

Proceedings of the first People in Disasters Conference 2016

**Air Force Museum of New Zealand,
Christchurch, New Zealand**

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Proceedings of the first People in Disasters Conference, Christchurch, New Zealand, 2016

Looking after people during and following disasters: Introduction to the People in Disasters Conference proceedings

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Keywords: People, Disaster, Conference, Canterbury District Health Board, RHISE, Response, Recovery, Resilience, Christchurch Earthquake

The first International People in Disasters Conference will be held in Christchurch, New Zealand, 24-26 February 2016. This event will gather together local, national, and international researchers, practitioners, and others to discuss their research findings, practice updates, and experiences directly related to disasters. The event will be co-hosted by the Canterbury District Health Board, and the Canterbury-based RHISE (Researching the Health Implications of Seismic Events) Group. The themes of the proceedings cover the three vital elements of community revival after a disaster: response, recovery, and resilience. Most abstracts focus on a wide range of topics related to the Christchurch earthquake. Examples include: physical health, mental health, role of pets, creativity, experiences of disabled people and children, social networking, community initiatives for recovery and resilience, compassion fatigue, the Maori experience, and psychosocial recovery. International topics cover the Australian bushfires, Queensland floods, earthquakes of Nepal, Japan, and La Poma, and disaster management in Thailand and the Philippines. While many of the abstracts are conversational in nature, others report completed, ongoing, or planned research or practice updates. Abstracts of particular interest in these proceedings include that of Sir John Holmes on a fragmented international humanitarian system, Dr Jeanne LeBlanc on the massive psychological impact of the 2010 Haiti earthquake, Professor Alexander McFarlane on mental health and disasters, and Professor Jonathan Davidson on ways of measuring and enhancing resilience. Conference highlights include workshops on developing a mental health service for psychological distress following the Canterbury earthquakes, and media skills for communicating during disasters. A focus group meeting will be held on deployment and coordination of foreign medical teams.

These proceedings were edited by Dr Joanne Deely assisted by Alieke Dierckx.

Pre-conference Workshops and Focus Meeting

Tuesday 23 February 2016:

The Sendai Framework: What can New Zealand contribute, what can New Zealand learn?

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The Sendai Framework for Disaster Risk Reduction 2015–2030 was adopted at the World Conference on Disaster Risk Reduction in Japan in March 2015 by 187 Member States including New Zealand (whose delegation was led by the Minister for Canterbury Earthquake Recovery, the Honourable Gerry Brownlee). The Framework built on its predecessor, the Hyogo framework for action (HFA) 2005–2015. The Sendai Framework has 39 references to health, in contrast to four in the earlier framework. However, in order for the world to address the manifestly increasing vulnerability to disasters worldwide, concerted action is required across a wide range of sectors, institutions and disciplines to tackle the root causes of disaster risk, including poverty, inequity, poor urban planning and climate change. The language of the Sendai framework is familiar to Canterbury citizens and to New Zealanders in the aftermath of their biggest natural disaster – the earthquakes of 2010/11. New Zealand, along with many other countries who have recently experienced natural disasters, has already made an important contribution to the global disaster risk-reduction dialogue. Canterbury and New Zealand are in a good position to contribute further to the implementation of the Sendai Framework ('Words into Action') in all four priority areas. Examples include: 1) understanding disaster risk (priority 1); 2) strengthening of disaster risk governance (priority 2); 3) investing in disaster risk reduction for resilience (priority 3); and 4) preparedness to 'build back better' (priority 4). This workshop provides an overview of the Sendai Framework for participants, and seeks their thoughts on how the priorities for action could be developed locally, nationally, and internationally.

An ASSETT after a disaster: Developing and delivering a tertiary mental health service for ongoing psychological distress following the Canterbury earthquakes

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Increased prevalence of post-traumatic stress disorder (PTSD) is seen in the general population after natural disasters, and is often particularly elevated for sub-groups, such as direct victims of the disaster or those in rescue or recovery. Other psychological problems are also common, especially depression, panic and phobic disorders. Although these are predictors of chronic PTSD, they are also important mental health issues in their own right. Following the major Canterbury earthquakes of 2010 and 2011, it was recognised that anxiety responses were common amongst local residents. It was anticipated that most of the community would improve with minimal assistance, but that a proportion would need psychological treatment. While it was expected that existing mental health services would cater for people who were primarily depressed, planning began for a dedicated treatment service for earthquake-traumatised individuals. The Adult Specialist Services Earthquake Treatment Team (ASSETT) was established following the February 2011 earthquake to provide psychological treatment for Canterbury residents experiencing severe distress in response to the earthquake sequence. Both overseas material from previous natural disasters such as Hurricane Katrina and the 11 September 2001 terrorist attacks on the World Trade Centre, and local clinical experience led to the development of the ASSETT treatment manual for individual and group treatment of post-earthquake distress. Over the next four years, the ASSETT team assessed and treated Canterbury residents with severe earthquake related distress. The pre-conference workshop covers the background and logistics of setting up a specialist psychological service in the wake of a major disaster; provides an overview of the cognitive behavioural model of treatment, and the content of group and individual treatment; reports the characteristics of people who attended the ASSETT service over its four years; evaluates the treatment programme; and provides preliminary data on treatment outcomes for people who attended the service.

Media skills for communicating during disasters

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The science and health communities in New Zealand have learned a lot about media and communicating with the public during disasters over recent years. A lot of knowledge has been gained - some of it the hard way - and while this has led to systematic changes and increased preparation in many organisations, there is always room for further improvement. In that spirit, this session focuses on what to say, how to say it, and who to say it to when it matters most. Highlights of the workshop include: what the media need and want when news is breaking, preparation and crafting of meaningful messages, prioritising audiences, identifying the best media channels (news, social media, websites) to use, and adapting to tight timeframes and intense pressures to get information out. The workshop will be facilitated by media and communication professionals, people with experience in the hot seat, and those working behind the scenes. There will be plenty of interactive activities to stimulate learning and spur discussion among participants.

Operationalising the deployment and coordination of Foreign Medical Teams (FMTs) – Supporting the World Health Organization FMT Global Registry

World Health Organisation FMT Coordination Team Members, New Zealand Medical Assistance Team Members

This focus meeting is a must for people interested in responding post-disaster to assist affected communities. These people include: health workers both medical and psychosocial, support teams, emergency services, and rebuilders. The meeting will cover changes in global practice and the development of the World Health Organisation (WHO) Foreign Medical Team (FMT) global registry. It will outline what organisations and individuals should be preparing for if they intend to join a team. The development of the New Zealand Medical Assistance Team (NZMAT) and recent responses into the South Pacific will be used to illustrate recent changes. The coordination of FMTs by disaster-affected governments in West Africa, Vanuatu, and Nepal will also be explored. The meeting will be facilitated by members of the WHO FMT Coordination Team and staff previously deployed from within NZMAT. The meeting also includes an introduction to minimum standards, readiness to deploy, team/personnel, and disaster affected government coordination.

Keynote and Guest Speakers

Wednesday 24 February 2016:

The politics of humanity: Reflections on international aid in disasters

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Keywords: Emergency, Disaster, Humanitarian, Aid, United Nations

As United Nations Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator from 2007-2010, the author was heavily involved in the coordination of aid provision to countries struck by natural and man-made disasters, raising the necessary funds, and the elaboration of humanitarian policy. The international humanitarian system is fragmented and struggling to cope with rising demands from both conflicts, such as that in Syria, and the growing effects of climate change. This paper reviews what humanitarian aid can and cannot achieve, the frustrations of getting aid through when access may be difficult or denied, and the need to ensure that assistance encompasses protection of civilians and efforts to get them back on their feet, as well as the delivery of essential short-term items such as food, water, medical care, and shelter. Also of importance are the challenges involved in trying to make sure the different agencies – United Nations (UN), non-government organisations (NGOs), and the International Red Cross/Crescent movement – work together effectively. Donor and recipient governments often have their own political and security agendas, and may have little interest in the necessary neutrality and independence of humanitarian aid. These points are illustrated by practical examples of political and other dilemmas from aid provision in natural disasters such as Cyclone Nargis in Myanmar in 2009, and the Haiti earthquake of 2010, and in conflict situations such as Darfur, Afghanistan and Sri Lanka in the past, and Syria today. Politicians and others need to understand more clearly the impartial space required by humanitarian agencies to operate properly.

Transition towards integrated care: The Canterbury Health System's recovery

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Keywords: Disaster, Health System, Integration

The devastating Canterbury earthquakes of 2010 and 2011 have resulted in challenges for the people of Canterbury and have altered the population's health needs. In the wake of New Zealand's largest natural disaster, the health system needed to respond rapidly to changing needs and damaged infrastructure in the short-term in the context of developing sustainable long-term solutions. Canterbury was undergoing system transformation prior to the quakes, however the horizon of transformation was brought forward post-quake: 'Vision 2020' became the vision for now. Innovation was enabled as people working across the system addressed new constraints such as the loss of 106 acute hospital beds, 635 aged residential care beds, the loss of general practices and pharmacies, as well as a damaged non-government organisation sector. A number of new integration initiatives (e.g. a shared electronic health record system, community rehabilitation for older people, community falls prevention), and expansion of existing programs (e.g. acute demand management) were focused on supporting people to stay well in their own homes and communities. The system working together in an integrated way has resulted in significant reductions in acute health service utilisation in Canterbury. Acute admission rates have not increased and remain significantly below national rates. The number of acute and rehabilitation bed days have fallen since the earthquakes. These trends were most evident among older people. However, health needs frequently reported in post-disaster literature have created greater pressures on the system. In particular, an escalating number of people facing mental health problems and coping with acute needs of the migrant rebuild population provide new challenges for a workforce also affected by the earthquakes. The recovery journey for Canterbury is not over.

Machetes and breadfruit: Medical disaster response challenges in unstable settings

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Keywords: Earthquake, Response, Wellbeing

The January 2010 earthquake in Haiti resulted in a massive medical response to a setting which was already fraught with danger, causing a number of personal, logistical, and safety challenges to responding medical teams. This paper provides a first-person account from the perspective of a behavioural health professional, whose responsibility was both the overall emotional wellbeing of the medical responders, as well as people impacted by the quake. Unique lessons were learnt by the response teams, and recommendations have been provided for responders considering deploying to future events in highly unstable areas.

Recovery begins in preparedness

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Keywords: Primary Care, Planning, Disaster

Involvement of primary care doctors in planning is essential for optimising the health outcomes of communities during and after disasters. However, experience in Australia has shown that primary care doctors have not been included in a substantial way. This paper highlights primary care doctors' experiences in the Victorian and New South Wales bushfires and the Sydney Siege. It stresses the crucial need to involve primary care doctors in planning at national, state, and local levels, and how this is being implemented.

Canterbury primary care response to earthquakes in 2010/2011

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Keywords: Primary Health, Planning, Response, Care

This paper covers the work of the Canterbury Primary Health planning group in planning and preparing for responses to major health events. The collaboration between all facets of primary health care was essential for the comprehensive delivery of care after the Canterbury earthquakes. This paper describes how this was achieved. The coordination of services and linkages with agencies that developed the successful delivery of care are explained, with examples.

Thursday 25 February 2016

Holding onto the lessons disasters teach

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Keywords: Disaster, Community, Mental Health, Psychiatric, Stress

Disasters are sentinel points in the life of the affected communities. They bring an unusual focus to community mental health. In so doing, they provide unique opportunities for better understanding and caring for communities. However, one of the difficulties in the disaster field is that many of the lessons from previous disasters are frequently lost. If anything, Norris (in 2006) identified that the quality of disaster research had declined over the previous 25 years. What is critical is that a longitudinal perspective is taken of representative cohorts. Equally, the impact of a disaster should always be judged against the background mental health of the affected communities, including emergency service personnel. Understandably, many people particularly distressed in the aftermath of a disaster are those who have previously experienced a psychiatric disorder. It is important that disaster services are framed against knowledge of this background morbidity and have a broad range of expertise to deal with the emerging symptoms. Equally, it is critical that a long-term perspective is considered rather than short-term support that attempts to ameliorate distress. Future improvement of disaster management depends upon sustaining a body of expertise dealing with the consequences of other forms of traumatic stress such as accidents. This expertise can be redirected to co-ordinate and manage the impact of larger scale events when disasters strike communities. This paper highlights the relevance of these issues to disaster planning in a country such as New Zealand that is prone to earthquakes.

Putting people at the heart of the rebuild

Ian Campbell

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Keywords: Earthquake, Infrastructure, Stronger Christchurch Infrastructure Rebuild Team (SCIRT), Rebuild

On the face of it, the Stronger Christchurch Infrastructure Rebuild Team (SCIRT) is an organisation created to engineer and carry out approximately \$2B of repairs to physical infrastructure over a 5-year period. It's workforce consists primarily of engineers and constructors who came from far and wide after the earthquakes to 'help fix Christchurch'. But it was not the technical challenges that drew them all here. It was the desire and ambition expressed in the SCIRT 'what we are here for' statement: 'to create resilient infrastructure that gives people security and confidence in the future of Christchurch'. For the team at SCIRT, people are at the heart of the rebuild programme. This is recognised in the intentional approach SCIRT takes to all aspects of its work. The paper describes how SCIRT communicated with communities affected by their work and how they planned and coordinated the programme to minimise the impacts, while maximising the value for both the affected communities, the taxpayers of New Zealand, and rate payers of Christchurch funding it. The paper also outlines SCIRT's intentional approach to supporting, developing, connecting, and enabling their people to perform, individually and collectively, in the service of providing the best outcome for the people of Christchurch and New Zealand.

