

PROCEEDINGS

21st Conference of the
Human Factors and Ergonomics
Society of New Zealand



19-20 September 2019
Ellen Melville Centre
Auckland Central



Contents

Contents	2
Welcome	3
Conference sponsor message	3
Venue information.....	4
Sustainability and social impact	4
Conference Programme	6
Thursday 19 th September Speakers	8
Dr Carl Horsley	8
Heather Gunter	9
Marion Edwin.....	10
Dr Fiona Trevelyan	14
Dr Kirsten Bendix Olsen	15
Margaret van Schaik.....	17
Dr Alex Lang.....	18
Saskia Fursland.....	19
Dr Sarita Dara.....	20
Dr Jenny Long and Prof Jennifer Weller.....	21
Kevin Miller.....	22
Sue Alexander	23
Friday 20 th September Speakers	24
Karl Bridges and Paul Corballis	24
Dr Maggie Trotter.....	26
Dr Hamish Mackie	27
Jas Qadir.....	28
Dr Rachel Morrison and Roy Smollan.....	29
Philip Aldridge.....	30
Dr Felicity Lamm	31

Welcome

Welcome to the 21st Conference of the Human Factors and Ergonomics Society of NZ. We are delighted to share a broad mix of human factors topics and grow NZ's awareness and understanding of human factors and ergonomics.

Our conference is always a special time for HFESNZ members and guests, as it gives us time to upskill, share knowledge, meet up with friends and colleagues, and get a 'download' on human factors issues in New Zealand and globally.

Human factors in healthcare is growing globally and this year we have our Human Factors in Healthcare Symposium, followed by our 2-day conference where Dr Carl Horsley, will share his reflections on human factors in NZ's healthcare system. We are immensely grateful to ACC for sponsoring our events this year and making it possible for us to secure two recognised UK specialists – Dr Alex Lang and Saskia Fursland. In addition, there will be 19 presentations including a HASANZ update, the Transport Special Interest Group launch, plus two HFESNZ sessions on strategy and education.

We are excited to hold this year's conference dinner at Dans le noir a unique sensory, social, and human experience. As human factors professionals this is an opportunity not to be missed!

A number of people have contributed to making these events happen, but we'd especially like to acknowledge Kim Pearson-May, our administrator who has quietly looked after the finances and registrations for the conference for a number of years. Kim is moving on to other opportunities after the conference and she'll be missed, but we wish her well.

We welcome you to this conference and look forward to your participation.

Hamish Mackie (HFESNZ Chairperson) and Conference Committee: Fiona Trevelyan, Hannah Trevett, Lily Hirsch and Marion Edwin.

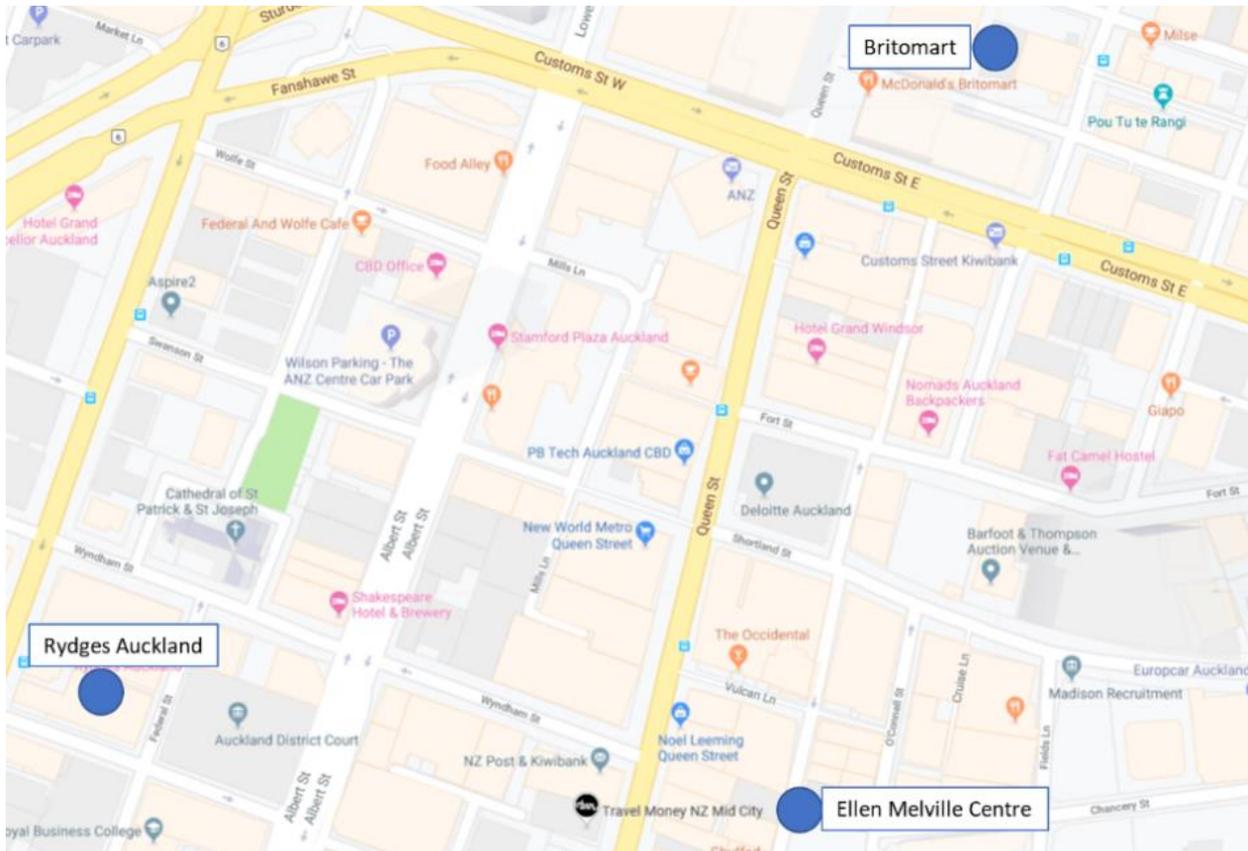
Conference sponsor message

The Treatment Safety team at ACC are delighted to be sponsoring the Human Factors and Ergonomics Society of New Zealand Symposium and Conference 2019. Improving safety for patients is a collaborative effort across the health sector, government, and experts like those of you in the human factors and ergonomics field, and we are proud to be working with you to enhance the safety of treatment in New Zealand.

Venue information

Wifi Password: ellenmelville

Getting there: The Ellen Melville Centre is centrally-located in Auckland City. It is positioned on Freyberg Place and is easily accessible by walking or public transport. It is a 6-minute walk from Britomart Train Station, a 2-minute walk from Queen Street, and an 8-minute walk from Rydges (conference dinner). Please consider rideshare options or public transport when accessing this venue.



Sustainability and social impact

Catering

Lunches at the conference have been catered by the Auckland and Wellington-based social enterprise, Eat My Lunch.

Eat My Lunch follows a Buy One, Give One model. For every lunch bought, they give a lunch to a Kiwi kid who would otherwise go without. Over the last three years they have provided over a million lunches to kids at 79 schools in Auckland and Wellington.

To learn more about Eat My Lunch, visit their website www.eatmylunch.nz

Waste minimisation

Where possible we have minimised the production of landfill-bound waste.

We have not provided conference bags and minimised supplementary promotional material as this is usually discarded after a conference.

All attendees will receive a HFESNZ-branded keep cup. We invite you to use this during the conference and to avoid using the disposable options.

