



ICE-SAR

# EU | SAFETY 2023

REYKJAVIK 5-6 OCTOBER

## Mind the Gap

Putting injury prevention  
research into practice

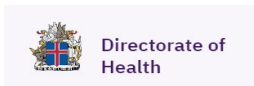


# ABSTRACT BOOK





Government of Iceland  
Ministry of Health



## INTRODUCTION

# Preface: Welcome to EU-Safety 2023

We are pleased to announce the continuation of the European Injury Prevention Conference series, which will be held in Reykjavik in October 2023. This prestigious conference series has been consistently organized with great success by EuroSafe over the past several decades. This year, EU-Safety 2023 is being organized in collaboration with the Icelandic Association for Search, Rescue & Injury Prevention (ICE - SAR) and is co-sponsored by the Government of Iceland, Ministry of Health. The theme for this year's event is "Mind the Gap - Putting Injury Prevention Research into Practice." A significant number of unintentional injuries stem from traffic accidents and falls, while intentional injuries often involve violence and physical assaults. Implementing interventions to prevent various types of injuries is crucial to ensuring the safety of individuals within their communities, whether it's in their homes, workplaces, or wherever life takes them.

The conference will cover a wide range of topics, including safe communities, sports and recreational safety, home safety (with a focus on falls among senior citizens), child and adolescent safety, road safety, vulnerable road users, injury surveillance, research and evaluation methods, consumer safety and legislation, water safety, and drowning prevention.

This conference will serve as a gathering point for leading European stakeholders in research, policy, and practice in the field of accident and injury prevention. Dialogue and collaboration among European nations are essential for enhancing safety across the continent. Therefore, this conference plays a crucial role in providing training and networking opportunities for injury researchers and safety promotion practitioners from all over Europe.

We extend our warmest wishes for an engaging conference and a delightful stay in Reykjavik.

**Errol Taylor** — Eurosafe

**Otti Rafn Sigmarsson** — Chairman of the ICE SAR board

On behalf of the Organising Committee EU-Safety 2023

The series of EuroSafe bi-annual conferences takes place in the EU/EEA region and is hosted in rotation by EuroSafe members.

# Icelandic association for search, rescue & injury prevention (ICE SAR)

Independent associations have an extensive role in prevention and rescue work in Iceland. Thousands of volunteers dedicate themselves to work for the ICE-SAR rescue teams, injury prevention teams and youth sections. Their joint mission is to prevent accidents and save human lives and valuables. In order to fulfil that role, there are groups of volunteers always available, night and day, year round.

## Over 100 years of history

The origins of ICE-SAR can be traced to 1918. The first rescue ship; the first rescue helicopter; pioneers in traffic safety matters; the Ships Reporting Duty; the Maritime Safety and Survival Training Centre; these are only a few of the accomplishments that ICE-SAR and its parent associations have achieved - for the benefit of all Icelanders. The Icelandic Injury Prevention Association and The Icelandic Search and Rescue association were merged in 1999.

## Search and Rescue

The ICE-SAR rescue teams number about 100, within, there are thousands of people who are always available when needed. The professionalism that characterizes the work of Icelandic rescue teams has brought worldwide attention.

## Injury Prevention

Within ICE-SAR there are more than 30 injury prevention teams promoting safe community's all around the country. Authoritative educational and publishing work, alongside various nationwide projects, characterizes the injury prevention operation of ICE-SAR. A range of issues are often involved here, such as injury prevention of children, the elderly, traffic, prevention of drowning, home and community. Developing educational material for prevention in schools is a part of the operation of ICE-SAR.

## Youth Groups

Within the youth sector of ICE-SAR many teenagers have found their longing for action channeled into healthy, interesting and uplifting work. By doing this, the teenagers become acquainted with the work of the rescue teams and injury prevention teams. ICE SAR has 48 youth groups located around the country.

## The Maritime Safety and Survival Training Centre (MSSTC)

The Maritime Safety and Survival Training Centre (MSSTC) is owned by ICE-SAR. The Centre was established in 1985. The mission of the MSSTC is to hold courses for working and future seafarers on safety and rescue issues at the country's main shipping locations and to provide safety and injury prevention education for students in ship management and engine management.

## Safetravel, Injury prevention in tourism

Safetravel is the official source for safe travel in Iceland and the project is run by ICE-SAR. On the website [www.safetravel.is](http://www.safetravel.is) you can find weather updates and warnings as well as general guidelines for travel and safe adventure in Iceland. Information screens can be found in many places around the country.

# Program

## Members of the Program Committee

(In alphabetical order)

<b>Chair: Robert Bauer</b>	Chairman Program Committee, KfV, Vienna, Austria
<b>Dritan Bejko</b>	Directorate of Health (LIH), Luxembourg
<b>Eva Jakobson Vaagland</b>	Norwegian Safety Forum, Oslo, Norway
<b>Gabriele Ellsäßer</b>	Public Health expert, Berlin, Germany
<b>Hanna Kettunen</b>	National Inst. for Health and Welfare (THL), Helsinki, Finland
<b>Laurent Malisoux</b>	Luxembourg Institute of Health (LIH), Luxembourg
<b>Mari Leppänen</b>	UKK Institute, Research Center of Sports Medicine, Tampere, Finland
<b>Mirjam Bächli</b>	Beratungsstelle für Unfallverhütung (bfu), Switzerland
<b>Nathan Davies</b>	Royal Society for the Prevention of accidents (RoSPA), UK
<b>Peter Spitzer</b>	SafeKids Austria, Child Injury Research Center, Graz, Austria
<b>Susanne Nijman</b>	Consumer Safety Institute, Amsterdam, the Netherlands
<b>Svanfrídur Lárusdóttir</b>	Icelandic Association for Search, Rescue & Injury Prevention (ICE-SAR), Iceland
<b>Tatiana Alves</b>	National Institute of Health (INS), Lisbon, Portugal

# EU-SAFETY 2023 PROGRAMME

## Wednesday - 4th October

14:00 -	<b>Business</b>	Eurosafe Board Meeting (closed meeting)	Room	Errol Taylor, ROSPA
16:00	<b>Meetings</b>	IDB Network meeting (open meeting)	Home 3	Robert Bauer, KFV

## Thursday - 5th October

### Registration

9:00 -	<b>Opening</b>	Guðni Th. Jóhannesson, President of Iceland	Room	Errol Taylor, ROSPA
9:45		Willum Þór Þórsson, Minister of Health in Iceland	A&B	Caroline Lefort, ICE-SAR
		Alma D. Möller, Director of Health in Iceland		

### Break 1

10:00 -	<b>Plenary 1 &amp; 2</b>	<b>Plenary 1:</b> Sólveig Þorvaldsdóttir, ICESAR, Disasters Response and Prevention	Room	Errol Taylor, ROSPA
10:45		<b>Plenary 2:</b> Marjolein Versteeg, CSI, From behavioural research to behavioural change	A&B	Caroline Lefort, ICE-SAR

### Break 2

11:00 - 11:45	<b>Parallel Session 1, 2</b>	<b>Safety promotion, Safe communities 1</b>		Room A	Eva Jakobson Vaagland Elizabeth Lumsden
		Teija Mankkinen	The Finnish planning model for civil protection and accident prevention services - capability driven approach as a tool for improving quality of the services		
		Ana Domínguez Pachón	"Angels of proximity", "Available response" and "First -intervention training". Emergency response training projects		
		Namsoo Park	The effect of a community-based injury prevention program using synthetic control method		
		Laura Kuurne	The impact of ageing populations on regional fire safety risks		
		<b>Sports and recreational safety 1</b>		Room B	Laurent Malisoux Mari Leppänen
		Lisa Schiemenz	Safety and sports accident prevention in club sports at the municipal level		
		Kielo Kestinnmäki	Report on horse riding accidents		
		Alessio Pitidis	Gender differences in skiing accidents in Europe: a 2008–2020 analysis of the EU Injury DataBase		
		Karin Klein Wolt	Developing and implementing VoetbalFit: an exercise-based injury prevention program in football based on FIFA 11+		

### Lunch

13:00 - 13:45	<b>Parallel Session 3, 4, 5</b>	<b>Safety promotion, Safe Communities 2</b>		Room A	Eva Jakobson Vaagland Carlene McAvoy
		Andreia Costa	Individual and environmental factors that promote active aging in older people		
		Hanna Kettunen	Safety at All Ages – Injury prevention in Finland		
		Eila Lindfors	Prevention and preparedness as parts of school safety culture in Finnish comprehensive education		
		Tiina Etelälahti	Prevention of Incidents and Accidents in Finland – performance measures and indicators in different operating environment		
		<b>Sports and recreational safety 2</b>		Room B	Laurent Malisoux, Mari Leppänen
		Michael Nader	From research to action: Implementation of a braking assistant for sledges as a new safety tool to prevent sledging collisions		
		Robert Bauer	Automated evaluation of sports accident reports		
		Giuseppi Andreana	Risk assessment as a preventive approach for health and safety management in the Italian swimming pool		
		Óscar Del Castillo Andrés	Application of the Judo-based programme, Safe fall-Safe schools, for the proactive teaching of falls in adolescents.		
		<b>Home safety 1</b>		Room H	Mirjam Baechli Helga Pálsdóttir
		Dave Shea	Home Safety in Scotland		
		Dave Shea	The Home Safety Map		
		Saara Aakko	The work of the multisectoral network in injury prevention in Finland		
		Nino Chikhladze	Falls related hospitalization among elderly in Georgia: three years trend		

**Break 3**

14:00 - 14:45	<b>Parallel Session 6, 7, 8</b>	<b>Child and adolescent safety 1</b>		Room A	Peter Spitzer Sigrún Jónatansdóttir
		Elizabeth Lumsden	Listening to children and young people		
		Ruth Beer	OUUPS! a national Campaign for Child-Injury-Prevention in Switzerland		
		Veerle De Vlieghe	Make childcare as safe as necessary with a method that includes children's needs		
		Karin Klein Wolt	Prevention without boundaries: the successful adoption and implementation of a foreign behaviour changing program		
		<b>Road safety – Vulnerable road users 1</b>		Room B	Gerald Furian Robert Bauer
		Kristian Kjærgaard	Variation in traffic incident settings – same implication of police and hospital-based traffic injury data?		
		Orla Fahey	Road Safety and the Pedestrian (Vulnerable Road User)		
		Uta Meesmann	The ESRA initiative: global network on monitoring road safety		
		<b>Home safety 2</b>		Room H	Mirjam Baechli Hanna Kettunen
		Laura Kuurne	The overall picture of stove fire incidents in Finland		
		Tarja Ojala	Obligation to report as a tool for accident prevention in Finland		
		Claire Ford	Exploring the feasibility of virtual reality to support falls awareness education in care homes.		
		Emma Stanmore	Implementing a Digital Falls Prevention Program (KOKU) for Community Dwelling Older Adults		

**Break 4**

15:00 - 15:45	<b>Parallel Session 9, 10</b>	<b>Child and adolescent safety 2</b>	Room A	Peter Spitzer Sigrún Jónatansdóttir	
		Elisabeth Fanning	The ups and downs of trampolining – keeping fun high and risk low		
		Tatiana Alves	Unplanned emergency department attendances in children due to falls in Portugal: home and leisure accidents data surveillance		
		Lhara Mullins	Creating supportive environments: Reducing challenging behaviour and enhancing safety for autistic children		
	Svetlana Cociu	Home-related injuries among children under 12: parents' knowledge, attitude, and practice in the Republic of Moldova			
		<b>Road safety – Vulnerable road users 2</b>	Room B	Gerald Furian, Robert Bauer	
	Marjolein Versteeg	ReCycling injury data: using a behavioural science approach to minimize cycling under the influence of alcohol			
	Kelli Kulikova	E-scooters as a new source of road traffic accidents related injuries			
Uta Meesmann	Children and road safety: explorative study on the perceptions of children and parents in Belgium				
Vagioula Tsoutsi	Subjective and Objective Evaluation of Driving Behaviour in Depression				

**Break 5**

16:00 - 16:45	<b>Plenary 3 &amp; 4</b>	<b>Plenary 3:</b> “The European Injury Database Network”. Marco Giustini, Italian National Institute of Health	Room A&B	Eva Jakobson Vaagland Elizabeth Lumsden
		<b>Plenary 4:</b> “The EUPHA Injury Section – Mission, priorities and current challenges in injury prevention and safety promotion”. Maria Papadakaki, President of Injury Prevention and Safety Promotion Section, European Public Health Association (EUPHA)		

**18:00 Reception at Reykjavik City Hall****Friday - 6th October**

08:30 - 10:00	<b>Parallel Session 11, 12, 13</b>	<b>Safety promotion, Safe Communities 3</b>	Room A	Jón Þór Víglundsson Svana Lárusdóttir	
		Anni Pietarinen	Holistic Well-being as Core for Safety to All		
		Eva Vaagland	Turning Friday 13th into a day for injury prevention and safety promotion		
		Dave Shea	Climate Change & Community Safety		
		Matthias Kroepe	How experiential learning can help to conquer the top critical risks at construction sites		
		Luboš Kotek	Learning from Accidents - Analysis of Applicable Models		
		Kristián Slašťan	Occupational health and safety procedures for firefighters to use car fire blankets in Slovak Republic		
	Katarina Holla	Innovative training in OSH and disaster management			
	Samuel Kockar	Results of a survey on risk assessment in the Slovak Republic among small and micro enterprises			
		<b>Injury surveillance, research and evaluation methods</b>	Room B	Susanne Nijman Helga Pálsdóttir	
	Tamar Chachava	Assessment of Road Traffic Injury Data Collection and Management System in Georgia			
	Alena Ďaďová	Risk assessment with an application in the OiRA web platform for small and micro enterprises.			
	Alan Cook	Improved Injury Severity Model for Global Benchmarking Initiatives			
	Alessio Pitidis	Machine Learning techniques for the prediction of risk of hospital admission from injuries			
Svetlana Cociu	A hospital-based trauma registry in the Republic of Moldova - Findings from a 1-Year Study				



08:30 - 10:00	<b>Parallel Session 11, 12, 13</b>	Irina Cucu	Workplace violence against resident doctors before and during the COVID-19 pandemic - Results using secondary data analysis		Room H	Tatiana Alves ICE SAR	
		Karin Klein Wolt	From research to practice: results of the implementation of a regional based injury registration system				
		Diana Nemes	Exploring Childhood Injuries in Low- and Middle-Income Countries from Eastern Europe: piloting an Injury Registry				
		<b>Consumer safety, Safety legislation</b>					
		Mervi Murtonen	Cooperative Regulatory Approach to promote consumer safety and injury prevention in leisure services				
		Andreas Stoeckl	Hazardous product detection based on online customer reviews using large language models				
		Alexandra Kuhnelt-Leddihn	Welcome to the other side of consumer product safety				
		Maria Cruz Arenas Motilla	SAFEorFAKE? Toolkit for educating and raising awareness on the risks of counterfeit toys				
		Evi van Moll	Why do so many DIY accidents occur? An exploratory study of underlying causes of consumer accidents involving machines and ladders				
		Monica Steiner	Are flameless LED tea lights a safe alternative to real tea light candles?				
Herdís Storgaard	Safe Sleeping in product design						

**Break 6**

10:15 - 11:45	<b>Parallel Session 14, 15, 16</b>	<b>Child and adolescent safety 3</b>			Room A	Helena Magnúsdóttir Helen Ástþórsdóttir
		Peter Spitzer	Keep Your Eyes Open: A Traffic Safety Trilogy for Children			
		Marjolein Versteeg	Adolescent's risky behaviour - Trampoline accidents			
		Catherine Perez	Effectiveness of the Safe Routes to School program ("Camí Escolar, Espai Amic") in reducing pedestrian injuries: a quasi-experimental study			
		Brita Somerkoski	Safe school? Introduction to the assessment of safety culture at comprehensive schools			
		Diana Dulf	Secure the bridge from fundamentals to sustainability on children car passenger safety in Cluj-Napoca, Romania			
		Diana Dulf	The Child Car Safety App – promoting child passenger safety to parents			
		Eva E. van Zoonen	The risks of scalds due to boiling water taps in children under 5 years of age			
		<b>Road safety – Vulnerable Road users 3</b>			Room B	Jón Þór Víglundsson Arna B. Arnarsdóttir
		Tamar Chachava	Impact of the COVID-19 pandemic on the epidemiological characteristics of the hospitalized patients due to road traffic crashes in Georgia			
Marco Giustini	Alcohol related road traffic accidents in the European Injury Data Base					
Birute Strukcinskiene	Road traffic injury mortality trends in children and teenagers over two decades in Lithuania					
Jens Lauritsen	Development and clinical implementation of a standardized car-driving simulator for traffic victim patients in an orthopaedic outpatient clinic					
Christoph Praschl	Assessment of Wildlife Accident Risk using a Drone-based Population Monitoring System					
Artashes Tadevosyan	Assessment of pre-medical acute care provided by eyewitnesses to victims of road traffic accidents					
Chun Chieh Chao	Overtaking, Rear-end, and Door Crashes Involving Cyclists on Segments in the UK: New Insights					

10:15 - 11:45	<b>Parallel Session 14, 15, 16</b>	<b>Water safety and drowning prevention</b>		Room H	Tatiana Alves, Birna M. Þorbjörnsdóttir
		Detlev Mohr	Drowning Prevention in Europe		
		Carlene McAvoy, James Sullivan	Scotland's Drowning and Incident Review		
		Monica Steiner	Impact of COVID-19 Pandemic on Swimming Practice and Skills in Austria		
		María Rodríguez Martínez	Typology of injuries that occur in lifesaving		
		Roger Sweeney	Smart Ring Buoys - new high-tech sensors that curb theft and vandalism of rescue equipment in Ireland		
		Roger Sweeney	Preventing Injury through Promotion – an Irish perspective on World Drowning Prevention Day		
		Roger Sweeney	Three ways that Advocacy raises public awareness to prevent aquatic injuries in Ireland		
Ivana Brkić Biloš	Trends in drowning mortality in Croatia from 2001 to 2021				

**Break 7**

12:00 - 12:30	<b>Plenary 5</b>	Hilmar Snorrason, ICE-SAR, Maritime safety		Room A	Errol Taylor, ROSPA Svana Lárusdóttir, Ice Sar
		Wrap Up, EU Safety 2025, Farewell			
12:30 - 13:00					

**Lunch****POST Conference - Injury Prevention in Tourism**

14:00 - 14:45	<b>Session 1 &amp; 2</b>	Guðbrandur Örn Arnarson	The eruption in Reykjanes Peninsula - Access Control and Injury prevention	Room A	Ingunn Ósk Árnadóttir
		Þuríður Halldóra Aradóttir Braun	Visit Reykjanes Iceland		
		Birna Þorbjörnsdóttir	Safetravel.is - Tools and methods	Room B	Kristín Jóna Bragadóttir
		Árdís Jónsdóttir	Safetravel app - Technology to increase safety for travelers		
		Ingi Bergþórsson	Strategies to Prevent Accidents while driving car rental in Iceland		

**Break**

15:00 - 15:45	<b>Session 3 &amp; 4</b>	Gunnar Geir Gunnarsson	Traffic Safety of foreign Tourists	Room A	Unnur K. Valdimarsdóttir
		Arnar Már Ólafsson	Icelandic Tourist board		
		Jóhanna Katrín Þórhallsdóttir	Safety issues and injury prevention in national parks	Room B	Birna María Þorbjörnsdóttir
		Haukur Herbertsson	Incident on Langjökull Glacier 2020		

**19:00****Conference Dinner at the Hilton Nordica**

# Opening of the 11th European Conference on Injury Prevention and Safety Promotion

THURSDAY 05. October 2023 - 09.00

## Guðni Th. Jóhannesson, President of Iceland



Before taking office as President in 2016, Jóhannesson was Professor of History at the University of Iceland. He had previously taught at the University of Iceland, Reykjavik University, Bifröst University and at the University of London. As an academic, his focus of research has been on the formation of Iceland's foreign relations, constitutional matters, and contemporary history.

## Alma D. Möller, Director of Health in Iceland



Alma is a doctor, with a specialist degree and a PhD in anaesthesia and intensive care. She also has a specialist degree in health care administration and a masters degree in public health and administration. Further, she has a diploma degree in public administration. Alma was clinically active until she took on the current office as the Director of Health in 2018, the first woman in then its 258 years history. She has previously worked at the University Hospital in Lund Sweden and as a chief of both Anaesthesia and Intensive Care at the Landspítali University Hospital in Reykjavík.

## Willum Þór Þórsson, Minister of Health in Iceland



Willum Þór Þórsson is a former football player and manager and politician. Since 2021 he has served as the Icelandic Minister of Health. From 2013 to 2016, he served on the Althing, the Icelandic parliament, for the Progressive Party, and is currently a member of parliament since 2017. He holds a Master's degree in Microeconomics from the University of Copenhagen and used to teach economics.

## Plenary 1

THURSDAY 05. October 2023 - 10.00



### Disasters Response and Prevention

**Sólveig Þorvaldsdóttir, Iceland**

Dr. Sólveig Þorvaldsdóttir is a consultant with Rainrace. Civil engineer, MS in earthquake-risk engineering, and PhD in Disaster Management System Design. Member of ICE-SAR since 1979. Team Leader of ICE-SAR international USAR team. Former director of the Icelandic National Disaster Management Agency. Member of UNDAC since 1999. FACT member since 2004. Responded to disasters in seven countries. Member of the INSARAG Information Management Working Group. Co-writer of the revised INSARAG Coordination Handbook.

## Plenary 2

THURSDAY 05. October 2023 - 10.30



### From behavioral research to behavioral change

**Marjolein Versteeg, Nederland**

Marjolein Versteeg, PhD, is a researcher at the Consumer Safety Institute, the Netherlands. Her areas of expertise include behaviour change, business intelligence (PowerBI), and various quantitative and qualitative research methods.

## Plenary 3

THURSDAY 05. October 2023 - 16.00



### The European Injury Database Network

**Marco Giustini, Italy**

Marco Giustini is an Epidemiologist. Researcher at the Italian National Institute of Health (ISS). I worked in the Environmental and Social Epidemiology Unit of the ISS, dealing with injury prevention and control. Authors of 36 scientific papers (H-Index 17) and scientific manager of 5 projects at national and international levels, currently I manage the European Injury Database, the surveillance system (hosted by ISS) based on injury attendance at Emergency Department



## Plenary 4

THURSDAY 05. October 2023 - 16.30



**“The EUPHA Injury Section – Mission, priorities and current challenges in injury prevention and safety promotion”.**

**Maria Papadakaki. Crete**

Dr Maria Papadakaki is an Associate Professor at the Department of Social Work, Faculty of Health Sciences, Hellenic Mediterranean University. She obtained a first degree in Social Work, holds an MPH and a PhD from the Faculty of Medicine. She is the President of Injury Prevention and Safety Promotion Section of the European Public Health Association (EUPHA) since 2020 and an Advisory Board member of the European Forum for Primary Care (EFPC) since 2021. She has been the Director of the Laboratory of Health and Road Safety (LaHeRS) since 2015 and the President of the Gender Equality Committee (GEC) of the Hellenic Mediterranean University since 2022.

## Plenary 5

FRIDAY 06. October 2023 - 16.30



**Maritime safety**

**Hilmar Snorrason, Iceland**

Hilmar has been the principal for the Maritime Safety and Survival Training Centre in Reykjavik, Iceland and also as the captain of the training vessel SÆBJÖRG to present day's. From August to December 2003 he was ICEIDA consultant at the Namibian Maritime and Fisheries Institute on safety training of fishermen. He has teachers education from the University of Iceland and Diploma in Helath and Safety in Ship Operation from Maritime Training Academy, University of Portsmouth.

The Maritime Safety and Survival Training Centre (MSSTC) is owned by Icelandic Association for Search and Rescue (ICE-SAR). The Centre was established in 1985. The Centre runs short courses for seafarers. Majority of trainees are fishermen. The MSSTC is located onboard the training vessel SAEBJORG (a former ferry) which is located in Reykjavik during wintertime but sails around the coast of Iceland with courses during the summertime. Safety training is required for all seafarers registered on board Icelandic vessels.

The origins of ICE-SAR can be traced to 1918, when the Westman Island Rescue Team was established. The first rescue ship; the first rescue helicopter; pioneers in traffic safety matters; the Ships Reporting Duty; the Maritime Safety and Survival Training Centre; these are only a few of the accomplishments that ICE-SAR and its parent associations have achieved – for the benefit of all Icelanders.

# Safety promotion, Safe Communities 1

## Parallel Session 1

THURSDAY 05. October 2023 - 11.00



## The Finnish planning model for civil protection and accident prevention services – Capability driven approach as a tool for improving quality of the services



### Teija Mankkinen, Finland

Dr Teija Mankkinen is Ministerial Advisor in the Ministry of the Interior, Finland, at the Department of Rescue Services. She is responsible for national coordination of research and development. In addition, she has various work tasks related to strategical planning, data management and evaluation. Her dissertation in sociology dealt with firefighters' identity discourses (Firefighters' work as a profession and as a way of life, only in Finnish).

At the beginning of 2023, Finnish Civil Protection was reformed. In the reform new administrative layer, so called wellbeing service counties, was established. The wellbeing service counties and City of Helsinki are responsible for organizing civil protection, but also healthcare and social welfare services. The wellbeing service counties receive their funding from the State Budget, so strategic guidance and direction of the state was strengthened significantly. One objective of the reform was developing a nationally uniform system and harmonized services. In order to achieve the objective, the new planning model for civil protection (based on capability driven approach), was developed. The presentation focuses on describing the experiences of the Finnish Civil Protection planning model, especially from the viewpoint of accident prevention. In addition, it explores the possibilities to forecast future needs and services. One possible developmental aspect is to use the model in forecasting future competence needs in different scenarios. The challenge of the development process has been the lack of proper documentation. All material available has been analysed (guidance, legislation etc.), but the main working method has been the collaboration and analysis provided by Finnish authorities, stakeholders and experts. The model describes transparently the path from the analysis of operating environment to the services produced to customers. It identifies the connections between the risks and threats and rescue tasks. Furthermore, it includes the nationally defined list of common performance requirements for all rescue tasks and services. The requirements are based on capabilities and thus far, some 200 capabilities have been identified and described. The capabilities create a

national quality standard for different rescue tasks and services. In addition, the model is tightly connected to monitoring services and data collecting. The model offers a new way to understand, monitor and evaluate the effectiveness of safety and accident prevention work. It also highlights the interconnections between different rescue tasks and services, especially related to accident prevention.