Loss of trust and other earthquake damage

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Keywords: Earthquake, Recovery, Insurance, Response

It was predictable that the earthquakes which hit the Canterbury region in 2010 and 2011 would cause trauma. However, it was assumed that recovery would be significantly assisted by governmental agencies and private insurers. The expectation was that these organisations would relieve the financial pressures and associated anxiety caused by damage to property. Some initiatives did exactly that. However, there are many instances where difficulties with insurance and related issues have exacerbated the adverse effects of the earthquakes on people's wellness. In some cases, stresses around property issues have become an independent source

of extreme anxiety and have had significant impacts on the quality of people's lives. Underlying this problem is a breakdown in trust between citizen and state, and insurer and insured. This has led to a pervading concern that entitlements are being denied. While such concerns are sometimes well founded, an approach which is premised on mistrust is frequently highly conflicted, costly, and often leads to worse outcomes. The nature and causes of these difficulties include: the complexity of insurance and repair issues, the organisational ethos of the relevant agencies, the hopes of homeowners and the practical gap which commonly arises between homeowner expectation and agency response. The adverse effects of these issues can be overcome in dealing with claimants. Such matters can be managed in a way which promotes the wellness of individuals.

The mental health impacts of the Canterbury earthquakes in the Christchurch health and development study birth cohort: A 'natural experiment'

John Horwood

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Keywords: Earthquake, Health and Development Study, Disaster, Mental Health

This paper explores the linkages between exposure to the Canterbury earthquakes and subsequent mental health outcomes in the Christchurch Health and Development Study (CHDS). The CHDS is a longitudinal study of a birth cohort of 1265 children born in Christchurch in mid-1977. This cohort has been extensively studied on measures of social and family circumstances, health, and psychosocial adjustment over the life course from birth to age 35. Just over half of the cohort was exposed to the Canterbury earthquake sequence from September 2010 to December 2011, with the remainder living outside of Canterbury. This provided a unique opportunity in the history of disaster research to conduct a natural experiment to examine the impact of a major disaster on the mental health of a representative birth cohort in which there had been systematic assessment on pre-disaster measures of mental health and related risk factors. In 2012, at age 35 (approximately 20 to 24 months after the start of the earthquake sequence) cohort members were interviewed to assess their mental health over the previous 12 months. Cohort members resident in Canterbury also completed a separate interview to assess the extent of their earthquake exposure, and the ongoing consequences of the earthquakes on the daily lives and circumstances of participants and their families. Using these data, the sample was classified into a series of groups ranging from those not exposed to the earthquakes through to those with high exposure. This classification was then related to risks of mental health problems at age 35. There were statistically significant ($p < 0.05$) trends for increasing severity of earthquake exposure to be associated with increased risks of DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th edition) major depression, post-traumatic stress disorder, other anxiety disorders, and nicotine dependence. After adjustment for a range of confounding factors including mental health prior to the earthquakes, people in the highest quartile of earthquake exposure had overall rates of disorder that were 1.4 times higher than for those not exposed. Estimates of the attributable risk suggested that earthquake exposure accounted for 13% of the overall rate of mental disorders in the cohort. These findings suggest that earthquake exposure was associated with only a modest increase in rates of mental disorders. Additional findings on other aspects of the research and their implications are discussed. Further investigation of the longer term consequences of earthquake exposure will be conducted in conjunction with a further assessment on the cohort planned for 2017 (age 40).

Understanding immediate human behaviour in response to the 2010-2011 Canterbury earthquake sequence: Implications for injury prevention and risk communication

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Keywords: Earthquake, Shaking, Behaviour, Injury, Context

The 2010 and 2011 Canterbury earthquake sequences have given us a unique opportunity to better understand human behaviour during and immediately after an earthquake. On 4 September 2010, a magnitude 7.1 earthquake occurred near Darfield in the Canterbury region of New Zealand. There were no deaths, but several thousand people sustained injuries and sought medical assistance. Less than 6 months later, a magnitude 6.2 earthquake occurred under Christchurch City at 12:51 local time on 22 February 2011. A total of 182 people were killed in the first 24 hours and over 7,000 people injured overall. To reduce earthquake casualties in future events, it is important to understand how people behaved during and immediately after the shaking, and how

their behaviour exposed them to risk of death or injury. Most previous studies have relied on an analysis of medical records and/or reflective interviews and questionnaire studies. In Canterbury researchers were able to combine a range of methods to explore earthquake shaking behaviours and the causes of injuries. In New Zealand, the Accident Compensation Corporation (a national health payment scheme run by the government) allowed researchers to access injury data from over 9,500 people from the Darfield (4 September 2010) and Christchurch (22 February 2011) earthquakes. The total injury burden was analysed for demography, context of injury, causes of injury, and injury type. Inferences into human behaviour were derived from the injury data. Researchers were able to classify the injury context as direct (immediate shaking of the primary earthquake or aftershocks causing unavoidable injuries), action (movement of person during the primary earthquake or aftershocks causing potentially avoidable injuries), or secondary (cause of injury after shaking ceased). A second study examined people's immediate responses to earthquakes in Christchurch New Zealand and compared responses to the 2011 earthquake in Hitachi, Japan. A further study has developed a systematic process and coding scheme to analyse earthquake video footage of human behaviour during strong earthquake shaking. From these studies, a number of recommendations for injury prevention and risk communication can be made. In general, improved building codes, strengthening buildings, and securing fittings will reduce future earthquake deaths and injuries. However, the high rate of injuries incurred from undertaking an inappropriate action (e.g. moving around) during or immediately after an earthquake suggests that further education is needed to promote appropriate actions during and after earthquakes. In New Zealand - as in the US and worldwide - public education efforts such as the 'Shakeout' exercise are trying to address the behavioural aspects of injury prevention.

Education renewal: A sector response to the February 2011 Christchurch earthquake

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Keywords: Disaster, Recovery, Education Renewal, Resilience, Opportunity

The Canterbury earthquakes caused a disaster recovery situation unparalleled in New Zealand's history. In addition to widespread damage to residential dwellings and destruction of Christchurch's central business district, the earthquakes damaged more than 200 schools from Hurunui in the north, to the Mackenzie District in the east, and Timaru in the south. The impact on education provision was substantial, with the majority of early childhood centres, schools and tertiary providers experiencing damage or subsequent operational issues caused by the ensuing migration of people. Following the February earthquake, over 12,000 students had left the school they had been attending and had enrolled elsewhere – often at a school outside the region. Shortened school days and compression of teaching into shorter periods meant shift-sharing students engaged in the curriculum being delivered in more diverse ways. School principals and staff reported increased fatigue and stress and changes in student behaviours, often related to repeated exposure to and ongoing reminders of the trauma of the earthquakes. While there has been a shift from direct, trauma-related presentations to the indirect effects of psychological adversity and daily life stresses, international experience tells us that psychological recovery generally lags behind the immediate physical recovery and rebuilding. The Ministries of Health and Education and the Canterbury District Health Board have developed and implemented a joint action plan to address specifically the emerging mental health issues for youth in Canterbury. However, the impact of vulnerable and stressed adults on children's behaviour contributes to the overall impact of ongoing wellbeing issues on the educational outcomes for the community. There is substantial evidence supporting the need to focus on adults' resilience so they can support children and youth. Much of the Ministry's work around supporting children under stress is through supporting the adults responsible for teaching them and leading their schools. The education renewal programme exists to assist education communities to rebuild and look toward renewal. The response to the earthquakes provides a significant opportunity to better meet the needs and aspirations of children and young people. All parents want to see their children eager to learn, achieving success, and gaining knowledge and skills that will, in time, enable them to become confident, adaptable, economically independent adults. But this is not always the case, hence the current approach to education renewal seeks to address inequities and improve outcomes, while prioritising actions that will have a positive impact on learners in greatest need of assistance.

Leading in disaster recovery – A companion through the chaos

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Keywords: Disaster, Recovery, Leadership, Lessons

*Leading in disaster recovery is a deeply human event – it requires people to reach deep within and bring to others the best of themselves. It is painful, tiring, rewarding and meaningful. The responsibility can be heavy and at times leaders feel alone. The experienced realities of recovery leadership prompted research involving over 100 people around the globe who have worked in disaster recovery. The result is distilled wisdom from leaders who have walked in similar shoes to serve as a companion and guide for current and future recovery leaders. The leadership themes in **Leading in Disaster Recovery: A Companion through the Chaos** include hard-won, honest, personal, brave insights, and practical strategies to serve and support other recovery leaders. This guidance is one attempt amongst many others to change the historic tendency to lurch from disaster to disaster without embedding learning and knowledge – something that leaders cannot afford to do if they are to honour those whose lives have been lost or irreversibly changed by disaster. To honour the courageous efforts of leaders who have previously served disaster-impacted communities, future leaders need to be better able to serve people impacted by future disasters.*

Friday 26 February 2016

Resilience in people

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Keywords: Change, Resilience, Response, Stress

Resilience is the ability to bounce back or adapt successfully in the face of change, and is present to varying degrees in everybody. For at least 50 years, resilience has been a topic of study in medical research, with a marked increase occurring in the past decade. In this paper, the essential features of resilience are defined. Among the determining or mediating factors are neurobiological pathways, genetic characteristics, temperament, and environmental events, all of which are summarized. Adversity, assets, and adjustment need to be taken into account when assessing resilience. Different approaches to measuring the construct include self-rating scales which evaluate: traits and coping, responses to stress, symptom ratings after exposure to actual adversity, behavioural measures in response to a stressor, e.g. Trier Test, and biological measures in response to stress. Resilience can be a determinant of health outcome, e.g. for coronary heart disease, acute coronary syndrome, diabetes, Human Immunodeficiency Virus (HIV) positive status, and successful aging. Total score and individual item levels of resilience predict response to drug and psychotherapy in post-traumatic stress disorder and depression. Studies have repeatedly demonstrated that resilience is modifiable. Different treatments and interventions can increase resilience in a matter of weeks, and with an effect size larger than the effect size found for the same treatments on symptoms of illness. There are many ways to enhance resilience, ranging from 'Outward Bound' to mindfulness-based meditation/stress reduction to wellbeing therapy and antidepressant drugs. Treatments that reduce symptoms of depression and anxiety recruit resiliency processes at the same time.

Organisational resilience is more than just business continuity

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Keywords: Emergency, Planning, Business, Business Continuity Plan (BCP), Organisation

Business Continuity Management is a well-established process in many larger organisations and a key element in their emergency planning. Research carried out by Resilient Organisations following the 2010 and 2011 Canterbury earthquakes shows that most small organisations did not have a business continuity plan (BCP), yet many of these organisations did survive the massive disruptions following the earthquakes. They were resilient to these catastrophic events, but in the absence of a BCP. This research also found that many of the organisations with BCPs struggled to use them effectively when facing real events that did not align with the BCP. Although the BCPs did a good job of preparing organisations to deal with technology and operational disruptions, there was virtually no coverage for the continuity of people. Issues surrounding staff welfare and engagement were amongst the most crucial issues faced by Canterbury organisations, yet impacts of societal and personal disruption did not feature in BCPs. Resilience is a systemic way of looking at how an organization can survive a crisis and thrive in an uncertain world. Business continuity is an important aspect for surviving the crisis, but it is only part of the bigger picture addressed by organisational resilience. This paper shows how organizational experiences in the Canterbury earthquakes support the need to move to a 'Business Continuity' for the 21st Century', one that incorporates more aspects of resilience, especially the 'people' areas of leadership, culture, staff welfare, and engagement.

‘I haven’t had a chance to think about that’: How health and welfare workers got through the Canterbury earthquakes and beyond

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Keywords: Earthquake, Disaster, Service

Five years after the start of the Canterbury earthquake sequence began, people have a chance to reflect upon what happened in those first few days and the ups and downs that followed. This opportunity to reflect can be a critical factor in how a community that is affected by a disaster is able to provide help - both for others and themselves. The shared experience of both going through a disaster oneself and having a job where one cares for others is a precarious balancing act. There is plenty of evidence that many are able to put aside personal concerns to be able to focus upon delivering a service. But at what cost? This paper reviews the key findings from the author’s programme of research with primary care practitioners, nurses, mental health professionals, and earthquake support coordinators through the recovery period. It sheds some light on the costs and apparent possible benefits of working in those conditions.

Presentations in Concurrent Sessions

Wednesday 24 February 2016: Response

Theme: Staff and Patients

A systematic review of compassion fatigue of nurses during and after the Canterbury earthquakes

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Keywords: Natural disasters, Nursing, Compassion Fatigue

Limited research is currently available regarding compassion fatigue among health professionals during and after disasters in New Zealand. The purpose of this systematic literature review was to provide a comprehensive outline of existing research. National and international literature was compared and contrasted to determine the importance of recognising compassion fatigue during and after disasters. Health professionals responding to disasters have played an important role in saving lives. This was the case during and after the Canterbury earthquakes when many health professionals cared for the traumatized public of the region. When responding to and caring for distressed people, health professionals - particularly nurses - may strongly empathise with people's pain, fear, and distress. Consequently, nurses can be affected both emotionally and physically. They may experience intense and extreme distress and trauma directly and indirectly. Physical exhaustion can arise quickly. Emotional exhaustion such as hopelessness and helplessness may lead nurses to lose their ability to nurture and care for people during disasters. This can lead to compassion fatigue. To help health professionals respond to disasters appropriately, it is important to understand how they experience compassion fatigue. International literature demonstrates the importance of recognising compassion fatigue in nursing, and explores different coping mechanisms that assist nurses overcome or prevent this health problem. In contrast, New Zealand literature is limited to nurses' attitudes when responding to natural disasters. The outcome of this review should help raise awareness in recognising and addressing symptoms of compassion fatigue in a profession such as nursing.

