 8.32%. At first glance, the percentage is not great, but as a country where sea tourism is one of the priorities, the aim is water incidents to get minimized. It's important to mention that in the statistics that WLSS - BRC do includes and people with mental disorders, suicides and criminal cases. That's about 10% of all drowning. If we exclude those 10 percentages the percent of drowned tourist will increased. Although the number of drowned foreigners is not very large compared to the total number drowned in Bulgaria must be borne in mind that these incidents occurred mainly at sea. Therefore on Figure 2 is shown the total number of persons drowned in the sea compared to that of foreigners.

Fig. 2

Figure 2 shows that on average 28% of the sea drowned persons were foreign tourists. This indicator shows the need to make greater efforts in water prevention among tourists who intend to visit our country. In Figure 3 is shown the citizens of countries which mostly come in drowning statistics.

Fig.3

At the end of every year in WLSS - BRC arrived bulletins with information about the incidents that lifeguards had to deal during the season. According to that information the main contingent of people to whom lifeguards have been helped are the foreign tourists.

The main causes of accidents involving foreign tourists are:

- Non-compliance the instructions of lifeguards
- Bathing and swimming after consuming alcohol and drugs
- Health problems
- Overestimation of own abilities
- Bathing and swimming outside employment during rescue

Incidents with Bulgarian citizens are mainly due to:

- Bathing and swimming at unguarded beaches
- No not wear life jackets during water activities (fishing, water sports, etc.)
- Bathing and swimming after drinking

Based on the analysis we make the following recommendations which would help to reduce water accidents among foreign tourists in Bulgaria.

1. It is necessary to establish a Beach Police to monitor compliance with the order and the execution of the orders of the lifeguards.
2. Even when the tourists buying a holiday package to Bulgaria to provide them information on the underlying causes of incidents at sea resorts, which includes the main reasons for drowning, as well as basic requirements of „Rules for Water Life activities and lifeguarding of water areas in Bulgaria.“
3. In travel insurance to include a compulsory medical examination to establish whether swimming and practicing water sports are contraindicated to relevant tourist.

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Drowning: from the viewpoint of the near-drowned

Anne Hiltunen (The Finnish Association for Swimming Instruction and Life Saving)

The Finnish Association for Swimming Instruction and Life Saving (FSL) is an educational and information-providing organization which guides nationwide swimming instruction and lifesaving issues, gives water safety advice and promotes the development of good swimming conditions, especially regarding the safety of swimming halls and beaches. FSL co-operates actively with public authorities in watersafety issues.

The following is based on a Master's Degree thesis written by an FSL technical specialist at Lahti University of Applied Sciences. The thesis examined, through 160 near-drowning experiences, what happens to people in drowning situations. The narratives of experiences in near-drowning situations were compiled in 2011. The gathered information was then compared to the water safety instructions given by the FSL. Thus, the main aim of the study was to utilize the gathered information in the future water safety instructions given by the FSL. Another aim was to search for effective ways to enhance drowning-prevention interventions. Based on the thesis, the FSL was able to obtain more information on the risk factors involved in drowning situations.

The study results showed that even when instructions for water safety are essentially good, people find it difficult to follow them. In a drowning situation there is often an absence of rational thinking when one's life is in danger. This means that it is extremely important to avoid being alone both when in and by the water. According to the results, both the concept of parental responsibility and the constant monitoring of one's own children in and near water, from the 50s to the present age, vary greatly and are, overall, lacking. Children are let out of the house and allowed to play in or near water too far away to be properly supervised or they are not monitored continuously and in this way an accident can happen to children even when they are very close to the parents. In surprisingly many incident narratives the accident was about to happen or happened while very close to where the parent was and occurred when the parent's focus was somewhere else. In these near-miss incidents it is clear to see that a young child under 5 years of age cannot help herself or express her distress in an emergency situation. Quite often in an emergency situation the children are alone. A young child's drowning is often a completely silent incident.

Watersafety education is challenging. The drowning experience is always tied to a situation, where many things and coincidences affect it. The incident is always sudden and one's own actions in the situation are critical. According to the study, people are not able to follow water safety instructions, neither in a preventative sense nor in the actual emergency situation. People don't feel that they need education regarding drowning or emergency situation rescuing and especially not regarding general water safety and thus too often their actual safety is compromised. In matters to do with water people trust their own „common sense“ and this isn't always a good thing. Even though the water safety tips are simple, they are not always put into practice in the water near one's own summer cottage.

Most drowning cases could be prevented with the right attitude towards safety, the use of sensible equipment and by avoidance of the consumption of alcohol in and around water. According to research, effective water safety education would consist of using the knowledge gained from the near-miss situations as well as the actual drowning incidents. Examples that are real and emotion provoking can make people realize that this could happen to anyone. Water safety intervention should start early both at home and at school and should be continually updated and reinforced. A general drowning prevention campaign should be aimed both children and their parents.

The forgotten 50%: A 10 year analysis of drowning in children aged 0-19 years in Australia

Amy Peden (Royal Life Saving Society - Australia), Dr. Richard Franklin, Justin Scarr

Drowning in children aged under five accounts for just over 50% of all child (0-19) drowning deaths. Royal Life Saving has long campaigned to reduce drowning in children under five by promoting the use of strategies such as supervision, barriers, water familiarisation and CPR education that are supported by years of research and evaluation.

There has been limited analysis of drowning deaths that occur in children aged 5 to 19 years. In an attempt to further understand the problem, a comprehensive analysis of fatal drowning in children 0-19 years of age in Australia over a 10 financial year period (1 July 2002 and 30 June 2012) has been undertaken.

The 0-19 years age range was chosen to explore both child and adolescent drowning, with the World Health Organisation defining children as being aged from 0-9 years and adolescents as being aged between 10-19 years.

Information was collected from Australian State and Territory coronial offices, the National Coroners Information System (NCIS) and media reports.

Between 1 July 2002 and 30 June 2012 there were 627 drowning deaths of children and adolescents aged between 0 and 19 years in Australia. Of these males (70%) drowned more frequently than females.

There were 331 (53%) drowning deaths in the 0-4 years age group compared with 296 drowning deaths in children and adolescents aged between 5 and 19 years.

When examining drowning deaths by location, children aged 0-4 years are significantly more likely to drown in aquatic locations around the home. Swimming pool drowning deaths dropped from 51% of all drowning deaths in the 0-4 years age group to 15% of drowning deaths in the 5-19 years age group. Bathtub and spa bath drowning deaths also drop from 14% of all drowning deaths in the 0-4 years age group, to 6% in 5-19 year olds.

Drowning as a result of falls declines from 76% for 0-4 year olds to 17% in the 5-19 years age group. Swimming and recreating related drowning deaths increase from accounting for just 4% of drowning deaths in children 0-4 years to 36% of drowning deaths in the 5-19 years age group.

Gender plays a key role in drowning deaths, with 63% of drowning deaths in the 0-4 years age group being male, increasing to 87% of all drowning victims in the 15-19 years age group. Adolescent males were also the most likely to have consumed alcohol with 71% of all drowning cases, where alcohol was known to be involved in the 0-19 years age group, occurring in males aged 15-19 years.

The risk of drowning changes as children age. Children 0-4 years are at a greater risk of drowning as they become increasingly mobile without understanding risks and the consequences of their actions. Drowning rates then decrease in the primary and high school years which may be related to an increase in swimming and water safety skills and awareness of dangers inherent in their immediate environment.

Twenty three percent of drowning victims in the 15-19 years age group were visitors to that location (i.e. they drowned 100km or further outside of their residential postcode). This highlights the notion that adolescents gain increasing independence and may venture further away from their immediate surroundings and put themselves at a higher risk of drowning.

Drowning in children aged 5 to 19 years in Australia is a significant issue that has been neglected largely due to a focus on reducing the high rates of drowning experienced in children aged 0-4 years. The increase in drowning in late adolescence points to the importance of swimming and water safety education in schools to build resilience through the use of knowledge and skills in the face of increased exposure to risks and hazards.

Project Lifesaver – Analyzing the Barriers African American Families Experience with Swimming

Mike Espino (Young Men's Christian Association of the USA), Maura Shea (YMCA of the USA)

Background

According to the Centers for Disease Control and Prevention (CDC) the rates of fatal drowning are notably higher among minorities in certain age groups. The fatal drowning rate for African American children ages 5 to 14 is 3.1 times that of white children in the same age group. African Americans between the ages of 5 and 19 are six times as likely to fatally drown in pools as whites or Hispanics. In addition, between 2000 and 2007, the fatal unintentional drowning rate for African Americans across all ages was 1.3 times that of whites. Factors such as the physical environment and a combination of social and cultural issues may contribute to the racial differences in drowning rates.

Objectives

In 2011, the CDC commissioned the YMCA of the USA to conduct a study to analyze the barriers African American families experience with swimming and identify opportunities to increase participation and reduce drowning rates.

Methods

Two questions were developed to form the basis of the study - 1. „Why isn't swimming, for its personal safety and recreational benefits, appealing to African Americans?“ 2. „What can organizations, committed to aquatic and child safety, do to reduce drowning rates?“ To answer these questions, the following methods were used in the study:

- Survey existing data on drowning issues within African American communities
- Recruit and interview 12 African American, low-income families with at least one male child between the ages of 5 -14. In addition to Chicago, interviews were conducted in Houston, Baton Rouge and Tampa due to higher rates of minority youth drowning in the Southern states of the United States.
- Interview leaders in YMCA aquatics and survey leading YMCA programs
- Survey relevant literature on the psychology and history of the African American experience with swimming

Results

The research confirmed that access and social and cultural issues contribute to the lack of participation in swimming and disparity in drowning rates. Barriers to swimming for African Americans include a legacy of exclusion, persistent discouraging stereotypes, the psychology of stereotype threat, a narrative of fear associated with swimming, limited access to pools and lessons, few positive messages around swimming, and swimming is not part of African American identity.

Discussion

The pervasive association African Americans have with swimming is a deep-seated fear of drowning. This fear prevents parents from teaching their children to swim, increasing the risk of drowning. There are few positive messages about swimming aimed at African American audiences. African American culture does not recognize the value of swimming, nor understand the safety benefits of learning to swim. Only following drowning tragedies do people begin to speak about its importance. Additionally, African American culture focuses on the sports and the heroes with whom they can identify. The African American identity does not include swimming...yet.

Conclusion

Historically, swimming is associated with a violent legacy of racist exclusion, and today is predominantly associated with the fear of drowning in the African American culture. Opportunities to reduce drowning rates and increase African American participation in swimming include reducing identity threat within programs, providing programming focused on the needs of these at-risk communities, showcasing culturally-relevant role model participation in swimming locally and nationally, advocating for community policies supporting municipal pools and accessible lessons, and building aquatic safety into national health initiatives.

Acknowledgment

The Centers for Disease Control and Prevention (CDC) for the funding to conduct the study.

Drowning in large rivers in the Netherlands: incidence, outcome and risk factors

Jeroen Seesink (Erasmus MC), Anneke Aarts (Erasmus University Rotterdam), Andreas van Arkel (Erasmus University Rotterdam), Sahar Mokhles (Erasmus University Rotterdam), Perijn Obbens (Erasmus University Rotterdam), Juanita Haagsma, Ed van Beeck, Joost Bierens (Maatschappij tot Redden van Drenkelingen)

Introduction

In contrast to the general decline of drowning rates in the Netherlands during the last decades, a potential increase of drownings in large rivers (DILR) has been observed in the public and social media (PSM), as well as in annual reports of the Dutch Society to Rescue People from Drowning. The purpose of this study, a student community project, was to try 1) to assess the incidence and trend of DILR; 2) to identify associated risk factors and outcome parameters; and 3) to suggest prevention strategies.

Methods

After a definition of DILR had been established, the 2005 - 2011 databases of 3 organizations that register DILR have been merged in one data set. Each report was studied and overlapping cases have been removed with conservation of data from multiple sources. Data of the remaining group of DILR have been included in a new standardized data set that included all variables of the 3 data sources.

Results

89 DILR have been registered; The average age was 40 years (oldest 89 years; youngest < 1 year); 76.4% were male; 49.4% were related to recreation activities, 16.7% to unknown causes, 10.1% to traffic accidents, 9.0% to suicide, 6.7% to industrial accidents, 6.7% to private accidents and 1.1% to rescue operation. Of all DILR, 71.9% were fatal. The mortality ratio varied from 100% in rescue operations (but n=1) to 44,4% in traffic accidents. The number of DILR increased from 2005 - 2009 and then stabilized. In 2009, the number DILR in our study compares to 8.7% of the accidental drownings in the National death statistics. No prognostic parameters for DILR could be identified. A major limitation of this study is the incompleteness and inconsistency of the datasets, particularly for non-fatal drowning cases.

Conclusions

If in the past an increasing trend has occurred in DILG, this seems to have stopped in 2009. This may be due to attention in PSM. The main risk group for DILR are men involved in recreational activities. Before evidence-based prevention strategies can be developed, more studies are needed. These studies should be based on an integrated uniform registration system by all organizations involved.

Drowning of mobility scooter drivers in the Netherlands: assessing incidence, determinants and recommendations

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Introduction

At present, 15% of the Dutch population is aged 65 or older, of which 7% has a mobility scooter (MS). Most MS users are women. An increase of drowning of mobility scooter drivers (DMSD) has been observed in the annual reports of the Dutch Society to Rescue People from Drowning. This increase has however not been addressed in public and social media (PSM). To collect more data on this recent observation, a study, as part of a student community project, was started to 1) to assess the incidence and trend of DMSD; 2) to identify associated risk factors and outcome parameters; and 3) to suggest prevention strategies.

Method

From the dataset of the MRD from 1-1-2004 to 30-6-2012, all DMSD have been collected. Also relevant organizations (n=18), manufacturers (n=5) and victims (n=12) have been contacted. Of these 6, 0 respectively 2 agreed to participate in semi-structured interviews to understand the procedures to obtain a MS, the determinants associated with SD injuries in general, and DMSD more specific. The determinants were divided into the categories 'scooter determinants', 'personal determinants' and 'environmental determinants'.

Results

38 non-fatal DMSD were recorded. The average age was 70.7 years (oldest 87 years; youngest 19 year); 70.2% were male; 36.9% of these DMSD happened in May and June. Personal determinants were in 57% of the cases the main factor leading to DSMD. Within this category, losing control of the steering wheel determined DMSD in 63% and underlying illness and acute problems in 18%. Environmental factors accounted for 16% of DSMD and scooter determinants for 8%.

In the Netherlands, annually 1400 patients visit the Emergency Department due to an MS accident. The number of DMSD in our study compares to less than 1% of all MS accidents.

The collected data are insufficient to obtain a reliable causal link between risk factors and DMSD. At the same time it was noticed that any one can apply for a mobility scooter: no license, health check or test to be able to drive a MS is required. There are also no regular controls of the technical condition of mobility scooters or of the medical condition of the driver after purchase. A point of concern is that the accelerator looks like a brake, which can lead to accidents in panic situations.

Conclusions

It is expected that the number of mobility scooter users will increase within the next years as will the number of DMSD. Based on the information that was collected, the incidence may decrease by only accepting MS drivers when proven to be fit and capable to conduct a MS. MS suppliers should be encouraged to implement technical controls and risk reducing measures. Before evidence-based prevention strategies can be developed, more studies are needed. These studies should be based on an integrated uniform registration system by all organizations involved.

Habituation of the initial responses to cold water immersion: A Perceptual or physiological effect?

Dr. Martin Barwood (Portsmouth University), Jo Corbett, Christopher Wagstaff

Introduction

Drowning is a global problem¹ and could, in part, be related to water temperature. Immersion in cold water induces the cold shock response (CSR), which is reduced with repeated cold-water immersion (CWI) producing an habituation² (a lesser response). We have recently demonstrated that when participants believe they are to be immersed in colder water than that used to induce habituation, acute anxiety is increased and the habituated response reversed³. The extent to which a perceptual component (reduced threat) underpins the initial habituation of the CSR is unclear. Stress theory proposes that the anxiety response is mediated by one's appraisal of an environmental stressor.⁴ Changes in the appraisal of threat may influence the physiological response to immersion but this has yet to be separated from the thermal component of a CWI habituation regimen. We investigated whether repeated warm water immersion (WWI) could lessen the responses to subsequent CWI by simply facilitating a reduction in threat appraisal.

Methods

Twelve participants (mean [s.d]; Age 20 [1.4]yrs; height 1.72 [0.10]m; mass 70.5 [15.0]kg) completed seven, 7-minute head-out immersions. Immersions one and seven were CWIs (15.0 [0.1]°C). Immersions two to six were WWI (34.9 [0.10]°C). These were included to reduce the anxiety associated with the immersion scenario per se in order to reduce threat appraisal. Anxiety (20cm visual analogue scale) was measured pre immersion and in minutes 1,3,5 and 7. Cardiorespiratory responses (heart rate [fc], respiratory frequency [fR], tidal volume [Vt] and minute ventilation [VE]) were measured throughout. Comparisons in the anxiety responses across immersions (1-7) were made in addition to the extent of the CSR in immersions one and seven; peak responses pre and on immersion were established on visual inspection of the data and mean [SD] were generated for 1-minute epochs. Data were compared within participant between condition using ANOVA to an alpha level of 0.05.