Keywords: Accident prevention, safety, civil protection, capability driven approach

PO Box 26, FI-00023 Government - Helsinki - Helsinki - Finland Tiina Etelälähti, Sini Erholtz, Tommi Luhtaniemi, Teija Mankkinen, Jaana Määttä, Olli Ryhänen, Jari Soininen



### **"Angels of proximity", "Available response" and "First intervention training". Emergency response training projects**

#### **Ana Domínguez Pachón, Spain**

Ana Domínguez Pachón is a PhD Sport Science, MSc Physical Activity and Health, Education Degree and MSc High Performance in Sports, Lifeguard and first aid teacher and Lifesaving Sport Coach Level III. Sport Tecnification Director on RFESS. Chair of Drowning Prevention Commission at International Lifesaving Federation of Europe and Secretary of Drowning Prevention and Education Commission at International Lifesaving Federation

#### Introduction:

Every day in Spain there are thousands of accidents of varying severity in which anyone can be involved. In many cases, rapid intervention of those who witness the incident is vital to avoid possible consequences or even the injured person dead. However, the general public's knowledge of how to act in this type of event is very low. For this reason, knowing how to intervene in the event of an emergency situation is fundamental to increase the safety of the population and the survival rate until receive medical assistance.

#### Objectives:

To provide public workers in large municipalities with the necessary knowledge to intervene in emergency situations and to apply the protocols established in Basic Life Support and the use of the semi-automatic external defibrillator. To provide the population of rural municipalities with the necessary knowledge to intervene in emergency situations and to apply the protocols established in Basic Life Support and the use of the semi-automatic external defibrillator. To provide Federación Española de Municipios y Provincias workers with the necessary knowledge to intervene in emergency situations and to apply the protocols established in Basic Life Support and the use of semi-automatic external defibrillator. 3.Methods For development these projects, Royal Spanish Lifesaving Federation has signed a collaboration agreement with the Federación Española de Municipios y Provincias/FEMP (association that brings together 7,410 local entities throughout Spain, mainly town councils and provinces, representing more than 95% of Spanish local governments) to develop three training projects in basic life support and defibrillator use: "ANGELS OF PROXIMITY ": Aimed at public workers in municipalities with more than 20,000 inhabitants. "AVAILABLE RESPONSE": Aimed at the population of municipalities with less than 20,000 inhabitants. "FIRST INTERVENTION TRAINING": Aimed at FEMP workers. Both trainings will be given in a dual way, with a first theoretical part carried out online and a practical part carried out afterwards.

**Results:**

It is planned that three projects will be developed in 2023, so during the EU-Conference it will be possible to show participation data and impact in the Spanish society.

**Conclusion:**

Raising public awareness of the need for intervention in the event of an accident or emergency situation while the emergency services arrive is of vital importance in order to reduce the mortality rate or the severity of the after-effects on injured people.

Keywords: Basic life support, CPR, AED



## **The effect of a community based injury prevention program using synthetic control method**

### **Namsoo Park, South Korea**

Namsoo Park is a professor with a ph D. in health administration. He joined the International Safe Community movement in 2004 and is an accredited certifier now. Also, he is a network member healthy city project in Korea. He's specific interest is in injury surveillance and evaluation at the community level.

**Introduction:**

International Sace community movement was introduced in Korea as a community injury prevention and safety promotion program in 2004. It is a long-lasting project with a comprehensive and multi-level approach, so evaluating the effect is difficult. There are some evaluations on separate unit programs by injury mechanism but not community level.

**Objectives:**

This study aims to examine how residents' injury mortality varies depending on the implementation of the community-based injury prevention program with an international safe community model and to analyze the program's effectiveness.

**Methods:**

To this end, it analyzed the descriptive statistics and annual variation to understand the targeted regions' characteristics and applied the synthetic control method(SCM) to find out whether significant changes occurred before and after the designation as International Safe Community.

**Results:**

Using the control group synthesis method, the International Safe Community Project's effect on reducing the injury mortality rate was confirmed. The unintentional injury mortality rate was influenced by national policies other than local government policies, and the difference in effect between project implementation and non-execution areas was very small. However, the difference in intentional injury mortality rate according to whether or not the International Safe Community Project was carried out was significant. The intentional injury mortality rate of the treatment and control groups before the international safe community designation showed a similar trend. Still, after designation, the intentional injury mortality rate in the treatment group was significantly lower than that of the control group.

**Conclusion:**

To prevent injury to the community, it is necessary to conduct policy establishment cyclically, customize program planning and project monitoring and feedback based on local conditions, and ensure the project's sustainability. For the active participation of members, various efforts at the level of local governments should be made.



Hyupsung University - Hwaseong city - Gyeonggi province - South Korea  
Min kyoung Kim So  
Hyeong Kim



## **The impact of ageing populations on regional fire safety risks**

### **Laura Kuurne, Finland**

Laura Kuurne is a researcher in the field of public safety, with a background combining natural sciences and data science. She is currently working for The Finnish National Rescue Association (SPEK) and her research focuses mainly on accident analysis and prevention from a computer science perspective. She is also conducting research on stove fires and their causes based on statistics, both from emergency services and insurance companies' point of view.

Changes in the age structure of the population pose challenges to many areas of society, such as public finances, social and health service needs, infrastructure and society's systems and practices in general. In Finland, due to low birth rates and increased life expectancy, the proportion of older people in the population is increasing. Preparations have been made for the change in the age structure in different administrative sectors, but the impact of the changes on accidents, such as home fires, has not been studied in Finland.

According to previous studies, elderly people are at a higher risk of being injured in fires. Limited capability to function may reduce the ability to react in the event of a fire and compromise the evacuation safety. As the age dependency ratio of the population weakens, the number of older people living at home can be expected to increase. The Finnish National Rescue Association conducted a study on the impact of ageing populations on regional fire safety risks (2022). The impact of different age groups on the prevalence of building fires was studied using supervised machine learning methods and spatial data on age structures and building fires from 2008 to 2020. The analysed data include age data and a geospatial grid from the Statistics Finland and accident information from the fire and rescue service's official register of incidents. In addition, the regional impact assessment utilised open data on the key figures of municipalities by the Statistics Finland's from 1987-2021.

The results indicate that people over 70-years of age, as well as young adults (20-29 y. o.), are more susceptible to building fires than other age groups. According to the official population projection for the whole country, the number of elderly people will increase 10 % in next 50 years. There are large differences in the demographic structure between different municipalities. As the number of elderly people increases, it is likely that people will live home longer in the future, considering the weakening of the age dependency ratio and its possible impact on, for example, the resources of nursing homes. Therefore, there will be a need for more fire-safe housing solutions that are achievable regardless of the socio-economic situation. The risk of fire can be reduced, for example, with technical solutions, such as a safer stoves or stove safety devices.

Keywords: Home safety, community safety, fire safety

The Finnish National Rescue Association - Helsinki - Uusimaa – Finland

# Sports and recreational safety 1

## Parallel Session 2

THURSDAY 05. October 2023 - 11.00



## Safety and sports accident prevention in club sports at the municipal level



### Lisa Schiemenz, Germany

Lisa Schiemenz completed her masters's degree in management at Ruhr University Bochum. Her main focus were sports sociology and corporate health management. Since 2019, she is working at Stiftung Sicherheit im Sport and is qualified to examine playgrounds (DIN 79161), sports facilities and sports equipment. Since her youth, she is working as a fitness instructor and yoga teacher.

Development of a concept with measures for "safety and sports accident prevention in club sports at the municipal level" in sports organizations and municipalities in NRW, Germany

### Introduction:

Sport and exercise are healthy and worth promoting. The positive effects, e.g. in terms of health, prevention, social behaviour, integration and quality of life, are well recognized. Every year, around 400,000 sports accidents occur in the state of North Rhine-Westphalia, Germany. To counteract this, the federal state government supported this project and thereby took on a pioneering role throughout Germany and initiated an important first step towards a more professional sports accident prevention - leading the way for other federal states in Germany.

### Objectives:

The goal was to develop a comprehensive concept to reduce the number and severity of sport accidents, injuries, and damage in club sports in NRW. It has been running since May 2019 and has been extended several times.

### Methods:

Firstly, our scientific research (evaluation of our accident database and scientific literature research) identified the sports with the most or particularly many serious injuries as well as existing sport-specific prevention measures. Based on this, we analysed existing data and interviewed club executives, trainers, and athletes. In addition, several sports facilities were inspected. The knowledge gained up to that point was then incorporated into more than 20 sport-

specific workshops with experts. In addition, an impact and evaluation model were developed.

#### Results:

The results included numerous sport-specific "information boxes". These boxes contain target group-specific information on warming up, on specific preventive exercises, on equipment or sports facility safety. Furthermore, a guide on sports facility management was developed. It is aimed primarily at operators of sports facilities.

#### Conclusion:

Sports federations are missing not only know-how but also the resources needed to deal adequately with sports accident prevention. With the support of the Foundation for Safety in Sport, information, training, and consulting services are to be expanded. At the level of the sport clubs and municipalities, it became apparent that there a lack of basic knowledge about sports injury prevention, so the measures are aimed primarily at providing information, training, and advice to support the clubs. The challenge is to successfully integrate or address the complex structures of sport and the numerous influencing factors, stakeholders, and target groups. Long-term commitment is necessary to set up sports injury prevention in a professional manner.

Keywords: Data analysis Impact analysis Sports federations Municipalities Sports clubs



### Report on horse riding accidents

#### **Kielo Kestinmäki, Finland**

Kielo Kestinmäki works as a Senior Officer at Finnish Safety and Chemicals Agency Tukes. At Tukes, she works in supervision of consumer safety of leisure services focusing on animal activities, for example riding schools.

Kestinmäki has studied animal science and has also practical experience with horses and riding. Kestinmäki worked earlier in the Finnish Equestrian Federation.

#### Introduction:

The Finnish Safety and Chemicals Agency (Tukes) is a licensing and supervisory authority that controls and promotes the safety and reliability of products, services and industrial activities. Our surveillance covers a wide variety of topics from cosmetics to industrial plants. Tukes has a special authority group supervising the broad range of consumer services. The group executes regular inspections to consumer services, including riding schools and other horse stables. This authority group also monitors and investigate riding accidents. The primary legislation is the Consumer Safety Act which requires service providers to monitor accidents and to produce and maintain a safety document. Accidents must be reported to Tukes. In addition, the Act confers various other obligations on service providers. After a number of serious riding accidents, Tukes investigated further into the causes, consequences and prevention of such accidents. Our aim was to identify the root cause of accidents and major incidents and make preventative recommendations. Our investigation revealed that many of the accidents could have been preventable. For example, we reported that a lack of safe distancing was a major cause of horse kicking incidents.

#### Objectives:

Tukes received 136 mandatory reports from riding schools, stable owners and other related businesses during the 5 years 2017-2021. Our objective is to analyze these reports to gain deeper insights into these incidents.

#### Methods:

Tukes manages a database of all reported accidents and incidents. We use this data to identify and

classify the causes that can trigger accidents using data analytical tools. By classifying and analysing accidents according to riding area, time of the year, horse behaviour, severity of injury or injured body part, we can determine counter-measures and provide guidance to reduce such accidents in the future.

#### Results:

Our investigation revealed that the majority of accidents occurred due to the riders lack of balance. We therefore categorized accidents as a result of riders lack of balance and accidents due to horse behavior into two distinct groups.

#### Conclusion:

Although it is unrealistic to expect a zero accident rate when dealing with large and unpredictable animals, nevertheless the current rate of accidents can be substantially reduced with simple measures and further recommendations. Tukes has therefore made new recommendations to riders and also to service providers.

Keywords: Horse, riding, accident, injury, horse behavior, rider, lack of balance, preventable.  
Other info: Finnish Safety and Chemicals Agency (Tukes) - Helsinki - Uusimaa – Finland



### Gender differences in skiing accidents in Europe: a 2008–2020 analysis of the EU Injury DataBase

#### Alessio Pitidis, Italy

Alessio Pitidis is a Data Scientist. Senior Researcher at the Italian National Institute of Health (ISS). I worked in the laboratory of Epidemiology & Biostatistics of the ISS in particular in the field of injury prevention and control. Former Director of the Environment & Trauma unit of the ISS.

Actually Head of Research & Development of B2C Innovation Inc. for the development of digital services and artificial intelligence methods in the insurtech sector.

#### Introduction:

Recreational winter sports activities are widely performed in Europe, ranking among the top five causes of sports accidents. The European Injury DataBase Full Data Set (EU-IDB-FDS) is a source of information covering many details on the external causes of injury treated in Emergency Departments (ED). The FDS includes more than 477.000 ED sports injury attendances recorded in 18 European countries between 2008 and 2020.

#### Objectives:

Analyse gender differences in winter sports accidents.

#### Methods:

Ski and snowboard accidents were selected from the EU-IDB-FDS databank and analysed according to the following variables: AgeOfPatients, TypeOfInjury, BodyPartInjured, Object/product, TreatmentAndFollowUp, NumberOfDaysInHospital. Results. 18.652 ED attendances due to Ski/Snowboard accidents have been selected (M 60.6%, F 39.4%). Males were slightly younger (avg. M 28.5, F 29.9 years; p

B2C Innovation - Milan - Italy - Italy Gianni Fondi, Carlo Mamo, Marco Giustini, FDS Reference Group





## Developing and implementing VoetbalFit: an exercise-based injury prevention program in football based on FIFA 11+

### Karin Klein Wolt, Nederland

Karin Klein Wolt is a social psychologist and has been working at VeiligheidNL for more than 15 years. Karin is mostly active in the field of traffic safety, where she is working on educational programs and registration projects in order to prevent traffic accidents and injuries in the Netherlands.

#### Introduction:

In many countries football is the sport with the highest absolute number of injuries. Many effective injury prevention programs have been developed, such as the FIFA 11+ (kids) program. Nevertheless, lower extremity injuries remain a problem in football. Unsuccessful implementation might be a reason.

#### Objectives:

The project's aim was to implement an injury prevention warm-up program in amateur football (FIFA 11+) suiting the Dutch context. Methods Interviews with trainers and expert meetings were organized to optimize 11+ (kids) for the Dutch national context. An implementation plan was developed with stakeholders' input. A pilot implementation was evaluated among trainers via questionnaires and interviews using the Reach Effectiveness Adoption Implementation Maintenance (RE-AIM) model and national promotion was initiated.

#### Results:

Due to a lack of ball- and game-like exercises trainers would generally not use 11+ (kids). Based on 11+ (kids), experts developed VoetbalFit: 94 age-specific exercises focused on injury prevention and motor development. Actions in the implementation plan were integrating VoetbalFit exercises with videos in an online trainers platform (Rinus), the football association developing a vision on injury prevention / motor development for youth and promoting VoetbalFit. Pilot implementation in 2020 among 63 trainers (reach) showed trainers evaluated VoetbalFit on average with a 7.8 (effectiveness), 80% at least regularly used VoetbalFit (adoption) and 57% would keep using VoetbalFit (maintenance). Lack of time hindered using the prescribed two exercises per training (implementation). Videos at [www.knvb.nl](http://www.knvb.nl) providing background information were used for promotion.

#### Conclusions:

The 11+ program was not fully suitable for the Dutch context, therefore VoetbalFit was developed. Trainers appreciated VoetbalFit, but structural use could be improved by shortening the duration and linking exercises in Rinus to training sessions. Implementing VoetbalFit in Rinus, an already existing platform for the target group, and collaborating with partners seemed valuable during implementation. When implementing injury prevention programs, other sports associations could also consider this approach.

**Keywords:** Implementation injury sports football

**Other info:** Maaïke Cornelissen, Victor Zuidema: VeiligheidNL Joeri Houniet, Edwin Goedhart: KNVB Yordi Vermaat, Geert Savelsbergh: Athletic Skills Model Joske Nauta, Evert Verhagen, Femke van Nassau: Amsterdam UMC Frank Backx, Sander van de Hoef: UMC Utrecht

# Safety promotion, Safe Communities 2

## Parallel Session 3

THURSDAY 05. October 2023 - 13.00



## Individual and environmental factors that promote active aging in older people



### Andreia Costa, Portugal

PhD, Ms Public Health Coordinator Professor Researcher coordinator  
Experience in health policies, working in public health as head of the Division of Health Statistics and head of the Division of Programs Monitoring of the Directorate-General of Health (Portugal) Author and co-author of several scientific peer reviewed papers, including publications in scientific journals.

#### Introduction:

The proportion of people aged 65 and over has been increasing. However, the number of years lived without disease has not increased in the same proportion. In this sense, one of the great challenges is to provide active aging, that is, the development and maintenance of functional capacity that allows well-being at advanced ages. The promotion of active aging also aims the quality of life and safety of elderly people, where the ability to mobilize and its relationship with falls play a relevant role due to impact on people's lives, but it's also important to consider the role that society plays in promoting conditions for the mobility of older people. This definition calls attention to functional capacity, which is central to active aging. Functional capacity concerns physical capacity, but includes the characteristics of environment and individual's interaction with the environment in which they are integrated.

#### Objective:

The present study was developed in order to characterize the active aging of people over 65 years in Portugal and its relation with elderly safety. Methods A cross-sectional study was carried out in the Portuguese population aged 65 and over. The sample was random with national representativeness in which about 600 people participated. Data were collected through the application of a survey where socio-demographic, health, and well-being data were recorded. These data were analyzed using statistical software, with descriptive statistics and bivariate analysis results being presented. Results Study results show that 52.2% were male and that

participants had an average age of 73 years. The results also revealed that around 80% of respondents agree or fully agree that being able to walk freely without disability or physical limitation and around 90% that performing physical activity or exercise on a regular basis supports active aging. In relation to the environment, 93% agree or fully agree that participation in volunteer activities and don't feel loneliness support active aging, and 95% agree or fully agree that participation in community activities supports active aging.

#### Conclusion:

In order to promote safety for older people it's relevant to promote safer communities that increase activities for the elderly namely physical activities and community activities. This study also reveals that a high percentage of people 65 years old refer that the ability to walk and perform physical activity are facilitators of active aging, which supports the idea of safe communities for active aging.

Keyword: Aging; Safe; Communities; Environment; Mobility



## Safety at All Ages – Injury prevention in Finland

### Hanna Kettunen, Finland

Hanna Kettunen is senior researcher at the Finnish institute for health and welfare (THL). She is specialized in safety promotion and injury prevention.

#### Introduction:

Unintentional injuries are significant public health issue in Finland. They are the fourth most common cause of death and second most common cause of treatment in specialised healthcare. About 90% of fatal injuries and 80% of injuries leading to trauma take place at home and during leisure time. This calls for national coordination of long-term injury prevention.

#### Objectives:

The Finnish home and leisure injury prevention work aims at decreasing the number of serious and fatal home and leisure injuries by 25% by 2030. The long-term goal is that no-one dies or sustains serious injuries as a result of an accident.

#### Methods:

Finland has a long tradition of target-oriented injury prevention programmes. Safety at All Ages – Programme for the prevention of home and leisure injuries was published in 2020 by the Ministry of Social Affairs and Health and it extends over a decade, until 2030. The programme contains 89 measures to prevent accidental falls, poisonings, road traffic accidents, drownings, and fires. In addition, the role of family and friends in promoting safety has been included in the programme. The measures are organised according to different age groups: children and young people (aged 0-24), working-age people (aged (25-64) and older people (aged 65+).

#### Results:

The Ministry of Social Affairs and Health leads a coordination group that oversees the programme. The Finnish Institute for Health and Welfare (THL) coordinates the implementation and monitoring of the programme together with expert groups that have been organised by types of injuries. The expert groups have been meeting twice a year to discuss implementation and co-operation around different measures. The expert groups exchange information and deepen the understanding and knowledge about preventing different types of injuries. Also, smaller “task forces” have been set up to further specific measures.

**Conclusion:**

Systematic safety promotion and injury prevention requires long-term programmes and active implementation. It also needs commitment from relevant stakeholders (e.g. ministries, expert organisations, non-profit organisations). It takes time to build networks and enhance co-operation between organisations.

**Keywords:** safety promotion policies, injury prevention, health promotion, action plan, Finland

Finnish institute for health and welfare (THL) - Helsinki - Uusimaa – Finland  
Prevention of Incidents and Accidents in Finland – performance measures and indicators in different operating environment.



### **Prevention of Incidents and Accidents in Finland – performance measures and indicators in different operating environment**

#### **Tiina Etelälahti, Finland**

Dr Teija Mankkinen is Ministerial Advisor in the Ministry of the Interior, Finland, at the Department of Rescue Services. She is responsible for national coordination of research and development. In addition, she has various work tasks related to strategical planning, data management and evaluation. Her dissertation in sociology dealt with firefighters' identity discourses (Firefighters' work as a profession and as a way of life, only in Finnish).

**Introduction:**

Fire and Rescue organizations in Finland have responsibility to prevent incidents and accidents in addition to incident related rescue tasks and services. The main objective is to reduce and manage risks and mitigate the amount of damage. To implement this task, rescue organizations provide different services to residents, local authorities and communities. There has not been unified way to measure performance nor quality of these different services. The main reason has been the lack of concurrent planning model, which would take account also local operating environment. At Finland, new legislation reform has taken place at the beginning of 2023 and the rescue services tasks are now defined more consistently than before. New legislation and implementation of capability-driven planning model gives new possibilities to construct performance and quality measures of the services.

**Objective:**

This study addresses the Finnish planning model for rescue services and is focused on prevention of incidents and accidents -task and related services. The main aim of the study is to define useful performance measures and indicators using national viewpoint. The secondary aim is to make preliminary conclusions of the compatibility of the indicators from three perspectives: the need of services, service performance indicators, effectiveness and long-term impact. The planning model structure is based on capability driven approach, which also enables anticipation of future needs and quality of services.

**Methods:**

The study is based on data from the Statistic system of Finnish rescue services (PRONTO), which is used to make area comparisons (wellbeing county). In addition, also the first preliminary inquiry data collected from wellbeing county services were used. This data is primarily used to govern and guide the rescue services at yearly basis. The data evaluation is based on the structure of capability-driven planning model and its quality contents. Results This study defines and



presents first performance and quality measures and indicators of prevention of incidents and accidents -task and related services, and their differences between regions in Finland.

**Conclusions:**

The study process has produced new information of planning model usability in different operating environment. Also, the defined indicators and measures could be used in national level guidance ja development of services. Also new approaches are suggested to evaluate service performance and quality.

**Keywords:** Prevention of Incidents and Accidents, fire and rescue services, legislation reform, indicator development, planning model, capability.

# Sports and recreational safety 2

## Parallel Session 4

THURSDAY 05. October 2023 - 13.00



### From research to action: Implementation of a braking assistant for sledges as a new safety tool to prevent sledging collisions in the Austrian Alps.



#### Michael Nader, Austria

Michael Nader is sports scientist with special interest in safety in sports. After four years as research associate at the University of Vienna, he is currently working at the Austrian Road Safety Board (KFV) in the department of sports and leisure safety.

#### Introduction:

Sledging is a popular winter sport in Austria, but its risks are often underestimated. High speeds and difficult braking on hard and icy sledge tracks lead to a high number of collisions that often cause serious injuries. In particular, collisions with fixed obstacles such as trees can result in life-threatening injuries even at low speed of 10 km/h, as shown in a computer simulation study by the Austrian Road Safety Board (KFV) and the Technical University of Graz (2020).

#### Objectives:

To reduce the number of sledging collisions, the aim was to find and implement a simple solution that enables the sledgers to brake more effectively.

#### Methods:

With a submission of a prototype of a handbrake for sledges for the KFV research award, a promising solution for shorter braking distances has been found. To evaluate the effectiveness and usability of this innovative braking system, a field test has been conducted. In a next step four sledging resorts across Austria were equipped with these new safety tools, to increase awareness of sledging area operators and their guests. Simultaneously data was collected by the use of guided interviews and a standardized online survey, in order to evaluate the roll-out.

#### Results:

The results of the field test show that sledge brake assistants can significantly reduce the braking distance of recreational sledgers. Compared to braking with only the feet, the braking distance can

be reduced by up to 50%. The surveyed sledgers rated the braking effect as well as the usability of this new safety tool well. The feedback of the sledging area operators was overall positive.

#### Conclusion:

Brake assistants enable recreational sledgers to reduce the braking distances significantly and therefore reduce the number of dangerous collisions. As the feedback of sledging area operators and the surveyed recreational sledgers was very positive, we expect that more and more winter sport resorts will invest in this new safety measure and the number of severe injuries will be reduced.

Keywords: Sledging, Tobogganing, Sledding, Brake Assistant, Hand Brake, Collisions

KFV (Kuratorium für Verkehrssicherheit) - Vienna – Austria



### Automated evaluation of sports accident reports

#### Robert Bauer, Austria

Robert Bauer is a senior researcher and project manager at KFV, working in the areas of injury epidemiology, injury data and accident statistics since 1993.

#### Introduction:

The EU Injury Database (EU IDB) was designed as a prevention-oriented data system that successfully helps to identify injury hotspots. A more difficult task, however, is to assess how many injuries of a certain hotspot could potentially be prevented by a specific measure. The broader availability of Artificial Intelligence (AI) tools offers new options for this task.

#### Objectives:

This project aimed at automatically evaluating reports of accidents that occurred during sport activities. The evaluation should lead to a summary and quantification of the effect of certain preventive measures applied to a given set of injuries. This information should eventually be available through a web application.