Voices from the Emergency Department response: The Canterbury earthquakes

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Keywords: Earthquake, Emergency Department, Staff, Qualitative Research

The intention of this study was to identify and explore the experiences of healthcare providers who worked in the Emergency Department of Christchurch Hospital during the first 48 hours following the 22 February 2011 earthquake. Natural disasters in one form or another occur on a frequent basis. There is considerable knowledge to be gained and lessons learned from such experiences, but one aspect that is poorly covered is the experiences of healthcare responders. In particular, little has been documented about those who are both victims of the event as well as providers of emergency care. The stories of such workers offer new understandings about the reality of living and working in a disaster, of being part of the affected community, and of maintaining essential services. Over 100 interviews were undertaken with staff who worked during this period. Most interviews were undertaken within the first two months following the February event. Participants included allied health professionals, social workers, Māori health workers, orderlies, and medical and nursing staff. These interviews were transcribed, and the resulting text subjected to thematic analysis to determine the core narratives. The oral histories shared by participants identified the range of experiences and the impact of these on individuals. A series of initial recommendations were derived from the shared stories of the workers engaged in the Canterbury earthquake response. It is important to recognise the individual experiences and responses of healthcare workers impacted by a disaster. By recognising the depth and ongoing impact of such experiences, it is possible to formulate ways to support workers and to develop proactive systems that

can reinforce resilience and adaptability. The findings from this study have the potential to illuminate possible responses in other crisis situations, and to guide the development of targeted support measures in response to disaster events.

Earthquake, Emergency Department, Canterbury District Health Board, and disaster

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Keywords: Earthquake, Emergency Department, Canterbury District Health Board, Disaster

This paper provides a personal account of the Christchurch earthquake and how the Emergency Department of Christchurch Hospital experienced it. Health care providers in the emergency department had dealt with disasters in the past, but they were previously external events. Trained people would set up and manage the response with professionalism, but would remain unaffected. The emergency department was itself impacted by the Christchurch earthquake and still had to perform. This brought many unexpected ramifications. The experience has highlighted the essence of why people choose medicine as a career and demonstrates the enormous goodwill that makes hospitals function.

Organisational support: Insights from nurses following the Canterbury earthquakes

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Keywords: Psychosocial, Recovery, Organisational, Support, Nurses

Natural disasters can have a significant effect on organisations and their employees. This paper explores the organisational issues and support needs of nurses following the Canterbury 2010 to 2011 earthquake events. Eleven nurses from the Christchurch area were interviewed using qualitative semi-structured questionnaires that were designed to explore the challenges faced during and after the earthquakes. The interviews were undertaken three years after the start of the earthquakes to explore longer-term aspects of the recovery process. The interview transcripts were analysed and coded using a grounded theory approach. The interviews provided insights into how organisations supported employees during earthquake recovery (both practically and emotionally), how the earthquakes had led to changes in workload, and the adaptability required to respond to these changes. The interviews also indicated that organisational support was important to the nurses, and particularly that leaders and managers had an understanding of what it was like working day-to-day in the changed environment. The more formal support approaches such as counselling were valued, although the nurses appeared to get most benefit from informal peer support where their employers gave them time to share their stories. Organisations have a responsibility to support employees following a disaster and to ensure that hazards, including mental health-related hazards, do not cause harm. This research highlights a number of ways in which organisations can provide support to employees following disasters. In particular, the findings revealed the need for longer-term support during the recovery process, in addition to during the immediate disaster aftermath.

Wednesday 24 February 2016: Response

Theme: Disaster Management and Practice

Tracking of emergency patients in a disaster and the documentation of their clinical care

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Keywords: Clinical Documentation, Patient Tracking, Numbering Systems, Unplanned Disaster

There is an increasing number of technical solutions for tracking patients during mass incidents and for documenting their care. But what happens when that mass incident is a disaster, where standard information and communication technology systems are impacted? This challenge was posed after the Christchurch 22nd February 2011 earthquake. This study explored the way in which staff and families were able to find and track patients at Christchurch Hospital. The study analysed plans and provisions for clinical documentation and effective tracking in place at the time of the Christchurch earthquake and determined the actual activities, including innovations which occurred. Results will be used to support clinicians and clerical staff to document patient progress and locations in future incidents. This empirical study involved semi-structured interviews with clinical and clerical staff working at Christchurch Hospital at the time of the Christchurch earthquake. Preliminary analysis points to a number of emerging themes. Characteristics of effective tracking include: intuitive processes, interdepartmental communication channels, and the importance of clerical assistance for clinicians. Some recommendations have already been implemented within the hospital, including updating the emergency department's clinical disaster record, agreement on the minimum data to be collected, entered and shared, and a list of roles for 'runners' have been created. Many organisations have made plans with good intentions, but these can be fragmented, perpetually in development or unknown by staff. By identifying practical documentation tools and effective patient tracking systems that are useable in varying scales of mass incident, this research can contribute to improving each patient's journey through a health system in a disaster.

A model for community response

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Keywords: Community Response, Immediate Aftermath, Systemised response, Structure

A community's response immediately after a disaster can provide enormous comfort and assistance to vulnerable and adversely affected people if emergency services and Civil Defence are not able to rapidly respond due to the sheer scale of need. Many able-bodied and capable people could want to help in the immediate aftermath, but might not know what they could do to help. Without a rapid response from the community many people could suffer unnecessarily. In June 2011, the small community of Sumner near Christchurch, New Zealand was hit by a Magnitude 6.4 aftershock. Water and electricity were cut off and the community risked being cut off from Christchurch City by cliff collapse. A small group of volunteers gathered to offer assistance at the site of the Christchurch earthquake's (February 2011) successful community hub, only to find a road cone, a box of pencils, and one shaken person coordinating the response. Nearly all of the people who played leadership roles in the earlier Sumner community response following the February 2011 magnitude 6.3 earthquake were not available to assist after the June 2011 event. As a result, the people who showed up to assist in June had to fabricate a response from the beginning. This paper outlines the story of the week following the June event, in particular the simple structure and disaster response process that enabled most, if not all vulnerable and less vulnerable people in the community to be identified, supplied, and supported with assistance and information. The problems and challenges that a small ad hoc community group faced are detailed with the hope that the lessons from the response will help people who may have to assist communities after future earthquakes. To that end, a structured disaster response manual including procedures was prepared.

People and pets in natural disasters: Learning from the Christchurch earthquakes

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Keywords: Animals, People, Disenfranchised Grief, Earthquakes, Natural Disasters

*This paper describes research conducted over three years on the plight of Christchurch's nonhuman residents in the aftermath of the devastating earthquakes of 2010 and 2011. Transcript material from interviews with rescue, shelter and advocacy professionals, and volunteers (including SPCA (Society for Protection of Cruelty to Animals) Canterbury, Wellington SPCA's Animal Rescue Unit, Christchurch City Council's Animal Control Unit, Dogwatch, community cat rescuers, and others), is reported concerning the experiences of the agencies dedicated to ensuring animal welfare in emergencies. The personal stories of people whose animals were helped by these organisations are also included. Importantly, this paper outlines some of the key issues and concerns facing people and the animals they care for during earthquakes and other emergencies. It demonstrates the importance of maintaining human-animal connections in the wake of disaster. This paper is based on an illustrated book called *Animals in Emergencies: Lessons Learnt from the Christchurch Earthquakes* (Potts & Gadenne, 2014), published by Canterbury University Press.*

Potts, A. & Gadenne, D. (2014). *Animals in emergencies*. Christchurch, New Zealand: Canterbury University Press.

Challenges faced by staff of Canterbury Health Laboratories and MedLab South after the Christchurch earthquake

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Keywords: Response, Recovery, People, Laboratories, Disaster

Prior to the Christchurch earthquake (22 February 2011), people in the Canterbury region of New Zealand had their diagnostic testing undertaken in three clinical laboratories. Canterbury Health Laboratories undertook testing for public hospitals and Christchurch Hospital's emergency department. Two private laboratories (MedLab South and Southern Community Laboratories) undertook testing for community patients and private hospitals. Both community laboratories were destroyed in the earthquake. During the subsequent 16 months, Canterbury Health Laboratories absorbed most of MedLab South's staff and work. The purpose of this study was to evaluate challenges that Canterbury Health Laboratories and MedLab South staff faced during the period that the laboratories were operating together. We conducted a mixed thematic analysis of data sourced from 40 interviews of laboratory managers and staff, research reports, journal publications and photographs. Themes identified for Canterbury Health Laboratories staff included: staff shortages, high workloads, loss of space, personal circumstances, and friction with MedLab South staff. Themes identified for MedLab South staff included: unfamiliar procedures and computer systems, loss of autonomy (middle managers), fear during aftershocks, uncertain future (careers), and a sense of abandonment. Despite the challenges faced by all staff, a sense of community prevailed where people supported one another. Interventions such as lean process reviews, free counselling, and allowing staff time off whenever they needed it reduced stress and pressure on staff. The study provided insight into challenges faced by people from different organisations with different contracts and expectations who had to work together to provide a health care service after a disaster.

Wednesday 24 February 2016: Response

Theme: Public Health

Not just bricks and mortar: Responding to community mental health needs immediately following Canterbury's earthquakes

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Keywords: Psychological Recovery, Welfare Centres, Mental Health, Psychosocial Impact

When Canterbury was hit by a magnitude 7.1 earthquake on 4 September 2010, a state of emergency was declared and Civil Defence set up welfare centres across Canterbury for people whose houses were badly damaged. With much of the population repeatedly terrified by large aftershocks, it soon became apparent that mental health problems were going to be a key feature of the emergency. Civil Defence called on the Canterbury District Health Board for assistance. Neither the Canterbury District Health Board nor Civil Defence had a plan outlining how they might intervene in the welfare centres, but they quickly developed guidelines for helping and providing relevant resources. The two entities staffed the welfare centres, mostly with allied health staff, until they closed about two weeks later. Their goal was to provide specialist mental health input to promote the psychological wellbeing of welfare centre staff and residents. When the next emergency was declared following the fatal earthquake on 22 February 2011, both Civil Defence and Canterbury District Health Board were able to rely on new procedures and relationships, and participate more quickly and more fully in the psychological recovery of the people of Christchurch and its surrounds. Since then, recognition of the psychosocial impacts on people in a disaster has led to legislative changes, including establishing processes to maintain ongoing psychosocial capacities.

Public health and the response to the Canterbury earthquakes

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Keywords: Public Health, Response, Emergencies, Disasters

The Community and Public Health Division of Canterbury District Health Board activated their emergency operations centre following both the 4 September 2010 and 22 February 2011 earthquakes in Christchurch, New Zealand. In both cases, there was an emergency declaration (regional and national, respectively) and some emergency powers vested in the Medical Officer of Health were invoked. Close collaboration and exercising and planning between Public Health, Civil Defence and Emergency Management and other agencies over a number of years (particularly with respect to, but not limited to, pandemic preparedness) meant that Public Health could efficiently provide assistance, and draw on assistance, where necessary. Operational issues in the wake of both earthquakes included the delivery of 'boil water' notices, drinking water provision, water testing, water treatment, food safety, welfare support, and assessment of environmental hazards. Public Health also played a key role in surveillance, particularly with respect to gastroenteric illness, which often ensues when water and sanitary health are compromised following natural disasters. Finally, the Medical Officer of Health plays a key role as part of multi-agency communications, providing clear information and messages alongside the spokespeople from other agencies, such as the Mayor of Christchurch. Recreational and drinking water were compromised during both major earthquake events, though more severely following the 22 February aftershock when drinking water in Christchurch required unprecedented chlorination. An enhanced surveillance network demonstrated that there was no increase in enteric disease among the population, despite poor access across much of the city to water, sanitation, and for a short period, power. This remarkable success was in part due to Public Health's contribution to building community resilience over a number of years, with an emphasis on hygiene.

Shared trauma: When the professional is personal

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Keywords: Shared Trauma, Adult Onset Trauma, Research Study

Shared trauma is the extraordinary, yet unavoidable, multifaceted situation where the therapist is going through the same or similar traumatic experiences as the clients they work with. This paper explores the phenomenon of shared trauma from the dual perspectives of the personal and the professional, and the implications for practice and research. There are natural disasters such as Hurricane Katrina in New Orleans and Hurricane Sandy on the east coast of the United States, bush fires in Victoria and floods in Queensland, Australia, and recently the tropical cyclone in Vanuatu, where therapists share the same trauma as their clients. The author and her colleagues were deeply impacted by the recent Christchurch earthquakes, and this research was necessary. The aim of this project was to explore the author's and other therapists' experiences of working with shared trauma, using reflection, and interview techniques. Participants were interviewed using open questions with a qualitative focus. The research explored this often uncomfortable and yet rewarding situation, while also challenging some of the long-standing views of working with trauma. This paper discusses the differences in working with adult onset trauma and childhood trauma in adults, and identifies a need to shift away from 'pathologising' normal responses to large scale trauma, be it war or natural disaster. It illustrates the challenges and transformative changes that clinicians may undergo as a result of their dual exposure to trauma.

Milking the rubble: Lessons about infant feeding from the Christchurch earthquakes

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Keywords: Infant Feeding, Breastfeeding, Nutrition, Humanitarian, Disaster, Risk

Attention to infant feeding issues can be a missing component of general emergency/disaster responses. When water is contaminated or in short supply, infrastructure damaged, power supply to a population limited or non-existent, infants who are not being breastfed face health risks. The World Health Assembly in a 2010 resolution recognised that national emergency preparedness plans and international emergency responses did not always cover protection, promotion, and support of optimal infant and young child feeding (World Health Organisation, 2010). The World Health Assembly expressed concern that in emergencies infants and young children are particularly vulnerable to malnutrition, illness, and death in countries that are not on track to attain Millennium Development Goal 4, and are effected by climate change. Negative mythology about breastfeeding and infant feeding during times of disaster and emergencies is rife, but as Kelly (2008) points out, disaster has little effect on breastfeeding, however what really changes is the level of risk associated with using baby milk products. This paper explored issues for infant feeding in emergencies and disasters and the importance of support for all mothers and infants regardless of feeding mode. Operational guidance information from the Emergency Nutrition Network (2012) is provided and the discussion underpinned by experiences gained during the Christchurch, New Zealand earthquakes in 2010 and 2011, alongside mothers' narratives.

World Health Organisation (2010). *Sixty-third World Health Assembly, resolutions and decisions*. Retrieved from http://www.who.int/nutrition/topics/WHA63.23_itycn_en.pdf?ua=1.

Kelly, M. (2008). Infant feeding in emergencies. *Disasters*, 17,110-121.