Results

Acute anxiety significantly reduced after repeated exposure to the immersion scenario ($p = 0.013$); CWI-1: 6.3 [4.4] cm, CWI-2: 4.5 [4.0] cm (averaged across time points). These differences did not influence the peak in the anticipatory physiological response prior to immersion ($p = .786$; peak fc CWI-1: 105 [17] vs. CWI-2 105 [19] b.min⁻¹ and fR 32 [8] vs. 31 [9] breaths.min⁻¹. On immersion the peak in the CSR was similarly unaffected: peak fc was CWI-1: 126 [19] vs. CWI-2 127 [19] b.min⁻¹ and fR 84 [28] vs. 80 [31] breaths.min⁻¹. Each minute across the immersion the fc, fR and VE responses were similar between CWI-1 and CWI-2 ($p > 0.05$). In contrast, the Vt response was significantly lower in CWI-2 after 2 ($p = .025$) and 6 ($p = .046$) minutes of immersion and had a tendency to be lower throughout; mean [SD] across the immersion: CWI-1 1.27 [0.17] vs. CWI-2 1.11 [0.2] L.

Discussion

Our data suggest that repeated exposure to the immersion scenario lessened the anxiety associated with subsequent CWI. This had a negligible effect on the primary components of the CSR (fc, & fR) but did lower the depth of inspiration (Vt) during breathing on immersion. Lower Vt may be beneficial in the survival scenario as it may reduce the volume of any aspirated water. Based on data from previous investigations (3) it appears that acute anxiety has a greater influence on magnifying the CSR rather than diminishing it. Nevertheless, changing one's appraisal of an environmental stressor (e.g. CWI), may be a useful bi-product of survival training by reducing threat cognitions, which may, in turn, minimise psychophysiological strain in real life situations.

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Protective Clothing and Life-Jacket Combinations: The importance of appropriate buoyancy Distribution

Dr. Martin Barwood (Portsmouth University), Alex Ouzounoglou, Geoffrey M. Long Heather Lunt, Ian Wilson, Michael J. Tipton

Introduction

The primary role of a lifejacket (LJ) on accidental immersion is to facilitate self-righting and keep the airway clear of the water (freeboard). Anything that impairs these functions may increase the risk of drowning, particularly if the victim is unable to voluntarily self-right (i.e. they are unconscious). Before recommendations for clothing combinations can be made, it is important to establish that the buoyancy characteristics of protective clothing work effectively in combination with other life-saving appliances (LSA) such as lifejackets¹.

This study aimed to establish the performance capabilities of the LJ and clothing combinations intended for use by the Scottish Sea Farming industry. It was hypothesised that any clothing that included inherent buoyancy (i.e. a float suit) would work less effectively with a LJ.

Method

Six participants provided consent to participate; mean (SD) characteristics were age: 20 (2)yrs, height 1.77 (0.11)m, mass 80.02 (11.64)kg. A total of nine combinations were tested. The suits tested were: one-piece flotation suit (FLOAT; 85 N inherent buoyancy), heavy-duty Oilskins 1 (OS-1) heavy duty Oilskins 2 (OS-2). The lifejackets tested were: 150N LJ with 50 N inherent buoyancy (LJ-150/50), 290N LJ with no inherent buoyancy (LJ-290/0), 190N LJ with 80N inherent buoyancy (LJ-190/80).

Once dressed, the participant entered an immersion pool (water temperature 35 °C). Whilst lying on their back uninflated LJ freeboard was measured. Then, whilst standing in 1.5m deep water they fell forwards in to the water, breath held momentarily and drifted for a few seconds and, on the command 'fire' pulled sharply down on the LJ inflation toggle to inflate the LJ. The time to self-right was noted and a minimum performance standard of 5-seconds was set. Subsequently the inflated freeboard was measured.

Results

All suit and lifejacket combinations provided some uninflated freeboard: FLOAT 10.2 (1.7)cm, OS-1: 8.8 (5.0)cm and OS-2: 8.9 (3.3)cm. Time to achieve self-righting was longest when the FLOAT suit was used in combination with any LJ that included inherent (uninflated) buoyancy; suit mean (SD): FLOAT: 3.3 (1.7)sec, OS-1: 2.4 (1.2)sec and OS-2: 2.6 (1.5)sec. Where failure to self-right was noted a time of 5-seconds was allocated. In general LJ-150/50 was the poorest performing (50% success; 9 of 18) compared to LJ-290/0 (100% success; 18 of 18) and LJ-190/80 (89% success; 16 of 18). When self-righting was not achieved it was usually due to a) the LJ included inherent buoyancy (11 of 11 occasions when self-righting was not achieved) and b) the FLOAT suit was being worn (8 of 11 occasions when self-righting was not achieved). After LJ inflation, the highest freeboard was seen in the FLOAT condition (mean (SD); irrespective of LJ) of 17.1 (1.9)cm compared to OS-1 16.3 (3.5)cm and OS-2 17.1 (2.6)cm.

Discussion

The hypothesis was accepted and refined: the FLOAT suit was less likely to achieve self-righting when combined with a lifejacket when that lifejacket included inherent (uninflated) buoyancy (i.e. LJ-150/50 or LJ-190/80). A lifejacket with no inherent buoyancy on inflation was able to self-right on all conditions. It should not be assumed that a smaller lifejacket (i.e. less than 290N) without inherent buoyancy would also have been successful.

An increase in the risk of drowning can occur in LJs with less than 190N of inflated buoyancy and some (up to 80N) of inherent buoyancy. It is assumed that LJ or suit inherent buoyancy detracts from the „turning moment“ achieved on inflation. Further research is required to provide the evidence for when the relationship between inherent and inflated buoyancy fails to be 100% successful. It is not safe to assume that LSA that work independently of each other would work similarly when used in combination. That is, LSA should constitute an Integrated Survival System(1).

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New Zealand's Drowning Profile Through DrownBase™ (Mortality and Morbidity)

Alexander Brunt (Water Safety New Zealand)

Background

DrownBase(tm) is the official New Zealand drowning database. It was developed in 1990 to record all drowning deaths in New Zealand from 1980. In 2003 it was expanded to include all morbidity as a result of hospitalisations that required a stay longer than 24 hours in hospital.

Aims/Objectives

New Zealand has a small population geographically dispersed over a large area that is dominated by water. For five decades New Zealand has had a drowning problem with it being ranked the third or fourth highest cause of unintentional death.

DrownBase™ was developed by Water Safety New Zealand to inform organisations about New Zealand's drowning profile; thus enabling the sector, crown agencies and community organisations to take a strategic approach in the delivery of water safety services. This covers the provision of water safety education, communications, rescue services, research, policy development and environmental interventions.

Methods/Implementation

DrownBase™ contains two separate data fields for mortality and morbidity that are linked by common high level measures. Fields have been designed around data that is available and what will provide benefit to the sector. Mortality is classified as either 'recreational', 'non recreational' or 'other' while morbidity predominantly follows the International Classification of Diseases coding system.

DrownBase™ collects drowning notifications from the New Zealand Police. All records are verified either through the Coronial Services of New Zealand or the New Zealand Health Information Services (NZHIS), a division within the Ministry of Health responsible for the collection and dissemination of health-related information.

Results/Evaluation

DrownBase has had an impact in New Zealand with a 45% reduction in morbidity between 1985 and 2012, despite an increase in population, aquatic recreation and inflation in juxtaposition to decreasing skills and funding for the sector.

A key example of being able to respond to statistics is evident from 2011 when 80% of drowning victims were male, with a record high of 19 drownings within the 55-64 age group. As a response in 2012-2013 a particular focus has been developed to communicate with New Zealand males who participate in recreational boating, fishing and diving activities to positively influence their attitudes and behaviour to enhance safety and consequently reduce the often tragic results of poor decision making.

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Culturally and Linguistically Diverse Communities Research Project

Melissa Savage (AUSTSWIM)

Background

CALD communities in Australia, tourists (both domestic and international) have been identified by the Australian Water Safety Council as communities at an increased risk of drowning and aquatic injury when compared to the rest of the Australian population. 19 International Tourists drowned in Australian Waters during 10-11, ten of those drowning occurred whilst swimming.

Building awareness of hazards, risks and the role of secondary and tertiary prevention measures is a significant factor in addressing drowning in high risk populations. Although the situation is improving, lifesaving systems are not as common in developing countries and even some high income countries, meaning that tourists and recently arrived migrants are at a greater risk of drowning due to lower levels of awareness and foundation aquatic skills. Reaching CALD communities with strategies to address drowning prevention and water safety is often difficult and these groups are far less likely to access programs via traditional modes. This issue is worsened by an often heightened risk of drowning or injury due to a lack of knowledge about Australian aquatic conditions.

Participation rates in aquatic education programs are much lower among CALD communities and strategies to address this through community development should be encouraged. This can be beneficial both for achieving a reduction in drowning and in promoting greater social cohesion across Australian communities.

Organisations to assist CALD communities will often go to great expense to translate resources into multiple languages but is this the best way?

Aim

To investigate service delivery models to CALD communities in NSW from an outcome perspective over 6 months.

Method

To achieve the aim AUSTSWIM conducted 3 AUSTSWIM Teacher of Swimming and Water Safety courses within a large Korean community from the inner suburbs of Sydney NSW. A full AUSTSWIM course delivered only in Korean and with Korean resources, a full AUSTSWIM course delivered in English with English resources and a full AUSTSWIM course using the AUSTSWIM Indigenous/ CALD resource. Some pre and post course assessments were conducted including a pre course interview and a follow up at 4 weeks, three and six months post course investigating comprehension of key concepts, transfer of knowledge, success of mentoring, understanding of process and achievement of AUSTSWIM Teacher of Swimming and Water Safety license.

Expected outcome

Reaching CALD communities with strategies to address drowning prevention and water safety is often difficult and these groups are far less likely to access programs via traditional modes. This issue is worsened by an often heightened risk of drowning or injury due to a lack of knowledge about Australian aquatic conditions. Participation rates in aquatic education programs are much lower among CALD communities and strategies to address this through community development should be encouraged. This can be beneficial both for achieving a reduction in drowning and in promoting greater social cohesion across Australian communities.

It is expected that the research will show that the development and delivery of modified resources of existing training is financially better than enduring the cost of redeveloping training into native languages and that candidates achieve completion levels on par with the general Australian AUSTSWIM candidate. After the research has been conducted AUSTSWIM plans to use the findings to determine future training of CALD candidates by developing and implementing suitable resources and programs that will give our CALD candidates the best outcomes possible.

Non-fatal drowning: A review of epidemiology, pathophysiology, treatment and prevention

Tessa Clemens (York University, Canada)

In addition to the problem of fatal drowning as an outcome of distress in the water, near-drowning is a serious concern. Several studies have indicated that there are far more incidents of non-fatal drowning requiring emergency room visits than deaths by drowning each year^{1,2,3}. Additionally, evidence has suggested that the characteristics of non-fatal drowning may differ significantly from those of fatal drowning⁴. The purpose of this literature review is to synthesize the existing research on non-fatal drowning and identify areas where further research is necessary.

A thorough, sophisticated literature review is the foundation and inspiration for substantial, useful research⁵. Synthesizing the existing literature on near-drowning is a necessary step in addressing the problem of non-fatal drowning. Databases including PubMed, Medline, Odesi, and Proquest Theses & Dissertations were searched for articles describing near-drowning and non-fatal drowning. Reference lists from relevant books, literature reviews, and identified relevant reports were searched for additional references. Moreover the following international journals were hand-searched for relevant articles: International Journal of Aquatic Research and Education, and Injury Prevention. For this synthesis, reports were included only if their main focus was on drowning. Not included were articles that reported injury prevention generally, and studies that were conducted prior to 1980.

The literature review yielded findings that could be organized into four major categories: epidemiology, pathophysiology, treatment and prevention. This presentation will discuss key findings and identify areas for future research in non-fatal drowning treatment and prevention.

Tessa Clemens is a PhD student at York University, Canada. Her research focuses on drowning epidemiology and prevention. Tessa is also a Research Administrator for the Drowning Prevention Research Centre Canada.

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The descriptive epidemiology of drowning in Canada: A changing profile

Tessa Clemens (York University, Canada)

In Canada, drowning is the leading cause of unintentional injury death in children 1-4 years of age, and the second leading cause of preventable death in children under the age of 10. It is the third leading cause of unintentional death among Canadians under 60 with an average of approximately 500 water-related fatalities occurring annually. The national water-related death rate has increased in recent years with a significant upswing in the number of drownings in 2005-2009 as opposed to the previous five years¹. The characteristics of Canadian drowning incidents need to be re-examined to ensure that prevention methods are still effective given a shifting profile.

The primary objective of this study was to describe the characteristics of recent drowning in Canada with a view to the implications for prevention. A secondary objective was to uncover what characteristics, if any, differ significantly in the demographic groups where incidents are most likely to occur.

The study design is a retrospective review of all water-related fatalities occurring in Canada between January 1, 2006 and December 31, 2010. Data for incidents in all provinces and territories was obtained from the Drowning Prevention Research Centre Canada. The sources of this data included death certificates, post-mortem/autopsy reports, police reports, hospital records and coroner investigation statements. The most common outcome was drowning, but water-related deaths from other causes such as hypothermia and trauma were also included. Independent variables considered for a multivariate logistic regression were: age, sex, aboriginal status, season of incident, type of activity, purpose of activity, alcohol involvement, swimming ability, type of body of water, personal floatation device use, accompaniment/supervision, rescue attempted, and urban versus rural location.

The study results suggest that the characteristics of drowning vary greatly by age and differentiated prevention strategies may be warranted. This session will present the descriptive epidemiology of a shifting profile of drowning in Canada with a view to the implications for future research and prevention.

Tessa Clemens is a PhD student at York University, Canada. Her research focuses on drowning epidemiology and prevention. Tessa is also a Research Administrator for the Drowning Prevention Research Centre Canada.

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Examining risk-taking behaviors of New Zealand males in relation to Drownbase mortality statistics (1983-2012)

Dr. James Croft (University of Otago)

Introduction

The World Health Organization reports that males have twice the mortality rates of females. Numerous factors have been implicated to explain the large gender difference in drowning statistics, such as a greater exposure to aquatic environments, greater likelihood to engage in risk-taking behaviors, and more frequent alcohol consumption when around the water¹. According to a National US Survey males report more aquatic activity and were more likely to swim in situations that are generally perceived as risky: i.e., swimming alone (31% vs. 19%) or at night (39% vs. 35%)¹.

A recent review found that alcohol was involved in 30-70% of all recreational, aquatic drownings and that alcohol contributed to 10-30% of those deaths². A case controlled study on boating and alcohol found that any amount of alcohol increased the risk of fatality³. However the interaction of alcohol and aquatic activities is not well understood. For instance, men who drank alcohol and went power boating reported that they were less likely to wear life jackets than those who did not drink (9% vs. 30%)¹. We aimed to examine the relationships between the factors described above in a NZ context.

Methods

Data from the NZ mortality database (DrownBase; 1983-2012) was used to test the interaction between previously identified risk factors: Alcohol and swimming at night and/or alone; and between alcohol and use of buoyancy vests.

Results

Over the last 30 years 2293 males and 335 females drowned during recreational aquatic activities. Of the 417 cases where alcohol was involved in male fatalities 178 were due to incidental immersion and 78 occurred while swimming and snorkeling. Only 61 occurred while the deceased was alone and only 6 of these involved alcohol. Of the 58 drowning deaths that occurred at night 31 involved alcohol (11 were due to accidental immersion). The ages of those who died at night was slightly skewed to younger ages.

National US surveys (e.g. Howland et al. ¹) also predict an association between use of buoyancy vests and alcohol usage while boating. The mosaic plot shows that of the drowning deaths that occurred while boating (n = 471) the majority did not involve alcohol. A buoyancy vest was not worn in almost three-quarters of cases and there was an association between wearing buoyancy vests and alcohol usage.

Discussion/Conclusions

Alcohol is involved in many drowning deaths globally but its direct contribution to mortality is not well understood. In terms of swimming alone or at night when alcohol was involved there were insufficient cases to make meaningful conclusions. Although wearing a buoyancy vest seems to be affected by alcohol consumption, the lack of availability of buoyancy vests should be the first priority for drowning prevention. Future research should examine the association of alcohol with activity, location and time of day. Smith et al. ³ found that in some situations the amount of alcohol affects relative risk. Unfortunately DrownBase doesn't currently record blood alcohol levels of the deceased.