#### Methods:

Current methods of Natural Language Processing (language model "GPT3") were used for the automatic analysis of IDB accident reports, including an accident description and coded information according to the IDB Full Dataset standard (collected by the IDB Austria). This analysis automatically generated up to four prevention measures for each accident. Subsequently, for the essential measures identified, the proportion of accidents that could have been prevented or positively influenced by the measure was quantified using GPT3 question answering.

#### Results:

Three thousand recent accident reports were used for this evaluation. Overall, the analysis indicates that up to 30% of cases could have been prevented or mitigated by a set of six known behavioural measures: 10%, if the person had warmed up beforehand (10% "yes", 2% "unclear", 88% "no") - 8% by wearing better footwear (15% "unclear") - 7% by wearing gloves (2% "unclear") - 4% by wearing a helmet (4% "unclear") - 3% by wearing elbow and knee pads (2% "unclear") - 2% by wearing safety glasses (3% "unclear") In the presentation, further results will be presented for specific types of sport.

**Conclusion:**

The “automated evaluation tool” provides a quick insight into the preventive potential of a given set of accidents, exemplified in this study for sport accident reports as available in the IDB full data set. As the tool is open for any question, i.e., any behavioural injury prevention measure, it could prove an interesting new approach for the evaluation of prevention measures. In a next step, these results will be evaluated against empirical studies of the efficacy of the prevention measures used in this study.

**Keywords:** Sport injury prevention, GPT3, Automated text analysis

**Authors:**

Robert Bauer\*, Anna Maschek\*\*, Andreas Stoeckl\*\*, Johanna Trauner-Karner\*. \* Austrian Road Safety Board (KFV), \*\* University of Applied Sciences Upper Austria



## **Risk assessment as a preventive approach for health and safety management in the Italian swimming pool**

**Giuseppe Andreana, Italy**

Giuseppe Andreana is a researcher at the Water Quality and Health Unit of the Italian National Institute of Health.

**Introduction:**

For almost 20 years, institutions at European level have followed an approach that looks first at the dangers and not at the risk, with the aim of identifying the correct working method. From this perspective, especially the self-monitoring, designed and enforced by pool manager, plays a fundamentally important role.

**Objectives:**

In order to guarantee the safety of the bathers, the pool manager must have full autonomy in organizing his own control system. However, the system must guarantee a technical-scientific approach to ensure the effectiveness of the system itself and allow meeting the hygiene requirements established by Italian national law and those set out in the new National Prevention Plan 2020-2025.

**Methods:**

Self-monitoring is a system designed to ensure the sanitary safety of pool users by applying a combination of defined measures designed to prevent, reduce or eliminate potential hazards in the pool environment. Self-monitoring essentially aims to: - identification of all the dangers related to health and hygiene safety, potentially present in the swimming pool environment; - prevention of the occurrence of such dangers through specific preventive measures and the definition of critical points or phases to keep under control; - development of control and monitoring systems for these parameters or phases and interventions in the event of anomalies and non-compliance.

**Results:**

Recently in Italy, a new legislative proposal has been drafted to update the discipline of the swimming pool sector and regulate those aspects not yet considered in the current legislation (2003 State-Regions Agreement). The self-monitoring system for swimming pools has been confirmed in the new legislative proposal and some new requirements concerning risk assessment and management have been introduced, such as: - identification of the figure of the Pool Manager, responsible for the safety of bathers and the Manager of

technological/maintenance systems, as subjects that contribute to the safe management of the pool (in analogy with the 2003 Agreement); - strengthening the role of lifeguards in all public swimming pools including those in hotels, apartment blocks, etc. for drowning prevention; - implementation of the principles of self-monitoring in order to reduce also risks connected with the internal distribution systems, according to the article 10 of the Directive (UE) 2020/2184 on priority premises.

#### Conclusions:

The legislative proposal is currently under final review and consultation between the Italian institutional bodies.

Keywords: Recreational water, swimming pool, drowning

Emanuele Ferretti 1, Sonia Russo 2, Federica Nigro Di Gregorio 1 and Giuseppe Andrea 3  
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 3 Coordinator of Lifesaving Section - Lazio Regional Branch - Italian Swimming Federation, Rome, Italy



### **Application of the Judo-based programme, Safe fall-Safe schools, for the proactive teaching of falls in adolescents.**

#### **Óscar Del Castillo Andrés, Spain**

Óscar Del Castillo Andrés is a senior Lecturer at the University of Seville (Department of Physical Education and Sport). Commissioner of the European Judo Union in the Education Area.

Designer and Head Researcher of the Safe Fall-Safe Schools program. Currently he is responsible and coordinator of the development of the programme in Spain, Italy, Croatia, Hungary and Luxembourg. He is waiting for the grant resolution of the Erasmus+ programme (SafeFall4Schools), where he will be Coordinator of the program for Spain, Greece, Slovenia and Portugal.

#### Introduction:

The World Health Organization identifies falls as a major global public health issue. Falls are the second-leading cause of unintentional injury death worldwide, accounting for 684,000 deaths each year (WHO, 2021). It also requires finding strategies that emphasise education, training, the creation of safer environments, the prioritisation of falls-related research and the establishment of effective policies to reduce risks.

#### Objectives:

The aim of this study is to determine whether school children show a change in their protective motor responses to an unintentional backward fall after the implementation of the judo-based programme, Safe Fall-Safe School©.

#### Methods:

65 students (33 female students and 32 male students) from physical education classes of secondary schools in Andalusia, Spain, participated in the study during the course of six weeks of the 2020/21 academic year. The average age is between 12 and 17 years ( $M = 13.88 \pm 1.44$ ). The IMC obtained is  $22.57 \pm 4.87$  and in terms of academic grades the students have an average of  $7.00 \pm 1.75$ . The Andalusia Biomedical Research Ethics Committee has approved the study. The research process used was as follows (DelCastillo et al., 2018): Safe Fall-Safe School© programme pretest and posttest on 4 experimental groups. Using the INFOSECA ad-hoc observation scale,



data was gathered. Three fundamental aspects of protection were taken into consideration while observing backwards falls in a lab setting: neck flexion, using the hands to break the fall, and rolling on the back. Statistics were used in descriptive, correlational, and contrast analyses. McNemar test used the value of  $p$

Opgroeien - Brussels - Flanders - Belgium Yasmine De Mesel

# Home safety 1

## Parallel Session 5

THURSDAY 05. October 2023 - 13.00



## The Home Safety Map



### Dave Shea, Scotland

Dave is Head of National Development at the Scottish Community Safety Network (SCSN). He brings experience from eight years as a police officer in Glasgow, several years as manager of a community-centred volunteering service, and time as the coordinator of an innovative criminal justice research project. Dave has a strong interest in the human aspects of justice, rehabilitation and community engagement, and enjoys opportunities for creative collaboration and shared learning.

### INTRODUCTION & OBJECTIVE:

In summer 2021, SCSN commissioned a research literature review, exploring the factors that cause - and those that mitigate against - injury at home. The report was shared last June: <https://www.safercommunitiesscotland.org/2021/06/30/causation-factors-of-unintentional-injury-in-the-home-3/> An extract from the report's opening reveals: "Every year, there are 6000 deaths in the UK as a result of accidents in or around the home... A UK government report published in 2018 stated that accidents at home are a leading cause of preventable death for children under five years... older people are also at an increased risk of injury and death..." We don't think of our homes as hazardous places. But the evidence - backed up by findings from Public Health Scotland (PHS) and the World Health Organisation (WHO) - are clear. Injury and fatalities occur in homes, and in growing numbers. Due to the global pandemic - with shifts in society's behaviours, rituals and relationships with home - citizens are at home more of the time. Therefore, this issue has become more pressing, critical and immediate. But resources have been reduced, or redirected. So we wanted to challenge that decline; to persuade and remind, of the need for attention and action. We wanted to produce a resource that would emphasise our report's findings in an interactive, open way. We invited friends, RoSPA - and hired a talented local illustrator - to collaborate with us, to develop a unique fusion of art and data, to create a Home

Safety. Map: <https://www.safercommunitiesscotland.org/home-safety-map/>

#### METHOD:

Not a 'map' in its literal sense. And although there are no coordinates or 'X' marking a spot of riches, there are useful directions and treasures to find. We wanted to create something that helps make the subject feel alive and relatable, and reach people - ideally guardians, carers - but primarily, children and older people.

#### RESULTS:

We kept text to a minimum. We recognised that in many communities, literacy is limited (for a variety of reasons). Two of the principle demographics are the very young and very old. We wanted the map to be universally understood, without compromising effectiveness or purpose. It's also true that people, generally find it harder to connect with unsettling information. But art can help soften and make information more accessible.

CONCLUSION: We would be delighted to share our experience and findings with European safety partners.

KEY WORDS: Home; safety; innovation; prevention; awareness

## Home Safety in Scotland

**Dave Shea, Scotland**

RoSPA & SCSN are working together in Scotland to raise awareness of home safety & accident prevention. Home Safety Scotland (HSS), - a community of interest and excellence for professionals focussed on home safety meets regularly. Operating as a knowledge exchange network, promoting sharing of best practice. It offers regular opportunity to hear expert guest speakers, share problems collectively and seek solutions. Free to join, hosted by SCSN, supported by RoSPA. We have been using data to highlight that falls are a growing and major public health issue. Public Health Scotland (PHS) highlights 1 in 9 emergency hospital admissions as a direct result of unintentional injury (2,759 deaths in 2020) The young and elderly are most at risk. RoSPA's Injury pyramid for Scotland and Local Authority tables give details.

The Scottish Government funds both organisations to support community safety partnerships take preventative action, collaborate to deliver evidence-based interventions, and work across the system developing joined-up approaches. RoSPA and SCSN worked collaboratively creating a Home safety interactive map. This map illustrates research into common, avoidable hazards in homes. It highlights tragic causes of injury and death, specific to pre-school children and adults over 65. This resource is for everyone but should be of particular interest to parents and carers. We want all citizens in Scotland, to be safe and aware at home.

<https://www.safercommunitiesscotland.org/home-safety-map/>

SCSN, RoSPA and Fife Council developed the Mark McCall Home Safety Fund in tribute to a colleague. Care and Repair Lanarkshire successfully applied and were awarded the full amount to provide and install home safety equipment to households with young children. As part of the UNCRC's Right for children and young people to be heard RoSPA launched a survey to find out what types of accidents young people have been involved in and how they think the accident could have been prevented. Results of this survey are due in summer 2023. RoSPA provides Secretariat to this Cross Party Group on Accident Prevention and Safety Awareness, which has been active for 10 years. SCSN is a member. It considers and benefits from expert information on health and safety in all areas including in the home, on the road, in and around water and in the workplace. SCSN and RoSPA have increased home safety awareness across Scotland.



## The work of the multisectoral network in injury prevention in Finland

### Saara Aakko, Finland

Saara Aakko is a nurse, MHS. She is a coordinator of the Injury Prevention Network. Saara has worked in the headquarters of the Finnish Red Cross since 2016 in different positions: as a health specialist in reception centers and as a project manager in health promotion work. She has experience working in a hospital as a nurse and as a delegate of an International Delegate Reserve. Saara appreciates well-being, health, exercise and good relationships.

#### Introduction:

In Finland nearly 90% of fatal accidents and accidents that lead to injuries occur at home and during leisure time. The Finnish injury prevention multisectoral network, supported by authorities and organisations from different security fields, works to achieve a situation where Finns would not top the accident list in Europe. The network, coordinated by the Finnish Red Cross, has been improving Finns' home and leisure time safety since 1993 with different means. The injury prevention network implements the Target Programme for the Prevention of Home and Leisure Injuries 2021–2030, set by the Ministry of Social Affairs and Health.

**Objectives:** The work of the network prevents injuries by increasing people's awareness of home safety and injury prevention and influencing people's safer behavior. The long-term goal is to reduce the number of serious and fatal accidents by 25 percent by 2030 (the goal of the target program).

#### Methods:

Home and leisure injuries include different types of injuries and touch the entire population. Different target groups are communicated according to their needs. Target groups are reached through communication (web pages, social media), injury prevention materials, education, and safety campaigns: the Accident Prevention Day campaign and the 'Stay on your feet' anti-slipping campaign. The accident prevention day takes place on every Friday the 13th communicating how to prevent injuries at work, at home, and in traffic. The 'Stay on your feet'- campaign, held in January, provides tips on how to avoid slipping aiming to reduce the burden on the healthcare arising from slipping and falling.

#### Results:

The campaigns reach approximately 2 million citizens annually. The campaigns are perceived important and interesting, and their messages make people think about their own safety practices. The injury prevention material, like checklists, is widely used especially in social and health care. Professionals and volunteers are essential operators in implementing actions into practice. Volunteer Safety Coaches hold safety briefings about injury prevention to different target groups regionally, mainly elderly. Their work encourages people for a safer everyday life increasing their awareness.

**Conclusion:** The work of injury prevention network is effective reaching a wide range of people and increasing their knowledge and skills about injury prevention. Strong collaboration between different parties, various means and increasing discussions are needed to effectively reduce home and leisure injuries.

**Keywords:** home and leisure injuries, network, campaigns, injury prevention

Finnish Red Cross - Helsinki - Southern Finland - Finland



## Falls related hospitalization among elderly in Georgia: three years trend

### Nino Chikhladze, Georgia

Nino Chikhladze is professor of the Faculty of Medicine, Department of Public Health, at Ivane Javakhishvili Tbilisi State University (Georgia). Prof. Nino Chikhladze is an author of textbook and articles in the field of Injury and violence prevention. She is supervisor of PhD and Master students at TSU.

#### Introduction:

According to the WHO, annually, an average of 30% of people aged 65 and above experience a type of fall and every 5th person needs medical care and treatment. Falls are a major concern for the health care system, but limited information is regarding hospitalization trends due to fall in Georgia in the senior population.

#### Objectives:

The aim of this epidemiologic study was to explore the characteristics of hospitalized patients due to fall-related injuries in patients aged 65 and above in Georgia during three years period (2019-2021). The period includes the COVID-19 pandemic when different restrictions were applied, and more time was spent at home.

#### Methods:

All patients aged 65 and older admitted to hospital settings due fall-related injury in the period 2019-2021 were identified from the Hospital Registry of the National Center of Disease Control and Public Health (NCDC) of Georgia. Electronic hospital discharge reporting system was introduced in the country in 2014.

#### Results:

A total of 20,653 injured patients age 65 and above were admitted to hospitals in Georgia during 2019-2021, among them 66,5% (N=13,749) were hospitalized due to the falls. The highest incidence rate of falls among elderly per 100,000 population (925.9) was observed in 2019 and lowest (744.3) in 2020. The share of falls among all injury related hospitalization was highest in 2019 (n=5159; 17%) and lowest in 2020 (n=4206; 14%), while in 2021 was (n=4384; 15%). Females were more susceptible to falls injuries during all 3 years (69,6%). The higher proportion of cases was observed among patients aged 80-84 years. The hip and thigh and the head were the most common body regions injured during study period. The leading cause of fall-related hospitalization was fall on same level. Totally 362 patients died due to falls related injury (in 2019 n=136; in 2020 n=110; in 2021 n=116) with higher proportion of men (annually 3% of hospitalized patients).

#### Conclusion:

This study indicates that the falls related hospitalization decreased in 2020 followed next year by increased of hospitalization. It can be assumed that the decrease in hospitalizations was related to the Covid-19 pandemic and mobility restrictions. The upward trend again from 2021 indicates the need to strengthen fall prevention programs in the country.

**Keywords:** Injury, falls, elderly population, hospitalization

Tamar DOCHVIRI, Nato PITSKHELAURI - Ivane Javakhishvili Tbilisi State University, Faculty of Medicine, Georgia  
Corinne PEEK-ASA - University of California, San Diego, La Jolla California, United States of America  
Diana DULF - Babes-Bolyai University, Cluj-Napoca, Romania



# Child and adolescent safety 1

## Parallel Session 6

THURSDAY 05. October 2023 - 14.00



## Listening to children and young people



### **Elizabeth Lumsden, Scotland**

Elizabeth Lumsden has 28 years experience in accident prevention within RoSPA focussing on home, road and water safety. Her current position of community safety manager has a remit for safety of all ages in the home environment and provides the Secretariat for the Scottish Parliament Cross Party Group on Accident Prevention and Safety Awareness. Ms Lumsden holds a Masters in Injury Prevention and Safety Promotion from Karolinska Institute.

### Introduction:

Scotland is in the process of full incorporation of the UNCRC into Scots Law. Article 12 of the UNCRC states that children have the right to be listened to and Article 24 highlights the right to good health including the prevention of accidents. Whilst awaiting full incorporation, RoSPA in Scotland will conduct activities on the basis that the Law is already in place.

### Objectives:

RoSPA in Scotland is currently surveying children and young people to ensure their views are heard and that future accident prevention work delivered by RoSPA continues to take account of these opinions and needs when considering policies, education programmes and messaging related to awareness raising and promotion with safety practitioners and social media.

### Methods:

The link to the Microsoft Forms survey <https://www.rospace.com/home-safety/uk/scotland/research/young-person-survey> has been shared across Scotland with a variety of groups of young people including youth groups, schools and social organisations both nationally and locally. The survey takes less than three minutes to complete. Questions in the survey relate to whether the young person has suffered an accident in the home, on the road, in or near water or in the workplace. The survey also asks the young person to identify how they think

their accident could have been prevented and whom or which organisation is best placed to share safety messaging to reach young people with appropriate prevention information. The survey is being shared widely by partners in accident prevention and remains active till 30th April when the findings will be analysed and a final report produced.

#### Results:

Half way through the survey period preliminary results are showing that two thirds of young people have experienced an accidental injury across all areas, with 42% of them being within the home environment. Respondents most frequently state it is the role of their families to keep them safe (followed by their own responsibility, emergency services and schools). So far, young people also report that social media is the best way for them to receive injury prevention information,

#### Conclusion:

Early results are confirming the home environment as the area where young people are most likely to be injured thus supporting current understanding by RoSPA and others. Final results will be analysed further and appropriate recommendations for future campaigns considered.

#### Keywords:

Child safety. Young people safety. Accident prevention. Injury prevention  
RoSPA - Edinburgh - Mid Lothian – Scotland



### **OUUPS! a national Campaign for Child-Injury-Prevention in Switzerland**

#### **Ruth Beer, Switzerland**

Ruth Beer (PhD) started as a scientific operator at (Beratungsstelle für Unfallverhütung BFU), The Swiss council for accident prevention in 2018. She has project responsibilities in services (communication campaigns, courses etc.) around child accident prevention.

#### Introduction:

Switzerland is a rather small country in the middle of Europe (Continent) with approx. 8 million inhabitants. Demography and overall incident rates are comparable to those in Germany and Austria. The Swiss Council for Accident Prevention, BFU, has a legal mandate to prevent non-occupational accidents and to coordinate prevention measures nationwide in Switzerland. Hence, in the seventies already, the BFU set up a national information and sensibilisation campaign for parents. The former “Kinderpost” is now “OUUPS!” which represents one of the Flagships of the BFU.

#### Objectives:

Swiss Children and adolescents (0 to 16 years) suffer constant rates of incidents. The highest accident risk occurs in home and leisure. On average 10% are injured by home and leisure accidents per year, which of 14 die, as a result (Ø 2014-2018). Most accidents origins are falls, suffocation/aspiration, drowning, and transportation. Although there is no dominant incident cause, the most significant accident origins differ for age groups from babies to adolescents.

#### Results:

Although, there is no significant accident origin, information and sensibilisation of young parents seems crucial for child accident prevention. In the seventies already the BFU set up an information campaign, the Kinderpost. OUUPS!, the new, modernised campaign was launched in 2020. Parents receive a brochure every six months with tips on accident prevention for their child. Little text, lots of pictures in print and online, and an accompanying give-away in some editions form the DNA of this information-sensibilisation-campaign.

**Conclusion:**

Although no evaluation on a large scale has been made so far, a small customer survey has shown that parents are happy to receive these brochures. Subscriptions are hardly ever cancelled.

Keywords: child safety campaign, child-incident-rates, home and leisure incidents, OUIPS!

Other info: BFU, Swiss Council for Accident Prevention, School and Family Department, Berne, Switzerland - Bern - Berne – Switzerland Mirjam Bächli, scientific operator



## **Make childcare as safe as necessary with a method that includes children's needs**

### **Veerle De Vlieghe**

Veerle De Vlieghe is a Policy worker at Opgroeien, a government agency that helps realise the right to a promising 'growing up' for every child and young person in Flanders and Brussels. Content owner of the themes infrastructure, safety and play.

**Introduction:**

Childcare has to offer a rich and challenging play environment to give children plenty of opportunities for development. This should be reflected in the approach to childcare safety: "We aim for an environment that is as safe as necessary so that every child has as many opportunities as possible to develop.

**Objectives:**

Childcare providers need to make a risk analysis. This is a method to work on health and safety in childcare. Most childcare organisers use a checklist for this purpose, which is only pulled out every 2 years. A checklist helps to assess the static safety of your location. But if you want to include opportunities for play and development in your risk analysis, as well as emotional safety, this method is not sufficient. We needed to add a method to make risk analysis a process that continuously improves operations and is sensitive to children's needs.

**Methods:**

Regularly checking the necessary preconditions for health and safety with a checklist remains important. But besides that, it is also important to think about possible risks during daily activities and what you can do to make your childcare centre as safe as necessary. The method we introduce can help to start the conversation about safety with colleagues. What you think is dangerous might just be an exciting challenge or a fantastic play opportunity for some children. Discuss with your colleagues how you can make the risks acceptable and make your childcare as safe as necessary.

**Results:**

We introduce the 3 A's of Risk Analysis: • Acceptable risk? Do you see risks in the activity/play/the materials/the environment/what children do/... ? Are we talking about acceptable or unacceptable risks? • Adjust? What can you adjust to make the risk acceptable? • Attention to children's needs? Are you reducing opportunities for play or development with the adjustments you want to make? Can you provide those opportunities for play or development in other ways? Do you also ensure emotional safety?

**Conclusion:** A good risk analysis does not only make childcare physically safe. It also makes children feel emotionally safe, increases their well-being and gives them opportunities to play and develop. Keywords: Child Safety, risky play, childcare, risk analysis



## Prevention without boundaries: the successful adoption and implementation of a foreign behaviour changing program

### **Karin Klein Wolt, Nederland**

Karin Klein Wolt is a social psychologist and has been working at VeiligheidNL for more than 15 years. Karin is mostly active in the field of traffic safety, where she is working on educational programs and registration projects in order to prevent traffic accidents and injuries in the Netherlands.

#### Introduction:

In Norway the program Si ifra! (developed by Bjørn Smith-Hald A.S. and translated as “You decide!”) has been successful for many years in order to prevent dangerous driving under youngsters in the age of 17-18. This age group is in Norway most at risk of being involved in traffic accidents. The results of the evaluation of Si ifra! in Norway (n=3.000) show that changes have been made in a positive direction for the road safety of youth behaviour in the case of falling asleep behind the wheel, driving under influence of drugs and car belt use. In the Netherlands young car drivers are also at risk for crashes and fatal car accidents.

#### Objectives:

The objective of this project was to implement the Norwegian behaviour changing program Si ifra! to the Dutch situation, and more specific to the local province of Fryslân. Methods First of all an exploration was conducted on traffic accidents and injuries and a comparison was made, on different topics (demography, school systems, accidents, existing programs), of the Norwegian situation to the Netherlands and Fryslân. A pilot session and focus group were successfully performed, after which the implementation of the program started. The implementation was conducted on province level, since provinces (and municipalities) are responsible for traffic education in the Netherlands.

#### Results:

The exploration and different studies that were executed resulted in the adoption of the program. Small changes had to be made, such as the adjustment of the program name from Si ifra to “Stand up for your ride” and the translation of the program. Dutch session leaders were trained by the Norwegian developers. After Fryslân other provinces were approached and pilots on local level were conducted, resulting in 7 (of a total of 12) active provinces in the Netherlands in 2023.

#### Conclusions:

Our project shows that it is possible to implement a foreign behaviour changing program. Working principals of behaviour change are without boundaries, especially in those situations where countries are more or less equal.

Keywords: behavioural change, youngsters, car drivers, car passengers, accidents, implementation, focus group.

Other info: VeiligheidNL - Amsterdam - Noord Holland - The Netherlands



# Road safety – Vulnerable road users 1

## Parallel Session 7

THURSDAY 05. October 2023 - 14.00



## Variation in traffic incident settings—same implication of police and hospital-based traffic injury data?



### Kristian Kjærgaard, Denmark

Kristian Kjærgaard - MD and Ph.D. at Department of Orthopaedic Surgery and Traumatology, Odense University Hospital, Denmark Research assistant at Accident Analysis Group at the same department. ORCID: 0000-0002-0859-3627 Supervisor: Prof. Jens Lauritsen. ORCID: 0000-0001-9281-8990

#### Introduction:

Injury and death from traffic incidents are still a major global concern and are associated with significant costs. Traffic incidents are preventable, but this requires planning based on accurate and complete injury data, otherwise efforts bypass targets.

#### Objectives:

The objective was to compare ranked frequency of police and hospital-reported traffic incident settings and the agreement between hospital and police records for mode of transport (car, bicycle, moped, pedestrian), role (driver/seat location/pedestrian) and severity.