Emergency Nutrition Network (2012). *Emergency Nutrition Network*. Retrieved from [http://files.enonline.net/attachments/1797/06501-emergency-nutrition-network-\(2012\)-accs.pdf](http://files.enonline.net/attachments/1797/06501-emergency-nutrition-network-(2012)-accs.pdf)

Wednesday 24 February 2016: Response

Theme: Responders and Volunteers

Planning for improvised emergency management: Field notes on volunteer responders from the Canterbury earthquakes

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Keywords: Volunteers, Improvisation, Optimisation, Planning

Much has been written about 'spontaneous volunteers' and their behaviour in emergencies and disasters. Earlier assumptions that the convergence of untrained volunteers at incidents will inhibit rather than enhance effective emergency management have given way more recently to a broader acceptance of a fundamental paradox: 'About 95% of rescues after a major event are carried out by survivors or bystanders who are drawn to the site by a desire to help' (Wellington Regional Emergency Management Office, 2015). People in disasters do not panic, they improvise. Yet there are problems for those in emergency management roles who want to acknowledge and utilise this improvisational capacity both in the immediate minutes and hours following an event and in the days and months that follow. This paper uses on-the-ground observations derived from three different locations during the Canterbury Earthquakes (Pyne Gould Corporation Building, Lyttelton Fire Station, and Mount Pleasant Primary School) to argue for a step-change in thinking about volunteer recruitment and training for emergency management. It is argued that in most settings directive leadership, situational awareness, record-keeping, crowd control, task focus, logistics and procurement calculations, communications co-ordination, and medical or welfare triage are already operationalised by the time official responders arrive. Researchers and emergency managers need to develop better debrief and interviewing techniques to harvest the best practice initiatives of key volunteers. Emergency management agencies also need to signal to the public more clearly their trust that improvised but organised bystander response will take place. They need to provide better prompts for the types of information and actions they require to assist with transitions and handovers. Potential volunteers need to be reminded of the key attributes and functions required for optimal management of both incidents and recovery processes.

Wellington Regional Emergency Management Office (2015). *Emergency skills*. Retrieved from <http://www.getprepared.org.nz/emergencyskills>

A match made in crisis: A self-organised youth volunteer response to crisis events

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Keywords: Youth Volunteer, Crisis Response

This study explored the communication and organising of youth volunteers during a crisis, focusing on how they conceived, framed, and executed self-organising efforts during the 2011 Rena oil spill in New Zealand. It provided insights into the intersections of self-organising, youth volunteering, and crisis events which have not been researched before. The study addressed two core research questions: 1) how was 'volunteering' conceptualized by youth volunteers involved in the Rena crisis? and 2) how did these volunteers communicate and self-organise during this crisis? The findings indicate that self-organising emerged out of a resistance towards structured responses and as a reaction to the inability of the official volunteer response to meet the needs of the community. Self-organised efforts were particularly attractive among youth volunteers because they offered flexibility, required minimal administrative processes, and fostered an environment of innovation and creativity. The volunteers' youthful energy and technological aptitude also drove their self-organised responses. The study identified the considerable challenges that crisis officials faced in utilising youth volunteers despite the significant advantages of self-organising.

Above and beyond the call to duty: The Salvation Army's response to the Canterbury earthquakes

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Keywords: Disaster Response, Disaster Recovery, Community Organisations, Canterbury Earthquakes, Social Services

The Salvation Army maintains an Emergency Services Division providing practical support for emergency personnel and affected persons during a disaster. The magnitude of the Canterbury earthquakes of September 2010 and February 2011 stretched their capacity to deliver services to unprecedented levels. Their response was an enormous, complex logistical undertaking. It involved managing over a thousand staff and volunteers called to duty, developing extensive disaster response and recovery services, and administering millions of dollars of contracted and fund-raised resources. Impact Research New Zealand was commissioned in 2014 to undertake an external review of the Salvation Army's response to the Canterbury earthquakes with the aim of discovering what could be done to ensure that their response to future disasters is appropriate. The researchers worked with senior Salvation Army staff to formulate a research design. A qualitative approach was adopted, including an international literature review on best practice disaster management and a document review of policies and procedures, field reports, media reports, board reports, and fund raising records. Interviews were undertaken with key informants involved in the earthquake response from the Salvation Army and government agencies. The research found that the Salvation Army's strong reputation as a trustworthy and approachable social service provider meant that they readily gained access to support the most vulnerable people. They responded in a timely manner by supplying extensive support services including catering, care packages, and psychosocial services. Areas for strengthening future responses include: further training in disaster management, refining the role of governance and administration structures around times of disaster, strengthening pastoral care of staff, and refining fund-raising protocols. This review of the Salvation Army's response to the Canterbury earthquakes explored their considerable achievements and identified areas for strengthening. The research is relevant to social service providers who may be called upon to respond to disasters.

Wednesday 24 February 2016: Response

Theme: Whakapai te Whenua: 'Heal the Land' Whakapai te Whanau: 'Heal the People'

Measuring resilience through quality of life: The experience of Māori and Polynesians in the eastern suburbs of Christchurch following the February 2011 earthquakes

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Keywords: Māori, Polynesian, Eastern Suburbs, Quality of Life, DASS42,

The eastern suburbs of Christchurch are where a large proportion of Māori and Polynesians reside and it is also one of the areas that was most affected by the February 2011 earthquake. This paper presents a field method that has been adopted and adapted in previous disasters for measuring the quality of life and resilience in the eastern suburbs. A quality of life tool called the DASS42 was used by the CCWC (Christchurch Worship Centre) Church in Aranui, Christchurch to ascertain how they may assist people ostensibly using the Aranui Food Distribution Centre based at their church. The response/emergency phase of the 22nd February 2011 Christchurch earthquake was seemingly finishing, and programmes such as the above were moving into the recovery phase. There was a need to firstly review what had been done, but perhaps more importantly to determine the way forward. The surveys were completed in the last week of April and the first week of May 2011. The findings suggest that the impact of the earthquake for those at the 'bottom of the pyramid' was greater than other disasters measured overseas and that Helen Clark's comparison to Haiti (see Steward & Field, 2011) may have been more accurate than she imagined, despite the huge difference in death toll (Christchurch 185, Haiti 250,000). The paper outlines how disasters touch the poor, the most marginalised, including women and girls. It is these people who suffer the greatest impact.

Steward, I., & Field, M. (2011). *Quake death toll climbs to 147*. Retrieved from <http://www.stuff.co.nz/national/christchurch-earthquake/4709323/Quake-death-toll-climbs-to-147>

Post-disaster mental health support: Examples from a Māori mental health community

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Keywords: Tangata Whaiora, Mental Health, Māori

The 2010 and 2011 earthquakes in Ōtautahi (Christchurch) disrupted support networks for many people. Tangata Whaiora – a Māori term for mental health clients – were particularly vulnerable. This paper presents qualitative and quantitative data from a Kaupapa Māori mental health community in the city who set about re-establishing their networks of support in the post-disaster landscape. A social network analysis was undertaken to identify relative connectivity between different groups of participants including staff, managers, and non-Māori. Māori Tangata Whaiora were found to be more isolated post-disaster than non-Māori. Whānau (a fundamental cultural institution based on the extended family) were specifically avoided by some participants after the major event through previous negative experiences. Results describe a context of overlapping disasters which will require radically different disaster risk reduction strategies than currently exist in this country.

Jive talking: Prejudice, power, and the 'social recovery' efforts of central government in Ōtautahi (Christchurch)

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Keywords: Recovery, Māori, Ngāi Tahu, Planning, Response

This research sought to investigate how Māori and Ngāi Tahu communities and organisations have been manifest in the central government 'social and community recovery efforts' in Ōtautahi (Christchurch). It asked: What planning tools can give effect to international standards and instruments and tikanga Māori or indigenous values

to improve outcomes in 'recovery'? As part of a post-graduate research paper, answers to these questions, more questions and better possibilities, including the role of a collective regional policy and research office were derived from Official Information Act requests, personal and professional experience with local and central government, interagency groups in Wellington, Hawkes Bay, and Christchurch. This paper discusses central agency responses to the following questions: What financial and human resources have been allocated or attributed by central government to social outcomes planning for Māori whānau, hapū and communities in greater Christchurch post-quakes? What Māori whānau and community social recovery outputs, outcomes, policies, and strategies have been developed and supported by central government? Have collective narrative, Māori public health concepts and Māori community authentication been evident in social and community outcomes and programmes? Who has responsibility for delivering and monitoring these? It is possible that central government in Ōtautahi has missed an opportunity to consider collective narratives and strengths-based wellbeing and planning to support the recoveries of individuals, whānau/families and communities? How can we better assure/ensure/insure (sic) cultural competency, impacts, and benefits of approaches to support vulnerable people? How can diversity and equity feature more strongly in the Ōtautahi recoveries landscape? How can knowledge of Tangata Whenua (Māori people) and their tikanga (customs and traditions) support social recovery to better protect Māori and vulnerable communities as a whole in times of natural events, from the systemic failures, and disasters in recovery?

What do you do when you can't leave? The earthquake: Response of the Māori settlement of Rapaki

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Keywords: Māori, Rapaki, Disaster Response, Risk, Culture, Resilience

The small but historically significant settlement of Rapaki sits just one bay around from Lyttelton. It featured in the media of the immediate post-earthquake disaster in Christchurch because of large bouncing boulders that had direct hits on houses in the settlement. However, the area has a history of Māori settlement that goes back 700 years and for more than 100 years at Rapaki. So how could Māori people leave? This paper draws on the findings of the Ministry of Business, Innovation and Employment (MBIE) - funded, multi-disciplinary project 'Living in the Colour-Coded City: Understanding and Building Community Resilience'. It uses stories of people that live at Rapaki to understand the meaning and sense of 'place' and 'social capital' to this community and how the community responded to the earthquake. It raises the issues of risk and who decides that risk, about resilience and culture, and about historical connection and place, that almost resulted in the government having to seize land for the first time since the Māori land wars of 1860. The paper suggests that Māori do not seemingly figure in current disaster responses.

Disasters as a resilient moment

Phil Tikao

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Keywords: Māori, Rebuild, Community Organisations, Support

Immediately after the Canterbury earthquakes, the Positive Directions Trust worked with local unemployed people (including Māori) on domestic and community support. The Domestic Support Unit was a free service working alongside over 20 other community organisations and with over 2,000 households between September 2010 and December 2014. The Positive Directions Trust deployed up to 50 volunteers and paid staff on community resilience projects, activities, and events to support whānau and individuals through Red Zone issues such as liquefaction, grant assistance, domestic support, relocations, and so on. As time went on, and the demand for Red Zone assistance decreased and the focus on the repair phase became a different challenge for the trust who witnessed an increase in demand for services around free furniture removals for un-insured whānau, and accommodation assistance. Up to 12 requests for help were received each week. From mid-2012, there was also an increase in requests to provide assistance to help community resilience projects like the New Brighton Creative Quarter, TEZA, and at the New Brighton Community Gardens. The trust's Community Support Unit team (also made up of local unemployed people) provided a great deal of free support at New Brighton Mall

during weekdays and at weekends in 2013 and 2014. Work and Income New Zealand subsidies were valuable at this time. Late in 2011, the trust applied for Fletchers Earthquake Commission accreditation to bring local unemployed people into the rebuild with the hope of finding meaningful employment. Their application was denied. Irish workers and other nationalities were brought into the strategy. The He Toki Te Rika programme was initiated by the Canterbury Polytechnic Institute of Technology in 2012 in an attempt - among other things - to train Māori to fill rebuild positions. While there has been some success, the Fletchers earthquake repair process has seen its fair share of issues, including poor quality repairs, bad communication, and sloppy workmanship. Some say that larger organisations have made a large, quick profit through the Fletchers process while smaller organisations have been left behind. It has also been said that while iwi (tribe) receive government earthquake money, they do not necessarily have all the connections to Māori in the community. Iwi also have multiple layers of bureaucracy that can be disadvantageous to helping Māori in need. Consequently, a resilient moment was seemingly missed. While there are undoubtedly reasons for this, issues seem in hindsight to have been ones that could, and perhaps should, have been better addressed.

Wednesday 24 February 2016: Response

Theme: Children and Disability

Characteristics of flood evacuation: Lessons learned from the 2011 Thailand flood

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Keywords: Disaster Management, Emergency Responder, Vulnerable, Older People

The study investigated characteristics of evacuation in a Thailand flooding situation including emergency responders, flood victims, and methods of evacuation. Video recordings were analysed that showed flood evacuation procedures of the 2011 flooding situation in Thailand. The sample consisted of 191 clips that met all eligible criteria. Most emergency responders were military (41.9%), and the rest were emergency medical technicians/paramedics and residents. Older people (62.3%) and small children (37.7%) were the main group of flood victims being evacuated. Manual handling was found to be the most common method used for flood victim evacuation (72.3%). Characteristics of flood evacuation included emergency responders, flood victims, and methods for evacuation. These elements are an important part of disaster management that should be used to inform emergency preparedness and responses that minimize the health impacts of disasters. Emergency responses should address appropriate procedures and methods for safe and effective evacuation. Leadership and evacuation planning are necessary to increase awareness and implement evacuation procedures related to various emergency responder sections. People with special needs and other disaster situations should also be considered.

Disabled people's experiences in disasters

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Keywords: Disability, Disaster, Response

Disabled people are a vulnerable population. This is due to the limitations imposed on them not only by their impairments, but also by the attitudinal barriers enforced on them by society. The 2011 earthquakes in Christchurch provided an interesting context to understand how disabled people were limited by their impairments, and societal barriers, which constrained their recovery. This paper imparts the stories of some disabled people who experienced the 2011 earthquakes in Christchurch. Understanding the experiences of disabled people as a group in disasters can inform and add much value to practices and procedures that are in place to respond to people during disasters.

