5G.002 IMPROVING STRUCTURAL SAFETY BY SHARING LESSONS LEARNED

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CROSS-AUS (Confidential Reporting on Structural Safety – Australasia) is a confidential reporting system established in Australasia in 2018 to capture and share lessons learned from structural safety issues which might not otherwise get public recognition, with the aim of preventing future failures.

Confidential reporting is a well-established safety procedure, especially in aviation, and CROSS-AUS builds on the success of CROSS-UK, the unique UK based system which has been operating since 2005 and is part of a growing network of CROSS programmes internationally.

The Shergold Weir report, Building Confidence, published in 2018, highlighted a wide range of problems in the Australian construction industry and concluded 'It is our considered view that the nature and extent of the problems put to us are significant and concerning. They are likely to undermine public trust in the health and safety of buildings if they are not addressed in a comprehensive manner.'

It is important that the structural engineering community plays its part in restoring confidence in our industry, and CROSS-AUS provides a vehicle whereby everyone can contribute towards improving quality and safety by sharing safety issues and disseminating advice on good practice. The paper will describe the processes used by CROSS-AUS and provide examples of instances where beneficial changes have resulted. Ultimately the intention is to have a global freely available database to be used by the construction industry anywhere to improve the safety of their buildings, structures, and national infrastructure.

5G.003 ENGINEERING DESIGN AND THE ROLE OF THE SAFETY PRACTITIONER

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The role of the modern safety practitioner is diverse. There are many elements and areas of specialisation within a safety management system.

Safety in Design is hazard management throughout the engineering design lifecycle. It is a function of engineering; it is also a safety management system element.

Safety-related activities embedded in engineering typically relate to the top of the Hierarchy of Controls and therefore present the most effective opportunity for injury prevention.

The safety practitioner will, at some point, need to operate in this space. This will likely be through audit and compliance activities as well as participation in hazard and engineering studies for new design and design modifications, handover, verification and validation.

As a conversation starter, the presenter will provide a concise answer to these questions, based on experience and observation:

How does engineering design feature in the role of safety practitioner?

What can the engineering team expect of the safety practitioner?

What should the safety practitioner expect of the engineering team?

Is the safety practitioner equipped with the right knowledge to confidently operate in this area?

5G.004 ENGINEERED SAFETY GROUP – TOOLS AND TECHNIQUES FOR SAFER DESIGNS

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According to numerous national and international studies, around 35% of workplace incidents, injuries and fatalities have causal factors related to design. This emphasises the opportunity for engineers and designers to prevent injury through deliberate interventions to address safety during the design stage.

In 2013, the Engineers Australia, Engineered Safety Group was created, comprising engineering, education and safety professionals from varied backgrounds. With the aim of preventing workplace injuries related to design, the group works to discuss, enhance, test and promote a set of leading practice Safety in Design tools and techniques that can be applied across engineering disciplines and industries.

In this presentation, Mike Hurd, inaugurator and former chair of the Engineered Safety Group, will present on the learnings of the group, the key elements of safe design, and how the group continues to promote safe design in academia and industry.

5G.005 IS OUR FOCUS ON RISK MISPLACED?

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Risk assessment is often the primary tool used by designers to evaluate and guide the treatment of safety issues associated with their design. However, workplace health and safety legislation requires that all reasonably practicable controls be incorporated into the design. Therefore, the assessment and ranking of risk, which often occurs through the selection of qualitative values for likelihood and consequence, open to uninformed interpretation and manipulation, may not be the best tool for the task.

Leading practice Safety in Design processes focus on the systematic identification of hazards early in the design followed by the selection and implementation of all reasonably practicable controls. The justification of included controls through risk assessment is not necessary. Where reasonable practicability for a particular control is uncertain, a determination may be made by evaluating whether the whole-of-life cost of the control is grossly disproportionate with the reduction in risk, where the risk is quantitatively determined using statistical likelihood and consequence values.

Using this approach; risk assessment may be a useful tool at the end of the hazard treatment process for the

prioritisation, communication and acceptance of hazards, but need not be the primary tool for the management of design safety.

E-Posters P3 – Drowning, March 24, 2021

P3.001 FATAL UNINTENTIONAL DROWNING IN INDONESIA: UNDERSTANDING THE GAP OF KNOWLEDGE

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Background Most drowning deaths occur in low and middle-income countries (LMICs) (91%). However, a limited number of studies investigating unintentional drowning deaths were identified in LMICs, including in Indonesia.