#### Methods:

We analyzed routinely collected hospital records from Odense University Hospital, Denmark, for traffic injuries from 2014 to 2021. These include patient demographics and incident-related data (time and place of incident, road users involved, and collision mode) for all patients involved in traffic incidents. These injuries were then linked with police records from Funen Police District, which covers the same geographical area of the island Funen, Denmark. Results In total, 21,562



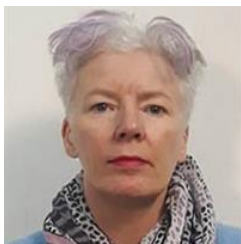
road users were injured and subsequently treated at the hospital, and 5,176 (24.0%) of these suffered from severe injury. The top-5 hospital-reported severe traffic incident setting was an injured cyclist with no counterpart on a city road (n=1130), and 4 of 5 in this top-5 involved an injured cyclist. The top-5 police-reported severe traffic incident setting was an injured cyclist with a passenger car counterpart on a city road (n=116), and the remaining 4 in this top-5 involved an injured passenger car driver. Only one setting overlapped between hospital- and police-reported top-5 severe injuries. The agreement between hospital and police records was for mode of transport (passenger car/bicycle/moped/pedestrian/motorcycle) 93.9% [95% confidence interval: 93.0%, 94.9%], role (driver/passenger/pedestrian) 97.7% [97.1%, 98.3%], and use of seat belt/helmet 76.9% [75.2%, 78.6%]. The accuracy of police severity classification was 50.5% [47.0%, 54.0%], and the completeness of police-reported severe incidents was just 15.1% [14.1%, 16.0%] compared with hospital records.

#### Conclusion:

This study showed an extraordinary high agreement between parameters independently recorded by hospital and police records, but police records misclassify severity and is not a reliable source for severe injuries. Thus, road safety policies may not have the intended effect if preventive efforts are based solely on police-reported severe injuries. With the documented agreement on mode of transport, role, and use of safety equipment we suggest that planning of preventive efforts are based on hospital records in areas where registration practices are sufficiently high supplemented by police data.

Other info: Odense University Hospital - Odense - Region of Southern Denmark - Denmark

## Road Safety and the Pedestrian (Vulnerable Road User)



### Orla Fahey, England UK

Orla Fahey is a A School of Design PhD candidate, with a background in design and engineering, years of experience in the public transport industry. Her research is focused on design of road safety for the pedestrian. Through her practice, the data analysis showed the lack of inclusion of non-serious data collision data that could identify patterns to improve pedestrian safety, particularly for less mobile and vulnerable users.

#### Introduction:

The safety of vulnerable road users is a concerning problem internationally. The World Health Organisation estimates the costs of accidents in terms of the number of people fatally and seriously injured plus its impact on those directly and indirectly involved in accidents. These impacts have associated physical, psychological, social and financial costs for the population.

#### Objectives:

The data used for accident statistics is problematic as it leaves out data about non-serious, near miss incidents and trips and falls. Safety models explain how non-serious and near misses are used to forecast the probability of serious or fatal accidents. When all accident data is considered, the pedestrian emerges as the most vulnerable road user, yet they are overlooked in terms of safety design. Additionally, research is limited in how to design for the pedestrian, particularly in how to communicate safety risks to them. This study aims to address these gaps by considering ways in which design can be used to improve pedestrians safety and how to design communication interventions.

#### Methods:

Grounded Theory was employed to gather and analyse data through interviews with safety experts, road safety charity groups, researchers and academics in the field, literature reviews,

participation in safety working groups and observations using case studies.

#### Results:

Data analysis showed the lack of inclusion of wider non-serious data that may be giving a skewed view of the road safety problem, by missing out on identifying patterns that might be leading to more serious accidents. Safety interventions are focused on the accident rather than causation factors. If attention was focused on pedestrians and preventative measures this may reduce the accident numbers. Subsequently, if the pedestrian was better informed about safety risks they could take preventative action that might reduce their risks and increase their agency. Furthermore, the analysis indicate that safety interventions aimed toward the pedestrian often marginalises less mobile pedestrians.

#### Conclusion:

The research will look at design methods to improve preventative communication aimed towards the pedestrian and how to make road safety interventions more inclusive. The wider benefits of these design interventions would be an improvement in road safety especially for the most vulnerable road user, and as a consequence reducing the overall costs of accidents.

Keywords: Design for safety, near-miss, safety risks, communication, prevention, benefits, inclusion.

Royal College of Art, London - London - United Kingdom - UK



### **The ESRA initiative: global network on monitoring road safety**

#### **Uta Meesmann, Belgium**

Uta Meesmann is senior researcher at Vias institute (Brussels). She has a background in public health and broad experiences in national and international research projects. In recent years, Uta specialized in child safety as well as cross-cultural surveys to monitor road safety attitudes, self-declared behaviour, and traffic-safety-culture. She is the coordinator of the ESRA initiative (E-Survey on Road Users' Attitudes) and author of the Road-Safety-Thematic-Report-Children of the European Commission.

ESRA (E-Survey of Road Users' Attitudes) is a rapidly growing initiative of research organizations and road safety institutes from all over the world. This joint initiative aims at collecting comparable data on behaviour and attitudes of road users by means of an online panel (questionnaire) survey (Meesmann et al., 2022). The initiative is coordinated by Vias institute together with 10 Steering group members (BAST (Germany), DTU (Denmark), IATSS (Japan), ITS (Poland), KFV (Austria), NTUA (Greece), PRP (Portugal), SWOV (Netherlands), TIRF (Canada) and University of G. Eiffel (France)). The initiative is financed by partners' own resources or sponsors. In total the ESRA survey was already conducted in more than 60 countries across the world.

The initiative started in Europe in 2015 (ESRA1), and rapidly grew to a global project. A second edition followed between 2018 and 2020. In spring 2023, the third edition of ESRA was implemented in 39 countries and the related results will be available this summer. The ESRA survey addresses different road safety topics (e.g., speeding, distraction, driving under the influence of alcohol, not using seatbelt) and the themes covered in the survey include amongst others self-declared unsafe behaviour, attitudes and opinions on unsafe traffic behaviour and safety perception and support for road safety measures. The survey targets car occupants, moped riders and motorcyclists, cyclists, and pedestrians. New in the most recent edition is that questions on vulnerable road users were expanded and new questions for riders of e-scooters and

on infrastructure were added. In Europe, 23 countries participate in ESRA3. The proposed presentation will present the ESRA initiative and show first results of the most recent edition (ESRA3).

This presentation will be the kick-off of a series dissemination activities in 2024 and 2025. Within the upcoming months, the ESRA consortium will update results of the previous edition and show evolutions of key results over time. Key results of the second edition (ESRA2) were published through a series of reports (i.e., final report, methodology report, 15 thematic reports on road safety topics, 48 country fact sheets), they were used for scientific articles, conference contributions, national reports, or other projects (e.g., Baseline KPI alcohol). ESRA2 output can be freely consulted and downloaded at the ESRA website ([www.esranet.eu](http://www.esranet.eu)). Key results of the previous edition are also presented in the form of a dashboard, which will be updated in 2024.

Keywords: road safety, monitoring, international, attitude, behaviour  
Vias institute - Brussels - Brussels - Belgium Gerald Furian

## Home safety 2

### Parallel Session 8

THURSDAY 05. October 2023 - 14.00



### The overall picture of stove fire incidents in Finland



#### **Laura Kuurne, Finland**

Laura Kuurne is a researcher in the field of public safety, with a background combining natural sciences and data science. She is currently working for The Finnish National Rescue Association (SPEK) and her research focuses mainly on accident analysis and prevention from a computer science perspective. She is also conducting research on stove fires and their causes based on statistics, both from emergency services and insurance companies' point of view.

#### Introduction:

Cooking is the biggest single cause of home fires in Finland. Unsupervised cooking, atypical use of the stove and a lack of stove safety features pose a risk that could be prevented. Stove fires occur in all population groups, but they pose a significant risk, especially for older people and for those

with limited capability to function. Stove fire incidents may not always be reported to the rescue services if the smoke damages can be handled by the resident. Therefore, the official statistics do not reflect the actual annual number of stove fires.

#### Objectives:

Stove fire ignition, effects, and prevention was studied in a joint research project (2020-2022) by Aalto University, The Finnish National Rescue Association, the Emergency Services Academy Finland, and the Finnish Safety and Chemicals Agency. Later, the study was supplemented with data from the insurance company (2023). In this presentation, the main findings and conclusion of both research projects are presented. The aim is to increase awareness of the stove safety and accident prevention.

#### Methods:

To form the overall picture, information on ignition rates, fire ignition mechanisms, flammable materials and prevalence of different stove types and stove safety devices was obtained. The analysed data include information from the fire and rescue service's official register of incidents (2016-2020), fire investigation reports (1998-2020) and data collected from a media survey (2020-2021) and a citizen survey (2021). These were compared with the insurance company's data (2017-2020).

#### Results:

The results indicate that the main causes of stove fire ignition are additional materials stored on or near the stove and unsupervised cooking. Observations were consistent between all data sources. Food is the first material to ignite in most of the cases (67 %), but in a quarter of them the first material to ignite is a mixed household item. Most incidents caused by food ignition remain smaller fire hazards, but fires igniting from grease usually spread into the largest fires. The use of stove safety features is rare.

#### Conclusion

Number of stove fire incidents reported in media is low considering their annual occurrence. Therefore, citizens have fewer opportunity to learn from the accidents and identify their prevalence and associated risks. According to previous studies, the number of stove fires can be reduced with stove safety technology and informing residents about the potential hazards.

Keywords: Stove fires, stove safety, fire safety, accident prevention, home safety

The Finnish National Rescue Association SPEK - Helsinki - Uusimaa - Finland Tarja Ojala (SPEK), Jukka Lepistö (Finnish Safety and Chemicals Agency)



### **Obligation to report as a tool for accident prevention in Finland**

#### **Tarja Ojala, Finland**

Tarja Ojala is a Specialist Researcher at The Finnish National Rescue Association (SPEK).

#### Introduction:

Finland's population is aging, which creates pressures for welfare services. In Finland, the goal is to support elderly's home-based living as long as possible, with the help of personal services. The need for the services is assessed individually. However, sometimes the information regarding elderly's service needs does not reach social and healthcare authorities, and safety may be

compromised. Therefore, Finland has formed a legislative obligation (a duty to notify) any safety concerns of the elderly. Every professional has a duty to notify social services if they observe an elderly who is unable to care for themselves. If living arrangements propose a fire or accident risk, notification must be made to the fire department. The aim of the system is to obtain information about elderly's need for help, and prevent accidents.

#### Objectives:

The aim of this presentation is to describe and evaluate the Finnish notification system, to assess its notability, shortcomings, reporting rates and overall impact.

#### Methods:

The mechanisms and development needs are examined based on a survey by the National Institute for Health and Welfare (2022). Notability is assessed using previous research literature. Reporting rates are evaluated based on two survey studies. Impact and shortcomings of the notification mechanism are evaluated through case examples.

#### Results:

As a result of the survey, a number of different notification methods were identified. Forms vary by region and the differences lead to inequality in the service assessments. Not all authorities had yet been informed of their duty to notify. The obligation is not systematically taught in social and healthcare training. Only 25-30 % of employers have provided their staff with training on the duty. Nevertheless, it seems that the number of notifications indicating concern or direct danger is increasing exponentially in Finland. However, reporting procedures and interventions have prevented accidents, while improving the safety and sense of security of those in need.

#### Conclusions:

The duty to notify is a last resort when an elderly person cannot otherwise receive the necessary services and their safety is endangered. The mechanism protects elderly at risk of being left outside of essential services and support. The system's effectiveness requires knowledge of obligation and the reporting procedure. Through the notification process, access to help can be ensured even in a danger of being left out of the needed services. The model is intended to ensure the safety of all the special support need groups.

Other info: Tarja Ojala, Specialist Researcher, Finnish National Rescue Association (SPEK) Virpi Dufva, Executive Manager, Valli - The Finnish Union for Senior Services Teija Hammar, Chief Advisor, Finnish institute for health and welfare (THL)



### **Exploring the feasibility of virtual reality to support falls awareness education in care homes.**

#### **Claire Ford, England UK**

Claire Ford is a Registered Nurse and Research Associate at the University of Manchester, exploring the use of Virtual Reality as a training method in falls awareness in care homes. Her research follows on from her PhD in Nursing in the same area.

#### Introduction:

Older adults are at risk of falls, which increases further in care home environments. Due to the complexity of care home residents' conditions and an increasing ageing population, it is important for care staff to have knowledge and understanding in falls awareness, prevention, and management in order to support their residents. Literature searches identified that barriers to care staff implementing falls prevention strategies included the limited knowledge of staff and insufficient resources (including lack of staff training). There is scarce research regarding



methods to deliver training to care staff, however emerging research in Virtual Reality (VR) as a general training method had promise due to increased knowledge retention, and application into practice. There is very limited research exploring VR training in care homes. Stakeholder patient and public involvement and engagement (PPIE) determined that VR as a training method had potential value.

#### Objectives:

To develop and test the feasibility of a proof-of-concept VR training programme for care home staff in falls awareness and prevention.

#### Methods:

A multi-phase project, including two research phases and one technology development phase. An initial exploratory qualitative research phase (Phase I) was undertaken to guide the design and content of the training. A development phase followed this to create the falls awareness experience (FAE) proof-of-concept, utilising user-centred design with iCASE collaborator Sentireal. Following the development phase, a second research study was conducted (Phase II) - a mixed methods study exploring the feasibility of the proof-of-concept, obtaining additional feedback for further development of the VR training programme.

Results: Engagement, immersion and enjoyment were key factors for acceptability of a training method. The FAE suited the learning styles of care staff, and VR was accepted as a training method. Utilisation of a case study resident increased empathy to the resident experience. Feedback for development included additional locations, scenarios, and interactable items. Barriers and facilitators of acceptability and adoption were identified.

#### Conclusion:

Identifying a potentially effective method of training for a complex intervention may influence the creation of future training programmes for care homes: to assist in increasing care staff knowledge, retention of information, and application of knowledge into practice. This in turn may improve the quality of care delivered and resident outcomes. Additional research is required to develop the proof-of-concept into a minimum viable prototype, and feasibility tested further.

Keywords: Falls, older adults, care homes, training, immersion, Virtual Reality, feasibility, mixed methods, development

Dr. Emma Stanmore Dr. Helen Hawley-Hague Dr. Lis Boulton



### Implementing a Digital Falls Prevention Program (KOKU) for Community Dwelling Older Adults

#### Emma Stanmore, England UK

Dr Emma Stanmore - Reader in the School of Health Sciences gained her Bachelors, Masters and PhD from the University of Manchester and is the Deputy Lead for the Healthy Ageing Research Group. Emma has over 20 years combined experience in healthcare, research and teaching with a particular focus on health innovation (new ways of delivering care or use of digital health technologies to promote uptake, access to services and avoid hospitalisation) and the promotion of healthy ageing.

#### Introduction:

Falls are a growing global public health concern. We conducted an implementation evaluation of a digital falls prevention (FaME/OTAGO strength and balance) program known as, 'KOKU' for community-dwelling older adults aged  $\geq 55$  with support from Care Providers.

**Methods:**

Qualitative evaluation was guided by the NASSS Framework. Online training was given to Care Managers who cascaded the training to carers who then trained 46 eligible older participants to use KOKU (3 times per-week, over 12 weeks).

Data collection included observations, records and telephone interviews (11 users; 9 Carers/Managers) to explore multiple perspectives. Data were analysed following inductive and deductive approaches.

**Results:**

Older participants (n=46) from 6 Care Providers (Mean age 76; range 56-99) participated.

Themes identified across the NASSS domains were (1) Condition: KOKU was implemented with participants with a wide range of conditions; suitability was guided by perception of benefits, safety and willingness to use (2) Technology: Carers and users reported minimal training was required. Those unfamiliar with technology needed initial support that reduced over time. (3)

Value: Positive outcomes (physical, psychological) were reported by majority of participants (4) Adopter System: Training and clear messaging to users was deemed important (5) Organisation: staff capacity and readiness to innovate affected uptake (6) Wider Context: staff shortages was the main implementation challenge (7) Embedding/adapting over time: Post study implementation

has continued indicating the high demand for falls prevention services.

**Key conclusions:**

A digital falls prevention program may be a safe and suitable option for community-dwelling older adults in receipt of care support.

**Keywords digital:** falls prevention; older adults; strength and balance exercises; implementation science

# Child and adolescent safety 2

## Parallel Session 9

THURSDAY 05. October 2023 - 15.00



### The ups and downs of trampolining – keeping fun high and risk low



#### **Elisabeth Fanninger, Austria**

Elisabeth Fanninger is responsible for child safety projects, public relations and the first Austrian Child Safety House BAERENBURG at the NPO Safe Kids Austria.

#### **INTRODUCTION:**

In Austria, we have seen a 'trampoline boom' in family gardens (six times more trampolines sold during Covid19). Trampolining provides a fun way of staying fit, while experiencing the joy of movement and improving coordination skills. These positive aspects don't come without a cost, as borne out by studies conducted by Safe Kids Austria's Research Center for Childhood Accidents (where all Styrian paediatric accidents are evaluated and analysed). Up to 10,000 accidents happen to children on trampolines in Austria every year - just as many as on all other playground equipment combined. To address these risks, a primary school project that teaches children, both in theory and in practice, the correct, safe technique to jump on a trampoline was developed together with trampoline park FLIP LAB. Background knowledge, safety tips and necessary skills should help to avoid "jumping into hospital".

#### **OBJECTIVES:**

- Informing pupils, teachers and parents about sources of danger, accident patterns and safety tips
- Giving children trampolining skills through practical exercises , imparting the right techniques to avoid accidents – not only in the trampoline park, but also on the garden trampoline
- Making pupils enjoy exercise and thus encouraging them to do more sports in their free time

**METHOD:** Three project stages 1. Training afternoon for teachers 2. Safe Kids Austria and Flip Lab

arrive to the schools with specially prepared teaching materials and preparatory exercises for trampolining. 3. The pupils visit the Flip Lab As highlight and conclusion of the project the children spend a morning practising safe trampolining with the Flip Lab instructors.

#### RESULTS & CONCLUSION:

This project was developed based on the results of a trampoline study that includes large Austrian hospital figures on related child accidents. It provides students, teachers and parents with a combination of trampoline safety advice and skills and includes a high fun factor to foster greater engagement. To date, 80 classes participated. The project receives outstanding positive feedback from teachers, students and parents alike. It is therefore concluded that the key to successful engagement in accident prevention projects lies in the combination of safety and fun. This approach facilitates appropriate learning of specific safety tips and behaviours for the user's own protection and for the protection of others. Doing so, in a fun and engaging manner minimizes any potential perception by the user of being dictated to about safety.

**KEYWORDS:** Child safety, accident prevention, trampoline, school project, sports safety

Safe Kids Austria (Verein GROSSE SCHÜTZEN KLEINE) - Graz - Styria - Austria



### **Unplanned emergency department attendances in children due to falls in Portugal: home and leisure accidents data surveillance**

#### **Tatiana Alves, Portugal**

Tatiana Alves holds a First Degree in Nursing; Master's Degree in Psychology of Human Resources; specialised in Community Nursing. Field work:

Epidemiology Department of the National Institute of Health Doutor Ricardo Jorge. Contact person for National Injury Surveillance System.

#### Introduction:

Home and Leisure Accidents (HLA) are one of the important public health issue, especially in childhood, with individual, societal and economic consequences. Falls have been identified as a leading cause of HLA, common cause of injury-related morbidity and mortality, especially among children. Evidence shows that most of HLA are associated with identifiable and modifiable risk factors. However, more detailed information about the context and characteristics of such events is needed.

#### Objective:

This study aimed to characterize the occurrence of HLA in children aged 0-14 year related to hospital Emergency Department (ED) of the National Health Service in Portugal based on hospital records, through EVITA system.

#### Methods:

A descriptive analysis of the data was performed to characterize falls attendance in ED according to sex (male and female), age groups (0-4, 5-9, 10-14), place of occurrence (outdoor spaces, home, school), product-related, season and week day attendance. Associations were studied with Pearson's chi-square or fisher exact test. Odds Ratio (OR) were also computed to measure the associations. A significance level of 5% was considered.

#### Results:

During the 2022 year children aged 0-14 years old represented 23% of the total of attendances in

the emergency department. In the HLA context falls constitute the major injury mechanism in all age groups under 4 years old (65%), between 5-9 years old (61%) and between 10-14 years old (54%). The 2022 year registered 25 371 HLA due to falls in children aged 0-14 years old, at home (38%), school (52%) and in the outdoor spaces (10%). Regarding to the products most involved in the falls at home the “floor” was the leading category in age groups 5-9 years (38,6%) and 10-14 years (46,8%). In the younger ones, under 4 years old furniture (48,3%) represented the main category. In floor surface involved falls the odds in the children between 5-9 years was about 1,2 the odds in the youngest (till 4 years old) and about 1,1 in females. For furniture related falls the odds at home was 21,7 (CI95% 9,7; 48,6) the odds in outdoor spaces. The higher age-groups seems to be protective considering the youngest ones (0,2 for 5-9 and 0,1 for 10-14).

#### Conclusion:

Considering that globally falls can be prevented, this information reinforces the importance of this problem and its magnitude.

Keywords: Home and Leisure Accidents, Children, Falls, Emergency department, EVITA system

Other info: Instituto Nacional de Saúde Doutor Ricardo Jorge - Lisbon - Lisbon – Portugal



### **Creating supportive environments: Reducing challenging behaviour and enhancing safety for autistic children**

#### **Lhara Mullins, Ireland**

Dr. Lhara Mullins is a lecturer in health promotion at the University of Galway in Ireland, since 2012. Lhara is an author and advocate, with extensive experience navigating autism services across a variety of settings, in her role as the parent of three autistic children. Lhara further works within an advisory and advocacy capacity within local and national public and voluntary agencies, surrounding the topic of autism.

#### Introduction:

Autism is a neurodevelopmental difference which impacts communication, the need for sameness, executive functioning and sensory processing. Autistic children may struggle to adjust to changes in routine, noisy environments and in attempting to communicate their needs. Some autistic children may be non-verbal, while others may find traditional styles of communication stressful or overwhelming. Such challenges and difficulties may culminate into challenging behaviour which threatens the safety of the child themselves, or other children and adults in that setting.

#### Objectives:

Change the environment, not the child. This presentation aims to examine the significance of creating supportive environments, identified as a key action area for health promotion by the World Health Organisation. By modifying the environment to be more conducive to the unique needs of the child, challenging behaviour can be reduced and the safety of the child and their peers enhanced. Across various settings from education to health and community settings, changing the environment to one which is in accommodating and inclusive of the autistic child's needs, enhances their wellbeing and capacity to cope within environments which traditionally have been distressing.

#### Outcome:

Creating supportive environments for autistic children is communicating inclusion and promoting the wellbeing and safety of the child. Reducing noise levels or dimming bright lighting, can lessen sensory distress. While changing the methods of communication used, such as using text messaging or PECS, can reduce the social anxiety caused by verbal communication. Modifying



environments based on the child's individual and unique needs, can enhance their wellbeing and reduce levels of distress which culminate in to challenging behaviour. If the environment can be changed to decrease the challenges this creates for the autistic child, this approach should be prioritised.

**Conclusion:**

Creating supportive environments as an action area for health promotion, can be applied to supporting autistic children across a variety of settings. Modifying the communication, sensory, executive functioning and consistency factors which impact the child based on their unique needs, can improve outcomes in terms of challenging behaviour and consequently safety and wellbeing.

**Keywords:** Autism, Children, Autistic, Challenging Behaviour, Safety, Environments, Change.

**Other info:** University of Galway, Ireland

## Road safety – Vulnerable road users 2

### Parallel Session 10

THURSDAY 05. October 2023 - 15.00



### ReCycling injury data: using a behavioural science approach to minimize cycling under the influence of alcohol.



#### Marjolein Versteeg, Nedeland

Marjolein Versteeg, PhD, is a researcher at the Consumer Safety Institute, the Netherlands. Her areas of expertise include behaviour change, business intelligence (PowerBI), and various quantitative and qualitative research methods.

#### Introduction:

Cycling under the influence of alcohol is an underestimated problem in road safety. In the Netherlands, 75% of drunk/drugged road traffic victims who visited the Emergency Department were riding a bike. Moreover, the number of injured cyclists using alcohol and/or drugs prior to traffic accidents increased by 84% in the last ten years. Whereas drunk driving is widely recognized as a road safety hazard, the problem of cycling under the influence of alcohol remains largely unnoticed. We investigated the risk factors associated with bike accidents under the influence of alcohol. Additionally, we translated behavioural insights into a behavioural change strategy aimed at choosing an alternative transportation mode after alcohol consumption.

#### Objectives:

This study combines injury surveillance data with a behavioural science approach to minimize cycling under the influence of alcohol.

#### Methods:

We used data from the Dutch Injury Surveillance System to assess demographics and injury severity of drunk cyclists who visited the Emergency Department after a traffic accident. Furthermore, we conducted a behaviour analysis to gain insight in the reasons for riding a bike or choosing an alternative transportation mode after drinking. This analysis included various

qualitative research methods such as social media analysis, semi-structured interviews and field research.

#### Results:

People aged 18-34 years, particularly males, are at risk of getting involved in bike accidents under the influence of alcohol. Almost 75% of all accidents was one-sided, and victims often suffered from serious head injuries. Behavioural analysis showed that cycling was strongly preferred over alternative transportation modes when people were planning on drinking. The most important factors for choosing the bike were its comforts, social norm, overconfidence, (absence of) knowledge and risk perception. Subsequently, we linked these factors to effective behavioural change techniques to achieve the desired behavior 'get home safely'. These techniques have been implemented in an information campaign that will be launched in the spring of 2023. We will share the results of the campaign during the Eurosafe congress.

#### Conclusion:

Combining injury data with a behavioural science approach is an effective way to translate research into practice. Behaviour analysis of the identified group-at-risk yielded important drivers of human behavior that can be influenced using appropriate behavioural change techniques and design interventions accordingly.

Keywords: Injury surveillance, Behavioural design, Cycling under the influence of alcohol.



### E-scooters as a new source of road traffic accidents related injuries

#### Kelli Kulikova, Armenia

Kelli Kulikova works as a professor's assistant in the Department of Public Health and Health Care Organization at Yerevan State Medical University. Kelli has been working in the field of violence and injury prevention for over three years, and it is a topic of great interest.