Disasters and children in Thailand: Examining risk perception and protective behaviour

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Keywords: Disaster, Risk Perception, Protective Action, School Children, Thailand

When disasters happen, children often become one of the most affected groups due to their vulnerability and limited ability to respond. For decades, researchers have tried to identify impacts of extreme events on children, so that they can be saved during a crisis. Although several studies have helped identify psychological impacts and proposed sound intervention strategies to assist child victims, the issue of how children perceive disaster risk and their decisions on taking protective action is not well understood. This research was therefore aimed at examining the level of disaster knowledge, risk perception, and protective behaviour of school children. Data was collected using in-depth interview, focus group interview, survey questionnaire, and paper and pencil testing methods. The research was conducted in three schools that were affected by natural disasters or located in disaster-prone areas in the southern region of Thailand. Quantitative data obtained from field research was then statistically analysed to find the relationships among variables of interest, and a grounded theory approach was employed to analyse in-depth and focus-group interview transcripts. School children's disaster knowledge, risk perception, protective behaviour, and the relationships of these variables and their implications for emergency response are discussed.

Benign neglect of children in disasters is everyone's business

Susan Davie

Save the Children Australia, Melbourne, Australia

Keywords: Children, Disasters, Emergency Management

Children are among the most vulnerable when emergencies and disasters occur, yet their needs are routinely overlooked in emergency management plans. Following Hurricane Katrina in 2005, the National Commission on Children and Disasters was given the task of carrying out the first ever comprehensive review of disaster-related laws, regulations, programs, and policies with the aim of assessing their responsiveness to children's needs and making recommendations to close critical gaps. The term 'benign neglect' was coined by the Commission to describe the neglect of children because they were absent from emergency management planning, resulting in their unique needs not being met. This has also been referred to as invisibility of children in emergency management planning by responders to disasters like the 2011 Great Eastern Japan Earthquake and Tsunami, and the 2011 Lorca earthquake in Spain. Currently in Australia, the unique needs of children are not routinely and systematically considered in emergency management planning. The assumption is made that parents, primary caregivers, and the education system will take care of the needs of children following disasters. Addressing this gap requires a structured review, and subsequently developing clear guidelines that assist with the incorporation of children's needs into all plans. The key areas that must be addressed to ensure that children are protected when disasters occur should be determined by people with expertise regarding children's wellbeing. The Community Preparedness Index - developed by Save the Children US and Columbia University - could be culturally adapted for use by Australian emergency management committees to ensure that child experts contribute to emergency management plans. Actively undertaking this process will highlight the need to protect children when disasters occur and go some way to decrease the current level of 'benign neglect'.

Thursday 25 February 2016: Recovery

Theme: Human Behaviour

The Canterbury Charity Hospital: A case study for post-disaster counselling

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Keywords: Psychological Support, Primary Response

This study briefly described the model implemented by the Canterbury Charity Hospital Trust in Christchurch following the Christchurch earthquake of February 2011. Disaster management has several phases: rescue, recovery, prevention, and promotion. While more attention is often given to helping individuals and communities recover from the crisis of disasters, there is little known about therapeutic and community practices that help in response and recovery from a disaster. Giving early psychological support to a population under stress can avoid stress reactions becoming chronic. It also helps identify people experiencing more extreme reactions who could be referred for more assistance. The study was qualitative, involving semi-structured interviews that explored the experiences of the doctors, nurses, social workers, and psychologists who worked as volunteer counsellors at the Charity Hospital. A preliminary analysis of the data identified major themes centred on the need to offer brief problem-solving strategies and practical assistance to the people attending the service. This study extends current understanding of the processes and strategies that assist services that offer psychological support to people in need immediately following a natural disaster.

Nurses' perceptions of the impact of the Christchurch earthquakes on clients receiving healthcare in their homes

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Keywords: Post-Traumatic Stress Disorder, Social Isolation, Older People, Home Based Healthcare, Post-Earthquake Responses, Stressful Environment

Eighteen months following the first of many large earthquakes, Christchurch-based home healthcare provider Nurse Maude surveyed its staff to identify the impact of the Christchurch earthquakes on the wellbeing of their mainly elderly clients. Responses from the 168 staff identified five key issues. These were: mental health (anxiety, and depression, and symptoms similar to post-traumatic stress disorder), unsafe environments, loneliness and isolation, difficulty coping with change, and poor access to services. Issues that impacted on meeting the needs of clients within the challenging post-quake environment all related to needing more time to give care. These included: listening to stories, calming clients, and dealing with clients who had become more cautious and slower. Damaged and blocked roads, compounded by many clients moving house without warning, added to the time it took to deliver care to clients at home. This survey informed actions to better meet the needs of Nurse Maude clients and support healthcare workers within this stressful environment.

First responder experiences of the 2010-11 Canterbury earthquakes: Five years on

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Keywords: First Responders, Urban Search and Rescue, Urban Disaster, Earthquake

The role of Urban Search and Rescue (USAR) in the 2010 and 2011 Canterbury earthquakes was both dramatic and 'a part of the job'. It has been the subject of both praise and controversy. As an internationally deployed force for major urban disasters, USAR individuals and teams experience intense, traumatic, challenging, and professionally significant events with little notice. This paper summarises the Urban Search and Rescue activities with particular focus on the February 2011 Christchurch earthquake. It also reflects on personal and professional experiences in the subsequent five years.

Thursday 25 February 2016: Recovery

Theme: Children

Aftershock: The Christchurch earthquake experience

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Keywords: Children, Post-Quake, Anxiety, Trauma, Treatment

In September 2010, the people of Canterbury experienced a magnitude 7.1 earthquake, which was followed by a series of aftershocks that culminated in a devastating event that impacted Christchurch City on 22 February, 2011. The latter event resulted in 185 deaths, thousands of people injured, and more than 17,000 homes damaged (7000 permanently) to the point of being uninhabitable. Although many communities were impacted, the eastern suburbs of Christchurch were disproportionately affected. Water and sanitation were scarce. Initially, referrals to community mental health services were relatively low because individuals and families focused on food, shelter, and immediate survival needs. However, referrals to Child and Adolescent Mental Health Services have steadily increased in the four years post-earthquake, with a concomitant rise in severity and complexity of the presenting issues. Young children who were pre-verbal at the time of the earthquakes are now being referred to community agencies with an array of neuro-developmental concerns that mimic other behavioural disorders, but are likely, at least in part to result from the extended aftershock sequence experienced in Canterbury. A child's earthquake experience and journey through psychological treatment (trauma-based cognitive behavioural therapy and eye movement desensitisation and reprocessing) is described in this paper. Clinicians, communities, and people of different cultures came together to promote healing and mental wellbeing in a young person. A multi-faceted approach to meeting the mental health needs of the wider community is required in Canterbury over the next decade. This will require intervention at both primary and tertiary level to be sustained over time. A small proportion of children and adolescents are still presenting with post-traumatic syndromes that necessitate an individualised treatment approach.

Eye movement desensitisation and reprocessing in children: 'Thunderbolts and lightning, very, very frightening'

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Keywords: Children, Quake, Trauma, Treatment, Eye Movement Desensitisation and Reprocessing (EMDR)

Research on eye movement desensitisation and reprocessing therapy for traumatized children and youth has evaluated its application using various study designs ranging from randomized clinical trials to single case designs. Although randomized clinical trials control for more variables than case series, case studies can provide a valuable contribution to the literature and are easier to conduct in field settings. After the 22 February 2011 earthquake in Christchurch, a significant number of children presented with heightened levels of physiological arousal, increased startle reflex, and phobic responses to other natural environment and varied stimuli. Despite 10,000 aftershocks, many have failed to habituate and almost five years on referral rates continue to increase. Eye movement desensitisation and reprocessing was offered to children who did not respond to cognitive behavioural therapy-oriented treatment, or had insufficient symptom resolution, or could not effectively engage in cognitive behavioural therapy. A series of cases are provided where children have been treated using eye movement desensitisation and reprocessing for a range of earthquake-related or other trauma responses including secondary phobias. Eye movement desensitisation and reprocessing is a standard procedure, progressing from history taking through to treatment. Once a full assessment has been conducted and the child has been given sufficient resources, target memories for reprocessing are identified in the form of a representative image and associated negative cognition, and a desired positive cognition. With children there may be more on imagery and sensations. Initial eye movement desensitisation and reprocessing treatment cases have resulted in successful resolution of a myriad of symptoms. The versatility of eye movement desensitisation and reprocessing used in children across a range of ages and abilities suggests it may represent a practical approach to addressing the need for individualised treatment where there has been no response to traditional cognitive behavioural therapy.

School-based mental health team: The new kids on the shaky block

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Keywords: Schools, Mental Health, Wellbeing, Students, Teachers, Parents, Earthquakes, Anxiety, Framework

What has been learnt in Canterbury post-earthquakes about the recovery of students? What happens to school children, their families, school staff, and communities post-disaster? Is there a role for school-based mental health care post disaster and beyond? What is that role and what would that team look like? This paper outlines the findings and experiences of The School Based Mental Health Team since its inception in July 2013. This team is one of the Ministry of Health's Youth Mental Health Initiatives. The team was tasked with addressing the emerging youth mental health issues in Canterbury and to develop and implement a joint local health and education (Ministry of Health, Ministry of Education, and Canterbury District Health Board) action plan to specifically address the emerging youth mental health issues in Canterbury. The paper explores what was seen in schools, and the interrelationship between children, families, and schools in responses after a disaster. It introduces the framework developed to enable the combined organisational service provision. The school-based mental health team has developed strong relationships with other service providers, which have led to the design of multi-agency collaborative projects that further strengthen schools' responses to children's wellbeing and mental health. The impact of the 2011 earthquakes on students, families and schools in Canterbury has been both longitudinal and pervasive. The need for support for schools has led to a new way of thinking about mental health and wellbeing support for schools.

The Child and Adolescent Mental Health Service response to the Christchurch earthquakes: Reflections on an expedited treatment pathway 2011-2012

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Keywords: Earthquakes, Disasters, Children, Adolescents, Mental Health Services, Psychological Response

Canterbury, New Zealand was woken up literally and figuratively on the 4th of September 2010 at 4:35am local time with a magnitude 7.1 earthquake. Rattled but largely unscathed, people rode out the aftershocks and congratulated themselves on their resilience. They were mentally unprepared for the devastation about to be faced on the 22nd of February 2011. With thousands of aftershocks over subsequent months, the Child and Adolescent Mental Health Service of the Canterbury District Health Board anticipated increased demand for their services. They assisted young people and their families by creating an expedited earthquake response pathway. Delivered alongside existing services, the earthquake response pathway was designed to enable targeted intervention to young people struggling to cope as a result of the Canterbury earthquakes. This paper describes the child and adolescent population who were referred to the earthquake pathway, and the services that were provided from July 2011 to June 2012. Five years on, the authors reflect on their earthquake response and investigate the long-term specialist mental health service contacts and psychological needs of the people they assisted. They consider how their service-wide response met the anticipated psychological need and how their experience can inform mental health preparedness, response, and recovery in future natural disasters.

Thursday 25 February 2016: Recovery

Theme: Social Recovery

Leading and coordinating social recovery: Lessons from a central recovery agency

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Keywords: Social Recovery, Canterbury Earthquake Recovery Authority, Lessons

This paper provides an overview of the Canterbury Earthquake Recovery Authority's Social Recovery Lessons and Legacy project. This project was commissioned in 2014 and completed in December 2015. It had three main aims: to capture the Canterbury Earthquake Recovery Authority's role in social recovery after the Canterbury earthquakes, to identify lessons learned, and to disseminate these lessons to future recovery practitioners. The project scope spanned four Canterbury Earthquake Recovery Authority work programmes: The Residential Red Zone, the Social and Cultural Outcomes, the Housing Programme, and the Community Resilience Programme. Participants included Canterbury Earthquake Recovery Authority employees, people from within a range of regional and national agencies, and community and public sector organisations who worked with the Canterbury Earthquake Recovery Authority over time. This paper outlines the origin and design of the project, and some key findings.

Monitoring social recovery in greater Christchurch

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Keywords: Monitoring Recovery, Social, Disaster, Canterbury Earthquake Sequence

In 2012, the Canterbury Earthquake Recovery Authority (CERA) and key partners including the Canterbury District Health Board developed social monitoring tools to provide an evidence base for decision making throughout social recovery after the Christchurch earthquake. The Canterbury Wellbeing Index is a collection of indicators drawing on pre-existing administrative and survey data from across more than 20 central and local government agencies. The indicators monitor and identify emerging social trends in the housing, health, mental wellbeing, education, economic, child wellbeing, social connectedness, civil participation, safety, arts, and sports areas. As well as enabling agencies to respond to emerging issues in a timely way, the Canterbury Wellbeing Index provided the greater Christchurch community with accurate and comprehensive information about post-earthquake social recovery. The CERA Wellbeing Survey was developed to supplement the Canterbury Wellbeing Index by collecting six-monthly survey data from a sample of 2,500 residents of greater Christchurch. The survey focuses on understanding people's perceptions of recovery, the stressors they are experiencing, impacts on quality of life, understanding of support services available, and confidence in the recovery. This information is particularly useful for identifying populations experiencing slower recovery and to inform psychosocial recovery decision-making. This paper discusses the methodology used to establish these monitoring tools and some of the trends and issues emerging from the recovery to date.

Direct and indirect costs of a natural disaster: An example from the Brisbane 2011 floods

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Keywords: Socio-Economic Impact, Personal Account, Floods

The western suburbs bore the brunt of the 2011 flood devastation in Brisbane. There was significant damage to homes, businesses, infrastructure, and community facilities. The socio-economic repercussions for families who lost their homes were both direct and indirect. These repercussions go far beyond the immediate aftermath and are often long-lasting. This paper provides a personal account of one family's journey and highlights issues for consideration in planning for future natural disaster recovery. High waters travelling at speed caused irreparable

structural damage to the family home. Despite comprehensive flood insurance, there was a lengthy delay in settlement. The funds received covered a fraction of the direct financial costs borne by families in replacing their flood damaged homes. The more obvious costs included demolition, rebuilding, associated government fees and charges, additional insurance premiums, rent and removals. Other direct costs such as labour costs were incurred in cleaning and salvaging flood damaged items retrieved from homes. Less obvious costs included repairing flood damaged property, including pools, fencing, and gardens. There were also significant indirect costs including property devaluation, increases in insurance premiums, and reductions in long-term savings because incomes were required to cover the direct costs described above. Changes in health status as a result of prolonged stress have had implications on some people's future employment, and associated medical costs. Less obvious is the impact on children's learning ability due to short- and long-term household physical and psychological stress. This may have a flow-on effect of reducing their ability to achieve their full academic potential and earnings in later life. Gradually households are establishing a new normal. However, it will be many years before all direct and indirect costs can be fully determined.