Objective To investigate rates of unintentional drowning deaths in Indonesia, and to investigate the availability of drowning prevention strategies in Indonesia between 2010 and 2019.

Methods A systematic search, guided by PRISMA, was conducted to identify all relevant grey literatures, including government/other authoritative reports, policy statements and issues papers, published between 2010 and 2019.

Results The unavailability of the national injury surveillance system, including for drowning deaths documentation, was identified in Indonesia. Data on drowning deaths in Indonesia were potentially underrepresented, due to inefficient data collection and insufficient continuity of data. The WHO 2014 Global Report on Drowning did not report drowning fatalities from Indonesia. According to The Global Burden of Disease Study, a downward trend of drowning deaths was observed in Indonesia between 2010 and 2017, from 0.52% of total deaths in 2010 to 0.35% of total deaths in 2017, with average annual percent change of -5.33%. The lack of publications on drowning prevention in Indonesia was identified, therefore strengthening of multi sectoral coordination is needed to ensure the sustainability of drowning prevention in Indonesia.

Conclusion Inefficient data collection in Indonesia hinders the planning, implementation, and evaluation of prevention strategies. Further research investigating the gap in drowning deaths data recording, analysis, reporting and dissemination is vital for the development of the national and regional injury surveillance system in Indonesia

P3.002 THE SOCIO-ECOLOGICAL NATURE OF DROWNING IN LMICs: REVIEW INFORMING HEALTH PROMOTION APPROACHES

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Background Most deaths by drowning worldwide have occurred in low and middle-income countries (LMICs) (91%), particularly in Southeast Asia (35%) and Africa (20%). Poor data collection in LMICs hinders the planning, implementation, and evaluation of prevention strategies.

Objective To review the rates and risk factors of unintentional drowning in LMICs, and to identify its prevention strategies within a socio-ecological health promotion framework.

Methods A systematic search, guided by PRISMA, was conducted on Ovid MEDLINE, CINAHL, Informit health, PsycINFO (ProQuest), Scopus, SafetyLit, Google Scholar, and BioMed Central databases for all relevant studies published between 2012 and 2017. McMaster appraisal guideline was used for critical review.

Results The disparity of drowning data availability was observed across countries investigated. The highest rates were identified in lower-middle income South-east Asian countries. The socio-economic background of the family, overcrowding, and living close to water bodies were important predictors for paediatric drowning in LMICs, while the presence of mother as caregiver was identified as a protective factor. The over-reliance on individual-focused, behaviour-based preventive measures was identified.

Conclusion Further research focusing on developing relevant upstream, population-focused, socio-ecological approaches of drowning prevention and water safety promotion is needed to ensure the sustainability of drowning prevention in LMICs.

P3.003 DROWNING ACROSS THE LIFESPAN: IDENTIFYING CRITICAL STAGES FOR INTERVENTION

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Background Drowning deaths occur among people of all ages, however, the risk is not uniform across the lifespan. Conventional drowning prevention programs communicate risk using age bands, however, this approach may overlook critical time points through the life cycle.

Methods The Royal Life Saving National Fatal Drowning Database was used to examine drowning by single year of age from 1 July 2002 to 30 June 2019. This database includes all unintentional drowning deaths in Australian waters.

Results Drowning peaked at one year of age, with a significant spike observed following the first birthday (0 years: 1.2/100,000 vs 1 year: 4.2/100,000). Deaths decreased as children grew, before rising sharply at 15–19 years of age (15 years: 0.5/100,000 vs 19 years: 1.6/100,000). The drowning rate remained steady through adulthood, before rising again in early retirement (60 years: 1.8/100,000).

Conclusion Drowning risk changes across the lifespan, with the greatest risk observed among young children as they become increasingly mobile. A peak also occurs as teenagers reach adulthood, legal drinking age and gain greater independence. Assessing risk by single year of age allows for the design of targeted strategies, aligned to physical development stages and social changes.

Learning Outcomes Drowning prevention strategies need to be tailored to specific life stages, taking into consideration changes in mobility and independence. For example, existing broad prevention strategies for children aged 0–4 could be further tailored to highlight the importance of supervision for newly mobile for 1–2 year olds and water safety education for 3–4 year olds.