#### Introduction:

Electric scooters, or e-scooters, are popular vehicles that run on electricity and can travel up to 30 km/h. However, their increasing use has led to a rise in injuries related to accidents, becoming a public health concern and causing a surge in emergency room admissions.

#### Objectives:

The purpose of the study was to obtain preliminary information about epidemiological features associated with e-scooter injuries. A retrospective study design was chosen, and all cases of e-scooter injuries that occurred between March 1st and December 31st were collected from the available medical records of Heratsi Hospital Complex N1, although some information was missing. Data were analyzed using MS Excel. Results: A total of 73 cases were reported, with 48 men and 25 women injured. The minimum age was 4 and the maximum age was 71, with an average age of 29.14 (interquartile range was 23 to 32.25). Of the 73 injured patients, 66 were from Yerevan and 7 were from outside the city. 33 individuals were transported to the hospital by ambulance, 28 transported themselves, 3 were accompanied by a parent, and 1 was transported by the police. The majority of the cases, 39 in total, happened in summer. 55 injuries have been accrued due to falls from e-scooters: 4 were run over, 3 collided with a car, 2 were hit by an object, and 1 was due to sharp braking. Only 3 cases from the total involve injuries to a single body part; the remaining 70 victims suffered multiple traumas. 53 injuries involved the brain and/or face and 19 victims had bone fractures. The most common medical intervention was dressing wounds and suturing open wounds.

**Conclusion:**

The study indicates that falls from e-scooters can result in a variety of injuries, with a total of 73 cases reported. Men were more susceptible to injuries than women, and multiple traumas were more common than single-body-part injuries, with the brain and face being the most frequently affected areas. However, the lack of regulations and absence of protective gear for drivers, as well as the police's failure to report or monitor accidents that occur on sidewalks, can increase the risk of e-scooter-related injuries, particularly brain injuries. These findings highlight the need for increased safety measures and public awareness campaigns to mitigate the risks associated with e-scooter use.

Key words: e-scooter, injuries, sidewalk, victim.

Other info: Yerevan State Medical University - Yerevan - Armenia Artashes Tadevosyan, Diana Varagyan



## Subjective and Objective Evaluation of Driving Behaviour in Depression

### Vagioula Tsoutsi, Greece

Vagioula Tsoutsi is a PhD student of the Medical School of the National and Kapodistrian University of Athens, Greece. She graduated from the Department of Social Work of the Hellenic Mediterranean University on the island of Crete, Greece and she holds a MSc on Mental Health Promotion and Prevention of Psychiatric Disorders from the Medical School of the National and Kapodistrian University of Athens, Greece.

**Introduction:**

Road traffic collisions and the related casualties are a major issue for public health and society. Depression is characterized by mental, emotional and executive dysfunction, which may have an impact on driving behaviour. Among its symptoms sleep disturbance is very common.

**Objectives:**

The current study examined behaviour and attitude towards driving in a group of patients with depression and a group of healthy controls, taking into account sleep disturbances.

**Methods:**

Participants (patients N=39 and controls N=30) were asked to complete questionnaires on driving stress (DSI) and behaviour (DBQ). Afterwards, they were asked to drive on a driving simulator in a motorway (MW) scenario, and under low (L) and high (H) traffic conditions in urban (U) and rural (R) scenarios, all in good weather conditions. Driving simulator data included speed, lateral movement (LPSD) and safety distance from the preceding vehicle.

**Results:**

Gender, age and, to a lesser extent, body mass index influenced almost all variables. The group of patients with depression did not differ from the control group regarding driving behaviour as assessed through the DSI and DBQ questionnaires. Subjective fatigue was found to be positively correlated with aggression ( $\beta=0.027$ ,  $p=0.005$ ), dislike of driving ( $\beta=0.036$ ,  $p=0.006$ ), hazard monitoring ( $\beta=0.046$ ,  $p=0.001$ ) and violations ( $\beta=0.010$ ,  $p=0.020$ ), as assessed by these questionnaires. On the driving simulator, patients maintained a longer distance from the preceding vehicle. Epworth Sleepiness Scale and Athens Insomnia Scale scores were positively associated with keeping a longer safety distance and with LPSD, denoting lower ability to keep a stable position ( $\beta=2.108$ ,  $p=0.003$  and  $\beta=0.047$ ,  $p=0.004$  respectively).

Conclusion: It seems that although certain symptoms of depression (insomnia, fatigue and somnolence) may affect driving performance, patients drive more carefully eliminating, thus, their impact. There are parameters which influence driving behaviour and attitude similarly for both groups (especially age and sex).

Keywords: depression, sleep disorders, road safety, driving, driving simulator

Other info: Maria Papadakaki, George Yannis, Dimosthenis Pavlou, Maria Basta, Joannes Chliaoutakis and Dimitris Dikeos



# Safety promotion, Safe Communities 3

## Parallel Session 11

FRIDAY 06. October 2023 - 08.30



## Holistic Well-being as Core for Safety to All



### Anni Pietarinen, Finland

Anni Pietarinen (MA of history, RMP (Reiss Motivation Profile) -master, Project Control Coordinator at Wellbeing Services County of South Savo. Other info: Porrassalmenkatu 35-37 - Mikkeli - Finland - Project Control Coordinator at Wellbeing Services County of South Savo

Wellbeing in our society is a major concern that touches us all across regions, age-groups, other demographics, and remains one of the most fundamental and critical challenges of our societies. Despite, or perhaps as a result of the rapid increase in living standards in the western world. According to the UN definition of security (1994), it must also be understood as including the notion of human security and freedom and rights related to social, political and cultural dimensions. The Global Youth Wellbeing Index from 2017 safety and security factors were considered equally alongside five other major 'domains' that contribute to wellbeing. It reported that countries that perform best in safety and security are generally those that perform best in overall rankings of youth wellbeing, highlighting the intrinsic relationship between security, safety and the human sense of wellness.

In our project which our abstract and research are based on, "PARASTA ITÄÄ!" examines the relationship between safety and well-being through a series of concrete pilot projects, which are based on a holistic approach and the development of services, and including a cross-sectoral and multi-disciplinary approach. It comprehensively responds to current and future complex challenges, to ensure the availability of skilled and motivated workforce to improve safety by human security approach. The vision for eastern Finland takes into account the development of a stable and safe operating environment through preventive welfare work, the prevention of polarization and inequality, and recognizing that human capital determines the long-term development of regions.

The pilots aim to eliminate silos and facilitate cooperation between organizations. They were

implemented with a university hospital, social, health and art workers, and the Finnish Association of Hospitals and Organizations that Promote Health. Art and culture methods and phenomena were used with professionals in the coaching to reach a common goal. Art, culture and creative methods raise up new perspectives and plans for the future. The most important achievement was the creation of a common will and enthusiasm for future development work. According to participants, the best part was encountering, networking and functionality to achieve common goals in promoting health and security. There is a great need for phenomena-based learning and development and strong belief in multidisciplinary working.

Keywords: Multi-disciplinary and cross-sectoral learning and work, phenomena-based approach and learning, holistic thinking, human security, creative methods

Other info: Porrassalmenkatu 35-37 - Mikkeli - Finland - Hanna Turunen, Lecturer at Savonia University of Applied Sciences



### Turning friday 13th into a day for injury prevention and safety promotion

#### Eva Jacobson Vaagland, Norway

M. phil. Eva J Vaagland is the managing director of Norwegian Safety Forum, a non-governmental, non-profit organization. With solid experience from cooperation between different sectors of society, different professions, national and international programs she is convinced that the best results

are gained by cooperation between public sector, private businesses, and NGOs. She studied at the Stockholm University and BI - Oslo Business school.

#### Introduction:

Norwegian Safety Forum is a national advocate for safety, a non-profit membership-based organization. The mission is to prevent home and leisure accidents by forming policies, develop projects and activities and spread information to key stakeholders from communities, public sector, non-governmental organizations, and businesses. Most accidents can be prevented, often with very simple means. We're always looking for ways to strengthen awareness about accident, injuries, and injury prevention. The past few years we have systematically used Friday 13th to promote injury prevention and safety promotion. Objectives and methods Friday the 13th is considered an unlucky day in European culture. Skafor tries to use the energy and interest for this special day to focus on safety promotion and injury prevention. We've had many headlines quoting "Today is Friday 13th and we can expect more than 1.800 people looking for medical care due to accidents", and in smaller print explaining that this is not because of the "magical date" but on average that many people need medical care every day. This presentation will not reveal new knowledge or explain causation for accidents. We simply want other organizations to join our efforts to turn the day into a European day for injury prevention. The day occurs one to three times every year, in different seasons of the year. This gives us an opportunity to focus on different types of accidents. In the springtime we can focus on bicycling accidents, in the summer on drowning, in the fall on safety indoors and in the winter on use of open fire, falls on slippery ice or use of reflectors in the dark. Results and conclusion We find that our symbol the black cat works well in communication about Friday 13th. Cats are considered to have a remarkable ability to survive falls and other hazards. In many countries they are considered to have nine lives, in other countries the saying is six or seven. In our communication we use the slogan "A cat has nine lives - you don't" and give a short advice for safety in everyday life. These campaigns also give us an opportunity to gain interest for other parts of our work. We have experienced that marketing

this day opens new doors to communication. In the presentation we can share articles and ideas used to support our safety message, and we hope other organizations will join our initiative.

## Climate Change & Community Safety



### Dave Shea, Scotland

Dave is Head of National Development at the Scottish Community Safety Network (SCSN). He brings experience from eight years as a police officer in Glasgow, several years as manager of a community-centred volunteering service, and time as the coordinator of an innovative criminal justice research project. Dave has a strong interest in the human aspects of justice, rehabilitation and community engagement, and enjoys opportunities for creative collaboration and shared learning.

#### INTRODUCTION & OBJECTIVE:

In mid-2021, when the UN Conference of Parties 26, or 'COP26' was due to be held in Glasgow that same year, SCSN was keen to explore what impacts – in the immediate and short term – climate change could have on Scottish community safety. We believed this was a relatively, perhaps entirely unexplored theme; assessing the impact climate change will have on community safety.

#### METHODS:

In October 2021, following a rapid evidence review of key policy documents, SCSN facilitated an online workshop. Over 30 community safety practitioners from across Scotland took part. They shared rich local knowledge and professionally informed perspectives, from urban and rural experiences, on what changes to the climate might mean for their areas of work and communities. Data was collated and organised into a written report:

<https://www.safercommunitiesscotland.org/wp-content/uploads/Climate-Change-Workshop-Report.pdf> This was published days before COP26 began. But we wanted our findings to be seen and heard and remembered, to help spark conversations. We were open to less conventional methods - more creative means - to achieve this. We hired a local illustrator and worked closely with her, to adapt our report and develop a new, abbreviated version of its contents. We transformed our report into a bespoke illustrated zine; a fusion of art, data and ideas.

#### RESULTS:

A 'zine' is shorthand for 'magazine'. Typically, a small-circulation, self-published mix of illustration and text. We believed this would make the work feel more alive; capture attention; reach new audiences; and encourage existing partners to engage where they might not otherwise. We wanted to weave inviting aesthetics through co-created data:

<https://www.safercommunitiesscotland.org/new-climate-change-community-safety-zine/> We want this work to reach people, for it to be useful. The research – or what the zine tells us – adds weight and credibility, encouraging others to spend time and resource on this critical issue. From a chorus of informed, professional voices, we wanted our zine to spark dialogues between colleagues and neighbours, leaders and decision makers, and help advance conversations about the need to prepare for climate influenced change in community safety.

#### CONCLUSION:

We have shared copies with Community Safety Partnerships (CSPs) across Scotland, and other relevant stakeholders. We have been encouraged by people's enthusiasm for it. We are keen to share our experience – and our data – with safety colleagues across Europe.

**KEY WORDS:** Climate; safety; creativity; innovation; dialogue



## Learning from Accidents - Analysis of Applicable Models

### Luboš Kotek, Czech Republic

Luboš Kotek studied in the field of safety engineering and defended his doctoral thesis on Safety of Hydrogen Technologies. He has 20 years of experience in the field of risk analysis, and his research career has included the topic of lessons learned from major accidents.

The literature offers different approaches to understanding the process of learning from accidents, so the description of these subparts may vary depending on the author's conception.

1. The Drupsteen et al. model (Drupsteen et al., 2013) The model was developed by a group of authors from TNO based in the Netherlands. The model was built based on the authors' professional judgment, a search of existing lesson-learning systems used in large mainly petrochemical and oil companies, and a literature search. The process is divided into four basic phases: incident investigation and analysis, action planning, intervention, and system evaluation.

2. Littlejohn et al. model (Littlejohn et al., 2017) The lessons learned model was designed based on an analysis of activities at different types of industrial sites to ensure lessons were learned from incidents. Based on these activities, a total of six phases were identified that typically took place in the industrial sites studied reporting, investigation, alerting, information sharing, putting information into context, and implementation of measures.

3. Energy Institute organization model The model was developed by Energy Institute collaborators based on the models by Drupsteen et al. (2013) and the authors (Lukic et al., 2012). The model of the learning process is divided into a total of five phases. - Incident reporting also includes prioritizing which incidents to investigate. - Investigation involving initial fact-finding, information gathering, and subsequent analysis. - Establishing recommendations that should be translated into specific actions, the results of which should be monitored, implemented, and verified. - Broader learning, which includes learning from incidents. - Evaluation of system changes.

4. REAL model (CCPS, 2021) The Recalling Experiences and Applied Learning (REAL) model is a model designed by the staff and associates of the American Institute of Chemical Engineers (AIChE). This model is based on the PDCA (Plan-Do-Check-Act) cycle.

5. Discussion The presented models are designed for learning within industrial enterprises. All models can be considered sequential. Based on a study, it can be argued that learning from an incident within an organization will occur if the organization is able to carry out the following activities effectively: - Collecting incident information. - Analyse incidents. - Extract and contextualize information. - Store information. - Share information. - Make changes. - Evaluate changes made. - Maintain organizational memory.

Brno University of Technology - Brno - N/A - Czech Republic



## Occupational health and safety procedures for firefighters to use car fire blankets in Slovak Republic

### **Kristián Slašťan, Slovakia**

Kristián Slašťan is an PhD. student at the University of Žilina. His Research is mainly focused on testing car fire blankets application to vehicle fires with different propulsions. As the part of PhD. studies, he is testing the Intervention management and Fire and Rescue technical means.

#### Introduction:

Burn prevention have a place during vehicle fires, as the temperatures may reach a several hundreds to a thousand degrees Celsius. Car fire blankets significantly reduce range of the flame and radiant heat. However, when applying them, it is necessary to ensure the protection of firefighters under all circumstances. As part of the preparedness of the Fire and Rescue Service of the Slovak Republic to extinguishing fires of electric and hybrid cars, car fire blankets were tested in collaboration with University of Žilina. As car fire blankets have never been used by fire units in Slovakia before it was necessary to create OHS rules for firefighters to ensure their safety.

#### Objectives:

The primary objective is to ensure safety of firefighters during experiments with car fire blankets but also during real interventions. To reach this objective it is necessary to create draft of OHS procedures for firefighters to use of fire blankets. Manufacturers recommendations represent the bases for OHS procedures. The secondary objective is to apply draft of OHS procedures in experiments with car fire blankets.

#### Methods:

For processing draft of OHS procedures have been used several scientific methods, like experiment, analysis, synthesis and comparison. Method of comparison have been used to OHS procedure proposals before and after their application in the performance of experiments.

#### Results:

The results of the comparison shown there are some specifications for firefighters in terms of the OHS procedure when using car fire blankets in the terms of Slovak Republic. 5. Conclusion Safety of firefighters is essential to ensure the effective course of the intervention. Vehicle fires require both respiratory protection to prevent intoxication and protection from the radiant heat of the fire to prevent burns. On the basis of the results from the application of the draft of OSH procedures, it was possible to make adjustments that achieved the required level of OSH and the effectiveness of intervention management.

**Keywords:** Car fire blanket, vehicle fires, car fires, firefighters, occupational health and safety

Slovak Republic - Kremnica - Banskobystrický kraj - Slovakia Jozef Svetlík Linda Makovická  
Osvaldová Katarína Košťová



## Innovative training in OSH and disaster management & Results of a survey on risk assessment in the Slovak Republic among small and micro enterprises



**Katarína Hollá, Slovakia**  
**Samuel Kočkár, Slovakia**  
**Alena Ďaďova, Slovakia**

Katarína Hollá, PhD. Main position is on Department of Crisis Management, University of Zilina. In teaching she focuses on risk management and prevention of emergencies in OSH and disaster management. In the past she has attended invited lectures in Cardiff University and Northumbria University of Newcastle. She has lectured at several international conferences in Japan, Korea, Finland, USA, etc. Today she is mainly focused on implementing modern technologies into the education.

### Intruduction:

Education and training in higher education is a big challenge nowadays for both students and teachers. Due to the impact of the development of modern technologies and new trends in education, it is also necessary to test new approaches to learning at our university and faculty. That is why we have decided to engage in projects within the framework of scientific research activities, the results of which we will subsequently transfer to teaching. In this article we present our initial findings and especially the conclusions from our testing in Virtual Scenario Based Training using Virtual reality (VR), Augmented reality (AR), Mixed reality (MR) and the programs we use in teaching. The basic purpose of this paper is to compare the testing of new technologies within VSBT in teaching students in OSH and crisis management courses and try to find the most appropriate tools to make OSH and crisis management teaching more effective.

### Methods:

Comparison, testing, statistical evaluation, simulations, analysis Results Testing 10 scenarios with students in OSH and Work environment subjects showed that students were more interested in this way of teaching than AR and MR. The added value was in learning simple tasks and finding errors in operations from a safety perspective is valuable here. Testing of the FightARs app highlighted the need to combine scenarios created for Hololens 2 with 2D videos and visual material created in the LMS. Scenarios for a hazardous substance spill and an electric car crash were tested. In subjects focused on situational awareness is this tool really usable and valuable. The 2D scenarios proved to be the most effective in our testing when testing longer scenarios that required the need for dynamic decision making. Scenarios were also combined using VR and MR glasses during the exercise.

### Conclusion:

Not all tools make the grade for every learning session and therefore the process is very often trial and error. However, we have first results that have created a pre-requisite for further development. The tested scenarios are useful in teaching in terms of training situational analysis and dynamic decision making.

Keywords: Virtual scenario-based training, Virtual reality (VR), Mixed reality (MR), Hololens 2, Oculus Quest, OSH, crisis management

Other info: University of Zilina - Žilina - Slovakia - Slovakia Anna Cidlinova, Samuel Kockar, Alena Dadova, David Michalik,

# Injury surveillance, research and evaluation methods

## Parallel Session 12

FRIDAY 06. October 2023 - 08.30



## Assessment of Road Traffic Injury Data Collection and Management System in Georgia



### Tamar Chachava, Georgia

Tamar Chachava is a Chief Specialist of the Chronic Disease and Traumatism Division under the National Center for Disease Control and Public Health; WHO focal point in Road Safety and Violence Prevention; Working group member of the National Road Safety Strategy and action plan; Component leader for third component of the EU funded twinning project "Support in establishment of comprehensive road safety database and further

improvement of road safety management in Georgia"

### Background:

Road Traffic Injuries (RTIs) are one of the leading causes of death and disability worldwide. Annually, about 500 people are killed and 8000 are injured in Georgia. RTI surveillance is recommended to define the burden, identify high-risk groups, plan interventions, and monitor their impact. The study aimed to identify the existing gaps and needs in medical staff skills and competencies regarding national hospital-based nonfatal RTI data collection and processing.

**Methods:** The online survey was conducted among medical doctors and statisticians of hospitals, who have the responsibility of RTI data collection through the existing electronic database. The information was gathered by a standardized anonymous questionnaire, which assessed the skills and competencies of healthcare staff, participating in RTIs data collection procedures. The questionnaires were distributed to 130 hospitals.

**Results:** A total of 59 medical doctors and 50 statisticians participated in the survey. 86% of interviewed doctors and 62% of statisticians always indicate the external causes according to the

ICD-10 external cause code in the patient's medical card. 14% of the doctor respondents do not see the purpose of collecting this data since it does not have clinical value and they do not have any guidance. 51% of surveyed statisticians go to a doctor to clarify which code is the main, and 8% of them choose one code by a chance.

**Conclusions:** The results of this survey revealed existing gaps and needs in the collection and processing data of the patients hospitalized due to road accidents. A number of activities are important to improve the quality of road injuries data collection and analysis methods.

**Recommendations:** It's essential: to organize periodic training for medical staff on the ICD-10 classification and especially on raising an awareness about the importance of identification of the ICD-10 external cause code; to prepare the guidelines on the determination of external causes of injuries, including the responsible person's description for this activity.

**Key words:** Road traffic injury, surveillance, ICD-10 classification, external cause.  
National Center for Diseases Control and Public Health - Tbilisi - Georgia - Georgia



### **Risk assessment with an application in the OiRA web platform for small and micro enterprises.**

#### **Alena Ďadová, Slovakia**

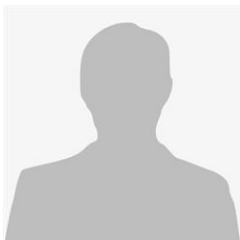
Alena Ďadová is a PhD. student at University of Žilina, Faculty of security engineering and department of crisis management. She is focusing in occupational safety and health and setting the measures for decrease the risks. Alena is also interested in other topics about occupational safety..

#### **Introduction:**

Assessing the risk is the main objective for reduce work accidents at work and incapacity for work. It 's also important for enterprises to save the money and have a healthy workers. For micro and small enterpsises are many possibillities how could they assess the risk. We applied methods from occupational safety and health into the softwre tool which named OiRA. We developed general tool for Slovak republic in OiRA web platform, which is general for indentification the hazards at work. We also created a methodological approach how to do others tools in this web platform. Work in the field of health and safety is important because of care of employees and sustainable work.

**Keywords:** Occupational safety and health, assessing risks, new opportunities for assessing risks, OiRA web platform, tools.

**Other info:** University of Žilina, Faculty of security engineering - Žilina - Slovakia - Slovakia doc. Ing. Katarína Hollá, PhD. Ing. Samuel Kočkár



### **Improved Injury Severity Model for Global Benchmarking Initiatives**

#### **Alan Cook, USA**

Alan Cook, MD, MS, FACS, is an associate professor in the departments of Surgery and Epidemiology and Biostatistics, and is the Medical Director of Trauma Research at the University of Texas at Tyler. He is a trauma surgeon by training and practiced for 11 years. He has ongoing collaborations with colleagues around the world in the area of injury severity benchmarking, elder trauma, and firearm violence in the US.

#### **Introduction:**

Anatomic derangement is a critical step in the pathway between mechanism and outcomes of

injury. Injury severity benchmarking allows for principled comparison of severity distributions, patterns of injury, and surveillance. The Trauma Mortality Prediction Model (TMPM) is superior to previous injury severity metrics, though it was derived for the Abbreviated Injury Scale (AIS) and the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) which is only used in the United States. Objectives: We seek to derive the TMPM for use with the ICD-10 lexicon from the World Health Organization (ICD-10-WHO) for global applications.

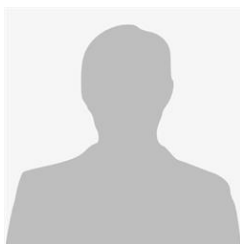
#### Methods:

ICD-10-CM injury codes (S- and T- codes, N=8,538 codes) were mapped to the four digit ICD-10-WHO (N=513) using data from the US National Trauma Data Bank (NTDB) for years 2016 - 2019 for the derivation and validation datasets. The ICD-10-WHO injury codes were parameterized as dichotomous independent variables and as body region-severity dyads in two separate probit regression models. Patient-level probabilities of death (pDeath) were computed from the Model Averaged Regression Coefficients (MARC). The area under the receiver operating characteristic curve (AUROC), the Akaike Information Criterion (AIC), and calibration curves characterized model performance. Further validation was tested using the Patient Episode Database for Wales (PEDW). Of note, the ICD-10-CM lacks codes in the T00-T14 range which are present in the ICD-10-WHO and common in trauma registries outside the US, including the PEDW.

#### Results:

The dataset included 2,343,954 patients, including 52,327 (2.23%) deaths. TMPM demonstrated very good discrimination in the derivation and validation datasets mapped from ICD-10-CM, with AUROC values of 0.854 and 0.862, respectively. However, the TMPM revealed diminished performance in the PEDW, AUROC 0.772. Interestingly, the AIC for the PEDW data was lower and thus preferable compared to the ICD-10-CM mapped codes (PEDW 85269 vs. 390460 and 275455 for derivation and validation, respectively). Calibration curves indicated the performance of the TMPM in data mapped from ICD-10-CM and the consequence of the missing MARC values for T00-T14 codes in the PEDW data. Conclusion: The TMPM demonstrates very good discrimination and calibration in data mapped from ICD-10-CM, however the lack of MARC values for T-codes T00-T14 diminish its performance in data which include such codes. Further work is needed to derive MARC values for the T00-T14 codes.

Keywords: Injury severity, Benchmarking, ICD-10, TMPM



### Machine Learning techniques for the prediction of risk of hospital admission from injuries

#### Alessio Pitidis, Italy

Alessio Pitidis is Data Scientist. Senior Researcher at the Italian National Institute of Health (ISS). I worked in the laboratory of Epidemiology & Biostatistics of the ISS in particular in the field of injury prevention and control. Former Director of the Environment & Trauma unit of the ISS. Actually Head of Research & Development of B2C Innovation Inc. for the development of digital services and artificial intelligence methods in the insurtech sector.

#### Introduction:

Unlike statistical inference, the purpose of Machine Learning (ML) is to obtain a model that can make repeatable predictions without prior assumptions about the relationships among variables.