Land use recovery plan: How an impact assessment process engaged communities in recovery planning

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Keywords: Community, Environment Canterbury, Collaboration, Resilience, Planning, Strategy

In response to the Canterbury earthquakes, the Minister for Canterbury Earthquake Recovery directed Environment Canterbury (Canterbury's regional council) to prepare a Land Use Recovery Plan that would provide a spatial planning framework for Greater Christchurch and aid recovery from the Canterbury earthquakes. The Land Use Recovery Plan sets the policy and planning framework necessary to rebuild existing communities and develop new communities. As part of preparing the plan, an integrated assessment was undertaken to address wellbeing and sustainability concerns. This ensured that the social impacts of the plan were likely to achieve better outcomes for communities. The process enabled a wide range of community and sector stakeholders to provide input at the very early stages of drafting the document. The integrated assessment considered the treatment of major land use issues in the plan. Examples included: overall distribution of activities across the city, integrated transport routes, housing typography, social housing, employment and urban design, all of which have a key impact on health and wellbeing. Canterbury Health in All Policies Partnership representatives helped design a three-part assessment process that provided a framework for the Land Use Recovery Plan writers to assess and improve the plan in terms of wellbeing and sustainability concerns. This paper outlines the detail of the assessment stages, and the influence that they had on the draft plan. In summary, the three stages involved: developing key wellbeing and sustainability concerns that could form a set of criteria, analysing the preliminary draft of the Land Use Recovery Plan against the criteria in a broad sector workshop, and analysing the content and recommendations of the draft plan. This demonstrates how integrated assessment influenced the Land Use Recovery Plan, which in turn influenced other key planning documents such as the District Plan. This process enabled a complex document with wide-ranging implications to be broken down, enabling many groups, individuals, and organisations to have their say in the recovery process. There is also a range of important lessons for recovery that can be applied to other projects and actions in a disaster recovery situation.

Thursday 25 February 2016: Recovery

Theme: Support Co-ordination

Effective case management in disaster response and recovery: Earthquake support coordination service

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Keywords: Rescue, Recovery, Case Management, Psychosocial

The earthquakes that Canterbury experienced in 2010/2011 were unprecedented in New Zealand's history. Informed by the experiences of other countries (in particular Australia), a case management approach was introduced by Family and Community Services within the Ministry of Social Development. It was established in partnership with a range of local non-profit organisations and allied government organisations. Case management, in this context, is a practice used to connect individuals and households to needed resources, services, and support. Case workers assess a client's needs and then assist with information, planning assistance, facilitation, practical help, service/agency coordination, and referral to appropriate agencies. This model for case management is based on collaborative principles that are strengths-based, community-focused, targeted, and evidence-informed, and recognise the importance of belonging and connectedness. This paper briefly summarises the case management approach in place to support individuals and householders with their housing, and associated practical and psychosocial needs following the Canterbury earthquakes. Key findings were highlighted after monitoring and evaluating the case management approach. Recommendations were made to central and local government, funders, and non-profit organisations involved with delivering case management, and key stakeholders. They were intended to inform future post-disaster planning and preparedness. The recommendations reflect a collective view, in contrast to a single agency or sector view.

Interagency communication emergency response: The case of the Vulnerable Peoples Emergency Response Team during the Christchurch earthquakes

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Keywords: Interagency Interface, Inter-Organisational Communication, Natural Disaster, IERT (Interagency Emergency Response Team), Vulnerable People

The earthquakes that hit the Canterbury region in September 2010 and then in February 2011 resulted in severe damage to the Aged Residential Care sector. Over 600 Aged Residential Care beds were lost, displacing 500 elderly and disabled people. To cope with this situation, the Canterbury District Health Board set up an interagency emergency response team to address the significant health and disability needs of vulnerable people, including those in this sector. Interagency emergency response teams play a crucial role in times of disasters, so it is crucial to thoroughly understand what is required for them to function effectively. This paper examines the practices that helped and hindered communication between the responding agencies. It also assesses the roles of team members who comprised the Vulnerable Peoples Interagency Emergency Response Team established by the Canterbury District Health Board during the complex, volatile, and constantly evolving period immediately following the February earthquake. A qualitative interpretive research design was employed to gather and analyse the experiences of the team members. Participants were asked to focus on critical incidents they encountered that either stabilised or negatively impacted on the team's operation. The analysis revealed the following critical incident dimensions related to the complexities of navigating multiple agencies: communication channels and hierarchies, access to data, personal skills and attributes of individual team members, availability of in situ liaison personnel, and logistics of communicating across geographically dispersed agencies when communication infrastructure was compromised. It is hoped an emergent model of best practice will: integrate findings on each of these critical incident dimensions, provide a framework for training, and help develop interagency communication best practice and policy to guide future disaster response processes.

Building civil/civic expertise: Improving community-based disaster preparedness and response

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Keywords: Disaster Response, Community, Environment

Existing disaster management has top-down approaches with little community involvement. In disasters, community and environment are not mutually exclusive. Natural disasters affect both. Communities need to have the capacity to effectively respond to natural threats. It is for this reason that communities should be involved in managing the risks that may threaten their wellbeing (Pandey & Okazaki, 2005). It has been proven that community-based disaster management increases communities' capacity to respond to disasters. This approach allows more people to participate alongside government officials, expert groups, and civic groups. Civic-expertise benefits from expert knowledge and skills. For effective participation, good relationships are needed between the experts and citizens. Civil engineers have crucial roles and skills in responding to disasters. They are familiar with damaged and collapsed structures in disaster environments. They can offer their skills and experience to people and help build civic expertise. The challenge for experts is to communicate with the public in a way that acknowledges factors that are important to people, and provide them with the information that they need for decision-making, and to increase their understanding of hazards and the risks (Gough, 2000). This study aims to provide an opportunity to build strong relationships between experts and community participants (civic-expertise). It focuses on tying together civil engineers and people in the New Brighton community of Christchurch, New Zealand after the Canterbury earthquakes. It involved a multiple-methods (qualitative and quantitative) research design within a multi-disciplinary theoretical framework. The research has four major parts. Initially, information was gathered from the New Brighton community to provide a basis for the next steps. The second part of the study reviewed and analysed existing earthquake response and preparedness methods, and implementation processes. The Adjustment Process Control model was used to describe the process and contributing factors associated with identifying and choosing methods and techniques. Thirdly, the study used the Theory of Planned Behaviour to provide insights into which factors influenced expert intention to implement chosen adjustment methods and techniques in response to the earthquakes. Finally, the study used research findings from the above three phases in a meta-analysis to determine best approaches. The study aims to determine the extent to which civil engineers' knowledge and experiences in responding to earthquake disasters can contribute to building civic expertise. The results will help civil engineers and earthquake education developers make effective material for use in communities where earthquake preparedness and response are limited. Furthermore, it will address key barriers and suggest proper mechanisms to build civic-expertise.

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Thursday 25 February 2016: Recovery

Theme: Community and Social Services

‘The City of the Fugitives’: Does selective preservation of disaster memories mean selective recovery from disaster?

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Keywords: Trauma, Memory, Disaster Archiving, Digital Humanities, CEISMIC

We’ll never know why the thirteen people whose corpses were discovered in Pompeii’s Garden of the Fugitives had not fled the city with most of the population, when Vesuvius turned deadly in 79 AD. But surely, thanks to 21st century technology, we know just about everything there is to know about the experiences of the people who went through the Canterbury Earthquakes. Or has the ubiquity of digital technology, combined with seemingly massive online information flows and archives, created a false sense that Canterbury’s earthquake stories, images, and media are being secured for posterity? In this paper, the author makes reference to issues experienced while creating the CEISMIC Canterbury Earthquakes Digital Archive (www.ceismic.org.nz) and argues that rather than having preserved all the information needed to fully inform recovery, the record of the Canterbury earthquakes’ impacts, and the subsequent response, is incomplete, and unrepresentative. While CEISMIC has collected and curated over a quarter of a million earthquake-related items, the author is deeply concerned about material being lost. Like Pompeii, this disaster has its nameless, faceless, silenced victims; people whose stories must be heard, and whose issues must be addressed, if recovery is to be meaningful.

Places of remembrance: The potential of an earthquake memorial

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Keywords: Memorials, Place Making, Emotional Geography, Recovery, Urban Planning

The Canterbury Earthquake Memorial in Christchurch was planned to become the anchor point for remembrance in the city and Canterbury. The memorial will be located on the Ōtākaro /Avon River, between the Montreal Street Bridge and Rhododendron Island. As it says in the planning documents, this site has been chosen because it will provide a quiet contemplative space. How can this space become a place of remembrance and how can it help people to recover? This paper points out three aspects of memorials as healing places based on analysis of the planning documents for this memorial site, 2,818 responses to a questionnaire, social media discussions on the memorial idea, and qualitative interviews with affected persons, planners, and therapists. Firstly, the paper introduces evidence on the importance of a memorial. Already, consultation in the planning process has captured the great power of a memorial to invoke emotional responses. Terms like ‘heart breaking’ were common in written responses and social media discussions. Memorials help to explore the imagery system of the quake. Secondly, the paper outlines the place-making process. In human geography a place is seen as a social product and indeed the data shows that the memorial already stands for a coexisting variety of meanings to different people. Different stakeholders feel differently about the site. A new sensibility can be traced where memorials are appreciated in process, and a moment of becoming. This leads thirdly to the importance of individual sensibility. The healing power of a memorial depends on how individuals feel about the event that they are remembering, which is difficult to capture in the planning process. Consequently, people should be encouraged to find their own places and ways to heal, once the memorial is built. In conclusion, systemic approaches in applied human geography are recommended. These support people to transform the memorial (or alternative locations) into their own healing process. This includes a diverse collection of approaches using non-representational techniques, theories of affect, and embodied accounts.

Public health and recovery from the Canterbury earthquakes

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Keywords: Public Health, Recovery, Emergencies, Disasters

The phases of recovery from a disaster have been well described, and to a certain degree mirror Maslow's hierarchy of needs. Immediate health issues such as trauma, which occur in the first hours and days after a disaster, give rise to water and sanitary health issues in the ensuing weeks. Months and years later, stressors such as accommodation, insurance, and work/school issues give rise to increased mental health problems. The determinants of health, such as housing, education, and employment are brought into sharp relief. The environment in which we live work and play becomes the focus of recovery efforts, and public health expertise has a key role to play among the agencies responsible for recovery. The Community and Public Health Division of Canterbury District Health Board had - and continues to have - an important role working alongside other key agencies in the recovery from the Canterbury earthquakes. Epidemiological expertise was provided to the Canterbury Earthquake Recovery Authority 'Wellbeing Survey', which has tracked a random sample of 2500 Canterbury residents twice a year since October 2012. Community and Public Health also led the Canterbury District Health Board in all policies partnership as part of the Community in Mind Shared Programme of Action. Similarly, following the Prime Minister's briefing paper on 'The psychosocial consequences of the Canterbury earthquakes', the Greater Christchurch Psychosocial Committee mandated the 'All Right?' campaign, led by Community and Public Health and the Mental Health Foundation. 'All Right?' was launched in February 2013 to support Canterbury citizens to think about and improve their mental health and wellbeing as the region recovers from the earthquakes. Finally, the Public Health Unit provided Canterbury District Health Board representation to the resilience strategy for the City of Christchurch part of the Rockefeller foundation's 100 resilient cities project. Public health units are a key component of recovery from a natural disaster, providing epidemiological expertise, experience in multi-agency collaboration, a driver of a health-in-all-policies approach and providing the essential link between health services, the wider community and its supporting agencies, particularly with regard to the determinants of health and psychosocial issues.

Warmer Canterbury: How a sector works together to meet community needs

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Keywords: Community, Healthy Christchurch, Collaboration, Resilience, Winter Warmth

The Warmer Canterbury forum arose following the Canterbury earthquakes out of the identified need to address the dire housing situation of many people and its impact on keeping well in winter. While housing issues already existed to some extent in Canterbury prior to the earthquakes, the issues worsened due to damaged and lost homes. The mechanism that allowed Warmer Canterbury to form was Healthy Christchurch, a network that has been in existence in the region for over 10 years. Warmer Canterbury is an inter-sectoral collaboration led by the Canterbury District Health Board and has buy-in and commitment from Christchurch leaders, as well as over 200 signatory organisations. The initial focus of the Warmer Canterbury forum was to ensure there were clear and consistent messages available for the community about what could be done to keep warm in the winter, and what support was available. Many and varied agencies were involved. This breadth of forum members ensured that there was no duplication and that well linked-up supports were available for the community. The forum aimed to achieve outcomes by supporting existing initiatives and identifying gaps that could be jointly tackled. Each forum member had avenues to feed back into their own agency to ensure support for initiatives, widening the reach, and reducing duplication. There were many challenges along the way for individual organisations and communities and the forum had to remain flexible. As the connections strengthened, the need for a structured forum lessened so that Warmer Canterbury was in a position to cease its role leaving the agencies to continue their strongly established relationships.