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Drowning: A silent fatal endemic in Paraná state predominantly by youth in freshwater

Dr. David Szpilman (Brazilian Lifesaving Society), Antonio Schinda, Edemilson de Barros, Roberto Antonio Deitos

In Brazil, about 1 million people drown and 6,500 die because of drowning every year. In 2010, there were 364 registered deaths by drowning (3.5/100.000 inhabitants) throughout the state of Paraná (Szpilman D, Death certificate at DATASUS(Mortality National System)). These data collected from death certificates, do not distinguish between fresh and saltwater drowning and therefore does not indicate the geographical locations of highest risk. The Fire Brigade of the State of Paraná (CBMPR) through its aquatic teams of search and rescue is responsible for all calls that lead to fatality in these circumstances. After each recovering of death bodies in the water the team fills a digital report on the institution's database system. In these cases, death by drowning is confirmed in all cases where there is any pathologic evidence of non-corporal aspiration of fluid. The objective of this paper is to analyze the epidemiological profile and main places of higher occurrence of cases that result in drowning deaths in the state of Paraná.

Materials/Methods

All data available in 2010 concerning reports from drowning attended by the Fire Department of Paraná aquatic team were evaluated. Variables report were: the environment where the incidents occurred, the period of the year and weekdays, gender and age of the victims.

Results

In 2010, the CBMPR aquatic team performed 240 body recoveries of all 364 state deaths documented. Among those 240 drowning death reports, 209 cases (87.0%) were males. Sundays (71 cases (29.6%)) and Saturdays (46 deaths (19.2%)) were the most frequently day of the week, especially at the summer season (December-35 cases (14.6%), January-32 (13.3%), and February/ November-31 (12.9%)). Predominantly age was 15 to 19-year-olds with 39 cases (16.35%), followed by 25 to 29-year-olds (12.5%), 20 to 24-year-olds (11.35%), 30 to 34-year-olds (10.83%), 35 to 39-year-olds (8.3%), 10 to 14-year-olds (7.1%) and 40 to 44-year-olds (6.25%). Death occurred in the following locations: river stream 76 cases (31.67%), dam 68 (28.3%), backwater river 52 (21.67%), 15 pond (6.3%), sea 11 (4.6%), bay 8 (3.3%), waterfall 4 (1.7%), well 2 (0.8%), gallery of river water 2 (0.8%), pool 1 (0.4%) and 1 in stream (0.4%).

Conclusion

Drowning is a silent endemic pathology. Little is known of what happens in Brazil related to this problem. The present study demonstrates the immense disproportion of the problem of drowning in fresh water compared to the beaches which usually drag the most attention and efforts of human and material resources. Of the 364 deaths by drowning in the State of Paraná in 2010, analysis was made in 240 cases in which the Fire Department of Paraná was sent out to do search and rescue work. With this study, we understand that the problem with drowning at beaches is under control by CBMPR. This reduced number of deaths in salt water is directly related to the excellent preventive job performed by the coastal lifeguards' service, which in 2010 made 1098 rescuing, with only 19 fatalities that occurred outside the lifeguards' station or operating lifeguarding hours. The same is not true for cases in freshwater (221 cases) performing 92% of all deaths with a predominance of young males. These usually occur in isolated places in the interior of Paraná, where there are major limitations preventing the performance of active (reactive) work of lifeguards. In these isolated cases there is little disclosure by the media, which invariably draws little attention to this entire immense problem. This is a burden that should receive special attention by the public authorities as a whole, encouraging the adoption of more active prevention measures to the development of effective methods of reducing aquatic incidents through public punctual policies that prevent more deaths and occurrences of drowning.

Does the diving reflex prevent the drowning of toddlers

Dr. med. Ulrich Jost (German Life Saving Society DLRG), **Dr. Peter Pietsch** (German Life Saving Society DLRG)

During the first 9 month of their life human beings live in a liquid surrounding.

At birth they present the so called diving reflex which disappears during the next 2 years.

This diving reflex results in apnoea, bradycardia and blood shift to the chest when the face comes into contact with water.

The statements concerning the time course of the cessation of this reflex vary a lot in the literature: one can find the information that this starts 6 weeks after birth and is completed at 8 month or that the reflex is still present in 100% of the babies at the age of 6 month and in 90% at 12 month.

As this reflex is thought to prevent babies from water aspiration during „swimming lesions“ care must be taken regarding the individual.

Despite the questionable benefits of such courses the risks of drowning for toddlers when they were submerged will be discussed.

The delay of rescue breathings in water rescue, comparing the rescue mask vs. the mouth to nose method

Dr. Alexandre Tadeia (Portuguese Lifesaving Federation)

For several years the use of rescue mask is considered essential in basic life support manoeuvres, as personal protective equipment for resuscitation, however in aquatic rescue its use in the water is still no consensus. Thus, this study is not intended to determine the value of their use in the water rescue manoeuvres, but to know the time that will delay the start of the rescue breathings, comparing with the method of mouth to nose ventilations, currently indicated for use in these situations, in Portugal.

At Risk: Correlation Between Abuse and Neglect and Drowning

Kim Tyson (National Drowning Prevention Alliance)

Drowning is the number one killer of children age five -years and under in Broward County and the State of Florida. By reviewing the drowning data from the Broward Sheriff's Office (BSO) Child Protective Investigation Section (CPIS) it was found that several trends in drowning deaths have emerged for the county to address.

One of these trends depicts a correlation between drowning and child abuse/neglect. In review of all investigated drowning deaths from Jan 01, 2006-March 30, 2009 almost seventy-percent of the families of children that had drowned had a prior criminal, domestic violence, drugs and/or abuse/neglect charge(s) in their past. Of the homes investigated, the majority of pools at homes where there was a drowning were „green“ (dirty, not chemically treated and murky) and in poor repair. Ninety-percent of the child drowning deaths had exited the home through a door without any one noticing they had left the premises. None of the children had received water safety lessons. More than fifty-percent of the families knew CPR training, however not one home had rescue equipment on hand near the pool. The Broward County Death Review Team reviewed every case CPIS had investigated and noted that every case had a varying degree of neglect and every case was preventable.

CPIS receives on average 1,000 reports a month of allegations of child abuse or neglect. Of these 1,000 reports approximately 100 are forwarded to the Broward County Health Department, for processing and coordination with the Broward County Fire Marshall's Office. The reports are then provided to the appropriate city Fire Rescue Division for the home safety evaluation process to begin.

CPIS Investigators complete a water safety survey for every family with children under the age of nine-years, as a part of a drowning prevention initiative in Broward County. During the survey the CPIS investigator discusses the importance of water/pool safety. If the family agrees and signs a release form, Fire Rescue in their city will come into their home and complete an in-home safety evaluation and plan for the family. Part of the safety plan is to install door alarms leading to a water hazard. It has been determined that one way to prevent fatal drowning and non fatal drowning as part of an overall family safety plan is to have many layers of protection or barriers must be in place.

The Drowning Prevention Initiative (DPI) of the Broward County Health Department, is a multi-faceted project that includes barriers to water hazards (i.e.: alarms), water safety lessons and CPR training to families considered „at risk“ in Broward County. The DPI in partnership with the Drowning Prevention Task Force and the Broward Sheriff's Office provides training of Fire Rescue personnel county-wide on the survey process and information on home safety resources that are available in our community to persons considered „at risk“ at no cost to the family.

The Drowning Prevention Initiative is funded by the Children's Services Council (CSC) of Broward County, has as one of its goals for this year to address the issue of the „at risk“ family in relation to water safety. This critical public health concern is also being addressed by other CSC funded programs such as the ‚Family Strengthening Providers‘. Multiple family-based programs addressing the same issue should increase awareness and positive action toward drowning prevention.

The Impact Factor and Alternative Research Assessment Means

Dr. Stathis Avramidis (Hellenic CDC; Leeds Metropolitan University)

The Impact Factor (IF) is used as means for the relative importance of a journal within its field but its effectiveness has been questioned as „notoriously invalid and unreliable“ (Langendorfer, 2011, p. 372) when assessing the value of a research portfolio of scholars and institutions. This is a very important issue, especially for those involved in the aquatic safety research and education, who are puzzled about the criteria they should base their decision to submit their research in journals with higher or lower IF. This review evaluates the related peer-reviewed literature, identifying articles that challenge the IF adequacy, describe its disadvantages and suggest alternative ways for rating the scholarly work. Results confirmed that the IF has been manipulated through citing articles of the same journal (Agrawal, 2005; The PLoS Medicine Editors, 2006), conducting review papers that are cited more than pure research studies (Seglen, 1997), encouraging others to quote ones work (Schuttea & Svec, 2007), and changing the fraction of citable items compared to front-matter in the denominator of the IF equation (Arnold & Fowler, 2011). More effective alternative methods may be the h-index (Rieder et al., 2010), a developmental rubric (Langendorfer, 2011) or the direct and qualitative evaluation of the articles using the Boyer/Carnegie's 6 common evaluation criteria in the form of a checklist (Glassick, Huber & Maeroff, 1996) than rating the journals in which the work is published. Collectively, this review suggests that a scholar will benefit in several ways by submitting to a journal with the most appropriate readership that contains an international editorial board and peer-review process.

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Analysis of Drowning Near-Death Experiences and Recommendations for Successful Resuscitation and Treatment Protocols

Dr. Stathis Avramidis (Hellenic CDC; Leeds Metropolitan University), Janice M. Holden

Introduction

In the internationally known sequence of „prevention, rescue and treatment“, a resuscitation attempt belongs to the second stage. For a drowning victim, resuscitation constitutes a close brush with death. Approximately 20% of survivors of a close brush with death report a near-death experience (NDE): typically a psychologically profound experience with substantial long-term implications for the experiencer's (NDEr's) life. Drowning-related NDEs might report their NDEs to lifesaving professionals who rescued them, and professionals' responses to NDE disclosure can beneficially or detrimentally influence NDEr's subsequent integration processes.^{1,4} A helpful response to NDE disclosure includes accurate knowledge about NDEs and knowledge of recommended interventions.² For this study we analyzed a sample of drowning-related NDEs and generated recommendations for rescuers' resuscitation and treatment protocols that do not interfere with International Liaison Committee on Resuscitation protocols but that could enhance rescue and treatment for this population of resuscitation survivors heretofore largely neglected in the professional lifesaving literature.

Method

We analyzed drowning-related NDE accounts (N = 35) submitted to the online Near Death Experience Research Foundation as of 2006. Participants provided 28 multiple-choice responses and additional narrative responses regarding their NDE circumstances, contents, and aftereffects. All participants scored at least 7 on the NDE Scale,³ indicating presence of an NDE. Among analyzed demographic variables were participants' sex (54% male, 46% female), education (66% university, 34% primary/secondary), and race/ethnicity (97% Caucasian, 3% Afro-American).⁵

Results

Analysis indicated that features of these participants' drowning-related NDEs were comparable to features known from 30 years of research on NDEs that occurred in various illness or injury circumstances.⁵

Discussion

Because drowning-related NDEs appear indistinguishable from NDEs in general, we recommend that lifersavers and first aiders incorporate into their resuscitation protocols certain practices recommended in the NDE literature. In particular, we suggest that during resuscitation, they say to the victim: „I am [give your name], and I am a first aider/lifesaver [choose what represents you better]. If you can see and hear me, know that I am trying to bring you back to life.“ During treatment after the survivor has recovered, we suggest they say: „When someone has been through an experience like you have, they sometimes have unexpected memories associated with the experience - and sometimes not. If you do have such memories and want to discuss them, I'm here to listen.“

Summary

Because we found drowning-related NDEs were comparable to NDEs in general, we applied recommendations from the general NDE literature for healthcare professionals to lifesaving professionals. We suggest that the addition of two statements to the drowning resuscitation and survivor treatment protocols will enhance services without interfering with, decreasing the quality of, or consuming time beyond that indicated in current resuscitation guidelines.

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Drowning deaths in inland waterways in Australia: An analysis of 10 years of fatal drowning in Australia

Amy Peden (Royal Life Saving Society - Australia)

Reducing drowning deaths in inland waterways is a goal of the Australian Water Safety Strategy 2012-15. The strategy aims to achieve reductions in drowning deaths in priority age groups, aquatic locations and at risk populations in order to achieve an overall reduction of 50% in Australia's drowning toll by the year 2020.

Inland waterways are defined as rivers, creeks, streams, lakes, dams and lagoons, and over the last 10 years, there have been consistently high numbers of drowning deaths in this category of aquatic locations. This study will analyse the scale and nature of drowning deaths in inland waterways in Australia over the past 10 financial years.

Royal Life Saving Society - Australia's National Fatal Drowning Database was interrogated to identify drowning deaths that occurred in inland waterways. The cases within this database are collected from the National Coronial Information System (NCIS) with additional information sourced from State and Territory Coronial Offices and the media.

All drowning deaths that occurred in inland waterways between 1 July 2002 and 30 June 2012 were included for analysis.

Over the past 10 financial years, there have been over 960 drowning deaths in inland waterways in Australia. Of these, 73 % occurred in rivers, creeks and streams. Males account for over 80% of drowning deaths in inland waterways.

The most common activities immediately prior to drowning were falls into water, followed by swimming and recreating, watercraft and non-aquatic transport (e.g. car crashes into water).

In approximately 25% of cases, alcohol was known to have been found in the victim's bloodstream.

In just over 5% of cases, illegal drugs were known to have been in the victim's bloodstream when they drowned. Cannabis was the most commonly ingested illegal drug by those who drowned at inland waterways.

Two thirds of drowning deaths at inland waterways were of people who resided within 100 kilometres of where they drowned, suggesting that drowning in inland waterways is a local issue.

A high number of drowning deaths occur in inland waterways every year and targeted research is required to determine the circumstances surrounding these deaths and to identify trends such as high risk activities and at risk populations.

Achieving a reduction in drowning deaths in inland waterways in Australia will go a long way to reducing the overall drowning toll in Australia. By analysing the nature of drowning deaths in Australian inland waterways it is hoped that prevention strategies can be recommended.

*Please note: Findings are preliminary and likely to change as research is currently being undertaken.

Fatal and Non-Fatal Drowning in Austria

MA PhD Peter Spitzer (Safe Kids Austria)

Objectives

The percentage of fatal drowning within Austrian children aged 0-14 decreased over the last decade, but we found no evidence about possible accident rates of drowning in Austria. The aim of this research was to estimate the rate of unintentional drowning and to calculate the death rate in relation to age groups and accident sites. The results should advise stakeholders to improve child water safety in an appropriate and effective way.

Methods

Reported cases of fatal and non-fatal drowning of children (0-14y) in newspapers and online-news were collected between 2007 and 2012 in Austria. Detailed information on each case was transferred into a database and a retrospective analysis was undertaken.

Results

In this period of 6 years 111 drowning accidents were reported in the media. The average child age was 4.4 years; the median age was 3y. Two third of these children were 4 years or younger. More than 60% of accidents occurred between June and August. 29 children (26%) did not survive.

In a 5-year-period (2007-2011) the official Austrian data show 171 fatal injuries, including 27 drowning cases. This means that around 16% of all children died due to an unintentional drowning injury per year.

In 39% of all accidents the site of injury was either in the children's own garden or in the neighborhood. 34% happened in public areas. In private areas no accident occurred with children older than 4.

The lowest death rate was found in public areas, because of better supervision due to a higher number of people around and excellent rescue facilities. The highest death rate was seen around lakes and rivers when conditions of sight in the water and streams complicated rescue options enormously.

Within the youngest age group up to 4 years the survival rate was higher in the own home environment than in the neighborhood because searching and finding the children took longer.

Conclusion

The variation between children's age and accident circumstances is very high. The data show two possible and effective ways to prevent drowning accidents: firstly we recommend fencing pools and biotopes in gardens and backyards and we highly encourage politicians to strengthen this safety tool through legislation; secondly we warn to overestimate swimming skills of children before the age of 8 and we strongly advise to supervise children at home, at public pools and lakesides while they are attending primary schools.

And a lifesaving advice for persons when in an emergency for lost children at own properties: look into water elements first!

Personal Flotation Device Utilization by Visitors to Lake Mead National Recreation Area During Summer 2012

Justin Sempstrott (Lifeguards Without Borders), Autumn Paulson, EMT-B, Ed.D Mary Hines, Howard Gordon, MPH

Background

Protecting 1.5 million acres of land and an additional 200 million acres of water, Lake Mead National Recreation Area (LMNRA) is the sixth most visited park and the third largest unit of the National Park Service outside of Alaska. Approximately 7 million persons visit LMNRA yearly. A recent internal report indicated that unintentional drowning incidents accounted for 37% of fatalities in U.S. National Parks during 2007-2011, with LMNRA accounting for the highest number. There were 116 drowning deaths at LMNRA 2000-2010, 70% of which were not wearing a personal flotation device (PFD).