Edible leftovers will be taken to a community fridge at Griffiths Garden on Wellesley St West. This fridge is a food bank and is maintained by lovefoodhatewaste.co.nz. Any food scraps will be taken to the community compost bin at Griffiths Garden (see more at fortheloveofbees.co.nz).

Please use the appropriate bins (compost, recycling, landfill) provided to dispose of your items. All cardboard packaging from your lunch can be composted.

Venue

Opened in 1962, the Ellen Melville Centre was built for “women’s societies” and now offers a place for the community to meet, share ideas, learn, and grow. We are proud to support this venue.

Commitment to students and early career ergonomists

HFESNZ actively supports its student and early career members. A tradition of the conference is to award a prize to the best student presenter, and the best early career presenter. In addition, we have provided travel support for a student to attend the conference.

Conference gifts

To celebrate the amazing produce that New Zealand has to offer, all gifts for the prizes, presenters, and panel members are New Zealand made.

Conference Programme

HFESNZ Conference Day 1 - Thursday 19th September

8:00	Registration and welcome tea and coffee	
8:40	Mihi whakatau	
8:45	Chair's welcome	
8:55	Keynote Speaker – <i>Dr Carl Horsley</i> – HFE in healthcare: The NZ landscape	
9:25	Matt's Story – <i>Heather Gunter, sponsored by ACC</i>	
10:25	Morning Tea	
MSD Presentations in the Pioneer Women's Room		
10:50	<i>Marion Edwin</i>	Understanding musculoskeletal injury risks for IHC support workers
11:10	<i>Dr Fiona Trevelyan</i>	Influence of patient handling on psychosocial factors and musculoskeletal disorders in NZ nurses
11:30	<i>Dr Kirsten Bendix Olsen</i>	Strategies for overcoming barriers to implementation of the NZ moving and handling guidelines
11:50	<i>Margaret van Schaik</i>	The integration of worker-focussed Health and Safety systems with patient safety
12:10	Lunch	
Methods-Based Presentations in the Pioneer Women's Room		
12:50	<i>Dr Alex Lang</i>	Human Factors in Medical Technology Development: Case Study of a novel Neonatal Heart rate Monitor
1:40	<i>Saskia Fursland</i>	Making systems safe: AcciMap workshop
3:10	Afternoon Tea	
Healthcare Presentations in the Pioneer Women's Room		
3:25	<i>Dr Sarita Dara</i>	Impact of fatigue risk management system on fatigue and situation awareness of surgical intensive care unit nurses
3:45	<i>Dr Jenny Long</i>	NetworkZ: using multidisciplinary simulation to train teamwork and test systems in acute healthcare settings
4:05	<i>Kevin Miller</i>	Bringing building design to life – How modern design technologies are being used to improve building functionality and comfort in healthcare facilities
4:25	<i>Sue Alexander</i>	Reflections on the missing links in safer patient handling
4:45	Conference Day 1 Close	
Conference Dinner		
6:30	Pre-dinner drinks at Rydges - 59 Federal Street, Auckland City – <i>8-minute walk from EMC</i>	
7:00	Dinner at Dans le Noir ? Rydges – <i>This is a 'dining in the dark' experience</i>	

HFESNZ Conference Day 2 - Friday 20th September

8:30	Registration and welcome tea and coffee in the Pioneer Women's Room		
9:00	Transport Special Interest Group		
10:30	Morning Tea and room relocation (to Betty Wark Room)		
Systems Methods Presentations in the Betty Wark Room			
10:55	<i>Karl Bridges and Paul Corballis</i>	Cognitive, behavioural and psycho-physiological predictors of failure-to-identify hunting incidents	
11:15	<i>Dr Maggie Trotter</i>	Using work domain analysis in safety case development	
11:35	<i>Dr Hamish Mackie</i>	Systems methods in Road Safety	
Built Environment Presentations in the Betty Wark Room			
11:55	<i>Jas Qadir</i>	Regenerative design approaches in NZ built environment: How can we leave a place better than we found it?	Student Presentation
12:15	<i>Rachel Morrison and Roy Smollan</i>	Open plan office space? If you're going to do it, do it right: A fourteen-month longitudinal case study	
12:35	Lunch and best presentation award in the Betty Wark Room		
NZ Updates in the Betty Wark Room			
1:15	Update from HASANZ and Pipelines and Pathways project – <i>Philip Aldridge, HASANZ Executive Director, Marion Edwin, Optimise Ltd.</i>		
1:45	Reflections of immediate past Chief Govt Advisor Health and Safety – <i>Associate Professor Felicity Lamm, Co-Director, Centre for Occupational Health and Safety Research</i>		
2:00	Afternoon Tea and room relocation (to Pioneer Women's Room)		
HFESNZ Presentations in the Pioneer Women's Room			
2:30	HFESNZ Strategy session including top priorities, future events, professional certification, and member benefits		
3:15	HFE education – What NZ Universities provide and what is needed for HFE Competency		
4:10	Port of Departure		
4:30	Conference Close		

Thursday 19th September Speakers

Dr Carl Horsley

HFE in healthcare: The NZ landscape

Abstract

Healthcare is facing many challenges that at first seem unrelated. Whether it is the difficulties of making meaningful progress on patient safety, the growing issues of staff burnout and disengagement, or the urgent need to re-orientate our systems to the needs of patients, we see many markers of a system that is struggling to find a way forward.

Yet so many of these issues are reflections of a growing mismatch between the approaches of the past and the realities of everyday work. What is needed is a fundamental rethink of how we deal with the growing complexity of healthcare, of how we learn deeper lessons to help us improve and in all we do, how we put the well-being of people, both patients and staff, at the centre.

Biography

Dr Carl Horsley MB ChB, FACEM, FCICM, is an Intensivist in the Critical Care Complex at Middlemore Hospital, Auckland, New Zealand, standing down as Clinical Head in 2018 to pursue his interests in safety science and quality improvement in healthcare. Carl is due to complete a MSc Human Factors and System Safety, Lund University, Sweden in 2020. Meanwhile he continues to be involved in several committees, which include amongst others the National Burns Service Committee, 2010-2018, Deteriorating Patient Committee, Middlemore Hospital, 2016-present and Adverse Events Committee, Counties Manukau District Health Board. The focus of his last four years has been in understanding and exploring the implications of Safety-II and Resilience Engineering for frontline clinical work. He is an active member of the Resilient Healthcare Network (RHCN) and has presented widely on topics which include the medicolegal barriers to Safety-II, effecting change in complex systems, the implications for clinical simulation, and the links between complexity and staff burnout. He has published in academic journal.



Heather Gunter

Matt's Story

Abstract

When our trust in health care is lost can we learn to trust again?

In a world-wide review that attempted to determine the level of trust that we place in professions, nurses were ranked second only to firefighters, and Doctors fourth after teachers. But why do we trust them and what happens when that trust is broken? Heather is here today to talk about her experience following the death of her son after a simple appendectomy that went terribly wrong. As she struggled with the aftermath of such a tragedy she also struggled with her identity as a nurse and her ability to trust health care professionals again. In learning why/ how Matt had died it also became clear how communication or lack of is often if not always the root cause of many missed opportunities in preventing the deterioration of health. Heather speaks to you today from her unfortunate but unique perspective of being a consumer as well as a nurse.

Biography

Heather is a District Nurse who works on a casual basis for the Nelson Marlborough DHB but the majority of her time this year has seen her presenting 'Matt's Story' at hospitals throughout NZ with the Treatment Safety team from ACC. She has also been a Consumer Rep for ACC for the Adverse Event Review Governance Group. Heather presents 'Matt's Story' at Adverse Events Seminars for the HQSC and is a Consumer Rep for 'Korero Mai', the escalation programme of deteriorating patients for Family / Whanau. This year she was also asked to join the Perioperative Medicine Steering Committee for the Australia and NZ College of Anaesthetists as a consumer rep looking at how we can make this area safer and improve the overall patient journey.