Thursday 25 February 2016: Recovery

Theme: Animals

The cat's cradle of 'responsibility': Assigning and taking responsibility for companion animals in natural disasters

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Keywords: Natural Disaster, Companion Animal, Pet, Responsibility

The term 'responsibility' is often regarded as a single generic concept when it is a veritable 'cat's cradle' of related ideas and perceptions. Individuals and groups may disagree about the norms should be adopted and what people owe to animals that are dependent on their care in times of crisis. A coherent account of 'responsibility' for companion animals (or pets) in natural disasters is yet to be articulated. At the same time, there is good evidence that individuals and communities cope better during and after natural disasters when companion animals are protected alongside their human families. However, Hurricane Katrina (2005), the Canterbury (Darfield) and Christchurch earthquakes (2010 and 2011), Australia's Victorian firestorms (2009), and the Queensland floods (2010 and 2011) all highlighted the shortcomings in companion animal welfare management. Against this background, the concept of responsibility is increasingly invoked in public communication as a motivation for pet owners to comply with emergency management plans. Concomitantly, while top-level emergency management is clear on its (operational) responsibilities, studies have shown that closer to ground, service providers and responders are less likely to know who is responsible and in what ways. The paper includes a structured examination of how different concepts of responsibility are enacted around human-companion animal relationships in the context of natural disasters. Case examples are used to examine the issues and challenges that impede effective translation of responsibility into ground practices. This structured approach may help to better engage owners in taking responsibility for pets, with sensitivity towards vulnerabilities (human and nonhuman) during natural disasters.

Animals are part of the family: Considering the needs of companion animals in disaster planning within human service organisations

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Keywords: Disasters, Animals, Human-Animal Bond

At both national and international levels, increased emphasis is being placed on the needs of animals that live with people at the time of a disaster. A review of current research literature suggested that a suitable lens for considering the needs of companion animals and their families is a relational one that emphasises the human-animal bond. Disaster planning in human service organisations must emphasise not only the animal rights and welfare aspects during disasters, but also human behaviour within response and recovery processes. Taking an inclusive stance that considers animals as part of human families, this paper explores key messages from previous disaster settings and considers their implications for disaster preparation and response within New Zealand agencies.

The importance of managing animals in disasters to improve human outcomes from response to recovery

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Keywords: Animals, Pets, Human-Animal Bond, Loss, Recovery, Volunteering

In disaster preparedness, animals are forgotten members of most families until the disaster strikes. This potentially delays evacuation and puts human lives at risk. This paper reviews the importance of the human-animal bond and how this can be impacted during disasters. It draws on data collected for the 'Managing Animals in Disasters' (MAiD) project funded by the Bushfire and Natural Hazards Cooperative Research Centre to review animal owner experiences during disasters, and challenges during animal emergency management. It also discusses findings of a current study looking at integrating informal volunteers into animal emergency management. Australasians own among the highest numbers of animals in the world and many people have strong bonds with their animals. Animals have many and multiple meanings to their human owners: they can be a source of companionship, love and support, a basis for commercial livelihoods, part of a sporting or competitive partnership, and a conduit to social connections and activities. Therefore, it follows that in disasters and emergencies most people will want to save their animals. In the absence of adequate planning or warning systems, risky decisions can be made with delayed or failed evacuations as the human-animal bond can be strong enough to prevent people leaving or losing their animals. The survival of pets has been found to be important for recovery following disasters - providing emotional support to their owners, assisting return to routine and normalcy, and providing avenues for continued social connectedness. Just as the protection of animals is important to their owners in disasters, it is also valuable to other community members. This paper argues that supporting integration of informal volunteers into official emergency responses assists in citizen participation, shared responsibility, and community resilience. These three priorities in government disaster resilience strategies would provide valuable capacity and resources to the emergency services.

Did dog ownership influence perceptions of adult health and wellbeing following the Canterbury earthquakes?

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Keywords: Dogs, Health, Wellbeing, Earthquakes

The Canterbury earthquakes impacted upon the health and wellbeing of Christchurch residents. Evidence suggests companion dogs positively affect physiological and psychological human health. However, little is known about how dog ownership influences human health and wellbeing following natural disasters. Participants were asked if dog ownership influenced their perceptions of health and wellbeing during and following the Canterbury earthquakes. A general inductive approach guided analysis of the qualitative data. Seven adults who owned one or more dogs during and following the Canterbury earthquakes participated in semi-structured interviews that were audiotaped and transcribed verbatim. From this data, three themes were inductively identified that helped to answer the research question. 'Companionship' demonstrated how a close bond was experienced between all participants and their companion dogs. 'Support' highlighted how a close bond influenced the mental, physical, and social support gained from a dog-owner relationship. Changing priorities showed how the themes of 'Companionship' and 'Support' were interwoven into the way participants re-prioritized the things that were important in their lives. Dog ownership influenced perceptions of health and wellbeing of Canterbury dog owners after the Christchurch earthquake. It is recommended that health practitioners continue to develop understanding of companion animals as a potential source of psychological support outside the health system and that policy planners where possible ensure that humans and their canine companions stay together after natural disasters.

Thursday 25 February 2016: Recovery

Theme: Staff

Rattled, ruined, and relocating

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Keywords: Nursing, Disaster, Response, Service Relocation

On the 22nd of February 2011 a devastating earthquake struck Christchurch, New Zealand. This earthquake had a harrowing effect on people living in the region and on the Canterbury District Health Board. This paper conveys the challenges that the General Medical Cluster based at Christchurch Hospital faced when three of their five wards were evacuated on the 22nd of February 2011, and subsequently relocated to The Princess Margaret Hospital site. The shift was a significant upheaval for all three wards involved and the entire general medical service. This paper focuses on Ward 30 and the challenges it faced during recovery from the destructive earthquake. This perspective is a snap shot through the eyes of a nurse educator, charge nurse manager, and a registered nurse. The process of relocating an inpatient medical ward to another hospital site within an area that was previously office space was a monumental challenge for all involved. To add to this challenge, a new approach needed to be formulated in relation to how the service received patients because it included direct admissions from primary care practitioners and from the Acute Medical Assessment Unit. Two years following relocation, the process of moving the ward back to its home site of Christchurch Hospital was put into action. Throughout this process, Ward 30 continued to provide a sustainable, safe, and fully functional general medical service, which to date continues to provide the right care and support, to the right person, at the right time, and in the right place.

How do physiotherapists describe their experiences during the Canterbury earthquake?

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Keywords: Disaster, Earthquake, Physiotherapy, Resilience

Physiotherapists often volunteer rehabilitation services following international disasters, but normally return home to a safe environment. The situation that physiotherapists found themselves in following the Canterbury earthquakes impacted on all aspects of their lives. The purpose of this study was to investigate how the Canterbury earthquakes affected the lives of physiotherapists living and working through a disaster. A general inductive approach was used to analyse data from purposively sampled physiotherapists in the Canterbury region. They were asked how the Canterbury earthquakes had affected them. Interviews were recorded and transcribed verbatim. Data were analysed from interviews with 27 female and six male physiotherapists. Three themes were identified. 'A life-changing earthquake' involved a contextual description of the most damaging earthquake (22 February) - a day where participants struggled between concern for family and a professional need to support patients and contribute to disaster management. In the second theme, 'Uncertainty', participants described ongoing loss of stability involving multiple domains - such as building safety, working environments, and personal impacts. The third theme, 'Giving and receiving support' was reflected in participants' descriptions of their role as therapeutic listeners when providing physiotherapy, and the access they had to personal and professional support. The interaction of uncertainty and the giving and receiving of support affected the physiotherapists' feelings of resilience. The vital skill of therapeutic listening should be valued in the post-disaster environment. Disaster planning involving physiotherapists and their skill set will both enable them to cope better and to be optimally utilised post-disaster.

Teaching and learning through the rubble

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Keywords: Teaching, Learning, Earthquake, Nursing Students, Response

Christchurch Polytechnic Institute of Technology teachers and nursing students had to adapt teaching and learning styles following the Christchurch earthquakes. Nursing students were not only dealing with multiple interruptions to living conditions, but also to the loss of their teaching environment. Christchurch Polytechnic Institute of Technology was in the cordoned off 'Red Zone' rendering affected classrooms, lecture theatres, and teaching resources inaccessible to students and staff. A collaborative research project was developed to explore the impact of the earthquakes on student learning. This paper shows how teaching strategies were prioritised and adapted. An on-line survey gathered demographic data, psychometric measures, and free text questions relating to the impact of the earthquakes on student learning. A thematic and quantitative analysis was undertaken of students' responses to perceived changes in their lives and learning environment throughout the ongoing earthquakes. Ways of adapting pedagogical teaching methods in a crisis situation were identified. In the immediate response and early recovery, different forms of communication were utilised including social media and external supports. Relationships with clinical providers proved to be an essential component. The need for education to be flexible and supportive when students were under multiple stressors is paramount. Teaching and learning can be provided in a variety of mediums that are flexible and responsive to students. Disaster management strategies need to be incorporated into the curriculum.

Negotiating the return to work journey after an earthquake injury

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Keywords: Disaster, Return To Work, Trauma, Grounded Theory

The aim of this study was to determine the impacts of returning to work on individuals who had suffered moderate or severe injuries requiring hospitalisation as a result of the 22 February 2011 Christchurch earthquake. Semi-structured interviews were undertaken over a two-year period with people who had moderate or severe earthquake injuries (n=14), vocational professionals (n=6), and New Zealand Accident Compensation Corporation employees (n=6) involved in the return to work process. Data analysis followed a constructivist grounded theory methodology. Four themes were identified: rebuilding normality, negotiating the return to work journey, operating within the system, and the earthquake experience. The results suggested that the process of planning and acquiring work was most affected by earthquake-related factors. This connected to contextual factors, such as environmental (earthquake damage to the area, services systems, and policies) and relational (empathy and connectivity between injured people, their employers, and co-workers with a shared experience of the earthquake at work) factors. Return to work after an earthquake injury followed a similar process to other trauma populations in New Zealand, but in future additional issues facing people injured in a disaster situation should be accommodated.

Thursday 25 February 2016: Recovery

Theme: Children

The role of schools in disaster response and recovery

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Keywords: Schools, Response, Recovery, Community

After the Canterbury earthquakes, the author - a former teacher and teacher educator in Christchurch - chose to record the experiences of schools as they responded to the Canterbury earthquakes. With funding from UNESCO (United Nations, Educational, Scientific, and Cultural Organization) and the University of Auckland, the author undertook a project titled 'Christchurch schools tell their earthquake stories'. The five schools in the project represented five different locations, socio-economic areas, and earthquake experiences (hill suburb, inner city, eastern suburb, beach suburb, and town outside Christchurch). The schools were either known to the author or asked to be involved. The author took time to build relationships with each school and ensured that each data-gathering or processing activity was approached sensitively. Support personnel (e.g. counsellors for adults or teachers for children) were on hand in case people became distressed. The project used a participatory approach in which each school decided on the way that they wanted to record their story. These included an illustrated book, a video documentary, or a community mosaic. The author supported each school to gather and process the data and create a long lasting product. In return, the schools allowed the author to keep all the raw data (interview transcripts, audio and video footage, drawings, photos, and documents) for further analysis and dissemination. Full-length audio or video interviews were undertaken with four principals, fifteen teachers, and eight parents, and shorter interviews with forty-eight children. These research activities were undertaken from early 2012 until mid-2015. Four key themes have emerged from a constant comparative analysis of the various data sets including: schools as community hubs, principals as crisis managers, teachers as first (and on-going) responders, and children and young people as participatory citizens. Key findings from these four themes are outlined in this paper. The findings contribute to addressing the lack of research on the role of schools in disaster response and recovery.

Getting through: Children and youth post-disaster effective coping and adapting in the context of the Canterbury earthquakes of 2010-2012

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Keywords: Disaster, Childhood Recovery, Effective Coping, Positive Adaptation

Children may experience distress and vulnerability as the result of a disaster. However, recent research suggests that experiencing such adversity can sometimes be resolved by enhanced capacities to adapt. This study seeks to further understand resources and processes that promote positive coping and adaptation in children who experienced the 2010 to 2012 Canterbury earthquake disaster in New Zealand. This qualitative study explored coping strategies in forty-two children in three groups aged five, nine, and fifteen years. It draws on data from semi-structured interviews with the children as well as their parents, teachers, and principals of five schools in Canterbury and two schools in Wellington (which form a useful comparison group). The children were interviewed eighteen months after the first major earthquake and selected participants were interviewed again three years later. Analyses have identified multiple, inter-connected coping strategies and multi-level resources in the children's proximal ecologies. It is hoped that results emerging from this study will inform future preparation for adversity and increase effective interventions for children, families and schools recovering from challenging life experiences.

Using sport to assist recovery in a vulnerable population: How a flood survivor helped children in Brisbane 2011 and Calgary 2013

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Keywords: Floods, Children, Sports Facilities, Stress

The western suburbs bore the brunt of the 2011 flood devastation in Brisbane. There was significant damage to homes, businesses, infrastructure, and community facilities, including sports and recreational facilities. Children were one of the most vulnerable groups affected by losing access to sports and recreational facilities because they are dependent on these for physical activity and social interaction. Physical activity is one of a number of tools children can use to manage stress and anxiety. However, access to and the ability to use sports and recreation facilities can be compromised after a natural disaster such as a flood. Children develop mental toughness by participating in sport. This toughness can be valuable during times of adversity such as floods. The Graceville Project was devised by a flood survivor who believes in the benefits of physical activity and observed first-hand the impact of loss of sports facilities at a local flood affected primary school. Post-floods, a before-school sports program was offered free of charge to all children in years 3-7. The program was offered twice a week and was not restricted to children whose homes were flood affected. Students, parents, and teachers uniformly provided positive feedback on the program, citing a range of benefits such as improved attitudes to schooling. Following the Calgary floods in 2013, the author provided advice to the Alberta Flood Recovery Taskforce regarding challenges in flood recovery, including a range of issues that affect children after a natural disaster. The Canadian taskforce adopted a similar approach to assist children in flood affected communities, implementing a range of sports programs prior to winter 2013. These programs were well received. The approach developed in Brisbane and adopted in Calgary demonstrates the importance of including sports programs in future recovery plans, and to not ignore the broader needs of children.