Objective

Observe and record shoreline and water PFD usage at LMNRA and record characteristics of the type of recreational watercraft used.

Methods

Prospective observational study. During May-August 2012, trained volunteer interns unobtrusively observed and estimated ages and vessel types for persons boarding craft or playing in the water during the hours of 0800 and 1700 at nine distinct locations selected through purposive sampling procedure for easy accessibility and high volume of visitors. Two-person teams observed boating activity from on-shore or near a marina. One team member used binoculars and called out information for the second team member to record. Data was then sent for analysis to John Snow, Inc., a private research company. Inclusion Criteria: All power, paddle, sail and other water vessels such as inflatable rafts, houseboats, PWC's and persons being towed behind a boat.

Results

A total of 2,581 adults (1518, 59% male, 1054, 41% female) and 726 children under age 18 were observed at the nine locations during the study period, 342 adults (13.3%) and were wearing PFD's. Adult males wearing PFD's accounted for 199/1518 (13.1%) and adult females 137/1054 (13%). Among children aged 0-12, 434/495 (87.7%) and children aged 13-17, 92/231(39.8%) were observed wearing PFD's.

Willow Beach accounted for the highest number of adults 54.2% (135/249) wearing PFD's whereas Hemenway Marina accounted for the lowest with 1.3% (2/160). Boulder Harbor Causeway (3.1%), Hemenway Harbor Marina (3.7%), and Cottonwood Cove Marina (14.9%) all document a low adult PFD usage.

For adults on powerboats (skiffs, speedboats, cabin cruisers and pontoons), 105/2,231(4.7%) wore PFD's. When examined by boat size, adult PFD usage on powerboats less than 16ft was 27/149 (18.1%), powerboats 16-20.9ft, 56/1084 (5.2%), and powerboats 21ft or more 22/992 (2.2%).

For adults on paddlecraft, inflatable/rafts, canoes, kayaks and sailcrafts, 210/257(81.7%) wore a PFD.

Among adults on a powerboat without children on the same boat, 64/1485 (4.3%) wore a PFD compared to 35/602 (5.8%) adults on a boat with children.

For persons on personal water craft (PWC), PFD usage was 587/597 (98.3%) for adults and 170/173 (98.3%) for children. Persons being towed by a boat, (Waterskiing, tubing, wakeboarding) adult PFD usage was 8/17 (47.1%) and children 23/23 (100%).

Discussion

PFD usage is known to have a negative correlation with drowning incidence. Overall, the rate of PFD usage was equally low among adult males and females and appeared to decrease as the size of the powerboat increased. The researchers wanted to explore the notion that adults may be more likely to wear their lifejacket if they are recreating on a boat with their children (whom are wearing lifejackets), though this did not appear to be statistically significant. Currently, LMNRA laws only require that children aged 12 and under, all persons on PWC's, or persons being towed behind a boat are required to wear a PFD. All other persons are only required to have one PFD aboard the vessel for each person. PFD usage was highest amongst those groups that are legally required to wear PFD's, which also represents the group with the lowest drowning death rates at LMNRA. These observations may serve as baseline measurement that could add significance to future studies conducted on lifejacket usage in recreational waterscapes.

Drowning deaths in Sweden and presence of alcohol and drugs, 1992-2009

Kristin Ahlm (Umeå University)

Background

Globally, drowning constitute a significant proportion of unnatural deaths. In Sweden as well as in other high income countries drowning deaths have decreased over time. However, it is unclear whether the incidence is still high in some groups and to what extent alcohol and drugs are present in drowning deaths. In Sweden with 9.5 million inhabitants, drowning accounts for 6% of all unnatural deaths.

The objective of this study was to investigate the epidemiology of all drowning deaths, with emphasis on the role of alcohol and drugs.

Material and methods

In Sweden, a total of 5,125 individuals drowned (unintentional, intentional, and undetermined) during an 18-year period (1992-2009). Information on autopsied cases and toxicological data on alcohol, pharmaceuticals and illicit drugs in femoral blood were obtained from databases of the National Board of Forensic Medicine.

Results

Of all drowning deaths, unintentional drowning constituted 50%, suicidal drowning 31%, and in the remaining cases intent could not be determined. The annual incidence of drowning deaths was 3.1/100,000 inhabitants during the study period. On average, the incidence decreased by 2% each year ($p < 0.001$). Males and middle/older age groups had the highest incidences. Unintentional drowning occurred in lakes (32%), the sea (25%), streams or rivers (20%), and bathtubs (12%). Thin ice was associated with 13% of drowning incidents that occurred outdoors.

Of all females in the study, 55% committed suicide, which was a significantly higher proportion compared with males (21%). Alcohol was detected in 38% of tested persons with a mean concentration of 1.8 g/l. In the unintentional, intentional, and undetermined group of drowning deaths, the proportion of alcohol positive was 44%, 24%, and 45%, respectively. In drowning deaths that occurred during boating, alcohol was detected in 54%.

One or several psychoactive drugs were present in 40% of all tested drowning deaths. The most common drug was benzodiazepines. Illicit drugs were detected in 9% of tested persons.

Conclusion

Even though the incidence of drowning has significantly decreased during the study period, males and middle/older age-groups have a significantly higher incidence compared to females and children. In addition, suicidal drowning was common especially among women. Presence of alcohol and drugs was frequent and may contribute to drowning deaths. These findings are important when implementing preventive measures.

Fatal Immersions among Aboriginal, Rural, and Urban Children and Youth in Canada: 20 Years of Surveillance-based Prevention

Dr. Peter Barss (Interior Health Authority, Red Cross, University of British Columbia School of Population and Health), Jane Hamilton (Canadian Red Cross), Karlyn Olsen (Canadian Red Cross, University of Toronto - School of Public Health), Shelley Dalke (Canadian Red Cross)

Introduction

Fatal immersion rates have fallen substantially in Canada among 1-4 year old toddlers since 1995, less so among 15-19 year old youth. Youth have now replaced toddlers as the age group with the highest drowning rates. There is therefore a need to re-assess vulnerable groups. Aboriginal peoples are often described as at high risk of fatal immersion, while much less is reported about rural peoples. Risks and trends for aboriginal and rural peoples of Canada are currently under assessment by urban and rural residence, location of incident, activity, age, and other variables for 0-19-year-olds.

Methods

Child and youth mortality data for 1991-2010 were extracted from the Canadian Red Cross national surveillance system for water-related injury deaths, which is coroner based. Data analysis was completed using spreadsheets and statistical software. Details for about 2000 deaths and associated risk factors were available. Rural incidents and residence of victims were defined as those where the nearest town had less than 1000 residents.

Results

Urban areas were the location of 47% of deaths, while 65% of victims were from urban area. 69% of urban residents drowned in urban areas, while 97% of rural residents did so in rural areas. Among urban infants less than 1-year-old, 89% drowned in urban areas, for 1-4-year-old toddlers 84%, for 5-9-year-olds 73%, for 10-14-year-olds 76%, and for 15-19-year-olds 56%. Among urban aboriginal children, 70% drowned in urban areas, while for rural children 95% in rural areas. The ratio of aboriginal to other children and youth was about 1:4 for infants and toddlers, and about 1:7 for older children and youth. Aquatic activities accounted for 36% of deaths of 0-19 year olds, boating 31%, land, ice and air transport for 16%, and falls into water for 12%; 40% drowned in lakes and 36% in rivers and other moving water and 40% during darkness or dusk.

Conclusions

Most rural and aboriginal children and youth drown in rural areas, as do many from urban areas, especially 15-19-year-olds. Risk relative to other Canadians for aboriginal children and youth is particularly high among 0-4-year-olds. Water safety training and other multisectorial interventions in the coming decade will require detailed epidemiologic profiles to focus prevention effectively and efficiently for specific subgroups by age, activity, region, rural/urban residence and ethnicity, which remain at high vulnerability to death by water-related injury.

Incidence Data for Total Water-Related Immersion Deaths: Magnitude of Undercounting at WHO by Age for Canada, 1991-2010

Dr. Peter Barss (Interior Health Authority, Red Cross, University of British Columbia School of Population and Health), Jane Hamilton (Canadian Red Cross), Karlyn Olsen (Canadian Red Cross, University of Toronto School of Public Health), Shelley Dalke (Canadian Red Cross)

Introduction

Fatal immersion rates have fallen substantially in Canada among 1-4 year old toddlers since 1995, less so among 15-19 year old youth. Youth have now replaced toddlers as the age group with the highest drowning rates. There is therefore a need to re-assess vulnerable groups. Aboriginal peoples are often described as at high risk of fatal immersion, while much less is reported about rural peoples. Risks and trends for aboriginal and rural peoples of Canada are currently under assessment by urban and rural residence, location of incident, activity, age, and other variables for 0-19-year-olds.

Methods

Child and youth mortality data for 1991-2010 were extracted from the Canadian Red Cross national surveillance system for water-related injury deaths, which is coroner based. Data analysis was completed using spreadsheets and statistical software. Details for about 2000 deaths and associated risk factors were available. Rural incidents and residence of victims were defined as those where the nearest town had less than 1000 residents.

Results

Urban areas were the location of 47% of deaths, while 65% of victims were from urban area. 69% of urban residents drowned in urban areas, while 97% of rural residents did so in rural areas. Among urban infants less than 1-year-old, 89% drowned in urban areas, for 1-4-year-old toddlers 84%, for 5-9-year-olds 73%, for 10-14-year-olds 76%, and for 15-19-year-olds 56%. Among urban aboriginal children, 70% drowned in urban areas, while for rural children 95% in rural areas. The ratio of aboriginal to other children and youth was about 1:4 for infants and toddlers, and about 1:7 for older children and youth. Aquatic activities accounted for 36% of deaths of 0-19 year olds, boating 31%, land, ice and air transport for 16%, and falls into water for 12%; 40% drowned in lakes and 36% in rivers and other moving water and 40% during darkness or dusk.

Conclusions

Most rural and aboriginal children and youth drown in rural areas, as do many from urban areas, especially 15-19-year-olds. Risk relative to other Canadians for aboriginal children and youth is particularly high among 0-4-year-olds. Water safety training and other multisectorial interventions in the coming decade will require detailed epidemiologic profiles to focus prevention effectively and efficiently for specific subgroups by age, activity, region, rural/urban residence and ethnicity, which remain at high vulnerability to death by water-related injury.

„History Lessons“ – Decoding Fatal Drownings of Historical Figures

Dr. Stathis Avramidis (Hellenic CDC; Leeds Metropolitan University)

Introduction

History preserves a wealth of information about the lives of notable historical figures (HF) that fueled the literature but their drowning death remained unexplored.

Method

With a convenient/criterion sampling we identified HFs (n=554) that drowned during the periods of Ancient History (-500 A.D.; 13, 2.39%), Middle Ages (501 A.D. - 1500 A.D.; 34, 6.25%) and Modern History (1501 A.D. - today; 497, 91.36%). Frequencies were computed.

Results

(1) Circumstances of Occurrence: HFs drowned most often in day-time (396, 79.36%) and all seasons (winter, 101, 21.17%; spring, 163, 34.17%; summer, 120, 25.16%; autumn, 93, 19.50%), alone (363, 65.76%), without wearing a lifejacket (519, 94.02%), without receiving a cardio-pulmonary resuscitation (541, 98.01%), without having attempted risk-taking activities (509, 92.38%) neither consuming alcohol/drugs (534, 96.91%). Their death was caused by suicide (83, 15.40%), violent unintentional death (27, 5.01%), aquatic activities (74, 13.73%), boating (188, 34.88%), fight/escape attempt (27, 5.01%), transportation (18, 3.34%), unsuccessful rescue (13, 2.41%), disasters (10, 1.86%) and heart attack (11, 2.04%). (2) Casualty Characteristics: Victims were most often males (510, 92.39%); either white (499, 90.40%), color (31, 5.62%) or Asian (22, 3.99%). In terms of casualty type, they were non- (272, 52.11%), weak- (102, 19.54%), injured- (16, 3.07%), unconscious- (19, 3.64%), multiple victims (71, 13.60%) or competent swimmers in distress (42, 8.05%). Most often they were locals in the aquatic area where they drowned (393, 71.20%) and fell in the water unintentionally (359, 65.04%). They wore either clothes (451, 83.36%), swimwear (80, 14.79%) or were naked (10, 1.85%). During the drowning, they appeared the universal instinctive drowning response (284, 62.14%) and did not shout for help (374, 84.62%). They were either thin (277, 51.87%), fat (51, 9.55%), muscular (144, 26.97%) or of multiple somatotypes (62, 11.61%). People drowned mostly alone (363, 66%) and weren't married (274, 55%). They attended university (222, 62.89%), secondary/high school (37, 10.48%), military school (34, 9.63%) or hadn't formal education (60, 17%). Their professions varied (athlete, 69, 12.87%; author/poet, 41, 7.65%; artist, 82, 15.3%; entrepreneur/business/director, 33, 6.16%; religious figure, 23, 4.29%; military/ Prisoner of War, 62, 11.57%; royal/noble, 43, 8.02%; aquatic professional, 22, 4.10%; folk/social work, 7, 1.31%; media professional, 17, 3.17%; political/country leader, 72, 13.43%; scientist academic teacher, 38, 7.09%; financially lower professions, 10, 1.87%; professions requiring higher education, 10, 1.87%; race car driver/stuntman, 2, 0.37%; criminal, 5, 0.93%). Their secondary attributes/work varied (addictions, 21, 4.03%; social problems, 7, 1.34%; architect/inventor, 6, 1.15%; warrior/military affairs, 94, 18.04%; adventurer/activist, 4, 0.77%; political interests, 60, 11.52%; philanthropist/environmentalist/civil servant, 10, 1.92%; academic life, 33, 6.33%; no activity, 6, 1.15%; sports, 61, 11.71%; business/professional, 36, 6.91%; religious affairs, 23, 4.41%; media, 14, 2.69%; arts, 71, 13.63%; aquatic professional, 17, 3.26%; based on person's profession, 25, 4.80%; crime/corruption, 8, 1.54%; health problems, 25, 4.80%). (3) Place of Occurrence: The water was calm (299, 62.16%), deep (513, 94.82%) and with a hypothermic temperature (276, 57.62%). The environment was sea (291, 57.51%), pool (16, 3.16%), inland water (183, 36.17%), domestic (11, 2.17%) or flooded land (5, 0.99%). Drownings occurred in less than 10m from safety (110, 27.64%), in a few hundred metres from safety (124, 31.16%), in the ocean (161, 40.45%) or on flooded land (3, 0.75%). HFs were born in Asia (42, 7.69%), Africa (9, 1.65%), America (188, 34.43%), Europe (289, 52.93%) and Australia (18, 3.80%) and died in Asia (53, 10.31%), Africa (16, 3.11%), America (211, 41.05%), Europe (210, 40.86%) and Australia (24, 4.67%).

Conclusions

History preserves the drowning deaths of several notable HFs, which may act as means of inspiration in lifesaving education to trigger the interest of pupils, and the „building blocks“ for preserving a historical heritage. The circumstances, location and casualty characteristics inform us about the attributes of drowning through the timeline of human history.

Gone in 30 seconds - Drowning and Rescue Scenes in Cinematography

Dr. Stathis Avramidis (Hellenic CDC; Leeds Metropolitan University)

Introduction

Due to the scarce research in cinematography on drowning/water rescue, we aimed to reveal the messages that pass to film viewers.

Method

Frequencies were computed in a criterion and convenient sample of film scenes (n=430) during the timeframe 1917-2012.