Marion Edwin

Understanding Musculoskeletal Injury Risks for IDEA Support Workers

M Edwin¹, S Alexander¹, K Goodfellow¹, D Hammond²

¹ Optimise Limited, Motueka, New Zealand; ² IDEA Services, IHC, New Zealand

Abstract

IHC is committed to ever improving the quality of its services and to providing the safest workplaces for staff working for the IHC Group including IDEA Services, Choices NZ and Accessible Properties.

A health and safety review in 2018 identified that one of the highest reasons for injury or time off work was musculoskeletal injury. Two years of data (2016/2017) identified that 41% of Support Worker injuries were musculoskeletal. The mechanism of injury for musculoskeletal injuries included lifting, carrying, handling or putting down objects, and repetitive motions.

IDEA Services has around 3500 Support Workers supporting around 4500 people with intellectual disabilities and physical disabilities in residential, vocational and specialist services throughout New Zealand.

An ergonomics work system assessment was undertaken during 2018 and 2019 aimed at identifying and providing a better understanding of IHC's musculoskeletal injury risks associated with moving and handling people and other manual tasks. Assessment included the wide range of factors known to contribute to musculoskeletal injury risk including work organisation, the work environment, and psychosocial, individual and task factors; to determine targeted intervention recommendations. This project occurred against a backdrop of quality-focused change, particularly across IDEA Services. The assessment included: review of organisational data, worker interviews, discomfort reports, facility audit (against care facility design guidelines), and task observations and analysis. Thirty-five homes, day-bases or offices were visited in rural and urban sites from the North and South Islands, and 76 worker interviews conducted. The findings of the ergonomics work system were based on this demographic.

The average age of people IDEA Services supports is increasing meaning a slight increase in dependency on others for mobility. People are supported to live in homes with others and the external funding models provide limited equipment solutions, which may expose workers to unnecessary risk. While training materials were available to support staff, low literacy and/or English as a second language posed additional challenges. Therefore, more hands-on practical training would be beneficial. Key recommendations included facility design and maintenance, access to professional expertise, moving and handling equipment provision and management (including aspects of the health funding system), wheelchair van use and design, operational processes, and support worker education, training and support.

IHC is continuing to work to reduce musculoskeletal injuries and proudly shares this work for the benefit of other support agencies and workers.

Key terms: Moving and handling of people, musculoskeletal injury, healthcare, disability services.

Approach

The project team met with key management personnel for familiarisation with the organisation, structure and the nature of services. Relevant archival data was reviewed, and injury data analysed.

It was determined that at least 30 sites (3%) should be visited to gather data about the physical work environment (using a facility design audit), equipment provided, and Support Worker information (semi-structured interview, modified Nordic Musculoskeletal Questionnaire (Dickinson et al), and anthropometric measurements).

Findings and Discussion

A total of 35 homes or day services were visited, and 76 workers interviewed. These services provided support for 128 people. Of these people 24% were wheelchair users with high dependence, 78% required hands-on help or supervision for self-cares, and 47% were independently mobile. The majority had multiple conditions and required variable support to participate in meaningful daily activities such as community outings, financial management, and assistance with eating, mobilising and self-care.

Incident reports were reviewed to determine the activity context. It was found that 46% of incidents had unknown context; support activities for mobilising or transferring people comprised around 23% of incidents; cleaning, housework and meal preparation activities were 11%; and vehicle-related activities were 7% of incidents. Self-care task context (such as showering or bathing, toileting, grooming, or dressing) was rarely identified.

Of the 69 interviewees who gave their age, 70% were aged 50 years or older, 10% were aged 65 years and over, and 10% were aged under 30 years. This highlights the need to ensure that work is designed for an ageing workforce. This includes the design of homes, the provision of equipment, the training of Support Workers to manage work tasks and support to ensure sustained coping with physically and emotionally challenging work tasks.

Support Workers described their work as 'support' without detailing the level of assistance required or task method, which results in poor consistency in approach for tasks such as showering or toilet transfers. This non-specific language may impact funding allocation as the work requirements are not clearly described for each person with a disability.

IHC has homes that meet the design needs of those who have physical disability but are independent, however some of these homes are less suitable for individuals who require more hands-on support (which requires more space to move). Key areas requiring attention in some homes are bathroom and toilet design, door thresholds, floor surfacing, doorway and corridor widths and accessible routes into buildings. These design limitations create risks for those who live and work in the homes. Delays for modifications place people at greater risk of injury and timely property maintenance is necessary.

Daily van transportation of people who are wheelchair-dependent to community activities requires staff to adopt high risk awkward postures to load, secure and unload wheelchairs. Tall vans are difficult for drivers to access, especially without a driver grab-handle. Few facilities have covered parking that protects from the weather, exposing all users to risks of slips and falls from wet conditions and rushing to get out of the weather.

The equipment provided through the health funding system focuses on the needs of the person with a disability but lacks consideration of the health and safety of Support Workers. Some homes had multiple manual hoists where overhead tracking systems in bedrooms and bathrooms would be a preferred solution to reduce risk, save time and reduce space requirements. New equipment innovations and techniques for handling and moving people should be integrated into both health funding processes and IDEA Services planning.

Half of the Support Workers identified as New Zealand European, and half were Māori, Pasifika, Indian, Filipino, Chinese or other European, with 29% reporting difficulty with English as it is their second language or having some difficulty with reading. This makes education, training and understanding personal files of people in services more challenging. The Support Worker population had a wide anthropometric variance – some workers were very small (less than first percentile when compared with a New Zealand or British population) and some exceeded the 99th percentile for stature measures such as shoulder height and breadth. This emphasises the need for appropriate lifting and handling equipment, height adjusting beds, and adequate workspace. The Nordic Musculoskeletal Questionnaire results showed that 59% of workers experienced low back discomfort within the previous year, 45% had shoulder discomfort, 41% had neck discomfort, and 37% had wrist/hand discomfort. Eleven percent indicated that they had not experienced any discomfort. This highlights the importance of addressing the wide range of factors that contribute to musculoskeletal injury risk in order to positively impact injury rates.

Research on musculoskeletal injury prevention indicates that multiple intervention strategies are most effective, as is reflected in New Zealand's best practice for addressing musculoskeletal risk – the 'Discomfort, Pain and Injury Prevention and Management' approach. It is therefore recommended that interventions target design solutions and organisational elements within the work system, in addition to the provision of education and training for workers.

Recommendations

A total of 113 recommendations were made, grouped into six prioritised categories:

1. Facility design and maintenance including design specifications for high dependency homes (ramps, bathrooms and toilets, sleeper rooms etc); and maintenance system improvements.
2. Access to professional expertise including development of specific language to describe support activities consistent with professional knowledge from occupational therapy, physiotherapy, nursing and other health professionals. Processes for accessing professional input to support both people with disabilities and Support Worker wellbeing were recommended.
3. Equipment provision and management including provision of home-based equipment such as slide sheets, lightweight wheelchairs, Raizer chairs and overhead hoist systems for homes with people with physical disabilities. Also recommended was sector-wide initiatives for equipment funding models that incorporate worker health and safety alongside the needs of people with disabilities.
4. Vehicles including improvements for wheelchair loading systems using innovative design solutions for transferring and securing wheelchairs into vans, and the provision of grab handles for driver and front seat passenger use.
5. Operational including process improvements for staffing, documentation and procedures, health and safety, and influencing external systems regarding care for those with dual diagnoses, multiple pathologies, and ageing-related issues.
6. Education and training including actions around literacy, improvements to the care knowledge given to Support Workers, formal educational course content, health and safety training, and training specific to Service Managers and desk-based workers.