#### Methods:

ML techniques were applied to the Full Data Set (FDS) of the European Injury DataBase (EU-IDB) which provides information on the external causes and diagnoses of injury observed at the

Emergency Departments (ED). The IDB-FDS provides more than 3.800.000 ED records, for the period 2008-19 in 19 Countries. LASSO (Least Absolute Shrinkage and Selection Operator) cross-validated linearized regression technique was used for variable selection and parameter regularization. Inpatients were considered those admitted, transferred to other hospitals or deceased during hospitalization. Cross-validation was performed randomly assigning the records on 5 folds. A cross-validated logistic model was performed on 5 folds which were randomly sampled assigning 80% of records to training and 20% to testing samples.

#### Results:

The strongest predictors of hospital admission risk selected by the model were in order of importance: EUROCCOST-39 diagnoses categories, AgeGroup, Intent, MechanismOfInjury, ActivityWhenInjured, TransportInjuryEvent, SexOfPatient, PlaceOf Occurrence. EUROCCOST-39 categories represent 61,9% of explained variability and Age Groups 19,4%. In applying a cross-validated logistic regression with these independent variables we obtain an average root mean square error of 0,338662 ranging from 0,3384615 in fold 3 up to 0,3392664 in fold 4. The estimated Odds Ratios of admission risk for instance in the median sample (fold 1) are: MechanismOfInjury=1177,10 (95%CI: 1090,55-1270,52); EUROCCOST-39=401,36 (95%CI: 390,82-412,18); Intent=32,23 (95%CI: 31,17-33,32); PlaceOfOccurrence=8,99 (95%CI: 8,52-9,47); ActivityWhenInjured=4,62 (95%CI: 4,47-4,76); AgeGroup=2,19 (95%CI: 2,17-2,23); TransportInjuryEvent=1,90 (95%CI: 1,88-1,91); SexOfPatient=0,38 (95%CI: 0,37-0,39).

#### Discussion:

The ML model explains a significant part of the hospitalization risk variability and this measure is stable in the different training and testing samples used to cross validate the estimates. The most of variability is explained by the diagnoses reclassified according to a disability standardization method. For instance, in the maximum fold sample risk of hospitalization ranges from odd 0,76% for hand/fingers sprain up to 154,02% for brain concussion. The respective figures in the minimum fold are odds 0,55% and 149,90%. Conclusion. LASSO technique has proven useful to enhance the prediction accuracy of hospital admission risk. A combination of more disabling injury, older age, self-harm intent, exposure to chemicals or threat to breathing increases enormously the risk of hospitalization. The EU-IDB databank can provide estimates of predictors of hospital admission risk for targeting preventive measures and organizing health care.

Keywords: Machine Learning, Injury, Prediction models

B2C Innovation - Milan - Italy - ItalyGianni Fondi, Carlo Mamo, Marco Giustini, IDB-FDS Reference Group



### **A hospital-based trauma registry in the Republic of Moldova - Findings from a 1-Year Study**

#### **Svetlana Cociu, Republic of Moldova**

Svetlana Cociu is a young researcher, Ph.D. (c), Assistant professor, research interest: health promotion, injury prevention, global health. Since 2017, involved in scientific research within 2 international projects funded by NIH-iCREATE (Increasing Capacity in Research in Eastern Europe) and INITIatE (International Collaboration to Increase Traumatic Brain Injury Surveillance in Europe). During the last 5 years, I co-authored 41 articles, 27 abstracts, and 24 oral communications at national and international events.

#### Introduction:

In the last 14 years, traumatic injuries were the fourth leading cause of death in the Republic of Moldova. Despite being a national priority, few local resources are available for collecting injury



data. Trauma registries are extremely important to public health professionals, clinical practitioners, and researchers because they allow for defining the burden of injury by identifying the patient's demographic, mechanism, risk factors, outcomes, and trends, as well as allowing for data comparison with neighboring countries.

Our objectives were to identify the major causes of hospital-treated injuries by piloting a trauma registry, for one year, in three different countries as part of the iCREATE Project, Republic of Moldova being one of them.

#### Methods:

The iCREATE Injury Registry, funded through the US National Institutes of Health, was piloted in 2018 within two Emergency Departments in Chisinau. Data collection tool was developed based on the WHO Recommendations, ICD-10, IDB-JAMIE Project, and Iowa Emergency Unit Registry. All patients with a diagnosis of injury were included. Redcap electronic tool was used to upload basic demographics, injury details, event detail, injury severity, outcome, and five additional modules using patients' medical records. Ethics committee approval was obtained. Results. There were 7866 patient records included in the registry. The mean age of patients was 42.6 years (Std. 21.14), 57.2% males and 41.6% females. Urban areas accounted for 76.9% of injuries, with the majority being unintentional (90.5%). Falls (67.1%), cut/pierce (10.7%) and road traffic injuries (4.7%) were the most common mechanisms of injury. Seniors (60+) were the leading group in relation to falls, while people aged 18-29 were mostly injured in road traffic crashes. Home (55.7%) and streets/highways (26.5%) were the most common places of injury occurrence. Head (12.4%) followed by the ankle (11.8%), were the most frequently injured body parts, with fracture (32.4%) and contusion/bruise (23.1%) being the main types of injury. More than one-third (37.4%, N=2914) of all patients needed further treatment and were admitted to the hospitals, while 61.4% received treatment in the emergency room and released home. Many variables, including injury occurrence, employment, intent, injury mechanism, Injury Severity Score, alcohol and drug screen, could not be obtained from the patient's medical records or could only partly be obtained.

#### Conclusions:

These data indicate that injuries are a health priority for all sociodemographic populations and geographical areas. Data such as these can help direct prevention and treatment efforts.

**Keywords:** Trauma registry, injury prevention, Emergency Department

Svetlana Cociu<sup>1</sup>, Angela Cazacu-Stratu<sup>1</sup>, Serghei Cebanu<sup>1</sup>, Patricia Marga<sup>2</sup>, Diana Dulf<sup>2</sup>, Corinne Peek-Asa<sup>3</sup> <sup>1</sup> Department of Preventive Medicine, Nicolae Testemitanu State University of Medicine and Pharmacy, Chisinau, Republic of Moldova <sup>2</sup> Department of Public Health, College of Political, Administrative and Communication Sciences, Babes-Bolyai University, Cluj- Napoca, Romania <sup>3</sup> Department of Epidemiology, School of Public Health, University of California, San Diego, USA



## Workplace violence against resident doctors before and during the COVID-19 pandemic - Results using secondary data analysis

### Irina Cucu, Romania

Irina Cucu is an undergraduate student at Babes-Bolyai University in Cluj-Napoca, Romania. She is studying public health and researching workplace violence as experienced by resident doctors for her BA thesis. Ms. Irina Cucu is a recipient of a Scientific Scholarship that supports her research topic aiming to ramp up prevention initiatives for reducing workplace violence in healthcare settings.

#### Introduction:

In healthcare, workplace violence has been identified as a major public health hazard, with cases being amplified by the COVID-19 pandemic. The large number of SARS-CoV-2-infected patients required mobilization of a substantial number of resident doctors to support hospitals, increasing their one-on-one exposure with patients. Although they undertook new roles and faced unique challenges, little is known about their workplace experiences during the pandemic.

#### Objectives:

The objective of the study was to better understand the experiences of resident doctors regarding workplace violence, by (1) exploring any differences before and during the COVID-19 pandemic and (2) existing management and prevention strategies.

#### Methods:

A cross-sectional survey was conducted in 2021 and 2022 focusing on workplace violence in healthcare settings in high volume COVID units, in four different countries, including hospitals from Cluj-Napoca, Romania. The survey assessed socio-demographic information, workplace violence experience before and during COVID-19, and workplace violence measures. For our objective, a secondary analysis was performed on the sample of healthcare workers from 8 hospitals in Cluj-Napoca, Romania (N=199). Data was collected between April and November 2022.

#### Results:

Half (N=100, 50.2%) of the participants in the study in Cluj-Napoca were resident doctors. Before COVID-19, two thirds of the residents recognised some type of workplace violence, whilst during the pandemic, the proportion declined to N=57. Resident doctors reported experiencing verbal threat/assault (59.6% before and 54.2% during the pandemic), followed by theft (26.8% before and 19.1% during the pandemic) and physical assault (12.2% before and 14.6% during the pandemic). A dependent t-test for comparing the proportion of verbal violence against resident doctors before and during COVID was conducted ( $p=0.372$ ) with no significant difference between the two time periods. Out of the 85 respondents, only 32% were aware of an overall workplace violence prevention policy, although there is one in place. As prevention methods, resident doctors suggested training courses, improvements of the safety infrastructure and changes in reporting and addressing workplace violence.

#### Conclusion:

Based on the results, the pandemic did not have a significant impact on the frequency of workplace violence. Nevertheless, episodes of violence continue to persist, requiring important changes in the prevention and reporting of workplace violence. The input of resident doctors can provide local solutions to increase workplace safety in Cluj-Napoca hospitals.

Keywords: workplace violence, healthcare, resident doctors, public hospitals  
 Department of Public Health, Faculty of Political, Administration and Communication Sciences,  
 Babes-Bolyai University, Cluj-Napoca, Romania - Cluj-Napoca - NA - Romania Patricia Marga,  
 Madalina Coman, Diana Dulf



## From research to practice: results of the implementation of a regional based injury registration system

### Karin Klein Wolt, Nederland

Karin Klein Wolt is a social psychologist and has been working at VeiligheidNL for more than 15 years. Karin is mostly active in the field of traffic safety, where she is working on educational programs and registration projects in order to prevent traffic accidents and injuries in the Netherlands.

#### Introduction:

In order to prevent road traffic accidents, policy makers in the Netherlands have access to unique data that provide information on traffic injuries and accidents and circumstances of those accidents. Until recently, road safety policy makers in the Netherlands used police registration of road traffic accidents for information on victims and accidents. However, the police registration is not complete, because police officers are not present at all road traffic accidents, especially not at accidents without a collision. A pilot in the province of Fryslân showed that medical registration systems from emergency departments and ambulance services provide a solution to this problem: because they treat many road traffic victims and can give insight in information on victims, accidents and circumstances.

#### Objectives:

The objective of this project is to make medical information from Emergency Departments and ambulance services available for prevention purposes for the local policy makers in the province of Fryslân, the Netherlands. Methods In 2019 we started a pilot with one regional Emergency Department in Fryslân. After this pilot appeared to be successful, we expanded the registration to all four ED's and the regional ambulance service. This registration with five medical institutions is still ongoing and provides anonymous information on victims of traffic accidents. VeiligheidNL has developed a dashboard for the province of Fryslân in which crucial information on traffic accidents is shared quarterly with policy makers of the province. Results A community-based registration of road traffic accidents, based on medical records, proves to be successful. From the medical records it is possible to obtain characteristics of victims (age, sex and type of traffic participation) and accidents (like injury mechanism and location). In some cases information is available on road user behaviour and/or infrastructure. This information is summarized and published quarterly in a dashboard available to the province.

#### Conclusions:

Medical records provide valuable information for prevention of traffic injuries for policy makers. Since the start of the registration in Fryslân, the province has used the results from the local dashboard for different purposes, such as infrastructural adaptations, but also to make decisions on implementing behavioural interventions, especially on vulnerable road users such as cyclists. Fryslân was the first province to use this valuable information, many other provinces in the Netherlands are following this example.

Keywords: Research methods, registration, vulnerable road users, accidents, injuries, community-based, dashboard, prevention

Other info: VeiligheidNL - Amsterdam - Noord Holland - The Netherlands: Susanne Asscheman, VeiligheidNL - Sipke van der Meulen, Regionaal Orgaan Verkeersveiligheid Fryslân - Susanne Nijman, VeiligheidNL.



## Exploring Childhood Injuries in Low- and Middle-Income Countries from Eastern Europe: piloting an Injury Registry

### Diana Nemes, Romania

Diana Nemes - Research Technician, with experience in project implementation, being part of different project teams focusing on health and safety. Has a background in Public Health Sciences.

#### Introduction:

Injuries are a leading cause of death and disability among children. The majority of unintentional injuries continue to happen to children living in low- and middle-income countries (LMICs) in Eastern Europe.

#### Objectives:

This research aims to describe injuries that occurred to children and adolescents between 0 and 17, from three LMICs (Armenia, Georgia, Republic of Moldova) using a hospital-based injury registry.

#### Methods:

The iCREATE Injury Registry was, in 2018, piloted in 7 hospitals from Armenia, Georgia and the Republic of Moldova, containing 13,082 patient records, out of which 12,958 were included in the final analysis. The registry used WHO Recommendations, ICD-10, IDB-JAMIE Project and Iowa Emergency Unit Registry as core examples. Data containing patient demographics, injury characteristics, outcomes, and five additional modules were collected, including road traffic injuries.

#### Results:

Out of 12,958 patients treated and recorded in 7 hospitals from Armenia, Georgia and the Republic of Moldova, 15.6% (n=2014) were aged between 0-17. For this age group, 95% (n=1913) of injuries were unintentional, with some small exceptions (3-5 cases) for children and teens where assaults or intentional self-harm were recorded, and 41% of all injuries took place at home (n=825). The leading mechanism of injury was falls, accounting for almost half of all injuries (46.9%, n=944), followed by cut/pierce 7.3% (n=147), and road traffic injuries 5.4% (n=108). 43.7% of all children were admitted to the hospital for further treatment. Compared to infants, toddlers (OR: 0.446, 95% CI 0.169-1.175), children (OR: 0.561, 95% CI 0.230-1.370) and teens (0.434, 95% CI 0.173-1.085) were less likely to be admitted to the hospital. Conclusion: Data collected using registries have important value in determining the causes and circumstances in which children are injured. More actions and programs should be targeted at preventing home injuries in children, whilst more resources should focus on better-documenting road traffic injuries in health care settings. This study provides valuable insights into the epidemiology of injuries among children and adolescents in Armenia, Georgia, and the Republic of Moldova. The relatively high rate of hospital admission underscores the need for effective and appropriate medical care for injured children and adolescents. Overall, this study serves as a reminder of the need for continued efforts to prevent and manage injuries in this vulnerable population.

Keywords: injury registry, hospital data, falls, pediatric injuries.

# Consumer safety, Safety legislation

## Parallel Session 13

FRIDAY 06. October 2023 - 08.30



## Cooperative Regulatory Approach to promote consumer safety and injury prevention in leisure services



### **Mervi Murtonen, Finland**

Mervi Murtonen works as a Senior Specialist at Finnish Safety and Chemicals Agency Tukes. She has 25 years' experience in safety research, development and regulation. At Tukes, she works in supervision of consumer safety of leisure services. Murtonen has a doctoral degree from Tampere University of Technology.

#### Introduction:

According to the Finnish Consumer Safety Act, providers of leisure services must ensure that the service will not pose a danger to consumers' health and safety. Since 2016, The Finnish Safety and Chemicals Agency (Tukes) has been responsible for the surveillance of the compliance with the Act. Leisure service sector in Finland is wide and fragmented, including services from playgrounds via motorsport events to outdoor and water activities with individual circumstances. Service providers are both public and private organisations, most of which are small enterprises. Training and education of the service providers vary, and many do not know their statutory safety obligations. Traditionally, service providers' attitude towards the regulator has been determined by fear of sanctions and cooperation has been scarce.

#### Objectives:

The aim is to discuss how Tukes has changed the traditional way of enforcing the law towards Cooperative Regulatory Approach (CRA) to promote injury prevention and consumer safety in leisure services.

#### Methods:

The development and findings of CRA are based on Tukes' surveillance data on leisure services between 2016 – 2022 in Finland. The development process and toolbox of CRA are discussed through five case studies: 1) 1461 safety management inspections to leisure services, 2) 2235 incident notifications from service providers, consumers and others, 3) new safety management tools for service providers for e.g. self-assessment of legal obligations, hazard identification and accident records, 4) co-creation of sector-specific safety guidelines for leisure services between regulators, service providers, trade associations and other stakeholders, and 5) 364 online and live training sessions.



**Results:**

Each of the five case studies have a different setup, focus and outcomes of cooperation. Together they present CRA as a risk-based and case-specific collaboration, which encourages, advises and nudges each service provider onwards from their current standpoint, first to comply the minimal legal requirements and then to continuously develop safety management procedures. It promotes open dialogue and mutual learning. Contrary to common belief, CRA does not exclude the use of hard regulatory measures.

**Conclusion:**

CRA uses multiple methods to improve safety awareness, knowledge and practices in leisure services, which consequently will enhance injury prevention and consumer safety in the long term, as the root causes of the safety incidents in services lay in social processes, procedures and organisation culture.

**Keywords:** regulation, leisure services, safety of services, consumer safety  
Finnish Safety and Chemicals Agency Tukes - Tampere - - - Finland



### **Hazardous product detection based on online customer reviews using large language models**

**Andreas Stoeckl, Austria**

Andreas Stöckl is a professor at the University of Applied Sciences Upper Austria with a specialization in Natural Language Processing. He is currently head of the Department of Digital Media. After studying technical mathematics, he was an assistant at the Johannes Kepler University Linz. In addition to his academic career, he has co-founded several start-ups.

**Introduction:**

Online shopping and E-commerce are challenging new areas for product safety authorities but also provide a new source of product information. The large number of online customers is likely to leave product reviews that include feedback on safety concerns like product hazards, missing information, or suggestions for improvement.

**Objectives:**

We aimed to monitor the emergence of safety and security risks within relevant product categories using online customer review data. To achieve this, we utilized software that automatically downloads the selected reviews into a database and then employs natural language processing techniques to analyze the data. The software should be accessible through a web application.

**Methods:**

Language models such as GPT-3 are utilized as a methodology to identify and summarize safety risks. Problem areas will be identified by employing the BERTopic clustering algorithm to group the identified issues into clusters. This algorithm utilizes advanced machine learning techniques to identify common themes and topics within the review data, which can then be used to group related issues. For this study, the software was applied to one of the big online shopping portals.

**Results:**

Through a dashboard the main quality, functionality and design problems with the products are highlighted. The time course and distribution of the assessments can be displayed, and specific products and reviews within each problem area can be listed. For “chainsaws”, e.g., the following main safety issues were ranked as “poor” from 1 200 customer reviews: hot start performance,

chain tension, chain tensioner counter screw, thumb screw (and many more).

#### Conclusion:

Using this methodology and software, online customer reviews can quickly and efficiently be screened for safety-related issues for any product category of interest. This enables insights into product safety issue in the vast online shopping market. This, in turn, will allow authorities to take proactive measures to address these issues and improve the safety of products.

Keywords: Product hazard detection, E-commerce, Automatic data analysis, Language models

Other info: University of Applied Sciences Upper Austria - Hagenberg - Upper Austria - Austria Anna Maschek\*, Robert Bauer\*\*, Johanna Trauner-Karner\*\*. \* University of Applied Sciences Upper Austria, \*\* Austrian Road Safety Board (KFV).



### Welcome to the other side of consumer product safety

#### Alexandra Kuhnelt-Leddihn, Austria

Alexandra Kuhnelt-Leddihn has many years of experience in injury prevention and safety promotion. Involved in Austrian Product Safety Council and consumer council. Involved in multiple projects concerning the prevention of injuries at home and during leisure and sports activities. Gathered first hand experience at testing of (children's) products. Currently

working at woom (manufacturer for children's bicycles) as a manager for product safety and compliance for the EU

#### Introduction:

Changing the perspective from "regulation-centric" to "product-centric" can be like taking a leap of faith. Using the example of children's bicycles, this presentation shows how different levels of regulations interact to build a safe product - and limitations which can be encountered. Once you become aware that the development of a new component can take years and you have to order components years in advance, things definitely become more interesting. During this time regulations as well as standards might change. Furthermore, small design changes might place your product under a different standard or even regulation. And when you thought, you have everything covered for the EU in general, you figure out, that in some cases also national regulations require your attention. Children's products, especially if they are used in a high-risk environment, pose a special challenge. My example: children's bikes... ..shall be safe to use, ...shall be usable by children, ...shall be attractive to children, ...will be used on streets and also... ..need to be attractive for adults to go for them. For example, bikes for children cannot just be downsized from adult's versions to accomplish all of the topics mentioned above. Furthermore children might use their bikes differently and cannot responsible for the maintenance. Raising awareness among the caregivers is therefore also of major importance.

Keywords: product safety, children, bicycle, awareness, sport, leisure, traffic, vulnerable road user



## SAFEorFAKE? Toolkit for educating and raising awareness on the risks of counterfeit toys

### Maria Cruz Arenas Motilla, Spain

Maria Cruz Arenas Motilla is a Project Manager of the Technological Institute for Children's Products and Leisure (AIJU). Researcher on risk assessment of children's products since 2003. Manager of research projects at national and European level. In recent years, her activity has been mainly focused on the development of innovative educational projects on children's products safety for consumers, industry and authorities.

#### Introduction

The risks of counterfeit products are not self-evident risks. The presence of banned chemicals or chemicals above the permitted regulatory limits is one of the most commonly observed hazards to children's health and safety, but it is not the only one. Consumers often make their purchase decisions based mainly on the price, ignoring the risks involved in buying and using counterfeit products. Consumer education and awareness-raising are key to achieving a fair, safe, and sustainable product market. This learning and awareness-raising process should start at early stages of education.

#### Objectives:

The objectives of the "SAFEorFAKE? Toolkit" Project were to develop, make known and promote a new educational tool on the importance of intellectual property and the risks that counterfeit consumer products pose to health, society, and the environment. This tool was designed for children, teachers, future teachers, and other trainers with the support of the European Union Intellectual Property Office.

#### Methods:

The SAFEorFAKE? Toolkit was developed using the Lean Design e-Learning methodology. This method is based on the application of the Lean Canvas methodologies, for the creation of online educational resources. The content design involved the participation of school-age children through online questionnaires and group dynamics in schools. Toys and the story behind them were used as a learning vehicle. The SAFEorFAKE? Toolkit was disseminated and promoted through four main dissemination channels: events, online platforms, social media, and traditional media. Results The SAFEorFAKE? Toolkit (<https://www.safeorfake.eu/en/toolkit/>) consists of a series of didactic play materials for children's learning and awareness-raising through their parents, and didactic guides to support these materials for use in Primary Education with teachers and pupils. The training contents are segmented in four learning topics around counterfeit toys:

- Importance of intellectual property
- Risks to children's health
- Risks to society
- Environmental risks

The dissemination activities carried out through different channels allowed to reach more than eight million people in Spain. Conclusion The topics covered by the SAFEorFAKE? Toolkit such as intellectual property, child product safety, consumer protection, economics, and environmental aspects are common to all Member States, as they are regulated by European directives and regulations applicable to all EU countries. The project was implemented in Spain, as a pilot experience, and it may be easily transferred to other European countries.

Encarna Alemañ Baeza - Technological Institute for Children's Products and Leisure (AIJU)  
 Karina Pernías Peco - Technological Institute for Children's Products and Leisure (AIJU)  
 Alicia Ramos Fernández - Technological Institute for Children's Products and Leisure (AIJU)



## Why do so many DIY accidents occur? An exploratory study of underlying causes of consumer accidents involving machines and ladders

**Evi van Moll, Nederland**

Evi van Moll is a researcher and cognitive psychologist. She studies topics related to occupational and consumer safety.

An exploratory study of underlying causes of consumer accidents involving machines and ladders. Many people perform DIY-tasks at home, using products such as power tools and ladders. Accidents with severe consequences happen during these tasks. Research on this topic is for a large part based on hospital registrations, and only provides insights in injuries, prevalence and direct causes (what went wrong at the very last moment). However, still very little is known about what happened leading up to these accidents. In order to improve prevention of these accidents, more in-depth knowledge on this topic is necessary. Therefore we performed an exploratory study of underlying causes of consumer accidents involving machines and ladders. Both experts and consumers who perform DIY tasks were interviewed. The group of experts consisted of social scientists with different orientations, such as risk perception, behavioural influence, social psychology, cognitive psychology and safety. Some of the experts work at large Dutch producers of power tools and ladders, where they perform accidents analyses. They were asked what they think are possible underlying causes of DIY accidents with power tools and ladders. The results were analyzed and visualized in a conceptual framework. Consumers who often perform DIY tasks were questioned about topics such as preparation of tasks, product use, use of information and safety behaviour. Finally, we compared the possible underlying causes of accidents according to experts with the insights gained from consumer interviews. According to experts, many factors can contribute to the occurrence of accidents during DIY tasks. Most of these were behavioural factors. Three specific behaviours were mentioned: 1) incorrect use of products 2) using a product that is unsuitable for the tasks and 3) using a product that is in poor condition. Underlying causes of these behaviours are for example a lack of knowledge and underestimation of the risk of an accident. In the conceptual framework that will be shown during the presentation, many more underlying factors on different levels will be shown. Many of the causes mentioned by experts, were also identified in the consumer interviews. For example, all consumers that were interviewed estimated the risk of an accident occurring to be low. The framework of underlying causes of accidents during DIY will be used for future studies on consumer- and product safety. A follow-up study is planned for 2023, regarding the perception of risk or decision-making regarding the use of products.

Keywords: Safety, consumers, products, DIY, machines, ladders, behaviour, psychology



## Are flameless LED tea lights a safe alternative to real tea light candles?

### Monica Steiner, Austria

Authors: Monica Steiner\*, Robert Bauer\*, Johanna Trauner-Karner\* \*KFV (Austrian Road Safety Board) Monica Steiner has been working as a project leader at the KFV (Austrian Road Safety Board) in the fields of child safety,

home and leisure safety and injury data since 1999.

#### Introduction:

LED tea lights are frequently used as a supposedly safer alternative for conventional candlelight, especially when exposed to children. However, if the battery compartment of the product is not firmly closed or screwed, even children could get easy access to the contained button cell. Due to their shiny silver surface, the round button cells are extremely attractive to small children. This bears the risk that children remove and accidentally swallow the button cell; potentially leading to serious, even life-threatening injuries.

#### Objectives:

The aim of the study was to find out whether LED tea lights sold in Austria have child-proof battery compartments that can be screwed down tightly, or not.