Results

Most films depicting drownings were produced during 2001-2010 (170, 43.81%) with episodes ranging about 30 seconds. Dramas represented one third of the genres (130, 30.23%). (1)Rescuer: When present, a rescuer was mostly amateur (167, 38.84%) than professional (35, 8.14%) who was also either adult (173, 85.64%), child (15, 7.43%) or a teenager (14, 6.93%). Rescuers were males (159, 78.71%), females (39, 19.31%) or both (4, 1.98%). Most rescuers were white (81.68%) and personified animals or items in animated cartoons (26, 12.87%). They wore clothes (138, 73.02%), swimwear (31, 16.40%), rescue clothing (15, 7.94%) or were naked (5, 2.65%). Their somatotype ranged (thin, 114, 56.44%; fat, 10, 4.95%; muscle, 78, 38.61%). (2)Casualty: Most victims survived (249, 58.04%). Those that eventually died were victims (174, 40.47%) and rescuers (12, 2.79%). Casualties were represented almost equally by both genders (males, 192, 44.65%; females, 195, 45.35%; both-genders, 43, 10%). They were adults (326, 75.81%), teenagers (35, 8.14%), children (50, 11.63%), or multiple ages (19, 4.42%). Their ethnicity was mostly white (356, 82.79%) as opposed to color, Asian, animal/item or multiple. They were non- (81, 18.84%), weak- (52, 12.09%), injured- (20, 4.65%), unconscious- (81, 18.84%), multiple-victims (23, 5.35%) and even competent-swimmers (77, 17.91%). (3)Location: Most drownings occurred in calm water (329, 76.51%), with normal temperature (317, 73.72%), and where victims were out of their depth (317, 73.72%). The place of occurrence was mostly seas (174, 40.47%), inland (94, 21.86%), bath/jacuzzi (43, 10%) and pool (45, 10.47%). Most drowned within 10m from safety (272, 64%) whereas the rest sample ranged almost equally in distances varied from 50m, 100m, few hundred meters or in open ocean. They were non-locals in the area of the event (279, 64.88%) and fell unintentionally in the water (281, 65.35%), wearing clothes (309, 71.86%), swimwear (81, 18.84%) or being naked (40, 9.30%). Some victims portrayed the Instinctive Drowning Response (85, 19.77%) and others shouted for help (104, 24.19%). They were mostly thin (316, 73.49%), and less often fat (27, 6.28%), muscular (58, 13.49%) or had multiple somatotypes (29, 6.74%). Most times they were single (366, 85, 12%) than multiple (64, 14.88%). (4)Circumstances: Early approach of the victim was made constantly (179, 41.63%). The rescue methods varied from self- (78, 18.14%), land based- (48, 11.16%), wade- (23, 5.35%), rescue-with-aid (i.e., air, boat, rescue tubes; 25, 5.81%), and body contact-rescue (93, 21.63%). Most drownings occurred in daylight (271, 63.02%), during water based (67, 15.58%), on board- (67, 15.58%), non aquatic- (79, 18.37%), violent- (162, 37.67%) or emergency- (54, 12.56%) activities. Some cases were attributed to male (106, 24.65%) or female (16, 3.72%) murderers. In a few incidents we reported use of personal flotation device (40, 9.30%), application of cardio-pulmonary resuscitation (37, 8.60%), and evidence of risk-taking behavior (57, 13.26%). Drowning took place in all seasons (summer, 142, 33.02%; autumn, 136, 31.63%; winter, 112, 26.05%; spring, 40, 9.40%). Few victims consumed alcohol or drugs (6, 1.40%) and experienced paranormal events or near-death experiences (41, 9.53%).

Conclusions

Cinematography echoes stereotypes of fiction and reality, of things we „should-do“ and „shouldn't-do“ safety wise. The portrayed drowning and rescues may serve as audiovisual aids of water safety, lifesaving, lifeguarding, research and education that can trigger the attention from viewers of all age groups. Most drownings took place during non-aquatic activities that often involved violence. The less safe body contact rescue method was mostly preferred. Most people drowned in good environmental conditions close to safety. Most rescuers and victims were white, thin, adults that wore clothes.



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Sport

Kinematic characteristics during maximal board paddling: comparison between elite and sub-elite paddlers

Motoyoshi Miyama (Josai International University)

Introduction

The rescue board is a fast and reliable equipment used to rescue drowning patients. An increase of board velocity in board paddling is important for lifesavers, to improve the safety offshore. Board velocity is decided both by stroke rate and stroke length characteristics. Therefore, it is important to clarify kinematic characteristics of stroke rate and stroke length in elite board paddlers for improving board velocity. The purpose of this study was to compare changes in board velocity, stroke rate, and stroke length during 40m maximal board paddling between elite and sub-elite paddlers.

Method

Eight elite (the finalists of Board Race of the 2011 Japanese Life Saving Championships) and eight sub-elite (general surf lifesavers who belong to a university's lifesaving club) subjects participated in this study (four males and four females in each group). Subjects performed two trials of 40m maximal board paddling in a 50m indoor pool using two paddling techniques: paddling in the kneeling and the prone positions. The racing board (length: 3.17 m, weight: 7.9 kg, width: 0.45 m, manufactured by Dolphin Surf Craft Pty. Ltd.) was used for the trials. Three video cameras were fixed to film along the sagittal plane from the right side of the board paddlers. Board velocity, stroke rate, and stroke length were analyzed in every 5 meter intervals. Stroke rate was expressed as the number of cycles performed per minute, and stroke length was expressed as the distance per stroke.

Results and Discussion

Board velocity was significantly higher in elite than in sub-elite paddlers for both paddling techniques. Stroke rate did not show significant differences between elite and sub-elite paddlers for both paddling techniques. Stroke length was significantly greater in elite than in sub-elite paddlers for both paddling techniques. The significant correlations were found between board velocity and stroke length for both paddling techniques, whereas no significant correlations were found between board velocity and stroke rate for both paddling techniques. Therefore, the difference between performance levels is characterized by higher performance for elite than sub-elite paddlers, attributable to greater stroke length for elite paddlers but with similar stroke rate.

Conclusion

The results of this study indicated that stroke length was a key factor for determining peak board velocity in comparing between elite and sub-elite lifesavers in both paddling techniques. It can be concluded that increasing stroke length is important to improve peak board velocity.

Simulated Emergency Response Competition (SERC) Technical Official Training

Perry Smith (Lifesaving Society Canada)

The Simulated Emergency Response Competition tests the initiative, judgement, knowledge and skills of lifesavers working as a team to respond to a water rescue scenario. Planning, teamwork and the execution of the principles of lifesaving are key factors in scoring well in this event. Lifesavers must evaluate a combination of victim priority, environmental conditions and equipment availability to determine the most effective rescue response. Judges are trained to score the handling of the victim and an overall judge assess the teams overall response.

This session will discuss and review sample score sheets and apply the scoring procedures, marking priorities, and weighting based on rescue performance, degree of difficulty and judgement of the situation/scenario. Competitors, Coaches and Judges will benefit from this information sharing and training session.

Presenter: Perry Smith, Training Programs Director, Lifesaving Society Canada.

Perry has been a Lifesaving Society volunteer for over 30 years. He is an active Instructor, Trainer, Examiner, and Technical Official and Referee with the Lifesaving Society, Canada. Perry has competed internationally and has been a Technical Official and Referee since 2000. He is the Chair of the Technical and Rules Committee of the ILS Sport Commission.

Lifesaving as a Sport and as a Tool of Rescue: A Comparative Observational Analysis

Dr. (PhD) Robert Keig Stallman (Norwegian LS Society & Nor. School of Sport science), Torill Hindmarch (Norwegian Lifesaving Society)

Lifesaving competition now resembles nearly any other organized sport, despite its' humanitarian origins. It is the nature of competitive sport to constantly search for improvements in technique which will improve performance. When the requirement of a hand touch in both freestyle and backstroke was removed, the flip turn became more effective, was executed farther from the wall and consequently the swimmer actually swam a shorter distance. Similar changes have taken place recently. Competitive lifesaving is no different. Innovations which reduce the time in timed events are welcomed. However, at the same time there are long and well established norms for safe rescue. Some of these are universally accepted. Is it possible that innovations used with the intention of reducing time actually contravene these norms for safe rescue? And if so, what are the consequences? Is there danger that non-recommended rescue techniques which are used in competitive lifesaving will be used in real rescue situations? And can this lead to rescue failure with unnecessary risk to both rescuer and casualty?

Method

A literature search of six high profile national lifesaving organizations was conducted, revealing the most widely accepted norms for safe rescue. Video and still pictures of most of the events in the international program for indoor lifesaving were analyzed by observation for any contradictions to the above mentioned safety norms. Then, a selection of lifesaving clubs which train for competition, were observed and evaluated against a list of recommended content and desired goals. In addition, separate questionnaires were given to competitors and to coaches and leaders. Finally, video analysis of the S.E.R.C. event in several competitions including the national championships was conducted, observing the choices made by lifesavers who had been presented with a scenario problem which they were to solve.

Results

The most commonly required and safest of rescue techniques are under-represented in competition. The more spectacular 'swimming' rescues are over-represented.

Most events contain elements which directly and obviously, contravene universally accepted safety norms. The most common observation is an apparent lack of concern for the casualty during the entire rescue. Most of the clubs observed trained almost only for the competitive events. Little if any attention was paid to real life scenarios with recommended techniques. Many of these clubs did not conduct lifesaving courses and distribute lifesaving awards. Many of the competitors had never been told „do this in competition but not in real life“. Some of the 'coaches' were not registered lifesaving instructors. In solving a SERC problem, a disturbingly large number of choices were made which mimic competitive events and contravene accepted norms for safe rescue.

Conclusions

Competition lifesaving has many positive sides. It has obviously helped in recruiting members to lifesaving clubs and organizations. It has directed the attention of the public to lifesaving as a sport and in general, and to a positive attitude toward water safety. It has also unfortunately promulgated a variety of competitive techniques which are unacceptable in a real life rescue scenario. A broader data base is needed in order to confirm these results and to identify ways to rectify the situation.

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Comparing the German and Canadian Rescue Manikin to Human Anthropometric Measures of the Face

Ashley Hannon, A. Brown, R. Boyd, P. Smith

Introduction

The International Life Saving Federation (ILS) has published Rescue Manikin (RM) specifications based on the German RM^{1,4}. The ILS has approved five RMs for use in Lifesaving Sport in national and regional competitions. However, all sanctioned competitions eligible for World Records must use the German RM¹. These specifications refer to the physical properties of the RM and not the facial features themselves⁴. There are differences observed when comparing the position and size of facial features between all approved RMs. Such discrepancy between features may alter performance in competition and increase variation in lifesaving training.

The ILS Sport Commission is reviewing the specifications for the 2015 ILS Competition manual. A main focus of this review is to create recommendations for one universal manikin within the anthropometry of the human population of all continental divisions. Secondly, recommending changes to the RM which could reduce disqualifications due to airway submersion were desired. Since there are differences in anthropometry between RMs, a study comparing facial anthropometry of the German and an ILS approved RM is warranted. The Canadian RM was chosen as a sample comparison due to its visible differences in features compared to the German RM.

Methods

German and Canadian RMs were obtained from the Lifesaving Society Canada. Measurements were taken manually with sliding calipers, measuring tape and goniometer. Measurements outlined by Farkas were recorded and adapted as necessary for head, face, jaw and nose (Figure 1)^(2,3). Two independent testers measured each site three times. A t-test of recorded measurements by each tester at each site was calculated and all were $p = .05$. All measurements at each site were combined and a mean and standard deviation were calculated. An ANOVA set at $p = .05$ compared RM measures to data previously collected, representing a variety of populations within the continental divisions of the ILS including North American Caucasian, Chinese, and African-American (Table 1).

Results and Discussion

The facial features of the German and Canadian RMs differed significantly in all measures compared to the human population samples measured. Increasing head height and length, depth and height of mandibular and maxillary region, and nose height and width alters the positioning of the RM features. The result would be a more accurate human face. A standard, more realistic RM with features closer to human parameters may reduce the number of disqualifications in a competition setting, as a larger face and proper features may reduce airway submersion. Additionally, by training with a more realistic RM, the skills of lifesavers may be strengthened.

Recommendations include measuring and comparing the facial anthropometry of other ILS approved RMs to the RMs tested in this study and against human anthropometric data. More measurements should be considered, specifically arm buds, trunk and neck measures. Testing a more human-proportioned RM may determine if disqualifications in a competition setting can be minimized. It is recommended that any new ILS RM specifications be within the 95th percentile of all human populations combined, ensuring all lifesavers are training to save the majority of people, and Lifesaving Sport training and competition are standardized.

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Anxiety in sport water rescue

Michal Kosinski (Gdansk Academy of Physical Education and Sport)

The paper will present the results of research carried out in 2012 using the following assumptions:

Research Problems

Can a high level of anxiety and stress interfere with the performance and decision-making during the water rescue sports and work? Can we observe an impact of anxiety on the outcome of water rescue sports? Is there a difference in the sense of anxiety over rescue workers who compete in rescue competitions and those who did not compete?

Objective

The aim of this study is to investigate the psychological relationship and anxiety of water lifesaving competitors and emergency workers on the beaches. Research also will be conducted to assess the level of somatic and cognitive anxiety of lifersavers during training and competition and the way it affects the achieved results. The results achieved will be compared with the results of the study on swimmers (swimmers are the most appropriate comparison group, because the involvement of the body in motion is virtually identical to the rescue sports, with the exception of an additional mental load and stress related to saving people's lives).

Hypotheses

Sports lifesaving, due to the nature of competition, causes more stress and anxiety factors, which translates into a different attitude athletes before competition and workouts.

There is a difference between the feeling of anxiety by lifersavers and swimmers taking part in the competition and training these sports.

Lifersavers involved in rescue competitions experience less somatic anxiety during work than those who did not compete in them.

Implementation of the study

The study will be conducted using SAS and CSAI-2 questionnaire on lifersavers participating in Polish Grand Prix, Summer Polish Championships, international Grand Prix Moravia in water lifesaving. In the summer, the research will cover lifersavers that are working on the beaches of the Baltic Sea. Comparative material will be obtained from the swimmers competing in similar rang competitions. Research will include the lifersavers and swimmers between the ages of 14 and 25 years. In addition, I would like to join the group of lifersavers representing the Czech Republic, selected the same way.

NPS All-Women Lifeguard Tournament: 28-Year Workforce-Diversity Initiative

Carl Martinez (U.S. Department of the Interior, U.S. National Park Service, Gateway National Recreation Area)

Women have traditionally been underrepresented on the surf-lifeguard staffs in the United States of America. So, starting in 1985, the U.S. National Park Service (NPS) set in motion a continuing (now 28-year) workforce-diversity initiative whose aim is to increase the representation of women in its surf-lifeguard ranks. NPS does this by showcasing outstanding rôle models in impressive competitive action-running, swimming, rowing surfboats, paddling surf-rescue boards, etc. These role models, in turn, encourage other women viewing them to consider surf-lifeguard work as a viable work option. For, in the absence of such rôle models, women might mistakenly believe that surf-lifeguard work is open to men only.

This paper discusses

1. the statutory and regulatory underpinnings of this particular tournament,
2. why it is appropriate for NPS to have this tournament be for women only,
3. how imitators of this NPS initiative have, in turn, helped to increase the representation of women on these imitators' surf-lifeguard staffs, and
4. how the hands-on experience with this particular tournament may help others elsewhere who may, likewise, be seeking to increase the representation of women on their own surf-lifeguard staffs.

A practical example of self-conditioning education in lifesaver

Associate Professor Tomohiro Ogai (Ryutsu Keizai University), Masashi Kasahara, Norihiko Sunagawa, Toshiharu Yamamoto

In order to protect the lives of people, lifeguards have to maintain on its own, the condition of the mind and body at a high level for the duration of the patrol. However, Awareness of their own self-conditioning to the body is not never high .

In this paper, we introduce the approach of the Japanese national team candidates to players, conditioning of self education.

The subjects were 34 players took part in the Japan national team camp.

Teaching contents was carried out the following. Measurement flexibility, core strength and balance ability.Presentation of the training program. Training Management.

By these attempts, many players are now actively pursuing the trunk strength training, self-massage, and stretching.

I believe from the fact that in the next two years, many players are updating the self-recorded, as well as awareness of self conditioning, we are contributing to improved competitiveness.

The introduction of a Virtual Lifesaving Sport League and National Rankings system

Elouise Greenwood (Royal Life Saving Society UK)

The current Lifesaving Sport pathway within the United Kingdom provides limited opportunities for pool lifesavers to compete at speed events, especially at a national level. These opportunities tend to be clustered and require travel with time away from occupation and education. This limits the access for those new to the sport and the quality of competition for those in the RLSS UK Performance programme. To encourage young and old to learn the skills required, and increase opportunities for all levels and abilities, RLSS UK launched their Sport League in December 2012. This league incorporates a Virtual League and the RLSS UK National Rankings.

The response to the launch was fantastic with over 200 hits in the first two weeks. With this impressive response, development has continued and bulk upload for recognised competitions is now in pilot.

The Sport League is open to all individuals with a RLSS UK society number and an active e-mail address (individuals can be located anywhere in the world). Results from National Competitions are automatically included, while the system allows individuals to add training and non-recognised competition times (including rookie festival results). The events are currently focused on ILS events, although some extra events, which appear regularly on competition programmes, are also included. The times entered, can be viewed and downloaded as National Rankings, by age, gender, area, date and competition type. When viewing ILS events World, European and National Records are displayed along with assessment criteria for the Survive & Save Sports awards (part of the The National Lifesaving Awards).

This presentation will introduce the Sport League and discuss the impact, including the first phase evaluation. This will include surveys of participants and administrators, website and event statistics. Delegates will have the chance to see the RLSS UK Sport League and if facilities allow gain firsthand experience.

Surf Lifesaving sport and athletes with disabilities

Giuseppe Andreana (Federazione Italiana Sport Disabilità Intellettiva Relazionale FISDIR)

Introduction

People with intellectual disabilities and with Down Syndrome can be involved in sport programs included lifesaving according to their level of disability. This concept supported by the experience acquired in pool lifesaving activities since 2003 until 2007 at University of Study of Rome „Foro Italico“ - at that time IUSM. Since 2008 until the actual sport season (2013) FISDIR, Italian Federation responsible to organise and develop sport for these group of athletes, have taken pool lifesaving national and regional championship and took a demonstration event during the Global Games 2011, in Loano (Italy).