Summary

With IHC we identified primary areas for intervention including: work environment design suitable for workers supporting people with reduced mobility; access to professionals skilled in describing and assessing daily activity performance; equipment provision for reduced worker musculoskeletal risk exposure; improvements to the vehicles and equipment used for transporting people; and operational and education system improvements. IHC is now working to identify relevant action plans.

About IHC

IHC was founded in 1949 by a small group of parents who wanted equal treatment from the education and health systems for their children with intellectual disabilities. The IHC of today is still striving for these same rights and is committed to principles of advocating for the rights, welfare and inclusion of all people with an intellectual disability. We support people with an intellectual disability to lead satisfying lives and have a genuine place in the community.

We work to support more than 4,000 people in IDEA Services and Choices New Zealand Limited. We also lobby and advocate for the human rights of all people with an intellectual disability at both a national and an international level. We raise money through a number of fundraising programmes, including the long running Calf and Rural Scheme. We raise awareness of the issues facing people with intellectual disabilities through our charitable activities, including an extensive advocacy programme, a one-to-one volunteer programme and the country's largest specialist intellectual disability library. Accessible Properties is a wholly owned subsidiary of IHC and manages one of New Zealand's largest non-government social housing portfolios with more than 2700 properties throughout the country.

Acknowledgements

We acknowledge and thank IHC for funding and supporting this project. The quality of this work was dependent on the honest feedback given by the many IHC and IDEA Services workers (from the Executive team to Support Workers) that we met with. We thank them all for their time and recognise their love and support for the people they care for.

'Ma pango ma whero ka oti te mahi' (translated from Māori - 'If the chief and worker pull together the job is done').

References

Dickinson, C.E., Campion, K., Foster, A.F., Newman, S.J., O'Rourke, A.M.T., and Thomas, P.G. (1992). *Questionnaire development: an examination of the Nordic Musculoskeletal Questionnaire*. Applied Ergonomics. 23:3.

ACC (2009). *Preventing and managing discomfort, pain and injury: Guidelines for in and around the workplace*. ISBN 978-0-478731414-4

Biography

Marion Edwin is a consulting ergonomist in her own business, Optimise Limited, based in Tasman Bay. An ergonomist for almost 20 years, she had a previous career as an occupational therapist before completing the Massey University post-graduate Diploma in Ergonomics (1998) and a Master of Ergonomics (2005). Marion has been a Professional Member of HFESNZ from 2002 and holds HASANZ Registration.

Marion has held many HFESNZ roles from 1997 to present, including Treasurer, Chairperson/President, Secretary, Committee Member, many Conference Committees, PAB Convenor, and HASANZ Representative – some roles a couple of times. Marion is committed to the strengthening of HFESNZ to ensure a sustainable and professional body for those working as HFE professionals or using HFE applications as part of other disciplines.

Along with this national level activity, Marion is active within a regional Nelson/Tasman Health and Safety Network and is active within other local business groups. She and her family live on an off-grid eco-block in the Motueka Valley, enjoying stunning views and home-grown goodies all year round.



Dr Fiona Trevelyan

Association between patient handling and musculoskeletal health in a nursing population

Fiona Trevelyan¹, Liz Ashby¹, Andy Ang², Nguyen Diep³, Stephen Teo³, Felicity Lamm² and Mark. G. Boocock¹

¹ Health and Rehabilitation Research Institute, Auckland University of Technology, Auckland, New Zealand. mark.boocock@aut.ac.nz; ² Centre for Occupational Health and Safety Research, Auckland University of Technology, Auckland, New Zealand; ³ Edith Cowan University, Joondalup, Western Australia, Australia

Abstract

The high prevalence of musculoskeletal disorders among healthcare workers is undisputed with patient handling recognised as a high-risk task for nurses. Multifaceted safe moving and handling programmes are widely accepted as the most effective way of reducing nurses' exposure to risk associated with patient handling (WorkSafe, 2018). The aim of this study was to explore the relationship between patient handling, work-related psychosocial factors and the musculoskeletal health of New Zealand (NZ) nurses. A sample (N=201) of NZ nurses from the 2013 NZ Census completed an online survey in 2016-17 (45% of those eligible). MSD prevalence was measured using a modified version of the Nordic Musculoskeletal Questionnaire. Psychosocial work demands were measured using The Copenhagen Psychosocial Questionnaire (COPSOQ II). Components of "The Tool for Risk Outstanding in Patient Handling Interventions (TROPHI)" assessed patient handling practices. Binary logistic regression provided measures of association between psychosocial and patient handling factors, and MSD. The overall prevalence of MSD was 58% in the previous 12 months and 31% for the last 7 days. Low back (55%) and shoulder (54%) complaints were the most frequently reported MSD during previous 12 months, and co-morbidity of symptoms was high (59%). Completing a patient handling task without equipment when equipment was prescribed, and perceived lack of suitable equipment, space, environment, skills or knowledge affecting patient care were found to be significantly associated with MSD. Higher work pace and emotional demands were also significantly associated with MSD. Patient handling comprises one component of a broader system within healthcare which is important to recognise when developing strategies aimed at optimising wellbeing amongst nurses.

Key terms: Musculoskeletal disorders, psychosocial risk factors, patient handling, nursing.

Biography

Dr Fiona Trevelyan Dip Grad Phys, BSc (Hons), MSc (Ergs), PhD CNZHFE is a Senior Lecturer in the Centre of Human Factors and Ergonomics at AUT. Fiona, originally a physiotherapist, has post graduate qualifications in Health Ergonomics. She is a Certified member of the Human Factors and Ergonomics Society of NZ, listed on the HASANZ register and leads the Healthcare Ergonomics Cluster a special interest group within the HFESNZ. She has worked extensively to apply HFE within the healthcare context and was PI in a Workplace Safety Literature Review & Technical Review of ACC's Moving and handling people: The New Zealand Guidelines. She has undertaken research into the risk associated with moving and handling within residential care and DHB workplaces. She has developed and implemented an interprofessional learning unit for moving and handling in the School of Clinical Sciences and involved in the delivery of two postgraduate papers at AUT, namely Health Ergonomics and Occupational Ergonomics.



Dr Kirsten Bendix Olsen

Strategies for overcoming barriers to implementation of the New Zealand moving and handling people guidelines

Kirsten Olsen¹, Mark Lidegaard, Hannele Lahti and Stephen Legg

¹ Centre for Ergonomics, Occupational Safety and Health, School of Health Science, Massey University, Palmerston North.

Abstract

The Accident Compensation Corporation (ACC) launched a new Moving and Handling People Guideline (MHPG) in 2012. The new guideline was based on best evidence for MHP programmes and developed by a New Zealand guideline development group supported by an international expert panel. The MHPG recommended a comprehensive multifaceted MHP programme based on three organisational components: MHP policies, audit and evaluation, and MHP safety culture, and five core components: risk assessment, facilities, equipment, MHP techniques, and training. Olsen, Lidegaard, & Legg, (2016, 2017) showed that the main target groups for the guidelines (MHP coordinators, health and safety managers/advisors and MHP trainers - physio and occupational therapists) were aware of and had used the guidelines. However, some sections were used more than others. After the launch of the MHPG ACC's MHP related injury claims increased, compared to expected trends (Lidegaard, Olsen, Legg, & Douwes, 2019).

The aim of this study was to identify how the MHPG had worked, which barriers hindered implementation, and which strategies the implementors used to overcome these barriers. Three case studies were conducted in hospitals. They included interviews, chronic workshops and ten semi-structured telephone interviews with MHP implementors, identified through an internet-based questionnaire.