#### Methods:

Test purchases were carried in a total of 129 Austrian retail and online shops between in 2022. Online orders were placed in two online shops specialising in kindergarten, handicraft, and school supplies.

#### Results:

About half (47%) of the tested shops had LED tea lights in stock at the time of the test purchases. However, only 15 percent of them had a firmly screwable and thus child-safe version in their assortment. This is particularly alarming as safety does not seem to be a question of price: childproof LED tea lights are available in shops for as little as € 0.50 cents per piece - so the price is comparable to that of the unscrewed version.

#### Conclusion:

There are strict legal regulations regarding child safety for toys that are put on the EU market (EN 62115): If toys contain button cells, the battery compartment may only be opened with a tool. For LED tea lights, no such requirement is specified here. European standardisation bodies should consider expanding this requirement to products such as LED tea lights. Retailers are requested to sell only child-proof LED tea lights, on a voluntary basis, even if there is no legal requirement, yet.

Keywords: Child Safety, LED-Tealights, Button Cell Battery, Coin Battery, Product Safety

KFV (Austrian Road Safety Board) - Vienna - Austria





## Safe Sleeping in product design

### **Herdís Storgaard, Iceland**

Herdís Storgaard is representing ANEC giving this presentation.

Safety consultant, Iceland (slysaheid@simnet.is) Nurse, Emergency nursing, anesthesia nurse, Program director child safety program in Iceland.

Prevention in playground safety, drownings, burns, head injuries, home safety of children, safety in the sleep environment, worked on writing standards representing ANEC since 1996. Won national and international prizes for safety work. Runs a safety house to educate parents on child safety.

#### Introduction:

Sleeping babies, especially those aged under four months, can suffer death and injury in sleep environments, including suffocation - by direct covering of the face, for example from loose bedding, toys, etc; positional asphyxiation - the baby cannot breathe because its head falls forward because of the angle of the body resulting in upper airway obstruction; asphyxiation - the baby is in an enclosure with lack of airflow; strangulation from cords, ribbons, harnesses, etc; overheating; falls and entrapment.

While recognising that some aspects of safe sleeping can only be addressed through appropriate parental behaviour, this paper focuses on how safe sleeping can be promoted through appropriate requirements in product standards and hence product design and construction, providing guidance on the key parameters that should be included in standards to optimise safe sleeping and highlighting parameters that should be avoided.

Drawing heavily on the guidance from the American Academy of Pediatrics, the paper highlights the key parameters for sleep-related products. It also notes that some products that claim to have a safety function do not actually address a real injury risk and might in practice increase risks. Product standards can ensure that products intended to have a sleep function meet all of the key parameters in their requirements, including appropriate instructions for use and the need to seek guidance from health professionals. They can also ensure that it is clear to consumers in product information when a product is not intended to provide a safe sleeping function.

# Child and adolescent safety 3

## Parallel Session 14

FRIDAY 06. October 2023 - 10.15



## Keep Your Eyes Open: A Traffic Safety Trilogy for Children



### **Peter Spitzer, Austria**

Peter Spitzer has worked in the field of accident research and injury prevention for more than 30 years. He is the Scientific Director of the Research Center for Childhood Accidents and the Secretary General of Safe Kids Austria, the Austrian injury prevention and safety promotion body. The focus of his work is performing accident research and developing effective prevention projects based on these findings.

### Introduction:

The Research Center for Childhood Accidents is a close and long-term partner of Safe Kids Austria. Together, these two partners are very interested in using findings from injury research to create effective accident prevention activities.

### Objectives:

\*Analysing main traffic accident scenarios for children \*Using the results in traffic safety education projects

### Methods:

Over the last three years, the Austrian RTA and the hospital injury database have been analysed to learn more detailed information about the circumstances of traffic accidents related to distraction, public transport, and blind spots. The results have been summarised in three accident reports, and key activities to prevent such kind of accidents have been defined.

### Results:

From 2021 to 2023, three projects were designed to improve traffic safety and to give children more competence and skills that would enable them to practice safety and watch out for danger in several traffic situations. The overall target of these projects has been to focus the children's attention on road traffic, help them to avoid distractions, and to teach them how to behave passively and forgivingly when other road users make "mistakes." \*Project 1: Keep Your Eyes and

Ears Open - Safety on the Streets! Content: visual and acoustic distractions and attention, multitasking challenge \*Project 2: Keep Your Eyes Open - Sure-footed on the Road! Content: Body control and sure-footed locomotion in road traffic \*Project 3: Keep Your Eyes Open - I Spy with My Little eye! Content: Check out, what can be seen from several positions and different views and angles in a particular traffic scene! For each project, a toolbox has been developed consisting of PPT files that provide theoretical input in the classroom, video tutorials combined with teacher's manual for practical safety training, and e-learning sequences with references to a blended learning approach. Information about these teaching resources toolboxes has been sent to teachers via the Styrian Board of Education and via the homepage "Network Traffic Safety Education" maintained by the Austrian Ministry of Education, Science and Research. In some schools, workshops have been held as a kick-off activity. Financial support has been provided by the Traffic Safety Fund.

#### Conclusion:

Research findings resulted in action. Analyses of traffic accidents data enabled us to define risk scenarios and develop prevention projects, which are suitable for increasing the risk competence of the relevant target group.

Keywords: traffic safety education, children, distraction, reaction, anticipation  
Research Center for Childhood Accidents - Graz - Styria - Austria



### Adolescent's risky behaviour - Trampoline accidents

#### Marjolein Versteeg, Nederland

Marjolein Versteeg, PhD, is a researcher at the Consumer Safety Institute, the Netherlands. Her areas of expertise include behaviour change, business intelligence (PowerBI), and various quantitative and qualitative research methods.

#### Introduction :

The number of Emergency Department (ED) visits due to trampoline accidents has increased significantly over the last years. Previous research showed that many of these patients had taken insufficient safety measures as they were jumping with others and/or they were performing tricks. It is still unknown, however, why people perform risky behaviour. If our goal is to change their behaviour, we need to develop an understanding of their actions. We are particularly interested in adolescents aged 12-15, as this group remains underrepresented in research compared to younger children. Furthermore, this group may provide more opportunities for behavior change, including strategies to increase knowledge and awareness.

#### Objectives:

This study aims to understand risky behaviour of adolescents aged 12-15 years and design effective behavioural interventions to prevent severe trampoline accidents.

#### Methods:

Various qualitative research methods were combined to analyse risky behaviour concerning trampolines among adolescents 12-15 years of age. Observational analyses were performed in three different indoor trampoline parks. Additionally, interviews were conducted with adolescents (n=15), their parents (n=6) and employees (n=3) of the parks. Lastly, a social media analysis with different online platforms was carried out. A behavioural change model was applied to the data to identify factors influencing the children's risky behaviour. Subsequently, behavioural change techniques were matched to develop potentially effective interventions for behaviour change.

**Results:**

Risky behaviour was mainly influenced by social norms, comforts, and motivation. Adolescents were mainly inattentive and inconsiderate about the risks, e.g., not paying attention to others playing on the same trampoline. Furthermore, adolescents often copied behaviour of others while playing, which became risky when they tried tricks that were too difficult for them to perform. Adolescents also perceived low risk and were primarily motivated by jumping together, which they found more fun than jumping alone. To design effective interventions, various behaviour change techniques were identified, including altercasting, salience, and loss aversion.

**Conclusion :**

A behavioural science approach successfully led to various behaviour change strategies for preventing severe trampoline accidents among adolescents. Understanding adolescent's risky behaviour provided evidence-informed starting points for designing interventions or campaigns to increase child safety.

**Keywords:** Trampoline accidents, Emergency Department, Behavioural design.

**Effectiveness of the Safe Routes to Schools****Catherine Perez, Spain**

Catherine Perez - PhD, Head of the Health Information Systems Department. She leads the research group Urban Health Inequalities. Her main lines of research include the development of indicators and study of social inequalities in health, evaluation of health impact of mobility and road safety policies, the study of injuries and their severity. She has participated in several projects with actions to tackle health inequalities.

**Introduction:**

Many cities have promoted programs that make it easier for children to walk or cycle to school safely, usually called Safe Routes to School (SRTS). In Barcelona, SRTS ("Camí escolar, espai amic") includes an educational program conducted within the school and the community, and changes in the environment around the school. It started in 2002, with greater deployment since 2006.

**Objectives:**

This study aimed to evaluate the effectiveness of the SRTS program carried out in Barcelona between 2006 and 2016 in reducing the number of road traffic collisions and injuries in the school environment. **Methods:** The study used a pre-post quasi-experimental evaluation design, with a matched comparison group, including 64 intervention schools. Outcomes included collisions and people injured within a radius of about 200 meters around schools during school hours, using geocoded data (2002-2019) from the local police register, and contextual variables. For each outcome measure, we fitted generalized linear mixed model with Poisson distribution.

**Key words:** Road safety, Children, Pedestrian, Evaluation





## Home-related injuries among children under 12: parents' knowledge, attitude and practice in Moldova

### Svetlana Cociu, Republic of Moldova

Svetlana Cociu is a young researcher, Ph.D. (c), Assistant professor, research interest: health promotion, injury prevention, global health. Since 2017, involved in scientific research within 2 international projects funded by NIH-iCREATE (Increasing Capacity in Research in Eastern Europe) and INITIatE (International Collaboration to Increase Traumatic Brain Injury Surveillance in Europe). During the last 5 years, I co-authored 41 articles, 27 abstracts, and 24 oral communications at national and international events.

#### Introduction:

Injuries continue to be one of the global public health problems, an important cause of morbidity and mortality in children, even in countries with the most advanced medical services. According to WHO, around 424 000 children of all ages die worldwide each year from falls and more than 2000 children suffer from unintentionally injuries every day. More than 95% of these deaths happen in low- and middle-income nations, where the majority happened within home environment. Our objectives were to assess the parents' knowledge, attitude and practice regarding home related injuries among children under 12 and intervene with prevention methods.

#### Methods:

A cross-sectional study was conducted using a questionnaire to assess home-related injuries knowledge, attitude and practices among parents, grandparents or other people taking care for children under 12 years old, after providing their consent. From May to December 2022, the questionnaire was accessible online and circulated via social media, following data was collected: demographic's, level of supervision, falls, poisoning, burns and home-related injury. Ethics committee approval has been obtained.

#### Results:

In total, participated 481 parents with children up to 12 years old, mostly aged between 26-35 years (627%), with high education (78.3%), of them 94.8% females, majority from urban areas (80%). Almost 68.3% respondents believe their child could get hurt at home, namely through injury (86.9%), followed by 37.1% who believe their child could consume something foreign. In 46,3% of cases, it is difficult for youngsters to get sharp objects, drugs, and harmful solutions, in 12.6%- it is simple. Falls accounted for 76% of the child's injuries over the past year. Parents claim to always be able to see and hear their children, according to 48.3% of parents, although there are times when they do leave their kids alone for a while. However, they occasionally leave them in the care of grandparents (58.3%) or other people (23.7%). When a child was injured at home, 46.7% of parents treated their child at home, while 36.9% went to the doctor, of them 34.1% were examined and discharged without treatment. Following the accident, 74.8% of people rated the child's condition as good, and 27.5% as acceptable.

#### Conclusions:

The findings of this study will enable us to focus more on the child safety within home environment, identify relevant measures to prevent them and improve trauma medical care  
Keywords. children, home injury, 0-12 years old, safety, prevention.





## Secure the bridge from fundamentals to sustainability on children car passenger safety in Cluj-Napoca, Romania

### Diana Dulf, Romania

Diana Dulf is an assistant professor in the Department of Public Health, coordinating the Violence and Injury Prevention Unit, closely collaborating with researchers, non-governmental institutions, and private institutions in the field of injury prevention and control. Dr. Dulf has coordinated several grants, serving as Co-PI on a NIH trauma training grant (D43TW007261), building a strong Romanian research team and sustainable research activities in trauma and injury prevention in Romania.

#### Introduction:

Road traffic injuries are a significant public health problem in Romania, and children are a vulnerable population for death and disabilities caused by road traffic injuries. Research conducted in Cluj-Napoca showed that only half of children travelling by car were properly restrained and, children are less likely to travel properly restrained as they grow older (Dulf et al, 2020). Using this evidence, a multi-sectorial initiative started in 2018, with the primary scope of improving child car passenger safety and promoting appropriate use of child restraints.

#### Objectives:

The multi-sectorial initiative focused on three main pillars: secure police enforcement, build commitment from the city-hall to support car seat programs for vulnerable groups and increase awareness and knowledge among parents of children older than

#### Methods:

The project was funded by the Botnar Child Road Safety Challenge in yearly funding cycles since 2018 and will continue to be supported by the end of 2023. The project is implemented by a multi-disciplinary team of experts in the field of child safety, run by the White Cross Foundation in Romania, and endorsed by a team of advisors from the Global Road Safety Partnership. The yearly proposal and monitoring and evaluation plans are followed-up to accomplish the planned objectives.

#### Results:

A total of 30 police officers were trained to conduct enforcement on child restraint systems, more than 10 police officers were trained to increase road safety leadership, a multi-sectorial action group was established with the support of City-hall and Road Traffic Police and a raising awareness campaign promoting appropriate use of car seats through all types of media was launched. FCA/Copil iubit la bord have amassed 16K followers on Facebook building a strong community on the topic and the first app in Europe, Child Car Safety App, to increase child car safety by supporting parents to appropriately restrain children when traveling by car were part of the raising awareness campaign.

#### Conclusions:

The multi-sectorial initiative to increase child passenger safety in Cluj-Napoca, Romania (Copil Iubit la Bord/Loved Child on Board) is an example of committed partnerships for engagement at local administration levels- both city hall and police leadership – which support the non-governmental institutions and academia to implement evidence-based programs and policies in the field on injury prevention and safety promotion.

Keywords: road traffic safety, multi-sectorial engagement, priority-setting, awareness.

Other info: Erika Baragan, Department of Public Health, Faculty of Political, Administrative, Communication Sciences, Babes-Bolyai University, Cluj-Napoca, Romania Atsani Ariobowo, Global

Road Safety Partnership, International Federation of Red Cross and Red Crescent Societies, Geneva, Switzerland  
Ramona Brad, White Cross Foundation, Bucharest, Romania  
Ana Măiță, White Cross Foundation, Bucharest, Romania

## **The Child Car Safety App – promoting child passenger safety to parents**

**Diana Dulf, Romania**

### **Introduction:**

The use of car seats in Romania continues to be low. 2020 Cluj County Traffic Police Reports revealed that 40% of child passengers involved in car crashes were not using any type of restraints. The proportion of children travelling restrained declines with age, children older than 5 being at higher risk. Existing research evidence showed that there is a need to increase correct child restraints (Dulf et al, 2020), while new technologies, like mobile apps, are starting to become an important tool in increasing these rates as demonstrated by an RCT conducted in two children's emergency hospitals (Gielen et al, 2018).

### **Objectives:**

In July 2022, the Child Car Safety (CCS) App was launched to support parents in improving their car safety behaviours for child passengers. The app is available in Romanian and in English. This research aims to evaluate the process and the impact of the CCS app by testing its usability and by measuring self-reported changes in child restraints practices by parents, after using the CCS app. The work on developing and improving the app is on-going and is considered for incorporating other well-being aspects for children. Partial results are presented.

### **Methods:**

The app will be evaluated by using the System Usability Scale and a survey to measure changes in parents' car safety behaviors after using the app. The evaluation is planned for April - May 2023. The app already has two integrated feedback components, measuring the likelihood of recommending the app on a scale to 1 to 5 and a feedback section where users can share their opinions.

### **Results:**

Since the launch of the app on July 28, 2022, a total of 2584 successful accounts were created. A number of 1510 parents assigned a car seat to their child's profile, using seat label scan feature. Currently, half of the accounts remained over time. On March 3rd, 2023, a notification was sent to 1284 users, whilst the app has around 480 active users, over one month period. Partial results, measuring the likelihood of recommending the app is 4,7 out of 5, based on 211 respondents.

**Conclusions:** The Child Car Safety App is built on research-evidence, as an accessible tool to increase parents' knowledge and awareness on appropriate child safety restraints use, providing them with guided information, notifications, and verification methods to check seat compliance.

**Keywords:** child passenger safety, mobile application

**Other info:** Ramona Brad, White Cross Foundation, Bucharest, Romania, Atsani Ariobowo, Global Road Safety Partnership, International Federation of Red Cross and Red Crescent Societies, Geneva, Switzerland, Anca Daniela Aron, Linnify, Cluj-Napoca, Romania



## The risks of scalds due to boiling water taps in children under 5 years of age

**Eva E. van Zoonen, Nederland**

Eva E. van Zoonen is a researcher at the Dutch Burns Foundation in the field of aetiology and burns prevention

### Introduction:

Burn injury is more prevalent in young children under 5 years of age than in any other age group. In children admitted to Dutch burn centres, scalds are the most common type of burn injury (86%). In the Netherlands, 5% of severe scalds in children under 5 years of age are caused by electric water kettles. Since the introduction of boiling water taps on the Dutch market in 1992, electric water kettles in kitchens were gradually replaced by boiling water taps. Nowadays, 25% of the young family's has a boiling water tap in their kitchen. With a boiling water tap, only the necessary amount of hot water is used, contrary to an electrical water kettle which often boils more water than necessary.

### Objectives:

Since scalds by electric water kettles are notorious for their large TBSA (total body surface area) burned, an alternative for electric water kettles may prevent some of the severe scalds in children. The aim of this study therefore was to elucidate the influence of boiling water taps on the number of severe scalds in young children.

### Methods:

The outcomes of an aetiological prospective cohort study were used to determine the incidence rate of severe scalds due to boiling water taps and electric water kettles in children under 5 years of age. By comparing the percentage of boiling water tap owners to the number of scalds, the risk for boiling water tap accidents could be predicted. The same calculation was made for electric water kettles. Results The incidence rate of severe scalds due to electric water kettles in children under 5 years of age was 2.6 per 100,000 children. If the incidence rate for boiling water tap scalds would have been the same as for electric water kettle scalds, we expected that 6 children in our aetiological study were burned by boiling water taps. However, no severe scalds due to boiling water taps were found.

### Conclusion:

To prevent severe scalds, containers with large amounts of hot water within possible reach of young children should be avoided. Therefore, boiling water taps, if safe, may be a good alternative for electric water kettles. The outcomes of our study indicated that the risk of severe scalds in children under 5 years of age is lower for boiling water taps than for electric water kettles.

Keywords Boiling water tap Children 0-4 Scalds

## Road safety – Vulnerable road users 3

### Parallel Session 15

FRIDAY 06. October 2023 - 10.15



### Impact of the COVID-19 pandemic on the epidemiological characteristics of the hospitalized patients due to road traffic crashes in Georgia



#### Tamar Chachava, Georgia

Tamar Chachava is the Chief Specialist of the Chronic Disease and Traumatism Division under the National Center for Disease Control and Public Health; WHO focal point in Road Safety and Violence Prevention; Working group member of the National Road Safety Strategy and action plan; Component leader for third component of the EU funded twinning project “Support in establishment of comprehensive road safety database and further improvement of road safety management in Georgia”

**Background:** Road traffic injury (RTI) is a devastating burden for Georgia. Annually, about 500 people are killed and 8000 are injured. The COVID-19 Pandemic lockdowns restricted human and traffic mobility impacting the patterns of RTI. We aimed to study the effects of the COVID-19 pandemic on epidemiological characters, patterns, and outcomes of hospitalized RTI patients in Georgia.

**Methods:** The retrospective comparative analysis of the database of the National Center for Disease Control and Public Health of Georgia for 2019 and 2020, which includes all hospital admissions due to road traffic crashes (RTC) was completed. Cases were included based on the following ICD-10-AM codes: S00–T98 & V01 to V89. **Results:** A significant decrease of 21% was observed in the number of patients admitted to hospitals by road traffic accidents during the COVID-19 pandemic period compared to the pre-pandemic period (p  
National Center for Diseases Control and Public Health - Tbilisi - Georgia - Georgia



## Alcohol related road traffic accidents in the European Injury Data Base

### Marco Giustini, Italy

Marco Giustini - Epidemiologist. Researcher at the Italian National Institute of Health (ISS). I worked in the Environmental and Social Epidemiology Unit of the ISS, dealing with injury prevention and control. Authors of 36 scientific papers (H-Index 17) and scientific manager of 5 projects at national and international levels, currently I manage the European Injury Database, the surveillance system (hosted by ISS) based on injury attendance at Emergency Department

#### Introduction:

The Full Data Set (FDS) of the EU-IDB (European Injury DataBase) is a source of information covering many details on the external causes of injury, including objects/substances/products involved in injuries. The FDS includes more than 4,2 million of attendances recorded in a sample of Emergency Department (ED) in 19 European countries between 2008 and 2020. Objectives. To estimate the relationship between the chance of detecting alcohol in Road Traffic Accidents (RTA) with more predictors. Methods. Multivariate logistic regression using the IDB-FDS databank was carried out. Alcohol was the binary outcome and 4 categorical variables were the predictors (SexOfPatients, AgeGroupOfPatients, Treatment and ModeOfTransport).

#### Results:

Overall, alcohol has been detected in 4.3% of ED attendances due to RTAs and in 6.3% of admissions. In RTA, alcohol is more likely to be detected in males (OR= 2.67; IC95% 2.54-2.80; p Other info: Italian National Institute of Health - Rome - Italy - Gianni Fondi, Carlo Mamo, Alessio Pitidis, FDS Reference Group



## Road traffic injury mortality trends in children and teenagers over two decades in Lithuania

### Birute Strukcinskiene, Lithuania

Prof. Dr. Birute Strukcinskiene is a Head of Department of Public Health, at the Faculty of Health Sciences, Klaipeda University, Lithuania. She is a Vice-President of the Injury Prevention and Safety Promotion section at the European Association of Public Health (EUPHA).

#### Introduction:

In Europe – every 8 minutes a person dies due to a road traffic injury. Recently, in Lithuania, among children aged 0–17 years, deaths from external causes are the number one cause of death, and the road traffic deaths account for the largest percentage of fatal injuries in this age group.

#### Objectives:

The objectives of the study were to analyze the road traffic injury mortality trends among children aged 0-14 years and teenagers aged 15-19 years over the 1998–2020 in Lithuania.

#### Methods:

A longitudinal study was conducted, and regression analysis was applied. The coefficient of determination (R<sup>2</sup>) was used in the study. The significance level  $p \leq 0.05$  was considered statistically significant.

#### Results:

In the period of 1998–2020, 502 children died in road traffic crashes in the group of children aged



0–14 years in Lithuania: 325 boys (65 %) and 177 girls (35 %). Boys deceased nearly two times more than that of girls. Mortality rates of children aged 0–14 years from road traffic injuries per 100,000 children decreased significantly over the 1998–2020 in the whole group and in the subgroups of boys and girls. Over 1998–2020, in the group of teenagers aged 15–19 years, almost one thousand (993) teenagers died in road traffic crashes in Lithuania: 746 boys (75 %) and 247 girls (25 %). Boys deceased three times more than that of girls. In the group of Lithuanian teenagers aged 15–19 years, mortality from road traffic injuries significantly decreased in the whole group, and in the subgroups of boys and girls.

#### Conclusion:

Regardless of the fact that during this study, the significant decreasing trends of the road traffic injury mortality rates in Lithuania were identified, it should be emphasized that in Lithuania, deaths from road traffic injuries in the groups of children and teenagers take the leading positions in the category of deaths from external causes. Traffic injuries in Lithuania remain a constant threat to the health and life of children. Road traffic injuries are still an important public health issues that requires increased attention and permanent actions of injury prevention and safety promotion.

Keywords: Children, teenagers, road traffic, injury, mortality, trends, road safety.

Other info: Department of Public Health, Health Research and Innovation Science Centre, Faculty of Health Sciences, Klaipeda University - Klaipeda - - - Lithuania-



### **Development and clinical implementation of a standardized car-driving simulator for traffic victim patients in an orthopaedic outpatient clinic**

#### **Jens Lauritsen, Denmark**

Jens Lauritsen worked intensively with injury registration and epidemiology since my Ph.d. in 1985 and has taken part in 25+ injury conferences since then. Published more than 120 papers in the area.

Currently professor of injury epidemiology and consultant in an ortopedic dept

#### Introduction:

Clinical Impact. From our daily practice in an orthopaedic outpatient clinic, we know that traffic victim patients want precise advice on when to start driving a car again; for many of them regaining their driving ability is crucial to lead a normal life. But our orthopaedic surgeons struggle with giving this advice due to the lack of precise guidelines.

#### Objectives:

We address this gap by evaluating a car-driving simulator as an intended personalized rehabilitation guidance tool to get traffic victim patients safely back on the road. 1. Technically we are developing a test in a car-driving simulator with different scenarios across routes, environments, road users, brake lengths, and safety situation challenges, using parameters for function and quality. This includes a stress measurement principle found in a publication. 2. Clinically assess the feasibility of the virtual driving test developed in objective 1 with technical staff and health staff who guide traffic victim patients followed in an orthopaedic outpatient clinic. Our research project is expected to have the following impacts:

#### Results:

We will present a specific implementation platform to scientists and clinicians who are interested

in applying a car-driving simulator on other orthopaedic traffic injury victims and in other medical specialties.

#### Conclusion:

Based on thorough previous testing and current literature review we are ready to discuss the applied use in terms of clinical guidance at the individual level. Furthermore we will pilot test in the clinical setting during second and third quarter 2024. Thereby ready for presentation at the conference in autumn 2023

Professor and Consultant, Odense University Hospital/University of Southern Denmark - Odense - Fyn – Denmark

## Assessment of Wildlife Accident Risk using a Drone-based Population Monitoring System



#### Christoph Praschl, Austria

Christoph Praschl is a PhD student at the Johannes Kepler University in Linz since 2022 and assistant professor at the University of Applied Sciences Upper Austria, where he is also working in the research and development department with a focus on computer vision, mixed reality, and software architecture since 2017.