Aims

Our objective is to introduce in FISDIR Lifesaving sport also surf events on the beaches and to define the rules of the 1st Italian Surf Lifesaving Championship to be held during the Summer season 2013.

Proposal was submitted and approved by FISDIR BOD during the 2012.

Four different events are proposed (two single and two medley) in according with specific risk assessment plan.

This project confirm the concept of Lifesaving as „Water Safety Sport“

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Youth

Dont Drink & Drown - Youth Approachs for Youth Problems

Tom Shalders (Royal Life Saving Society Western Australia)

In Australia and around the world, participation in recreational swimming as well as all forms of aquatic activity is growing in popularity. Whether that be in developed or developing countries. However, what is unfortunately growing at an even greater rate, is the consumption of alcohol and binge drinking in those aged 15-24.

Between 1992 and 2002, alcohol contributed to 2643 deaths in WA alone and over 100,000 hospitalisations. In the 15-24 year old age group, it has a devastating effect, accounting for 5 deaths and 213 hospitalisations each week. As young people begin their path into adulthood, alcohol is seen to play an increasingly larger part in this so called "right-of-passage", to get intoxicated and leave yourself open to not only short term injury, but the effects on the brain that research shows does not stop developing until the mid-20's.

These effects aren't confined to the land. In Western Australia, approximately 50% of drowning deaths in young people are directly attributed to by alcohol. Some with a registered blood alcohol content of 0.333 mg/l, what should be a fatal amount. In the end it was fatal but by a different means. Alcohol affects the body in a number of different ways and what concerns Royal Life Saving WA the most, are the effects directly associated with drowning. They include: inner ear disturbance, laryngospasm, hypothermia and reduced CPR effectiveness. With Australia being the most coastal orientated urbanised country in the world, combined with wonderful beaches and waterways and the stereotypical love of a cold beer, it creates a deadly concoction that exposes young people to dangers every day.

Don't Drink & Drown was created because of a worrying increase in deaths in 2003 as a way to educate young people about the dangers associated with consuming alcohol and participating in aquatic activities. This harm minimisation approach doesn't follow what would be an obvious solution, that of abstinence, but instead accepts that young people do drink, and so we strive to deliver achievable and realistic goals such risk reduction, knowledge improvement and decreased consumption of alcohol.

Since its' inception Don't Drink & Drown has improved relationships with schools, sporting clubs, local Governments and health organisations across the state and has expanded the program across several mediums. We are now actively involved in boating safety, Indigenous alcohol and water safety and at high school Leavers events. However our real strength lies in our ability to interact with young people, a notoriously difficult target group to relate with and eventually change behaviour. Our effectiveness stems from the use of young people to create and deliver our water safety messages.

For a relatively small funding base, we have managed to have a successful advertising campaign on three television channels with over 500 advertisements, over 100 radio advertisements, almost 30 outdoor billboards, social media interactions, almost 1500 volunteer hours, 10,000 resources and an overall reach of over 100,000 young people with a potential exposure to many more in what is effectively the least densely populated state in Australia, or the world.

Our program also utilises young people and volunteers in a variety of innovative ways and looks to continue to do this now and into the future, and with hopes to expand the program, we aim to slowly but surely reduce alcohol related drowning deaths. In the end all drowning deaths are preventable.

Lifesaving Education – Junior Lifeguard Club

Perry Smith (Lifesaving Society Canada)

The Junior Lifeguard Club (JLC) is a unique aquatic alternative for kids 8 to 15 years of age who love the water and who want more than „lessons.“ The JLC keeps kids interested and active in aquatics - especially quick learners and those caught between levels. It's perfect for youth who thrive in an energetic learning environment.

The Junior Lifeguard Club is designed for members with differing abilities. Friends (and brothers and sisters) can join the together even if they are of different ages and different abilities.

The Junior Lifeguard Club stresses fun and aquatic skill development based on personal-best achievement. The program keeps youth interested with aquatic skill development in: leadership and teamwork, swimming and lifesaving skills, competition, and personal fitness.

Participants join to become a member of a Club. They receive a WaterLog to track their achievements with colourful seals. Club members enjoy high-activity challenges in a learning environment where personal effort and success are recognized and rewarded. There is no „fail“ in the Junior Lifeguard Club!

Coaches are trained to deliver this unique program. The Junior Lifeguard Coaching Manual guides the Coach through the teaching experience.

Presenter: Perry Smith, Training Programs Director, Lifesaving Society Canada.

Perry has been a Lifesaving Society volunteer for over 30 years. He is an active Instructor, Trainer, Examiner, and Technical Official and Referee with the Lifesaving Society Canada. Perry has competed internationally and has been a Technical Official and Referee since 2000. He is the Chair of the Technical and Rules Committee of the ILS Sport Commission.

Volunteer Together - Youth Exchange Programmes to provide best practice among International Organisations in developing our young leaders of the future

Lee Heard (Royal Life Saving Society UK)

Youth organisations, charities and rescue organisations invest a great deal of time and money in order to engage and retain young people. The future of our organisations rely on us making sure that we continue to recruit young people and offer a programme of activities that both engages their interests and develops them into the next deliverers of the organisation's mission to prevent drowning. Youth Exchange Programmes have become increasingly popular as a method to achieve effective youth engagement and development.

A Youth exchange involves young lifesavers visiting a partner group in another country. Exchanges are challenging, interactive and collaborative ventures which give young people from different countries the opportunity to live and learn alongside each other.

Youth exchanges achieve benefits to an organisation both internally within its own membership and externally with partnering organisations across International borders. The perceived and real barriers that are often in place are broken-down as groups come together to experience each other's cultures, learn new skills and make friends for life.

In addition to the benefits to the organisation, youth exchanges have benefits for the individual participant. They are great fun and help young people to develop an understanding and acceptance of different attitudes and cultures. Exchange programmes are a great way to give young people greater self-awareness, which leads to increased confidence and improved self-esteem. Exchange participants develop many valuable transferrable skills including leadership, language communication and teamwork that not only benefit their own personal development but also contribute to the delivery of your organisations mission.

This presentation will provide an evaluation of previous exchange programmes and the impact it has had on RLSS UK as an organisation. The session will move on to provide a pathway for organisations to work together to provide more opportunities for their young people to experience an exchange.

The DLRG Youth - self conception put to the test

Julia Cattelaens, (Youth of German Life Saving Society DLRG), Kathrin Ripcke (Youth of German Life Saving Society DLRG)

The DLRG Youth consists of all members of DLRG aged below 26 years und thus represents the vast majority - roughly 60% - of the organisation. The framework built by a national organisation has to take account of their specific needs. We therefore have to understand the individual facts of life in very different surroundings and among many groups of ages. This did result in a rather broad consensus paper referred to as „the mission statement“. The broad variety of the stated goals allows each organisational unit to customize their youth work. While other aid organisations use their youth work primarily to grow technically skilled trainees, DLRG stated youth work to be a means of non-formal education, supporting autonomy, participation and integration. Thus the constitutional aim is to empower young people to shape their future and to develop towards responsible, self-conscious members of society. On the one hand, this enables the organisation to quickly respond on new trends or new realities (e.g. shortening of secondary education throughout Germany). On the other hand, this concept is not a self runner producing highly trained volunteers that will stick to the organisation automatically and forever. The innate danger of enabling personal development is growing distance due to new possibilities evolving from growing abilities of the individual - she or he might quit the organisation because of its good work. This ironic dilemma leads to different interpretations of the educational role according to current priorities of decision makers and results in periodical discussions about granting of youth work.

We want to show the mechanisms underlying this paradoxon of youth work embedded in the needs of an aid organisation. Further, we want to show the undeniable advantages that justify the given approach to education. Third we want to give a solution to the dilemma.

Fifty shades of sway: sexualized violence in positions of trust – troubleshooting and prevention

Steffi Nagel (Youth of German Life Saving Society DLRG)

According to recent literature up to one third of female and one sixth of male adolescents experienced sexual violence at least once. Roughly four of five assaults are conducted by aggressors of the closer environment of the victim, e.g. parents, other family members or any significant other - including trainers, teachers, tutors. Not only do swim trainers often work in nothing more than trunks or swim suits, the sport itself and the instruction can be quite physical and the usually joyful surrounding may lead to situations that can be misunderstood or worse: abused. The DLRG Youth confronted their members with the delicate issue of sexual violence in the space of the organisation more than 15 years ago and relaunched it with a nation-wide publication and the establishment of a task force in 2012. Its emphasis is placed on prevention of abuse, moreover rules for troubleshooting in case of assault are given as well as guidelines to work with young people on the subject. In the course of our work-up of the matter we learnt about cases all over Germany, got experience in handling these and now want to share our results in this workshop. We will discuss the handbook and offer contact persons to accompany the first steps out of the mud.

Engaging Age Managers – The Delivery Mechanism for our Junior Development Program

Vanessa Brown (Surf Life Saving Australia)

Surf Life Saving Australia (SLSA) has over 165,820 members of which approximately 48% (78,916) are under 18 years of age. This comprises of 63,157 Junior Activity Members (nippers) between the ages of 5 - 12 years and 15,759 members between the ages of 13 - 18 years. Importantly our young members aged between 13-18 years of age make up one third of our patrolling membership.

Whilst a variety of national resources have been developed for the delivery of Junior Activity Programs (5-12 years) activities for young members between the ages of 13-18 years have been primarily delivered by clubs or regionally until now.

SLSA has reviewed successful local programs in order to establish a national Youth Involvement Program that delivers on SLSA's youth mission of;

„...enriching the lives of young members through fun, involvement and the acquisition of personal, lifesaving and competition skills, in a safe aquatic environment“.

Specifically the Youth Involvement Program aims to;

- Engage and exposes participants across a variety of activities and pathways available within surf life saving
- Encourage continuous development of youth
- Promote increased participation and commitment of youth
- Increase the retention of members between 13-18 years of age - assisting the transition from the junior movement into the senior movement.
- Increase the recognition of members through the identification of contributions and activities of 13-18 year old members

The Youth Involvement Program works like a recognition and reward program. It is self paced and encourages participants to get involved in all aspects of Surf Life Saving. Points known as ‚surf creds‘ are earned for participating in various activities from patrolling, achieving a new award, competing, training, fundraising, environmental activities, organising events through to involvement in community education and engagement programs.

This session will explore and share the development, content, implementation and importance of the Youth Involvement Program.

Youth exchange programs

Christoph Freudenhammer (Youth of German Life Saving Society DLRG) **Kathrin Ripcke** (Youth of German Life Saving Society DLRG)

Exchange programs promise to broaden horizon and offer new perspectives for both hosts and guests. Furthermore, there might be an organisational benefit, including adaption of new techniques, improvement of management skills or team building. Nevertheless each participating individual as well as each organisation has to spend a significant amount of resources, including time, money or manpower. It therefore is of great interest whether exchange programs hold the promise and prove to be worth the money. The Nuremberger Study is a scientific analysis comparing individual experiences and benefits emerging from Youth exchange programs. The main objective of the study was to find out whether the participation in an international exchange program has sustainable effects in the long run.

We will present and discuss the results of the study and showcase an example of a successful international youth exchange among Lifesaving organisations.

Experiential education

Thomas Joachim (Youth of German Life Saving Society DLRG)

Understanding young peoples living environment is essential for us to get access to them. Adolescents relate themselves often to persons of the public life, e.g. famous athletes. The offer of sports programs, in particular trend sports are attractive for young people and give us the opportunity to reach new audiences.

One of the main targets of the DLRG Youth is non-curricular education of adolescents, resulting in autonomous and confident young people. The use of trend sports like slacklining, Le Parkour or float building and rafting in terms of adventure and experiential education provides firsthand experience on how to interact with each other and encourages cooperation, confidence and self-reflection skills.

We will show how this approach is implemented in the DLRG Youth, give several examples of sports suitable for experiential education and have a look at the benefits for the association.

WASsERLEBNIS – The Geocaching project around water, adventure and sustainability

Kathrin Ripcke (Youth of German Life Saving Society DLRG), Sina Roth

With the UN-awarded cooperation-project WASsERLEBNIS the DLRG-Youth and the BUNDyouth, a German environmental children and youth association, could implement an Education for Sustainable Development in their association work with adolescents and young adults at federal level.

WASsERLEBNIS, a pun of the words „water“ (Wasser) and „adventure“ (Erlebnis), promises a medial-active educational adventure aimed on explaining the meaning of sustainability and suitable action competences by using the method Geocaching. Geocaching is a free real-world treasure-hunt with a GPS-receiver for the reception of geo-coordinates to locate hidden containers. The finders share their experiences online. With WASsERLEBNIS Geocaching turns to Bluecaching. Blue Caches are tricky, brain-teasing and experimental educational GPS-routes dealing with water issues focused on the questions: Why is water important and why do we need water-guards? The answer is: Clean water is essential! There is no life without clean water!

With a Blue Cache you live to see sustainability. Each Blue Cache has its own Blue Story. On the way to the final, to the blue gold in the Blue-Cache-Box, the Blue Cachers learn consciously to get along with the media by exploring the nature directly, offline, with respect. Bluecaching is fun and know-how, team-work and team-building, movement and motivation. More than 150 trained water-guards of both associations and many more interested people created about 60 Blue Caches demonstrating a great water-guarding-commitment.

We will present how Blue Caches unify the team concept with exiting, common experiences initiating processes of informal, social and ecological learning strengthening the concept of sustainability. We will discuss how to use Bluecaching as a modern method for practical, applicable trainings of groups of children and youth in order to achieve a sense of common purpose of thinking and acting in terms of a future-oriented development of humanity.



Management (Lifesaving)

Developing Drowning Management Index

DaeYoung Kang (Lifesaving Society Korea)

Purpose

This study aims to develop Drowning Management Index (DMI) to compare the effectiveness of drowning management in different regions or in a region in a different period of time. Traditionally absolute number of drowning or drowning victims per one million is used to evaluate the drowning management or signify the seriousness of drowning. But simple number of drowning is not able to deliver how drowning is well-managed in certain area because it does not contain how many people are exposed to potential drowning circumstances.

Methods

In order to develop the practical index to compare drowning management in different area or nations, drowning contributors are examined. Also drowning exposure rate is investigated. DMI is generated from South Korea and Australia for comparison.

Results

DMI is developed based on the number of drowning per one million people divided by exposure rate. And DMI has been applied to two different nations which have similar drowning per one million. South Korea and Australia indicate similar number of drowning per million, but in DMI they show big difference. DMI is more realistic to be used to measure effectiveness of drowning management.

Discussion

To secure the accuracy of exposure rate, further study needs to be conducted for better sampling. Drowning contributors have to be examined in different nations including low middle income countries.

Conclusion

Classical drowning statistic has weakness that it only delivers the number of drowning victim. It is hard to know how drowning is well managed in a certain area. Also comparing with absolute numbers of drowning victim among regions does not give realistic idea. DMI is developed based on the number of drowning victim and exposure rate in potential drowning circumstances. DMI will contribute to enhance evaluation method in drowning management.

Translating Open Water Safety Guidelines Into Global Action Using Social Marketing

Prof. Linda Quan (University of Washington School of Medicine), Rebecca Robinson, Elizabeth Bennett

Problem

Open Water Drowning Prevention Guidelines were developed by an international task force using a consensus-based decision-making process. The intent was to create Guidelines using simple language that could be adopted and used by organizations globally to communicate key messages about open water safety to their staff and to the public.

Initial efforts to disseminate the Guidelines involved the members of the International Task Force that developed them, resulting in adoption by six organizations. Although promoted through journals and presentations, the guidelines needed to be more widely adopted or integrated into campaigns to reach a wider public. A social marketing approach to promote the Guidelines to targeted organizations was developed and executed.

Methodology

A social marketing expert developed a list of 133 target organizations and began an informal e-mail campaign with the goal of seeking awareness as well as incorporation of the Open Water Drowning Prevention Guidelines into the organizations' programs. Key strategies used were: establishing a dialogue to increase understanding and the likelihood of engagement; collaborating to identify key contacts; using leaders and experts in both drowning prevention and marketing to address specific concerns, and integrating concepts of persuasion and peer-to-peer motivation.

Results

Eight months following these efforts, the Guidelines were adopted by an additional 14 organizations, increasing the overall reach to 20 organizations in 9 countries.

Barriers to more wide-spread adoption included: the need for adaptation of the guidelines for different communities; the inability of some organizations to use content other than their own; and the small scale of the marketing efforts.

Implications

Utilizing principles of social marketing led to increased dissemination and use of the Open Water Drowning Prevention Guidelines, increased awareness of the importance of consistent messaging in drowning prevention messages, and demonstrated the potential effectiveness of a fully developed social marketing campaign to further increase global incorporation.