Seven types of barriers were identified: national and sector related (e.g. standards and attitude), internal organisational related (e.g. complicated procurement procedures), resource related, culture related, internal stakeholder/individual related, implementor related, MHPG related. Five types of strategies to overcome the barriers were identified: integration strategy, cooperation strategy, water-ring strategy, financial strategy and legal strategy. Two essential factors for the implementation of MHPG guidance were also identified: a dedicated MHP/health and safety coordinator/manager and support from one, or a few, influential HS managers/senior managers.

Key lessons for practice: Implementation of comprehensive moving and handling people programmes occurs in organisations where they introduce changes that involve compromises, because they need to be negotiated where many different targets and aims are pursued and where there are limited resources.

This paper identifies different types of barriers that people, who want to implement a comprehensive moving and handling people programme, have to negotiate. It identifies strategies used by moving and handling coordinators and health and safety managers to overcome these barriers.

Biography

Dr Kirsten Olsen has worked in Ergonomics, occupational health and safety for over 30 years. She is passionate about creating healthy and safe workplaces and still feels that there is a long way to go. She is also passionate about integrating ergonomics, occupational health and safety into management and development of workplaces and about empowering practitioners and worker health and safety representatives to influence businesses/organizations to establish healthy and safe workplaces. This is not just about being able to identify hazards but also about being able to communicate and collaborate with different stakeholders in, and external to, the organization.



Kirsten has a Masters and a PhD in Engineering (Safety Management) from the Technical University of Denmark. Her PhD looked into how the introduction and organisation of new technology influenced occupational health and safety. She explored how this process could be influenced by workers. Since then,

Kirsten has worked for seven years as a consultant on work environment in a technicians' trade union. In that role she has developed training courses for health and safety representatives and managers and given advice on how to organise work and workstations involving computer aided design. Subsequently, Kirsten worked for five years as a Health and Safety manager for a Danish company, where she developed their health and safety management systems and designed a 'learning health and safety organisation'.

Kirsten has been in New Zealand since 2005 and employed by Massey University since 2006. Her research focuses on: Health and safety practitioners' (including worker representatives') role in establishing healthy workplaces; health and safety management in small businesses, and; evaluation of national occupational health and safety intervention programmes such as the Accident Compensation Corporation's Workplace Safety Management Practice, Workplace Safety Discount programmes and the New Zealand Guidelines on Moving and Handling People. As a Senior Lecturer in Massey's School of Health Sciences, she teaches OHS at both undergraduate and postgraduate level.

Margaret van Schaik

The Integration of Worker-focussed Health and Safety Systems with Patient Safety

Abstract

Health and safety generalists are the health and safety discipline that enable organisations to create a structured system that identifies health and safety risks to workers, and identify controls to mitigate these risks, as required by the Health and Safety at Work Act (HSWA) 2015 and associated HSWA Regulations.

Health and safety generalists must ensure that the risks are assessed and appropriate controls enacted to effectively manage the risks. Health and safety generalists work alongside a range of other health and safety professionals such as occupational hygienists, human factors professionals/ergonomists, hazardous substances professionals, occupational health nurses, occupational health physiotherapists, occupational therapists and occupational medicine specialists to bring in the necessary skills for risk measurement and control.

Traditionally health and safety generalists are tasked with developing and implementing health and safety management systems that enable organisations to effectively manage all aspects of health and safety in the workplace. These systems typically consist of elements including governance and leadership arrangements, planning, review and evaluation practices, hazard identification, risk assessment and management practices, information, training and supervision practices, incident and injury reporting, recording and investigation practices, worker engagement, participation and representation practices, monitoring, audit, and review practices, emergency preparedness and response practices and contractor management practices.

Integration of health and safety systems into existing organisational functions is key to the success of health and safety management. The systems addressing worker health and safety processes will be discussed in relation to patient safety frameworks, and a case made for the integration of these two approaches for the benefit of both healthcare workers and patients. An overview of the risks that healthcare organisations must manage and the processes used to do so will also be presented.

Biography

Margaret van Schaik CMIOSH/ CMNZISM/ GradDipOSH/ SAFEPLUS Assessor, is an experienced Health and Safety Professional with 20 years' experience in OH&S group management, advisory, regulatory and consultancy roles in the manufacturing industry, banking, disability sector, healthcare, trade industries, local and central government, general consultancy and health and safety enforcement and regulation. Margaret is an experienced trainer and facilitator and enjoys coaching and mentoring others.



Margaret is a HASANZ registered Health and Safety Professional, has a Graduate Diploma in Occupational Health & Safety from Massey University and is a registered Chartered Health and Safety Practitioner (CMIOSH) with the Institution of Occupational Safety and Health (IOSH) and a Certified Member (Cert NZISM) with the New Zealand Institute of Safety Management.

Margaret is Managing Director/Principal Consultant of van Schaik Health and Safety Solutions Ltd - a boutique H&S consulting business with team of experienced career H&S professionals providing a wide range of quality health and safety consultancy and training services for New Zealand based clients.

Dr Alex Lang

Human Factors in Medical Technology Development: Case Study of a novel Neonatal Heart Rate Monitor

Abstract

Dr Alexandra Lang will provide an in-depth case study about the Human Factors contributions to the development of a novel neonatal Heart Rate monitor. The presentation will showcase the pragmatic use of Applied Cognitive Task Analysis (ACTA) as a method to understand 'Work as Done' by the multidisciplinary teams involved in neonatal care and resuscitation. The presentation will demonstrate the added value that Human Factors offered this small-scale project in understanding the requirements of a wide range of users, in supporting the future development and application of a novel sensing technology and in providing vital user information to contribute to the commercial viability and market readiness of the medical device product.

Biography

Dr Alexandra Lang is a Human Factors Specialist currently working for Nottingham University Hospitals NHS Trust, the fourth largest acute healthcare trust in England and is an Honorary Associate Professor in Healthcare Human Factors at the University of Nottingham.

She has over 10 years' experience in applying and researching Human Factors in healthcare systems, in the UK and internationally. Alex's research interests and teaching focusses on the application of HFE to improve the quality and safety of healthcare provision and experience; designing, implementing and evaluating healthcare technologies and working environments, clinical pathways and patient safety.

Alex leads the Chartered Institute of Ergonomics and Human Factors (CIEHF) Healthcare Special Interest Group and recently co-led the authorship of the CIEHF White Paper - Human Factors for Health and Social Care. She is the Human Factors Expert Consultant for the Centre for Healthcare Equipment & Technology Adoption (CHEATA), Health Education England regional HF Steering team and the Difficult Airways Society HF Committee.



Saskia Fursland

Making systems safe: AcciMap workshop

Abstract

Want to know what an AcciMap is? Do you know what an AcciMap is but don't know how to create or use one? Are you an AcciMap pro but are interested in how they can apply to healthcare incident investigation? Then this is the workshop for you!

Saskia Fursland, a National Investigator from the UK's Healthcare Safety Investigation Branch, will provide an overview of AcciMaps. During this workshop, delegates will be given the opportunity to apply the method to a real-life healthcare safety investigation scenario.

Biography

Saskia Fursland (née Revell) has a total of nine years' experience in applying Human Factors in incident investigations. Saskia is currently a National Investigator with the Healthcare Safety Investigation Branch (HSIB) in England, which was launched in April 2017. HSIB conducts independent investigations of patient safety concerns in NHS-funded care across England and is the first of its kind in the world. Throughout the investigation process, HSIB engage with patients, relatives, staff and national organisations, and make safety recommendations at a national level to improve patient safety.