#### Introduction:

Electric scooters, or e-scooters, are popular vehicles that run on electricity and can travel up to 30 km/h. However, their increasing use has led to a rise in injuries related to accidents, becoming a public health concern and causing a surge in emergency room admissions.

#### Objectives:

The purpose of the study was to obtain preliminary information about epidemiological features associated with e-scooter injuries. A retrospective study design was chosen, and all cases of e-scooter injuries that occurred between March 1st and December 31st were collected from the available medical records of Heratsi Hospital Complex N1, although some information was missing. Data were analyzed using MS Excel.

#### Results:

A total of 73 cases were reported, with 48 men and 25 women injured. The minimum age was 4 and the maximum age was 71, with an average age of 29.14 (interquartile range was 23 to 32.25). Of the 73 injured patients, 66 were from Yerevan and 7 were from outside the city. 33 individuals were transported to the hospital by ambulance, 28 transported themselves, 3 were accompanied by a parent, and 1 was transported by the police. The majority of the cases, 39 in total, happened in summer. 55 injuries have been accrued due to falls from e-scooters: 4 were run over, 3 collided with a car, 2 were hit by an object, and 1 was due to sharp braking. Only 3 cases from the total involve injuries to a single body part; the remaining 70 victims suffered multiple traumas. 53 injuries involved the brain and/or face and 19 victims had bone fractures. The most common medical intervention was dressing wounds and suturing open wounds.

#### Conclusion:

The study indicates that falls from e-scooters can result in a variety of injuries, with a total of 73 cases reported. Men were more susceptible to injuries than women, and multiple traumas were more common than single-body-part injuries, with the brain and face being the most frequently affected areas. However, the lack of regulations and absence of protective gear for drivers, as well as the police's failure to report or monitor accidents that occur on sidewalks, can increase the risk

of e-scooter-related injuries, particularly brain injuries. These findings highlight the need for increased safety measures and public awareness campaigns to mitigate the risks associated with e-scooter use. Key words: e-scooter, injuries, sidewalk, victim.



### **Assessment of pre-medical acute care provided by eyewitnesses to victims of road traffic accidents**

#### **Artashes Tadevosyan, Armenia**

Artashes Tadevosyan is the Head of the Department of Public Health and Healthcare Organization at Yerevan State Medical University. The author of more than 150 articles and has over 40 years of experience in preventive medicine.

#### **Introduction:**

According to the World Health Organization (WHO), nearly 1.35 million people die on the world's roads every year. WHO indicated that incorrect pre-medical aid is one of the risk factors for deaths from road traffic injuries.

#### **Objectives:**

The aim of the study is to assess pre-medical care provided to victims of road traffic accidents (RTAs) by eyewitnesses.

#### **Methods:**

The study period was May 1st to October 31st 2022, in Armenia, Yerevan. A prospective study design was chosen and a semi-structured questionnaire was used that included quantitative and qualitative questions. Universal sampling was used and all the ambulance doctors who were on call to assist in RTAs were included in the study. RTA cases were taken from the road police of Armenia. Data were analyzed using SPSS program. Results: From a total of 153 cases, the health condition of 99 victims was mild, for 28 it was moderate, for 18 it was severe (unconscious), and for 8 it was extremely severe (unconscious). Doctors noted that eyewitnesses had been active in trying to assist victims - more often pulling them out of cars (in 104 cases had tried, 49 cases had not). In 110 cases, eyewitnesses had tried to provide assistance, while in 29 cases the eyewitnesses had done nothing. As for the last 14 cases, the doctors weren't sure if any pre-medical aid had been provided. Eyewitnesses attempted to stop bleeding in 57 cases, did nothing in 70 cases (including cases where no one was nearby), and there was no bleeding in 24 cases. In 2 cases, the interviewees could not recall if there was bleeding. The doctors noted that the main mistake made by eyewitnesses was moving RTA victims from cars without immobilizing the injured area, which occurred in only 5% of cases. Some of the interviewed doctors believed that it would have been better if eyewitnesses had not interfered with their work. However, other respondents stressed the importance of stopping bleeding and immobilizing victims before the ambulance arrives.

#### **Conclusion:**

The majority of the interviewed emergency doctors noted that the population does not have basic knowledge of the provision of first aid and it is necessary to provide the population with theoretical and practical knowledge. They also identified a lack of first aid knowledge as the main reason for patient conditions worsening in 81% of cases.

Keywords: Road traffic accidents, eyewitnesses, victims, first aid.

Other info: Yerevan State Medical University - Yerevan - Armenia: Anna Mnatsakanyan, Kelli Kulikova.

# Water safety and drowning prevention

## Parallel Session 16

FRIDAY 06. October 2023 - 10.15



## Drowning Prevention in Europe



### Detlev Mohr, Germany

Dr. Detlev Mohr was born 1954 1975-1980 Study of Physics in Magdeburg 1990 Dr. rer. nat. in Biophysics 1980-1990 Scientific Staff of OSH Authority in Potsdam 1990-2014 Director of OSH Authority Land Brandenburg 2014-2020 President of State Office for OSH, Consumer Protection and Public Health Land Brandenburg 1998-2021 Vice President German Lifesaving Association DLRG since 2012 President of International Lifesaving of Europe ILSE since 2012 Vice President of International Lifesaving ILS

### Introduction:

One of the leading causes of accidental death worldwide is drowning – also in Europe. In average 3,5 people drown every hour in Europe. 23.000 people die every year in European waters Thousands are suffering lifelong under brain damages as a result of non-fatal drowning accidents. In April 2021 the UN General Assembly passed its remarkable Resolution on Global Drowning Prevention. In February 2023 the WHO Executive Board decided to accelerate action on global drowning prevention.

### Objectives:

Drowning is preventable. Undertaking preventive measures to enhance safety is therefore essential. 90% of the deaths among children could be averted. Such actions need to be intersectoral to ensure safe water environments using the combined approaches of engineering and modifying the environment, legislation and education. Obligate swimming courses in primary schools could help to improve the swim ability of children.

### Methods:

In a survey the lifesaving federations tried to get information from the European countries if



swimming courses would be mandatory in primary and secondary schools. The results are disappointing. In a further survey we tried to identify if the national governments in Europe which have sponsored the UN Resolution 75/273 (2021) would have appointed a national drowning prevention focal point, as foreseen.

#### Results:

The ability to swim has decreased in the last years. In many European countries swimming courses are not obligate in primary schools. In many European countries which sponsored the UN Resolution and supported the WHO Resolution for accelerated action the necessary actions haven't yet started. ILSE has analyzed the data of the ca. 22.000 DBAs in Europe. They differ significantly regarding the safety aspects. Only a small part of the DBAs has an appropriate safety standard. Several lifesaving federations started a program to increase the ability to swim in children, i.e. after the Corona pandemic.

#### Conclusion:

To reduce drowning significantly it is necessary that the national governments have to start in their countries the proposed measures of the UN Resolution and WHO Resolution they supported. Swimming courses should become mandatory in primary schools in all European countries. The EU Bathing Water Directive should get also a safety dimension to protect not only the health of the EU citizens but also the safety of their life. Anybody can drown – but no one should!

Keywords: Drowning Prevention UN/WHO Resolution Lifesaving Bathing Areas European Directive

Other info: International Lifesaving Federation of Europe - Bad Nenndorf - Niedersachsen – Germany



### Scotland's Drowning and Incident Review

#### Carlene McAvoy & James Sullivan, Scotland

Carlene is RoSPA's Leisure Safety Manager and is the founder and secretariat to Water Safety Scotland, and co-author of Scotland's Drowning Prevention Strategy. Carlene also co-created the Drowning and Incident Review (DIR), and recently published research into DIR in BMJ Injury Prevention. Carlene recently completed the World Health Organizations (WHO) Mentor VIP programme and is an Honorary fellow for the George Institute for Global Health.

#### Introduction:

Scotland carries a disproportionate number of drowning fatalities in comparison to its UK neighbours. Due to the way in which data is captured in Scotland often very little is known about these fatalities. To help solve this issue, Water Safety Scotland, through the Scottish Fire and Rescue Service (SFRS) and the Royal Society for the Prevention of Accidents (RoSPA), created the Drowning and Incident Review (DIR). DIR aims to ensure a comprehensive review after each accidental water-related fatality in order to gather relevant data and provide recommendations to help prevent future incidents. The benefits and limitations of DIR are already published (see McAvoy et al., 2022) but little is known about the creation and subsequent implementation of DIR.

#### Objectives:

This presentation will detail the creation of DIR. Additionally, the presentation will detail how the process took on board recent recommendations from McAvoy et al. (2022) and how it has been implemented both nationally and locally



**Methods:**

The creation of DIR was through stakeholder agreement and use of similar processes such as Child Death Reviews. It gathers necessary data and uses a modified Delphi process for recommendations. DIR went through a number of local and national pilots. Edits to DIR were through stakeholder engagement and local groups were created in a specific format in order to host and run DIR. These are known as Partnership Approach to Water Safety (PAWS) groups. Through these groups, DIR is able to link to preventative work in order to ensure recommendations from DIR's are implemented.

**Results:**

DIR has been endorsed across Scotland by the key national Search and Rescue organisations, Health at Scottish Government level, and through a Ministerial Water Safety Action Plan. The process is both applicable to inland and coastal drownings and recommendations from pilot DIR's have already improved the safety in local areas and high-risk hot spots and are known to have saved at least three lives to date.

**Conclusion:**

DIR is a sustainable and pioneering process which gathers relevant data and intelligence in relation to a drowning incident or near miss. The learnings of its creation, its uses and recent improvements, may help other countries who aspire to create a similar process. Future research should consider how DIR can be adapted for use in other settings, as well as how the data from DIR relates to risk analysis and drowning statistics.



## Impact of COVID-19 Pandemic on Swimming Practice and Skills in Austria

### Monica Steiner, Austria

Authors: Monica Steiner\*, Robert Bauer\*, Johanna Trauner-Karner\* \*KFV (Austrian Road Safety Board) Monica Steiner has been working as a project leader at the KFV (Austrian Road Safety Board) in the fields of child safety, home and leisure safety and injury data since 1999.

**Introduction:**

LED tea lights are frequently used as a supposedly safer alternative for conventional candlelight, especially when exposed to children. However, if the battery compartment of the product is not firmly closed or screwed, even children could get easy access to the contained button cell. Due to their shiny silver surface, the round button cells are extremely attractive to small children. This bears the risk that children remove and accidentally swallow the button cell; potentially leading to serious, even life-threatening injuries.

**Objectives:**

The aim of the study was to find out whether LED tea lights sold in Austria have child-proof battery compartments that can be screwed down tightly, or not.

**Methods:**

Test purchases were carried in a total of 129 Austrian retail and online shops between in 2022. Online orders were placed in two online shops specialising in kindergarten, handicraft, and school supplies.

**Results:**

About half (47%) of the tested shops had LED tea lights in stock at the time of the test purchases. However, only 15 percent of them had a firmly screwable and thus child-safe version in their

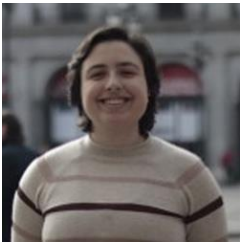
assortment. This is particularly alarming as safety does not seem to be a question of price: childproof LED tea lights are available in shops for as little as € 0.50 cents per piece - so the price is comparable to that of the unscrewed version.

#### Conclusion:

There are strict legal regulations regarding child safety for toys that are put on the EU market (EN 62115): If toys contain button cells, the battery compartment may only be opened with a tool. For LED tea lights, no such requirement is specified here. European standardisation bodies should consider expanding this requirement to products such as LED tea lights. Retailers are requested to sell only child-proof LED tea lights, on a voluntary basis, even if there is no legal requirement, yet.

Keywords: Child Safety, LED-Tealights, Button Cell Battery, Coin Battery, Product Safety

KFV (Austrian Road Safety Board) - Vienna - Austria



### Typology of injuries that occur in lifesaving

#### María Rodríguez Martínez, Spain

Introduction: The lifesaving activity has a series of peculiarities that must be examined in order to prevent possible injuries that its practitioners may suffer. In order to do this, access is gained to a population that must have the minimum training in professional lifesaving, such as lifesaving athletes.

These data give a first idea of what the most common injuries are, where they occur, how they occur, and what tests these athletes perform. In the same way, the appearance of injuries is related to the specific work to prevent them.

Objectives: • To know the most common lifesaving injuries. • Preventing injuries with specific planning

Methods: A questionnaire was generated through the Google questionnaire application, and once the items were agreed upon, it was passed on to the different lifesaving clubs so that the athletes could complete them. The results were then analysed in an excel database in order to reach the most relevant conclusions of the study.

Results: A sample of 188 subjects was accessed, 46% male, 53% female, with an average age of 18.7 years, having competed in an average of 6.42 events per season, with an average height of 169.11 centimetres and a weight of 62.7 kg. The results give a profile of at what point in the season most injuries was, which body parts are most frequently injured, whether they occur in training or in competition and whether they occur in pool or sea events. Finally, it is assessed whether they can be related to specific strength work in the gym. Finally, the results were related to the variable relating to the number of competitions carried out in a season, as well as the possibility of positive results in the practice of other sports carried out by the subject.

Conclusion: Injury prevention work should be a fundamental part of the athlete's preparation, and based on these results, the number and severity of injuries can be reduced.

Keywords: Prevention, injuries, lifesaving

Royal Spanish Lifesaving Federation - San Sebastián de los Reyes - Madrid - Spain - Ana Domínguez Pachón Alberto García Sanz Ismael Sanz Arribas



## Smart Ring Buoys - new high-tech sensors that curb theft and vandalism of rescue equipment in Ireland

### Roger Sweeney, Ireland

Roger Sweeney is the Deputy CEO & Marketing Manager of Water Safety Ireland, a statutory body, a voluntary organisation and a registered charity that promotes drowning prevention initiatives. Roger works to raise public awareness and change attitudes and behaviours so that waterways are enjoyed safely. He also sits on the Marine Safety Communications Working Group, consisting of organisations that represent statutory bodies, search & rescue and other users of our aquatic environments.

#### Introduction:

A Ring Buoy is thrown to a person to provide buoyancy and prevent drowning. Ring buoys are in place at hundreds of locations on Ireland's coastline, rivers, canals and lakes, providing a safe way for people to conduct a rescue without entering the water. Unfortunately, they are often vandalised, stolen or tampered with, rendering them unavailable when they are required most. In one city alone, fifteen ring buoys go missing every week, costing more than €20,000 annually to replace. This initiative was developed to address the problem of theft and vandalism and to ensure that ring buoys are available when needed. Ring buoys have the potential to save lives, but only if they are present.

#### Objectives:

The main objective was to find a solution for a nationwide issue that challenges many local communities, using an innovative approach that aims to future-proof regions from vandalism to rescue equipment. Physical inspections were time consuming, delayed and expensive. A smart solution was needed to address the challenge of vandalised and stolen ring buoys.

#### Methods:

A low-cost, retrofit, technology solution was developed and deployed. A sensor is attached to the ring buoy housing. It monitors and alerts local authorities when ring buoys go missing. Real-time alerts remove the delay in detecting that they are stolen and speeds up replacement. An innovative procurement framework that invited suppliers to pilot several technologies before deciding on a successful solution, then allowed additional regions to introduce the winning solutions without beginning a new tender process. Results This new digital initiative has been rolled out to ensure that ringbuoys are ready to save lives at Ireland's waterways. To date, more than 600 sensors have been installed. The sensors are paired with a mobile, map-based platform that has real-time monitoring, to notify the local authority.

#### Conclusion:

The challenge of getting local authorities to engage and install the technology was overcome with an innovative procurement framework. There is an increased number of visitors to our waterways, therefore there is a need to have lifesaving equipment in place and available. Before this solution, a ringbuoy inspection at aquatic locations was carried out on a weekly bi-weekly basis and took most of the day. This technology removes inspection times and enables immediate replacement. A stolen ring buoy can mean a stolen life but this system introduced in 2022 is addressing vandalism of essential public rescue equipment. Drowning Prevention

## **Preventing Injury through Promotion – an Irish perspective on World Drowning Prevention Day**

**Roger Sweeney, Ireland**

### **Introduction:**

The UN General Assembly's first ever resolution on Drowning Prevention was championed and proposed by the governments of Ireland and Bangladesh who along with 79 co-sponsoring countries agreed this historic UN effort to save lives. An associated Global Day of Recognition, World Drowning Prevention Day (WDPD), is held annually on 25 July. This global advocacy event served as an opportunity for Ireland to highlight the tragic and profound impact of drowning and to offer life-saving solutions to prevent it. It is an important, memorable day for the drowning prevention community worldwide and in Ireland, it has become a focal point for raising awareness about water safety.

### **Objectives:**

The Author outlines the initiatives that were developed to commemorate WDPD in Ireland, to raise awareness about the resolution and to prompt action by various stakeholders.

### **Methods:**

The Author outlines the efforts made to accelerate awareness of WDPD and the public awareness initiatives that prompted individuals and agencies to commemorate the day, including a range of safety messages on social media, a campaign welcoming the resolution, securing support from the President of Ireland, and downloadable resources for "I'm Going Blue for WDPD" which included an initiative that began as the face painting in blue of Lifeguards and emergency services personnel, and extended to members of the public, buildings and national heritage sites. Also outlined are the actions that called on individuals and agencies to "Do One Thing" such as learning one water safety skill or sharing one piece of water safety advice or changing one mind about safety. Campaigns will be outlined that encouraged individuals to be the one who takes responsibility for water safety and how it was emphasized that for someone at risk of drowning, that one thing could mean the world.

### **Results:**

The development of a National Strategic Development Plan aligned to the Resolution will also be outlined. Knowledge sharing was improved by supplying resources that were easily shared across all forms of social media.

### **Conclusion:**

Multi-Agency involvement is required. Appealing to the individual was a key strength of all campaigns. Early engagement with stakeholders improved the outcomes.

**Key words:** Drowning Prevention World Drowning Prevention Day, declared in April 2021 by General Assembly resolution A/RES/75/273

## **Three ways that Advocacy raises public awareness to prevent aquatic injuries in Ireland.**

**Roger Sweeney, Ireland**

### **Introduction:**

Water Safety Awareness, a somewhat broad and vague term, is a process which opens opportunities to disseminate information that improves understanding and attitudes necessary to change behaviour around water and prevent injuries. There are limited financial resources

available in Ireland to invest in such water safety awareness campaigns that target a wide range of people at risk of drowning. Therefore, Water Safety Ireland (WSI) advocates on three levels to raise the level of public water safety awareness.

#### Objectives:

Firstly, the approaches and impacts by which WSI advocates the media to highlight water safety issues will be outlined.

#### Methods:

Methods include awarding members of the public who rescue others from drowning and giving rescuers and rescuees a voice in the media to spread messaging that highlights the underlying causes of an accident and the desired alternative behaviour; advocating through those directly affected by drowning tragedies to campaign for greater awareness; and advocating with those who are appointed “Water Safety Ambassadors” as a result of being respected in public life for their celebrity status or exceptional achievements. Secondly, the approaches and impacts by which WSI advocates Government will be outlined, including the creation of a Strategic Development Plan (2023-2027), supported by Government and delivered at national and community level. Thirdly, the approaches and impacts by which WSI advocates partners to build a drowning prevention network of decision makers from relevant organisations will be outlined. Related issue-focused strategic communications initiatives will be outlined.

#### Results:

Audience reach was improved by using simple targeted messages that are age and gender sensitive. Templated drowning prevention messaging, available in a wide variety of formats but consistent in message, increased the opportunities for others to leverage across a wider entire network. Conclusions: A well-planned advocacy awareness-raising campaign is arguably one of the most efficient means of communicating water safety issues to specific communities at risk. Using high-profile individuals to convey messages can help establish trust, reach the target audience, and raise difficult sensitive issues. However, forcing too many messages into a campaign risks distracting from the core message. Including a call to action is crucial.

Key words: Drowning Prevention Advocacy



### Trends in drowning mortality in Croatia from 2001 to 2021

#### Ivana Brkić Biloš, Croatia

Dr Ivana Brkić Biloš, M.D., epidemiology specialist, Head of Division for Epidemiology and Prevention of Noncommunicable Chronic Diseases In her professional and scientific work she focuses on the surveillance, analysis and prevention of injuries. She is a national focal point for violence and injury prevention.

#### Introduction:

Drowning accounts for 7% of all injury related deaths in the world, and almost 3% of injury related deaths in Croatia. Although a seemingly small percentage, mortality rates due to drowning in Croatia are still higher than the EU average. Objectives: To determine the trends in mortality due to drowning in Croatia for the 2001-2021 period.

#### Methods:

We used the routine mortality data on drowning (ICD-10 codes W65-W74) collected by the Croatian Institute of Public Health. Rates were calculated using the mid-year population estimates, and standardized using the European standard population from 2013. Trends were analyzed using the Joinpoint regression analysis, for both sexes combined and separately.



**Results:**

During the last 21 year, an average of 88 people (23% women) died due to drowning each year in Croatia. Highest mortality rates are seen in the 65+ age group. Joinpoint regression analysis showed a 12.9% average annual decrease in mortality from 2001 to 2004 (CI=-12.9, 0.9), 6.1% increase from 2004 to 2010 (CI=-1.3, 14.0), and a 4.1% decrease from 2010 to 2021 (CI=-6.1, -1.9). When looking at the whole 2001-2021 period, regression analysis showed a 1.3% (CI=-2.4, -0.1) average annual decrease in total mortality due to drowning. There are no changes in trend in men, with 1% average annual decrease for the whole period (CI=-2.3, 0.2), and similar trend is seen in women, with 1.6% average annual decrease during the whole period (CI=-3.6, 0.4).

**Conclusion:**

Mortality rate from drowning is decreasing in Croatia. However, there is still room for improvement, as standardized mortality rate due to drowning is above the EU average. Due to geographical location and almost half of the population living on the coastline, swimming is often learned in childhood. Public health campaigns on safety in water are regularly conducted during summer months, and swimming lessons are often provided during elementary school. There is a public initiative to reintroduce swimming lessons as mandatory part of the elementary school curriculum. Croatian Red Cross strives towards successful implementation of the Lifeguarding network throughout Croatian coastal, river, lake and other aquatic areas.

**Keywords:** drowning, mortality trends, drowning prevention



## Post Conference

### Injury Prevention in Tourism

FRIDAY 06. October 2023 - 14.00 – 16.00



## The eruption in Reykjanes Peninsula - Access Control and Injury prevention

### Guðbrandur Örn Arnarson

Guðbrandur Örn is project manager for Search and rescue at ICE-SAR, secretary of the ICE-SAR National Command, active incident manager in the greater Reykjavik area command and member of his local SAR team Kyndill in the mountainous suburban heaven of Mosfellsbær.

Guðbrandur will talk about the eruption in Reykjanes Peninsula and about Access Control and Injury prevention.



## Visit Reykjanes Iceland

### Þuríður Halldóra Aradóttir Braun

Experienced in regional destination management, marketing, regional development, and crisis management. Skilled in Project Management, English, Management, Marketing, and Strategic Planning. Strong professional with an MBA focused in Business Administration from Háskólinn í Reykjavík.



## Safetravel.is - tools and methods & People die out there in this type of weather

### Birna María Þorbjörnsdóttir

Birna is Project manager, Injury Prevention at ICE-SAR. She has been working on the Safetravel project since 2018 and the past year as a project manager. One of her biggest interests is traveling and being a nature lover and an outdoor enthusiast, she also works as a freelance hiking/trekking guide for groups. She is a qualified member of ICE-SAR and has been on the highland patrol a few times. She's a former bank employee (don't judge her for that) but 8 years ago she started working in travel and outdoors.



## Safetravel app - Technology to increase safety for travelers

### Árdís Björk Jónsdóttir

Árdís is the CEO of Stokkur software. Stokkur has been working with and developing the SafeTravel app in cooperation with the product owners. Árdís has been working in the tech industry in Iceland for over 20 years, managing development teams and building solutions and managing integrations in different sectors.



## Strategies to Prevent Accidents while driving car rental in Iceland

### Ingi Heiðar Bergþórsson

Ingi Þór is the Director Fleet, Human Resource and Operation and has been within the car rental business for more than 26 years. He has been in group of creating driving tests, the SafeTravel Iceland app, along with other projects to make the customers driving prepared for Icelandic roads. It all started around year 2003 and Ingi has held many courses and lectures around Iceland and EU. His main goal is to bring safely back everyone who drive around our beautiful country.



## Traffic safety of foreign tourists“

### Gunnar Geir Gunnarsson

Gunnar Geir is the head of the safety and education department at Icelandic Transport Authority. He has worked on road safety issues for over 16 years. He has among other things, worked on injury data statistics, education and prevention issues, prevention campaigns and driving lessons. He has also contributed a lot to the creation of road safety plans. Gunnar is an engineer and computer scientist from the University of Iceland.



## The Icelandic Tourist Board

### Arnar Már Ólafsson

The Icelandic Tourist Board is an independent authority under the Ministry of Culture and Business Affairs. Its activities are regulated through the Act on the Icelandic Tourist Board and the Act on Package Travel and Linked Travel Arrangements. The Icelandic Tourist Board shall monitor and promote the development of tourism as an important and sustainable pillar of the Icelandic economy, having regard to the carrying capacity of Icelandic nature and society, as well as facilitate coordination, analyses and research in the tourism sector in accordance with government policy.



## Safety issues and Injury prevention in national parks

### Jóhanna Katrín Þórhallsdóttir

Jóhanna Katrín "Hanna Kata" is a Division Director of Division of Practices and Policies at Vatnajökull National Park.

Vatnajökull National Park was established in 2008. It covers the entire Vatnajökull glacier, large areas in its vicinity and numerous municipalities. National parks are protected areas that are considered special because of their natural or historical significance. The uniqueness of Vatnajökull National Park lies mainly in the interplay between fire and ice.





**ICE-SAR**

**ICE-SAR (Icelandic association for search, rescue & injury prevention)**

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