Ensuring a future for lifesaving in the developing world through leadership training and knowledge sharing

Steve Wills (Royal National Lifeboat Institution)

A staggering 1.2 million people drown around the world every year - more than the number of people who die from malaria. Most of these drownings occur in some of the world's poorest countries, which have either very limited lifesaving services or none at all. Despite the scale of the problem, it is barely recognised - a hidden pandemic. The RNLI, a UK-based charity, which exists to save lives at sea, is expanding its international work to try and reduce this tragic loss of life.

It is recognised that although many lifesaving organisations struggle to exist in the developing world, they are often very good at delivering front line operations. However, without an effective and progressive organisation, some lifesaving bodies struggle to maintain a quality service to the community they serve.

In response to a number of requests, the RNLI has developed an annual bespoke course, designed to equip lifesaving leaders with essential skills to run effective lifesaving services in their home countries.

The candidates learn how to manage and develop their own lifesaving organisations. A vast range of subjects are covered, including: causes of drowning, the role of a lifeguard, equipment needed to run a lifesaving service, managing incidents, practical lifesaving skills, conducting beach risk assessments, writing training programmes, and how to run safety education initiatives - all of these are tailored to help them apply it to their specific environments. The course is based at the RNLI College in Poole, Dorset, where the charity's volunteer lifeboat crews and lifeguards train.

During the two week course each year, the delegates are also be given the chance to experience England in their free time, including evening activities near the RNLI's headquarters in Poole, and a day trip to see the sights of London as well as the RNLI's lifeboat stations on the River Thames.

The course builds on the international work that the RNLI had been involved in for some time, some of which has been delivered in-country - for example, two RNLI lifeguard trainers spent two weeks in Bangladesh earlier this year helping set up the country's first ever lifesaving service. The newly-trained Bangladeshi lifeguards have since been running a lifeguard service and have already begun saving lives. Four of them have attended this course, to help expand the skills they have already acquired.

The number of people needlessly losing their lives to drowning each year is shocking, so the RNLI is increasing its international work to help address this global problem. The RNLI alone can't solve the issue but, through courses like this, the charity aims to equip the participants with essential skills, which they can take back to their home countries and use to develop and manage more effective lifesaving organisations. They can also share their learning with others, to create a long-term, sustainable way of helping them save more lives from drowning.

Countries who have attended to course so far include; Cameroon, Senegal, The Gambia, Kenya, Uganda, Tanzania, Mauritius, India, Thailand, Philippines, Bangladesh plus several others.

A presentation will look at the different aspects involved in designing a global solution for organisational and leadership development and working in collaboration with partners and across sectors. The presentation will go on to look at measuring success and the challenges of delivering a course that cuts across such a diverse audience.

Contact: swills@rnli.org.uk

Raise Funds and Increase Awareness - Applying Business Disciplines To Maximize Your Organization's Success.

Rebecca Wear Robinson (Lioness Protects LLC)

Problem

Drowning may be a global epidemic, but the issue faces intense competition from any number of public health and social issues for funding and the attention of the public and policy-makers. Many drowning prevention organizations are heavily reliant on volunteers or are operating on an unreliable income stream based on grants, donations and self-funding. Developing focused goals to strengthen and grow an organization, with specific action steps to meet those goals using existing resources, can be achieved by applying a step-by-step business analysis.

Methodology

During this speech I will break down four components that are key to developing and operating a successful organization and outline specific actions that can contribute to an organization's success. The intent is to make established business and management principles accessible, understandable, and simple to implement, to all members of the drowning prevention field.

Evaluate Strategy and Assets

Drowning prevention is a complex field with many players and organizations. To be effective it is critical that efforts are focused on targeted actions and audiences. It's not about doing „just about anything,“ but doing the right things, in the right places, with the right resources. To improve the bottom line, organizations must take a hard look at who they are, what they want to accomplish, and what non-monetary and monetary assets they currently possess. A detailed but simple questionnaire will be provided and the methodology for completing the questions and using the answers to adapt or develop a strategy will be explored, as will strategies for developing benchmarks of success and capturing data to be used in executing the strategy.

Analyze Opportunities for Social Marketing and Traditional Marketing

Components of both traditional marketing and social marketing may be needed to help an organization reach its goals. Social marketing is „harnessing market forces to change behavior for the public good“. It is a fairly new field but is being used successfully to address other public health and safety issues. I will provide a very brief overview of what social marketing is, how it differs from traditional marketing, and how it can be used to support an organization's strategy. Specific examples of where social marketing can be used as a tool will be given, as well as examples of where it is not appropriate. I will discuss how to identify the right target market and the key components of a social marketing plan and a traditional marketing plan, including developing benchmarks to measure success.

Analyze Target Markets and Approaches for Engagement

Once the target market has been identified, it is necessary to establish the most effective way of engaging that market, whether through social media, traditional media, one-on-one conversations, community engagement, public service announcements, or networking. We will look at how to determine the best ways to engage the target audience and identify specific channels. We will explore how to develop an action plan, complete with a timetable, setting benchmarks to measure progress, and techniques to maximize success.

Develop a Plan to Attract Funding:

Building on the first three steps, we will discuss how to develop a plan for attracting sustainable sources of funding and explore methods of self-funding to support the goals of the organization - whether the goals are program expansion, hiring full-time staff, supporting other initiatives or simply being less reliant on unpredictable one-time funding sources. Evaluate feasibility of developing strategic partnerships with corporate sponsors, sharing resources or combining programs with organizations that have overlapping goal without losing identity, and finding influential individuals who can push an organization's mandate. We will look at how to target efforts to develop the right strategic partnerships for.

Determining the True Value of a Lifesaving Service: Measuring the Social Impact of Surf Life Saving Australia

Shauna Sherker (Surf Life Saving Australia)

Surf Life Saving Australia (SLSA) is an iconic organisation that has been saving lives since 1907. SLSA is Australia's major water safety and rescue authority and is one of the largest volunteer based organisations. We have more than 165,820 members, with 28.5% of members being active patrolling surf lifesavers. The total estimated economic value of SLSA's coastal drowning and injury prevention is \$3.6 billion.

It is clear that SLSA's impact goes far beyond saving lives in the water. The work that volunteers do to promote a healthy, inclusive, clean, family lifestyle throughout Australian communities is far greater than just the hours spent volunteering. SLSA members are actively building community and creating social connections with other SLSA members and beachgoers that build our society. In fact, we exist „To save lives, create great Australians and build better communities“ but how do we do this? And importantly, how do we measure this important social contribution?

Whilst many have measured the economic value of their services, the true value of a service can only be fully realised when the wider impacts and ‚spillover effects‘ that providing that service has on the community is fully understood. Usually an attempt to convey these are made by most through the identification of broader activities such community education, training provided to members/public, engagement of youth and general development of ‚good‘ people.

Surf Life Saving Australia (SLSA) has partnered with the University of Technology Sydney (UTS) to identify and value activities contributing towards SLSA's social contribution to the wider community. In doing so a potential method and model of social impact at the meso level for community based organisations in Australia has been developed.

This research has defined SLSA's social capital and human capital contribution to the wider community through individuals (volunteers) and the organisational itself. It describes contributions through aspects of personal belonging; development of citizenship values; giving back to the community; connections with other local community organisations; meaningful networks; advancement of human capital through training, team and leadership skills.

The presentation will further explore the results of the work with UTS clearly demonstrating the broader value and importance of lifesaving service organisations beyond saving lives. It will define the broader and invaluable impact of a lifesaving service has on the community and in building disaster resilient communities.

Becoming part of the Commonwealth

Shayne Baker (The Royal Life Saving Society)

The Royal Life Saving Society (RLSS) is a recognised Civil Society Organisation of the Commonwealth.

What does that mean?

The Royal Life Saving Society is an organisation of 28 Member Branches, working to eliminate drowning in the Commonwealth.

Following over 100 years of involvement with Commonwealth colonies and the modern day Commonwealth, RLSS was officially granted Commonwealth Civil Society Recognition in March 2011.

Civil Society Recognition provides RLSS and its Member Branches with an official line of communication and consultation with the Commonwealth Secretariat, and through them Commonwealth Governments. The Commonwealth, like the United Nations, has a set of defined agendas spanning from economics and trade to climate change, health and education.

What does this mean for Drowning Prevention?

Drowning as a significant global health problem and the work being done to prevent it, still receives little international recognition.

Civil Society Recognition enables RLSS and its Member Branches the opportunity to influence these agendas and engage the Drowning Prevention agenda within these agendas.

Whilst our civil society status is relatively new, RLSS and its Member Branches have already harnessed this new status to progress our agenda, participating in a number of Commonwealth events including:

- Commonwealth wide consultation to prepare the 2011 Civil Society Statement for CHOGM, which involved 7 RLSS Member Branches
- Participation in the 2011 Commonwealth People's Forum and Round Table discussion with Commonwealth Foreign Ministers
- Participation in the 2012 Strategic reviews of the Commonwealth Secretariat and Commonwealth Foundation

These events have assisted us in raising the profile of Drowning Prevention and RLSS as well as providing us with a better understanding of the functions of the Commonwealth.

Future opportunities to engage the Commonwealth network include:

- Bi-annual Commonwealth Peoples Forum and CHOGM
- Participation in Commonwealth Consultation Events
- Presentations at Commonwealth Ministers Meetings
- Working with designated team at the Commonwealth Secretariat (incl. Health, Education, Environment)
- Engagement with the Commonwealth Sport for Development programme

Challenges Faced

The journey to achieving Civil Society Recognition has been challenging, as has utilising this recognition to establish our organisation and our issue within the broader Commonwealth. Challenges include; establishing RLSS as a credible and valuable Commonwealth partner, raising the profile of drowning as a significant health issue against other health issues with a high profile and long standing Commonwealth commitment, and mobilizing our own network to harness all of the opportunities available within the Commonwealth.

RLSS has learnt a significant amount from this experience about working within international networks. Civil Society Recognition has been an opportunity and a challenge. It has assisted us in positioning ourselves as an integral partner within the Commonwealth network and the international drowning prevention agenda.

Drowning Reduction – Collaboration the only pathway to success

Norman Farmer (Surf Life Saving Australia)

Background

Surf Life Saving Australia (est. 1907) has an extensive history of lifesaving education, training and services dedicated to the saving of life in the water in Australia and across the world. Well over one million Australians are meaningfully connected with SLSA, including the 160,000 members of 311 affiliated clubs and 60 support services.

Prior to the formation of the International Life Saving Federation - ILS in 1993, an organisation now with more than 100 members, SLSA was the founding member of World Life Saving in March 1971.

The potential for collaborative projects to deliver positive developments, social change, innovation and cost-savings is undoubtable, however it is not always clear how to ensure collaboration will be a success.

Can we achieve meaningful reduction in drowning death and injury without collaboration?

Objectives

The objectives of this Paper are to discuss what can be collaboration in lifesaving and what can be the benefits to the at-risk communities of the world we serve and to those who strive to reduce drowning death and injury across the world.

Target

This Paper is targeted at those in decision making roles such as leaders in Boards of Directors, Presidents, Chief Executives and Presidents of organisations whether they are lifesaving organisations, funders and supporters of lifesaving organisations.

The paper is also targeted at those people who have the ability to influence leaders, to stand up for what they believe, to put aside personal differences and to influence debate with rational thinking, evidence and case studies.

Methods

In preparing this Paper, case studies from more than 65 years of international collaboration by Surf Life Saving Australia across 25 different countries have been reviewed and analysed to summarise what have been the key issues, barriers and critical success factors that have led to real change in lifesaving organisations.

In addition, research of successful collaborations in other industry sectors will be used to explore some collaboration successes.

Discussion

The President and CEO of Living Cities, Ben Hecht, asserts there is a growing trend across the USA of leaders and organisations putting aside their self-interest to work together as private, public, philanthropic and not-for-profit collaborations. In doing so they are acknowledging that „even their best individual efforts cannot stack up against today's complex and interconnected problems.“

Hecht notes that the leaders in this trend are from business and philanthropy. After many years of seriously investing in a large range of programs, these leaders realised that the scale of the problems they were facing could never be adequately responded to by any single organisation or initiative.

Large-scale social change is turning away from competitive practices - the single cell organisation asserting it has the solution that needs to be scaled - towards collaborative ones - the coming together of traditional and also non-traditional partners who are willing to embrace new ways of working together.

Conclusion

This presentation will provide examples of successful collaboration in a lifesaving context that is having a real and lasting change in targeted countries and lifesaving organisations that will lead to a sustainable reduction in drowning death and injury.

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Surf Life Saving Australia - web site at <http://sls.com.au/what-we-do/international>

Living Cities - web site at <http://www.livingcities.org/>

Social Leadership Australia - web site at <http://sla.bensoc.org.au/>

WOPR functional model in the new legal regulations in Poland

Dr. Tomasz Zalewski (Wodne Ochotnicze Pogotowie Ratunkowe), Dr. Jerzy Telak

50 years of Volunteer Rescue Water (WOPR) in Poland is a period of numerous changes in the regulatory environment. The organization is always to tailor to all historical and current conditions. This publication presents the organizational structure of the WOPR, the model performance, a collaboration with other actors in emergencies, institutions, representatives of the various levels of government and with business partners. The goals for the organizers of bathing areas, water areas of management responsibility and the most important legal regulations related to the organization of the security system that is minimal water bathing equipment, rescue duties, employment standards and lifeguard qualifications. Presentation of the functional safety of the water system in Poland, taking into account the activities WOPR will compare the solutions with the other examples in the world.

Merchandising of the DLRG

Henning Bock (DVV DLRG-Verlag und Vertriebsgesellschaft)

DLRG is one of the best known social brands in Germany with an awareness level of more than 80% by the population over 14 years old. The brand is also associated with terms like: sympathy, social engagement, volunteer services and so on.

Nowadays awareness and sympathy are values for themselves even for non-profit organizations - but nevertheless it is still a challenge to transform this value into wealth or at least cash - to run the variety of water-safety projects. Typical ways to capitalize a social brand are fundraising, crowd-funding, licensing and sponsoring - all used by the DLRG.

Additionally the DLRG merchandises the necessary equipment for the volunteer's work, starting with swimsuits and ending up by boats or medical products. This self-trading makes - on the one side - a notable contribution to the total income of the organisation, ensures - on the other sides - the standardisation and quality of the equipment. To achieve good conditions DLRG cooperates with a handful of notable suppliers and tries to set up on already established products. By branding these products they become „originally DLRG“ and gain an additional value for the members and the public.

As the members or the regional club pay by their own, DLRG has to be satisfied with a narrow margin and offers in some cases additional benefits - i.e. by sponsoring partners or direct contributions. Like other trades the DLRG Materialstelle -the organisation's merchandising unit - has to deal with supply chains starting somewhere in China, changing legal guidelines and the price sensitivity of the customers.

Fundraising for Lifesaving

Dr. Klaus Wilkens (German Life Saving Society DLRG)

In view of the increasing scarcity of funds, lifesaving organisations must find new and innovative ways to ensure future funding of their many tasks and goals. At the same time lifesaving should become better known and appreciated by the general public. Fundraising is an expression used in social marketing and means „raising funds, taking measures to find sources of funds for non-profit organisations“. This covers all areas such as sponsoring, charity events, merchandising and advertising for new members and donors. Non-profit organisations generally need money to finance science, special projects and information programs. Fundraising is the best marketing instrument for getting it.

Successful non-profit organisations are as concerned about marketing techniques and their ability to prepare wise marketing plans as any profit making corporation. The non-profit or social purpose organisation must look critically at itself to value its worth, to examine its mission, to determine whether this statement of mission is being interpreted properly through measurable objectives and meaningful programs, and to evaluate overall impact on the market area. There are existing diverse fundraising instruments and concepts.

Fundraisers need to plan by analysing the total market potential after judging gift ability within each market segment. Many different fundraising strategies are successfully used by the German Life Saving Society (DLRG). One of them, the DLRG direct mail campaign, is introduced as an example.

The project „donation fund“ was founded on a common initiative of the DLRG Board and its branches and local clubs. In the meantime up to 2012 DLRG has been able to generate more than 610,000 donors with a donation income of more than 11 million Euros per year.

In the meantime up to 2012 DLRG has been able to generate more than 610,000 donors with a donation income of more than 11 million Euros per year. This means, that about 50% of Income could be generated out of Donations.

Swimmers across borders

Daniel Graham (Nile Swimmers)

Drowning continues to be a leading cause of death and morbidity worldwide, with greater than 95% of the deaths occurring in low and middle income countries. Different strategies have been suggested to address the global burden of drowning, including focus on prevention, education, public health, and the formation or support of private and municipal lifeguard agencies. The areas that need intervention the most often lack the resources to implement such programs and must rely on both governmental and non-government organisations for material and practical support. There are many startup agencies that have independently developed and implemented programs in specific geographical areas; often they meet with similar success, but also encounter similar roadblocks. Nile Swimmers and Lifeguards Without Borders are two such programs.