Saskia has a keen interest in Human Factors investigation models and analysis methods. In her role as a National Investigator, she uses a range of systemic investigation approaches to collect and analyse evidence. She has adapted an aviation investigation framework to healthcare which is currently being used by over 120 of HSIB's maternity investigators.

Prior to joining the HSIB, Saskia worked for six and a half years' as an Aviation Psychologist at the Royal Air Force Centre of Aviation Medicine. As an Aviation Psychologist, Saskia provided Human Factors expert advice to all UK military air accident investigations, conducted proactive investigations to improve flight safety, and provided bespoke Human Factors input to UK civilian air accident investigations.



Dr Sarita Dara

Impact of Fatigue Risk Management System on Fatigue and Situation Awareness of Surgical Intensive Care Unit Nurses

Abstract

Background: The healthcare sector workers commonly engage in shift work which causes fatigue.

Objectives: Design and implementation of a Fatigue Risk Management System (FRMS) and analysis of fatigue and Situation Awareness (SA) of Surgical Intensive Care Unit (SICU) nurses before and after this.

Methodology: The study was conducted with nurses doing rotating shift work at SICU of a tertiary care hospital, over 3 main phases: Pre FRMS (n= 36), FRMS (n=34) and Post FRMS (n=28). In the Pre FRMS phase, fatigue and SA were determined through analysis of duty roster, self-reporting of fatigue and sleepiness, actigraphy, vigilance testing and SA estimation using situation awareness rating technique (SART). A customised performance based FRMS was implemented. Measures for fatigue and SA were repeated in the Post FRMS phase. Results for measures of fatigue, sleepiness, response time and SA scores of Pre and Post FRMS phases were obtained and statistically analysed.

Results: Mean fatigue scores and mean sleepiness scores were higher at the end of shift as compared to the start of shift for morning, afternoon and night shift and there was an overall decrease in scores in Post FRMS phase as compared to Pre FRMS phase. SA scores at the end of shift were lower compared to the start of shift for morning and night shift and showed no difference for the afternoon shift and there was an overall increase in the Post FRMS phase as compared to Pre FRMS phase.

Conclusion: Implementation of performance based FRMS in SICU was associated with reduction in fatigue and sleepiness scores and improvement in SA scores.

Key lessons for practice: Implementation of a customised fatigue risk management system shows improvements in both fatigue and situation awareness levels in healthcare workers doing shift work.

Fatigue risk management system can be customised based on fatigue risk assessment

Key terms: FRMS, Fatigue, Situation Awareness

Biography

Dr Sarita Dara is a Senior Medical Officer with Civil Aviation Authority of New Zealand. She has interdisciplinary training and experience in the fields of Aerospace Medicine, Occupational Medicine, Public Health Medicine, Space Studies and Human Factors. Her PhD topic was in Human Factors on assessing the effectiveness of Fatigue Risk Management System in healthcare sector.



Dr Jenny Long and Prof Jennifer Weller

NetworkZ: using multidisciplinary simulation to train teamwork and test systems in acute healthcare settings

Abstract

The idea that teams that work together should train together appears obvious, but team training remains uncommon in healthcare. Effective patient care relies on coordinated implementation of unique clinical expertise. Coordination is often imperfect, and communication errors are common, sometimes with serious implications for patients. This presentation will discuss NetworkZ, a New Zealand simulation-based programme for improving teamwork in operating theatres and beyond.

NetworkZ is a national multidisciplinary simulation-based team training program for acute-care teams, utilizing bespoke, interactive surgical models with a full body computerised simulator. The training is run in situ, with operating room teams working in their own environment and with their usual team members. With support from ACC, the training is being rolled out to public hospitals in New Zealand's 20 District Health Boards. Over 1000 staff have attended courses.

The training aims to build team expertise to improve patient safety. The teamwork approach draws on the work of Eduardo Salas who summarized characteristics of effective teams across a range of industries. For example, the training emphasizes shared mental models that enable all team members to contribute maximally to patient care, to identify problems, and respond collaboratively to unexpected events. Realistic simulated patient cases provide opportunities for teams to test out key communication strategies and crisis protocols in a safe environment.

Simulations occur in in-situ, allowing local teams to identify, and address systems issues and skill gaps. Common issues included limited knowledge about the set-up of infrequently used crisis equipment and protocols, and inefficiencies in key safety protocols related to blood transfusions and other areas of care. Simulation, if done well, can become popular with participants, build teamwork, and offer a platform for involving local staff in the identification and remediation of systems issues.

Key terms: simulation, patient safety, training

Biography

Dr Jennifer Long is a Research Fellow working at the University of Auckland on the evaluation of the NetworkZ programme. This work includes the observation of teamwork and communication in operating theatres, process evaluation of programme implementation and assessment of programme impact on latent safety issues, teamwork and communication and patient safety. Jenny has a PhD in applied community psychology and a keen interest in evaluation.



Professor Jennifer Weller is the Head of the Centre for Medical and Health Sciences Education at the University of Auckland, and a specialist anaesthetist at Auckland City Hospital. She has published widely in the field of workplace assessment, simulation-based education, teamwork and patient safety. Building on her research programme in teamwork and patient safety, Professor Weller leads a national, simulation-based team training intervention for all members of operating room teams, currently being implemented across all New Zealand District Health Boards.

Kevin Miller

Bringing building design to life – How modern design technologies are being used to improve building functionality and comfort in healthcare facilities

Abstract

The design of healthcare facilities more than any other type of building needs to consider the variety of people that will make use of it and activities undertaken within it. Design for compliance with standards regularly leads to compromises in how occupants go about their tasks creating inefficiency and potential risk. Budget pressures often drive projects towards “minimum compliance” solutions. The design tender process also acts a disincentive to designers to develop new and innovative solutions as this adds time and cost – leading to the same sub-optimal designs being repeated. In addition to this problem, often facility users and occupants are not familiar with the design and construction process so can struggle to fully understand traditional 2D drawings which can limit the useful feedback they can provide.

This presentation will delve into modern design technologies that are helping to bridge the gap between building users and the building designers. Virtual reality and visualisation tools are now being used to help users to better understand what the final result will be and provide useful feedback into the design process. Real world examples will be provided to demonstrate how these techniques can lead to improvements in the design which often come at little cost but can provide significant benefits to the use of the space.

Key terms: human-centred design, healthcare, buildings



Biography

Kevin Miller BE(E&E), CPEng, CMEngNZ is Associate – Built Environment, Electrical Engineer & Project Manager at Aurecon. Kevin is a Chartered Professional Engineer with close to 20 years’ experience leading multidiscipline design teams to deliver healthcare development projects. In addition to being an experienced electrical engineer, he has also successfully managed the design teams for several major healthcare development projects.

He has a passion for healthcare facilities due to the greater human element than is present with most building development projects. He particularly enjoys getting to know the people who will be using the facility and understanding how the spaces will be used. This leads to a design approach that is sympathetic to the needs of the people who interact with it rather than simply compliance with standards.



Sue Alexander

Reflections on the missing links in safer patient handling

Alexander Ergonomics Consulting, Christchurch, New Zealand

Abstract

High musculoskeletal injury rates among healthcare workers are well-documented. The ISO Technical Report 12296 identifies patient handling as a “hazard” and recommends a comprehensive strategy for managing this. Managing risks is fundamental to the Health and Safety at Work Act 2015, but how well is risk management integrated into New Zealand Moving and Handling People guidance? Assisting people to move presents special challenges because as a load the person may have multi-pathology, be unpredictable and must always be treated with care and respect. However, the underlying biomechanical principles for patient handling are the same as those for object handling. Patient safety is a key driver for quality of care and may be prioritised over caregiver safety. Better patient handling practices facilitate positive patient outcomes while reducing the likelihood of caregiver injuries. There is no ‘one size fits all’ risk assessment tool, so it is important to select appropriately (facility-wide, patient-specific or task-specific) and consider whether it leads to identification of suitable control options. Physical design of workspaces based on NZS4121:2001 may not be usable in situations where the patient requires ‘hands on’ assistance. A key person with a strategic overview needs to coordinate programme activities (which is more than just training provision) and local champions should be used to build and sustain a safety culture. Healthcare is a complex, unpredictable and dynamic system that is difficult to understand. Human factors professionals are well placed to provide healthcare organisations with insights into this system.

Key terms: Patient handling and moving, musculoskeletal injuries, patient safety

Biography

Sue Alexander is a Certified Human Factors and Ergonomics Professional and is listed on the HASANZ Register. She has a long association with HFESNZ and is currently one of the Professional Affairs Board members. Sue has her own ergonomics consultancy business based in Christchurch. Previously, Sue worked for 16 years in the Health and Safety team at the Canterbury DHB and was the lead for the development and implementation of a safer handling programme.



Friday 20th September Speakers

Karl Bridges and Paul Corballis

Cognitive, behavioural and psycho-physiological predictors of failure-to-identify hunting incidents

Abstract

For the past three years, research at the University of Auckland, New Zealand has focused on understanding the behavioural, cognitive and psychophysiological causes of these incidents. Numerous pieces of research have been conducted using both qualitative and quantitative techniques.

Initially a Functional Resonance Analysis Methodology (Hollnagel, 2012) was conducted to understand what takes place during a hunt. The outcome indicated that hunting consists of three key stages – perceive, comprehend and commit (Bridges, Corballis & Hollnagel, 2018). The paradigm, subjective in nature, triggered the need for more empirical data presented below.

The first experiment (n=64), utilising simulation technology, focused on understanding how hunters respond to initial cues that deer are present in their vicinity. This research identified that a significant increase in pupil dilation occurs in the lead-up to discharging the firearm. This is indicative of physiological arousal and could result in a detrimental effect to target recognition due to static visual acuity decreasing with pupil dilation (Woods, 1992).

The second experiment (n=102), conducted at the same location the following year and using some of the same technology, focused on how hunters appraise and comprehend their situation once they have clear opportunity to shoot their quarry. A large percentage of the hunters shot at this unknown deer (15%) with even more utilizing their scope on their rifle to obtain a better view of the deer. A computer-based testing protocol identified that the part of the deer that resulted in the shortest response times were the forequarters of the deer (the place that a humane shot should be taken) and not the head/antlers as previously hypothesized. This suggests that hunters may be goal directed and that their intended goal becomes the initial source of target acquisition and not more telling characteristics such as the head.

Key terms: Safety, target acquisition, hunting

Acknowledgements: We would like to acknowledge all contributing individuals to this research and the ongoing support of the major hunting stakeholders of New Zealand. Direct contributors to this research include New Zealand Deerstalkers Association, Colin Baynes at Makapua Station, Richard Ross at Balnagowen Deer Hunting, Harald Bettin at Shooting Cinema, Nicole McKee at Firearms Safety Specialists, Mike Spray, Mike Pyatt, Joseph Bagrie, Hunting and Fishing NZ, Stoney Creek, Radix Nutrition and Alex Gale at Safer Shooting.

References

Bridges, K.E., Corballis, P.M. And Hollnagel, E. (2018) "Failure-to-identify" hunting incidents: a resilience engineering approach. *Human Factors*, 60 (2), pp. 141-159. DOI: 10.1177/0018720817743851

Hollnagel, E. (2012) *FRAM: The Functional Resonance Analysis Method*. Farnham, UK: Ashgate.

Hulse, L. M., & Memon, A. (2006). Fatal impact? The effects of emotional arousal and weapon presence on police officers' memories for a simulated crime. *Legal and Criminological Psychology*, 11(2), 313–325.

Woods, R.L. (1992) The aging eye and contact lenses – a review of visual performance. *Journal of the British Contact Lens Association*, 15, 1, pp. 31-43. DOI: [http://dx.doi.org/10.1016/0141-7037\(92\)80030-4](http://dx.doi.org/10.1016/0141-7037(92)80030-4)

Biography

Karl Bridges runs a Human Factors Consultancy in Auckland, is a Certified Human Factors Professional and HASANZ certified professional in NZ. He is also a Chartered Human Factors Professional and Fellow Member in the UK for the CIEHF. He is also a PhD candidate at the University of Auckland studying the causes of Failure-to-identify hunting incidents.



Dr Maggie Trotter

Using Work Domain Analysis in Safety Case Development

Abstract

Navigatus was contracted by the Ministry of Business, Innovation and Employment (MBIE) to produce a Foundation Safety Case (FSC) for the integration of unmanned aircraft (UA) into the New Zealand Airspace. A FSC sets out the processes that must be delivered and the criteria that must be met by a UA operator to ensure the risk associated with airspace integration meets an acceptable level of safety. Identifying the criteria necessitates determining the key functions and processes needed for operators to integrate into the airspace with minimal risk. In an emerging area where technology is advancing rapidly, it is important to define these functions without prescribing the specific technologies that an operator requires to perform them, leaving room for innovation and continuous improvement.

In this piece of work, Work Domain Analysis (WDA) was used to inform the structure of the FSC. WDA is a structured, formative approach to analysing, modelling, designing and evaluating complex socio-technical systems. It considers flexibility and adaptive capacity by describing system constraints and ways in which a system can operate within those constraints without explicitly identifying specific sequences of actions. The development of the WDA was an iterative process, developed through a series of workshops, meetings and online interactions with key stakeholders and refined by mapping against the International Civil Aviation Organization safety regulations. A total of 18 functions were identified. These were linked to 26 processes. The most highly linked function was “Execute responsibilities of pilot in command”.

The safety case framework was structured around these functions and their associated processes. The failure of each process was considered the top event in a bowtie analysis, prompting the identification of event and consequence mitigations. The likelihood of events and the effectiveness of mitigations were then calculated and combined to give an overall risk level for the Operator.

Key terms: Work Domain Analysis, Cognitive Work Analysis, Aviation

Biography

Dr Maggie Trotter is an experienced Human Factors specialist and Behavioural Scientist with a PhD in Human Factors psychology from Monash University, Melbourne. She is passionate about learning from systems failures and near misses to enhance public safety and system resilience. Maggie joined Navigatus in 2018 as the lead HF consultant, specialising in systems safety, accident analysis and transportation psychology.

Prior to joining Navigatus, Maggie spent four years as a senior researcher within the Behavioural Sciences team at WSP Opus and before this, six years as a researcher in the Human Factors team at the Monash University Accident Research Centre in Melbourne. She has also worked in the commercial team at Arup, London and for the Injury Prevention Research Unit, University of Otago.



Dr Hamish Mackie

Systems Methods in Road Safety

Abstract

The Safe System is the road safety framework that has been accepted in New Zealand and globally over the past nine years. It takes the position that the whole transport system needs to be designed to protect people from death and serious injury and that human fallibility and vulnerability need to be considered. Responsibility for preventing deaths and serious injuries is also seen as shared between system designers and road users under the safe system. Following this framework, improved methods for understanding the contributing factors to crashes have been developed and applied to crashes where deaths or serious injuries have occurred, including for pedestrians.