Nile Swimmers is a unique drowning prevention programme that focuses on the River Nile in Sudan. The project was created in 2007 by the British Council and Sudanese Sea Scouts. The project has grown successfully since then, both in terms of delivery, and ambition.

Lifeguards Without Borders is a US based non-profit that was founded in 2006 by ocean lifeguards who personally witnessed the need for drowning programs in developing nations. A large body of their work has been undertaken in latin america and the caribbean with continued growth and expansion.

Since meeting at the World Conference on Drowning Prevention in Vietnam in 2011, strong links have been established between Nile Swimmers and Lifeguards Without Borders.

Prior to 2011, both organisations existed without knowledge of the other and were running drowning prevention programs in resource deficit areas.

Whilst meeting in Vietnam, we discovered enormous parallels between our work – despite being on different continents. Many of the challenges and lessons learned have been similar. Starting a program and finding the initial volunteers is often the easiest step, while finding ways to make the program self-sustaining is often the greatest challenge.

Empowering locals to take ownership typically requires the creation of a new municipal agency or the extension of an existing one. Both of these paths are fraught with corruption, power struggles, and ulterior motives that are often beyond the scope or understanding of well meaning outside agencies. It is critical to have clearly defined relationships with local governmental agencies and local liaison.

Funding is difficult for many non-profit agencies, and lifesaving is no different. One of the biggest expenses is often travel, which certainly puts pressure on organisations to get the maximum benefit from the outside instructors whilst they are in the country. This naturally leads to intensive training courses delivered over a relatively short period of time, with the associated problems of long-term follow up and continuity.

Both organisations stay in regular contact via Skype, Social Media, email, and keep each other well informed of their activities. Several invitations have stretched across the Atlantic in some attempts for practical collaboration. When developing resources, both organisations have used the expertise of the other to assist in the writing and proof-reading of manuals.

Conclusion

Nascent and developing water safety agencies often encounter similar struggles while operating in resource deficit areas. Any agency wishing to undertake a drowning prevention campaign or program must overcome hurdles such as governmental and public reluctance to accept drowning as a major cause of financial and personal loss, shortages of funding, local agency empowerment, political and interagency power struggles, and managing time commitments by volunteers. The continued positive, collegial interchange of ideas amongst agencies like LWB and NS is vital to allow these lifesavers to deliver effective self-sustaining programs that reduce the morbidity and mortality of drowning in ways that can be measured on a human scale.

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How Effective IT Infrastructure Can Increase the Capacity of Lifesaving Organizations

Yvan Chalifour (The Royal Lifesaving Society Canada)

Today, executives and senior managers of charities and not-for-profits must focus on the infrastructure of their organization, as well as its mission and vision. In a world driven by communication, information technology (IT) infrastructure is a critical resource for the achievement of humanitarian goals.

This presentation highlights, from a risk management and change management standpoint, the importance of proper data management and IT facilities for lifesaving organizations. Yvan Chalifour, national Executive Director of the Lifesaving Society Canada, will show how national federations can increase the global capacity of their organization through deployment of appropriate IT infrastructure.

Electronic intellectual property and assets of a lifesaving organization are numerous and varied. From a database of trainees, certification records and training program statistics, to financial records, publications and legal documents, in today's world more and more relies on numerical format. Timely access to these resources is critical for successful organizational operations. Should these electronic assets and intellectual property be lost, or their integrity compromised in any shape or form, the consequences could be huge for any organization. In this presentation, the potential problems will be showcased, along with the advantages of effective IT deployment: enhancement of an organization's efficiency, transparency, team building, individual empowerment and improvement of internal controls.

Mr. Chalifour will present a case study based on a 2013 national project by Lifesaving Society Canada to acquire and deploy a new server. Specifically, he will discuss the advantages and limitations of the private/public cloud approach versus employment of an in-house server. He will share lessons learned on meeting various players' connectivity needs—Board members, staff, volunteers, Branches, contractors, etc. He will also explain how charitable status allows access to software licences at deeply discounted prices.

The Lifesaving Society Canada has been active in this country since 1896. The organization became The Royal Life Saving Society Canada in 1904, which is still its legal name, but today it is generally known simply as the Lifesaving Society or Lifesaving Society Canada. The organization is a highly visible and integral part of Canadian society, in part because so many people engage in water-related activities in Canada. It is a land of many lakes and rivers, and is bordered on three sides by oceans. There are also public and residential pools in many communities. The Lifesaving Society Canada is composed of 10 provincial/territorial Branches, tens of thousands of individual Members, and over 4,000 affiliated swimming pools, waterfronts, schools and clubs. Annually, more than 1 million Canadians participate in the Society's swimming, lifesaving, lifeguarding, first aid and leadership programs.

ILS AFRICA Drowning Statistics: the Role and the Model

Justin Bakinga (International Life Saving Federation – Africa Region)

Drowning is a common occurrence and one of the leading causes of accidental death in Africa. Unfortunately it is not known as such by both the general public and the governmental authorities despite major accidents such as the JOOLA shipwreck that occurred on the 26 September 2002 at 10:55 pm GMT in Senegal's West African Atlantic Ocean and claimed 1863 lives through drowning according to Senegalese Governmental Authorities.

Added to this unacceptable toll is the high rate of the unacceptable loss of human life through drowning and water related incidents that occur every year in African and International seas and water ways during the transportation of thousands of illegal migrant from Africa to Europe. As lifesaving organisations and advocate in drowning prevention and water safety, it is our duty to raise public awareness about drowning in order for us to win governmental/international institutions/organisations support and obtain financial help that they provide to other humanitarian organisations and programmes.

It is true that winning the general public, the government, the national/international institutions/organisations support and favour is a huge challenge for our national lifesaving federations and for ILS AFRICA (ILSA) when it comes to find support at both the national and international level. Therefore there is an important element that each one of us needs to consider if he wants to be more than effective in his quest of support from both national and international Institutions/Organisations and partners to overcome this challenge.

Discussion

What element is that? It is an Accurate Drowning Statistics (ADS). What role does it play? What Model can we imitate? What Approach can we use as an individual or as an organisation?

The Role of Drowning Statistics

Given the difficult economic environment it is not enough to just have a good cause. It is not enough that the cause is the number one killer of children and young people. We don't have the resources to just 'feel good'. Compelling economic arguments must be made that preventing drowning is actually cost-effective and will reduce costs permanently.

An effective economic argument requires the following components:

- accurate statistics;
- a full understanding of the full economic costs of drowning;
- a cost-effective, proven plan for ending drowning;
- And a plan for effectively marketing the issue to attract funding and public support.

The Model

In gathering statistics, counting 'just' the numbers of children and young people who drown is not sufficient –

- We must make it personal.
- We must overcome the widespread belief that 'it happens to other people, or in other countries.'

Conclusion

I do suggest that we organise ourselves well and appoint the right people at the right places. I believe that if we work hard and show commitment in both drowning prevention and accurate drowning statistics collection, we will overcome the challenge of collecting accurate drowning statistics both in our individual countries as well as in our continent – Africa. Besides, we will prove that drowning is a serious issue in Africa which needs everyone's attention and support if we would like to prevent, reduce and eliminate it in our neighbourhoods our countries, our continent Africa and worldwide.

The level of correction and perception of the error of the lifeguard

Dr. Alexandre Tadeia (Portuguese Lifesaving Federation)

Lifesaving is increasingly a science with guidelines and algorithms that allow an assessment of each performance, always trying to improve the care provided. Regarding the performance of the Lifeguard (LG) in aquatic rescues, is important to study what level of correction, if the level of inaccuracy is significant, if any, if the details to improve are recognized by the LG and if with the experience, the performance of the LG will be perfecting. This study seeks to clarify these four issues.



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Workshops

The Relationship between the concepts „Can swim“, „Water Competence“ and „Water Safety“

Dr. (PhD) Robert Keig Stallman (Norwegian LS Society & Nor. School of Sport Science)

A concise definition of what swimming really is has yet to be broadly adopted. There remains disparity of content among the various organizations which conduct learn to swim programs. Among researchers and experienced educators however, there is considerable consensus on main issues. But despite considerable dissemination since Amsterdam in 2002, changing age old traditions is still difficult at the grass root level.

Such a definition is necessary in order to select the essential skills to be learned. Appropriate content is that which has protective value and the drowning prevention context is the only acceptable approach. In Chapter 3.8 of the Handbook on Drowning, 2006, the authors called for continued effort to construct a more concise definition of swimming.

A definition which draws upon four sources of data has existed for some time. The resulting definition focuses on essential protective skill elements in an all-around aquatic skill development. Each of these has a protective value of its own as well as collective protection when integrated with each other. In 1995, Langendorfer and Bruyain introduced the concept of „water competence“. This was a modernization of the old concept of „watermanship“, both indicating a broad spectrum of aquatic skills. In addition to skills, they included knowledge and values. In Chapter 3.8 in The Handbook on Drowning, 2006, the authors also recommended that although swimming skill is an essential part of water competence, it should be understood that skill alone is often not enough to prevent drowning. A definition of water competence in a drowning prevention context has evolved to include the cognitive competencies which provide additional protection, i.e. attitudes, knowledge, judgement, values plus behavior. The need now arises to define the relationship between swimming skill and water competence.

Swimming skill is the core of water competence. To the core is then added all cognitive competencies which increase the protective value on, in and around the water. Even for the youngest, developmentally appropriate references to attitudes and knowledge should be added. In other words, the minimal package which we should deliver, is a water competence package.

The traditional concept of water safety has also served us well. We suggest defining this as an all inclusive concept. Swimming skill is obviously also part of water safety. It is not only the core of water competence but also the core of water safety. Water safety then adds even more, including all initiatives which can help to prevent drowning. Some of these are; raising water safety awareness, identifying risk, reducing or eliminating risk, promoting and carrying out water competence instruction, water safety information campaigns, community action, political engagement, policy change, promoting the notion of collective responsibility, and more.

Cultural Issues in Drowning Prevention, Swimming, Rescue and Resuscitation

Associate Clinical Professor Steve Beerman (University of British Columbia), **Dr Linda Quan** (University of Washington School of Medicine)

Objectives of the workshop

1. To exchange/learn from each other stories/beliefs/myths/cultural practices and awareness of cultural issues that impact water safety, swimming, rescue, lifesaving, resuscitation and drowning prevention.
2. To create a grid or template that allows a visual reflection of the major themes that emerge as barriers to community drowning prevention in Low and Middle and High income nations.
3. To facilitate inclusive thinking and cultural sensitivity for research and strategic interventions in drowning prevention, swimming skill acquisition, water rescue, lifesaving, water safety education and aquatic risk reduction.

Workshop Plan:

Participants will be asked to bring their stories and examples of cultural issues that impact or influence the drowning/rescue/swimming/water safety/lifesaving/resuscitation issues. All participants will be asked to present and record their stories and examples to the small groups. Some of the stories and examples from the small groups will be presented to the larger workshop group.

All stories and examples will be added to the visual template/grid of themes and impacts for safety management, knowledge and skills transfer, interventional programs and public policy.

There will be a focus on LMIC cultural issues and the opportunity and challenges that this creates for implementation of effective community programs. This will have relevance to HIC participants due to global human cultural mobility.

Explore the definition of culture beliefs:

1. the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generations
2. the customary beliefs, social forms, and material traits of a racial, religious, or social group; also : the characteristic features of everyday existence (as diversions or a way of life) shared by people in a place or time.
3. the set of shared attitudes, values, goals, and practices that characterizes an institution or organization.

WHO/UN statements about cultural belief in the context of behavior, health improvement and civil society

Introduce the grid that we develop in advance of the workshop with possible themes, socioeconomic (LMIC/HIC), opportunities/challenges, impact and other axis.

Smaller group sessions to get the participants stories and examples on the record and discussions that are framed on awareness, opportunities/challenges and impact on education, programs and policy.

Do a short activity on organizational cultural awareness. Participants are small grouped to do through provided cases of cultural issues. Participants will role play and reflect on how they would respond to embrace and value, accept, tolerate, ignore and reject cultural diverse issues and their presenters.

Bring back to the full workshop group the report from each small group with one or two stories/examples. Place the content from the small groups on the template/grid and or reform or recreate the grid to be more inclusive and complete for the new learning from the workshop.

We will share the improved and more complete template/grid with the participants and the conference. (via email)

Update Utstein Template for Drowning Research

N. N.

This workshop seeks peer review comments and other suggestions on the Update of the Utstein Template for Drowning research. The revised template has been established during a two-round Delphi procedure and an invitational conference on October 19th in Potsdam.

At the World Congress on Drowning (Amsterdam, 2002) the first Utstein template for drowning research was established as a tool to support and structure drowning research. The template was published in *Circulation and Resuscitation* in 2003 and since then has been indexed over 80 times in the Web of Science and referenced over 300 times according to Google. Also, numerous drowning resuscitation studies have used the Utstein template for drowning. After 10 years, the Utstein template needed to be brought up to date to include experiences of researchers who have used the template, recent developments in resuscitation guidelines, and insights from increasing knowledge of drowning resuscitation. For these reasons a consensus process was started in May 2013 to update the Utstein template for drowning. The process consisted of a two-round Delphi procedure and an expert meeting in Potsdam on October 19th 2013, just before the WCDP2013. Twenty five experts were invited to participate, including representatives of international organisations in the field of resuscitation (such as International Liaison Commission on Resuscitation, European Resuscitation Council, American Resuscitation Council, Australian Resuscitation Council); several representatives of the international lifesaving community (International Life Saving Federation, International Red Cross and Red Crescent); authors of publications that have used the Utstein style; and participants of the process that generated the first template, as far as they are still active in this area.

The session Update Utstein Template for Drowning Research has been organised at the WCDP2013, immediately after the expert meeting, with the aim to get active input from the lifesaving community. The session starts with a brief introduction of the first Utstein template on drowning resuscitation and a summary of the studies using the Utstein format between 2002 and 2012. In addition, the outcome of the consensus process will be presented. Most important, will be the discussion with the audience. The input from this discussion, and a second discussion at Resuscitation2013 in Krakow on October 25th, will also be included in the final report and publications of the revised Utstein for drowning research.

The most-unwanted outcome: brain damage after successful drowning resuscitation. What does it mean, what can we do to prevent this.

M.D. David Warner

This session focuses on post-resuscitation brain damage after drowning. The session is intended to increase awareness on different aspects of the issue: importance of prevention, need for optimal rescue and resuscitation techniques, limited knowledge on post-resuscitation treatment, options to improve post-resuscitation treatment, and human factors for the family and those who have been trying their best to achieve the rescue and resuscitation.

The panel will begin with a brief introduction to brain physiology so as to demonstrate why the brain is especially sensitive to lack of oxygen. The brain has an exceptionally high oxygen demand. Loss of oxygen delivery leads to loss of function within 30-60 seconds. This state remains reversible, but as the duration of anoxia increases neurons and glia lose their ionic gradients leading to dis-regulated neurotransmitter release, loss of intracellular organelle function, and initiation of cell degradation processes. Specific regions of the brain are more sensitive than others and injury in these regions is recruited as the duration of anoxia increases. Resultant neurologic deficits are associated with the distribution of brain injury.

The second presentation will focus on acute care and prognosis in post-anoxic coma. Patients are treated with mild hypothermia admitted to the intensive care unit after cardiac arrest. Hypothermia diminishes secondary or reperfusion damage of the myocardium and brain. Despite this treatment, 50% of these patients have a poor outcome, mainly due to post-anoxic brain injury. When patients remain in coma after clearance of sedative drugs, diagnostic tests are performed to predict outcome. If these tests show that the outcome will be poor, in many countries treatment is withdrawn. It is therefore important to use reliable diagnostic tests.

The third presentation will present data from a German study on a long time follow up of drowning victims. Additional data will be provided on long-term sequels of anoxic brain injury.

In 2011, the Maatschappij tot Redding van Drenkelingen (The Society to Rescue People from Drowning) convened a panel of experts in treatment of anoxic brain insults. This led to consensus recommendations for management of brain insults associated with drowning (attached). The recommendations were derived from systematic literature reviews, consensus agreement, and published (Topjian et al. *Neurocrit Care* 17: 441-67, 2012). Highlights of these recommendations will be presented.

Finally, we will have opportunity to hear from a father of a child who sustained severe brain injury, despite a „successful resuscitation“ as a result of a drowning accident.

The goal of this session is to provide current knowledge to non-medical persons regarding how the brain responds to loss of oxygen, optimal emergency and acute management of the comatose victim, long-term prognosis when brain injury occurs, and the reality of survival. It is hoped that this session will serve to emphasize the critical importance of prevention and rescue as the first lines of defense against drowning-induced brain injury



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