Meanwhile in the human factors world, different ways of considering the system components of road safety and other safety critical domains have been developed. Some of these methods introduce the concept of the socio-technical system, taking the position that crashes don't happen by chance or even simply when a range of environmental and user factors come together somehow. Instead, socio-technical approaches suggest that road crashes are the product of a combination of both social and technical system factors across institutions that have paved the way for high severity crashes to occur. Using a modified version of Rasmussen's Model of Risk Management, a more contemporary human factors approach to cycle fatalities and pedestrian deaths and serious injuries have been explored.

This presentation will outline these different views of Safety Systems, show examples of where they have been applied to road safety contexts, and suggest ways forward for implementing these concepts more operationally, so that road safety interventions can be more effective.

Key terms: Road Safety, System, methods

Biography

Dr Hamish Mackie is co-director of Mackie Research. As a certified HFE professional, all of Hamish's work has the underlying theme of human-focussed systems. With a range of collaborators, Hamish has worked on a number of important road safety projects (including Safe System course development and the Rural Intersection Active Warning System). He is the project lead for Te Ara Mua – Future Streets, a neighbourhood street retrofit to test sustainable suburban transport infrastructure, and Healthy Future Mobility Solutions, which focusses on healthy options for moving around our towns and cities.



Jas Qadir

Regenerative Design Approaches in NZ Built Environment: How can we leave a place better than we found it?

Abstract

This abstract is for a presentation on regenerative design and development approaches in NZ built environment based on an ongoing study. The study draws from international best practices and the presenter's experience as a project manager in NZ's built environment.

The study presents the background, context, various definitions and landscape of regenerative design through international and national developments. This led to an understanding of regenerative design sharing similarities with cradle-to-cradle/doughnut economy and adaptive and anticipatory governance. The underpinning similarities lie in how these concepts choose to address the five capitals – social, cultural, human, natural and financial.

The relevance to NZ has been studied primarily through the various literature and discussion papers on Living Standards Framework based on the five capitals. The study also draws from initial discussions with stakeholders from two projects – Living Building Te Kura Whare in Taneatua, and the Waiapu Catchment under the East Coast Funding Programme.

The study in its initial phase has sought to answer the questions – what regenerative design means to NZ design professionals and what challenges have been experienced or expected?

The process of on-going exploratory stakeholder discussions led to the following two research questions:

1. How can we leave a place better than we found it?
2. How can we plan and better resource ourselves for a resilient future?

The study is in the process of determining which question will benefit NZ and its communities the most.

Key terms: Regenerative Design and Development, Living Standards Framework and Cradle-to-Cradle Economy

Biography

Jas Qadir has a background in engineering, project management and teaching, mostly in the construction sector of NZ. He has been involved in several residential, commercial and education projects and is bringing these experiences together for his doctoral study on "Regenerative Design Approaches and Practices in NZ Built Environment".



Dr Rachel Morrison and Roy Smollan

Open plan office space? If you're going to do it, do it right: A fourteen-month longitudinal case study

Applied Ergonomics 82 (2020) 102933

Abstract

There are compelling findings that open-plan office environments are associated with declines in employee wellbeing. In spite of this, the move towards shared office environments continues; yet there is a lack of research describing open-plan offices that have positive outcomes for workers. We describe a “best practice” open-plan fit-out of a law firm and provide data from occupants relating to their performance, well-being, and collegial relationships. Six months after moving to an open-plan office, staff were anonymously surveyed, and 24 were interviewed. Fourteen months later, occupants responded to a follow-up survey. Positive outcomes relating to aesthetics, collegiality, and communication were achieved through good technical design and thoughtful ergonomic assessment of the needs of employees and the requirements of their tasks. A gender difference emerged whereby female, but not male, workers in this environment reported feeling observed. This has implications for the relatively different impact these environments may have on workers. Thus, by following ergonomic principles to create open-plan offices that are ‘safe by design’ organizations can ameliorate many of the negative consequences associated with these environments.

Key terms: Open-plan offices, Well-being, Gender Productivity

Biography

Dr Rachel Morrison’s primary research interest is the way the physical work environment impacts employee well-being and productivity, with a particular focus on interpersonal relationships in the workplace. She teaches undergraduate and postgraduate Organisational Behaviour / Work Psychology at Auckland University of Technology. Rachel looks at the positive (friendly/supportive) and negative (distracting/hostile) aspects of co-worker interactions. She has published articles in academic Management and Psychology journals including *Applied Ergonomics*, *Sex Roles*, and the *Journal of Management and Organisation*. She has contributed to several books, as either author, co-author or co-editor, including co-editing two research volumes on organisational relationships; *Friends and Enemies in Organizations: A work Psychology Perspective* and *Relationships in Organizations: A work Psychology Perspective*.



Philip Aldridge

Update from HASANZ and Pipelines and Pathways project

Philip Aldridge¹, Marion Edwin²

¹ Executive Director, HASANZ, ² HFESNZ Representative for HASANZ

Abstract

The Health and Safety Association of New Zealand (HASANZ) has now been in operation for five years and has made solid inroads into addressing health and safety system issues that were identified in the report from Royal Commission on the Pike River Coal Mine Tragedy. HASANZ is focused on:

1. Growing capacity and capability of the health and safety workforce
2. Building demand for qualified and experienced professionals
3. Educating business, and connecting them with professionals who can help them improve health and safety.

The online HASANZ Register has been available for over a year; the 2nd of the HASANZ Scholarship programme has just closed with 125 applications for people looking to study in health and safety; and is about to publish the 'HASANZ Health and Safety Workforce Pipeline Report'. This report identifies a number of recommendations that address the combined needs of the health and safety disciplines, along with a number of specific human factors/ergonomics needs. One of the key next steps will be implementing initiatives to building the number of qualified and experienced human factors and ergonomics professionals in New Zealand.

Biography

Philip leads the day to day operation of HASANZ and the implementation of its business strategy. He has a broad background in both the public and private sectors with extensive leadership experience across a range of membership, government, industry training and commercial organisations. When Chief Executive of InfraTrain New Zealand he chaired the Built Environment Training Alliance (BETA) and was closely involved in building capability in the high-risk infrastructure industry for the Christchurch rebuild. This spurred his active interest in promoting workplace health and safety. He has a MBA and a B.Sc (Hons) degrees.



Dr Felicity Lamm

The Reflections of an OHS Chief Advisor

Abstract

As a result of the less than favourable public sector injury and illness rates, the State Services Commissioner saw a need to introduce a fresh approach to health and safety. The new approach is intended to raise the level of commitment and cooperation across core government agencies in all matters concerning health and safety. In order to drive these changes, enhance overall system capability and to support government senior managers to strengthen the performance of their agencies, the Government Health and Safety Lead (GHSL) was established in 2016 and 2018 the Chief Advisor for Health and Safety was appointed. The GHSL's priorities are:

1. leadership and capability;
2. practical and relevant resources;
3. assurance and data;
4. workforce development;
5. advisory services;
6. procurement;
7. critical sector priorities.

The purpose of this presentation is to showcase some of the recent government initiatives and to argue that the benefits of these initiatives are not restricted to the public sector but have wider positive implications.

Biography

Dr Lamm is currently an Associate Professor and the inaugural Co-Director of the Centre for Occupational Health and Safety (OHS) Research at the Auckland University Technology (AUT). In 2018 she was appointed as Chief Advisor Occupational Health and Safety for the New Zealand Government. Dr Lamm has been teaching and researching in the area of OHS, employment relations, and management for over 25 years. She has written extensively on these subjects, including compiling research reports for New Zealand and overseas public and private sector organisations in areas such as regulating and complying with employment and OHS law and OHS issues in the agricultural, construction, ICT, forestry, mining, fishing, service sectors and SME sectors. As Co-Director of the Centre, she has led numerous collaborative research and consultancy projects and has established a support network for academics and practitioners.