Understanding the post-disaster recovery needs of children and youth

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Keywords: Disaster, Children, Services, Safety

Research in Victoria, Australia in the aftermath of the February 2009 bushfires provides an opportunity to reflect on the focus of funded recovery services for children and youth, and alignment with subsequent insights into their needs. An analysis of funded recovery services following the fires was conducted in 2013. Qualitative interviews using participant-guided mobile methods were conducted with 35 participants to explore their sense of place and community in 2013 and 2014. It was found that a range of services were delivered specifically for children and youth in the 4 years following the Black Saturday bushfires. Interviews revealed that children and young people seek safety and stability in the aftermath of a disaster experience in every aspect of their lives. However, reinforcement of safety and stability was rarely explicitly reported in service descriptions and frameworks of recovery services for children and young people. The interview discussions of place and community showed that children and youth of all ages had disaster experiences, and yet recovery-funded services tended to focus on older students with very few directed at pre-school children. Analysis of recovery services showed they were delivered in different settings that were confirmed in the interviews as important sites for providing a sense of safety and stability, i.e. home, school, and community. Strong representation of services supporting citizenship was found in the analysis of recovery services. This was reflected in interview evidence that children and youth were actively involved in post-disaster decisions affecting their lives.

Thursday 25 February 2016: Recovery

Theme: Canterbury Earthquake Recovery Authority and Local Government

Caring for communities following the Canterbury earthquakes: How the galleries, libraries, archives, and museum (GLAM) sector responded

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Keywords: Community, Libraries, Museums, Collaboration

Catastrophic events can lead to innovation within organisations and communities, helping to recover, move on, and thrive again. The 2010 and 2011 Christchurch and Canterbury earthquakes were the most disastrous sequence of events in New Zealand's recent history, and institutions in the GLAM (galleries, libraries, art galleries, and museums) sector had to respond to the needs of affected communities in innovative and reassuring ways. Mainly using Christchurch City Libraries and the Air Force Museum of New Zealand as case studies, but also considering other Christchurch GLAM institutions, this paper examines the roles these organisations took within communities in the aftermath of the quakes. Christchurch City Libraries is a large public library network with over 20 service points which were all affected in different ways after the quakes, whereas the Air Force Museum is sited on the former Wigram Air Force base (which brought its own responsibilities) on the relatively unaffected west side of the city. For these two organisations, sometimes simply being open and creating a sense of routine and connecting people to something familiar was enough. At other times it was a case of taking services to damaged areas, running special community events, collaborating with other organisations, rescuing precious heritage or hosting organisations that were facilitating the recovery effort or providing vital services. How staff and communities reacted to these activities will be considered. The paper also examines the expectations of organisations in the GLAM sector following a major event. Are different types of organisations expected to react to community needs in varying ways? How far can, or should, a GLAM organisation assist in the aftermath of a disaster, and what lessons can be taken forward for the rest of the country?

Wheelchair users' experience of community inclusion following the Canterbury earthquakes: A thematic analysis

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Keywords: Disaster, Wheelchair Users, Community Inclusion, Thematic Analysis

There is limited research that explores how disabled populations experience community inclusion during medium- to long-term recovery after natural disasters. Such information could play a valuable role in ensuring disabled people have equal opportunities to participate in their communities. This study explored how one section of the disability community - people who use wheelchairs - perceived the individual and social determinants of (non) inclusion and (non)participation in the community during the three years following the 2010 and 2011 Canterbury earthquakes. Thirteen adult wheelchair users were recruited from the Canterbury region, interviewed, and then invited to attend a supplementary focus group (n=5). All data were subjected to thematic analysis. Participants thought that the 2010 and 2011 earthquakes had magnified many pre-existing barriers to community inclusion, but created an exciting opportunity for change. The following five themes describe the key ways participants experienced community inclusion post-earthquakes: earthquakes magnified barriers, community inclusion required energy, social connections were important, an unprecedented opportunity existed for change, and was accessibility a public right or private choice? An unprecedented opportunity now exists to reduce many pre- and post-earthquake barriers to community inclusion identified by the participants. Adequate consultation with local authorities and developers regarding the needs of people who use wheelchairs could greatly enhance opportunities for community inclusion and reduce feelings of isolation, frustration and difference. The study findings informed a quantitative survey designed to determine how the findings generalise to a larger sample of individuals who use wheelchairs. The longer-term recovery following natural disasters can present a unique opportunity to improve the pre-disaster experience of community inclusion for people who use wheelchairs.

Moving forward: Providing independent advice to assist people move forward with housing

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Keywords: Housing, Recovery, Independent Advice, Experts

The Residential Advisory Service is a free, independent and easy-to-use service for residential property owners repairing or rebuilding their homes following the Canterbury earthquakes. The service provides impartial, free and qualified legal advice to assist home owners who may be confused, or feeling overwhelmed, or in disagreement over their repair or rebuild. It is focused on progressing issues between home owners, insurance companies, and the Earthquake Commission. The Residential Advisory Service was established in May 2013 and is jointly funded by the Earthquake Commission, private insurers, Christchurch City Council, Christchurch Earthquake Appeal Trust and the Canterbury Earthquake Recovery Authority. It has its own governance structure, which includes the funders and a representative from the community. Since its inception, the Residential Advisory Service has received 11,242 contacts, scheduled 2,804 appointments with independent advisors, referred 308 cases to the technical panel for engineering advice, connected 631 property owners to other services and organisations more suited to their individual needs, closed 2,118 cases - many with positive outcomes and advancement for the property owner - and held and/or scheduled a total of 75 multi-party meetings. These facilitated meetings are occurring more frequently and are seen as an effective way of resolving customer and insurer issues. The service provides the option of a face-to-face meeting with an independent advisor who works with the property owner to try and achieve progress for their own personal situation. This may include providing advice that gives people confidence in their situation, or more involved engagement with their insurer or the Earthquake Commission. All advisors are independent qualified solicitors provided by Community Law Canterbury. If the property owner's situation involves other homeowners and multiple agencies, then the service also provides free facilitation of multi-party meetings. In August 2014, the Residential Advisory Service broadened the help it can offer residents by engaging an independent technical panel to help resolve repair or rebuild issues raised by residential property owners. This panel provides case-by-case engineering advice to determine if a property's existing repair and rebuild plans are technically adequate and consistent with the building code and other applicable guidelines. The panel is supported by the Ministry of Business Innovation and Employment and sources engineering expertise from four private sector organisations. The Residential Advisory Service is accessible to all home owners who have been impacted by the events of the Canterbury Earthquakes. It assists both home owners and insurers/Earthquake Commission to progress their individual claims. This often results in settlement or agreement being reached between the parties. Many users who have accessed this service report progress and increased confidence in dealing with their claim issues. They also report an improvement in their wellbeing and ability to cope with the issues associated with their claim(s). Eighty-one percent of people surveyed who had been engaged with the service reported that they would be very likely or likely to recommend the Residential Advisory Service to others. The operational and governance model for this service has created an environment of collaboration where the insurers, Earthquake Commission and other associated parties are all working together to resolve home owner issues.

Remembrance and recovery: Engaging on memorial design post-disaster. A memorial for the Canterbury earthquakes, He Whakamaharatanga mō Ngā Rū o Waitaha

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Keywords: Memorial, Remembrance, Recovery, Engagement, Canterbury, Earthquake

On 4 September 2010, a series of earthquakes began that dramatically altered the landscape and people of Canterbury. The most damaging of the earthquakes struck on 22 February 2011; a 6.3 magnitude shake which devastated much of Christchurch city, causing widespread damage, serious injuries, and the loss of 185 lives. As part of the Christchurch Central Recovery Plan, Te Mahere Maraka Ōtautahi, a national earthquake memorial is planned to provide a place to pay respect to the people who died or were seriously injured, and to honour the great losses experienced in Canterbury and all over the world. It will also acknowledge all of the individuals, communities and organisations that helped. These include people from Australia, United Kingdom, USA, Japan, Taiwan, China, and Singapore. The Canterbury Earthquake Recovery Authority is leading the project in close collaboration with Ngāi Tahu, the Ministry for Culture and Heritage, and Christchurch City Council. The

paper focuses on the planning and delivery of the community engagement approach, the challenges faced, and lessons learnt during this time of recovery for Christchurch. An essential principle of the engagement has been that of 'first knowledge', where stakeholders such as bereaved families and people seriously injured who are still facing the rawness of tragic loss receive the latest information directly from the source - not hearing it second or third hand. Engagement planning for the project had some good practice examples to draw on from overseas disasters – such as memorials to victims of the terrorist attacks in New York on 11 September 2001 and the Vietnam veterans' memorials. However, there have been some unique challenges in Christchurch, such as more than 4,000 aftershocks and ongoing stressors in a recovery environment. Many of the families who lost loved ones live overseas. This paper discusses the following aspects of the engagement process in detail: including public engagement in the entire process; involving the First Knowledge Group in site criteria and the principles important to developing the memorial; including wide involvement in the 'call for ideas' process; a respectful and accessible approach to involving the First Knowledge Group in the shortlisted designs process; working with partners on engagement planning and activities; ensuring opportunities for public feedback on the shortlisted designs; and ensuring on-going engagement planning to connect people to the memorial. All these aspects will contribute to making the memorial a place where people can reflect and honour those who died or were injured, and acknowledge the shared and traumatic experience of the earthquakes.

Thursday 25 February 2016: Recovery

Theme: Health Systems

Responding to the ‘challenges’: Lessons learned by primary care practices post Canterbury earthquakes

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Keywords: General Practice, Community Pharmacies, Challenges

The Canterbury Primary Response Group (CPRG) is responsible for coordinating emergency planning and response activity on behalf of the Canterbury District Health Board and the Primary Health Organisations for primary care. However, they were only partially equipped to deal with the sudden seismic catastrophes of 2010 and 2011. The recovery phrase presented the team with new challenges requiring them to ‘think outside the square’, and ‘confront the unfamiliar’ to ensure business continuity for primary care. This paper focuses on the lessons captured during this time. It discusses new initiatives introduced during the recovery phrase and the plans that have been subsequently implemented to support primary care practices and community pharmacies in the event of any future emergencies.

Where we are now and the journey to where we want to be - the challenge of recovery

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Keywords: Emergency Planning, Challenge, Recovery

It is now five years since the first of the Canterbury earthquakes, yet the process for recovery continues. The Canterbury District Health Board needs to review where they are now, where they want to be, and how they can achieve this. Their unique and challenging environment has much potential. Issues still to be dealt with include: on-going repairs, infrastructure concerns, and the development and building involved in relocating the tertiary level hospital that serves the Canterbury and West Coast population. Many of the healthcare services provided across the South Island of New Zealand originated from the Canterbury District Health Board. The need to re-establish, re-model, and expand such services is apparent. One of the Canterbury District Health Board’s guiding documents is a vision statement, which looks towards achievements to be implemented by 2020. In 2012, following major disruption to the health system caused by the Canterbury earthquakes the 2020 vision was accelerated. Prior to the earthquakes, the community and environment were already experiencing changes including an increasing demand for health care services by an ageing population. This has now been exacerbated by the need for interim facilities while new healthcare approaches are developed. Workload issues continue, such as repatriation of hospital wards from alternate sites. Staff members are frustrated travelling to work via ongoing road works, diversions, and unexpected detours to find limited car parking. There are issues emerging in relation to mental health and wellbeing, with many only now becoming apparent. Staff members who have experienced the earthquakes continue to deal with the long-term effects, and staff members who are new to the area may struggle to become part of a team that has experienced a unifying and intense series of events. This paper aims to explore a vision for the future in Canterbury - looking at the possibilities and the challenges and focussing on the steps necessary to reach these outcomes.

Diet and recovery: The role of nutrients after a natural disaster

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Keywords: Nutrition, Natural Disaster, Micronutrients, Flood, Earthquake

The role of good nutrition for resilience in the face of stress is a topic of interest, but difficult to study. At times of high stress, stress response and short-term survival take precedence over other long-term biological needs to ensure survival of the organism. The stress response is metabolically intensive and therefore has a high nutritional requirement, compromising the nutritional requirements of other bodily functions. By adding micronutrients (minerals and vitamins), the biological needs of the whole organism might be met. Two studies were conducted to determine if micronutrients can assist with recovery following two types of natural disasters: earthquakes and floods. In the earthquake study, 91 adults experiencing heightened anxiety or stress 2 to 3 months following the earthquake were randomized to B-Complex or Broad Spectrum mineral/vitamin formula (BSMV) in two doses, for 28 days. A nonrandomized control group (n = 25) completed questionnaires at baseline and 4 weeks. While all treatment groups experienced significant declines in psychological symptoms, the BSMV resulted in greater reduction in intrusive thoughts and better sense of wellbeing compared with the B-Complex. Further, treated participants had better outcomes on most measures over 4 weeks compared with a group of people not taking the micronutrients. In the flood study, 56 adults were randomised to receive a single nutrient (vitamin D), B-Complex, or BSMV over a 6-week period. Self-reported changes in depression, anxiety, and stress were monitored in both studies. People consuming the B-Complex and the BSMV formulas showed significantly greater improvement in stress and anxiety compared with those consuming the single nutrient, with large effect sizes. These studies support micronutrients as a relatively inexpensive and practical treatment for acute stress following a natural disaster. Further research could evaluate the population benefit if such formulas were distributed as a post-disaster public health measure.

Are the kids all right? An analysis of population-level child wellbeing following the Canterbury earthquakes using data from the B4 School Check programme

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Keywords: Paediatric Mental Health, Earthquakes, Population Health, Surveillance

A series of major earthquakes began in Canterbury, New Zealand in September 2010 which continued for approximately the next three years. Previous research has indicated that exposure to a large natural disaster during childhood can lead to emotional and behavioural disturbances, which could potentially have long lasting effects on personal and population health. The literature indicates that although most children are resilient, some will develop significant and potentially long-lasting mental health problems following exposure to a natural disaster. There are serious methodological limitations in many of the available studies on this topic. The Canterbury earthquakes have left healthcare providers, teachers and parents concerned about the mental wellbeing of children growing up in Canterbury. The 'B4 School Check', which has been in use in New Zealand since 2008, is a nation-wide health screening tool for four-year-olds, which includes measures of behavioural and emotional problems. This study aims to investigate the impact of earthquakes on the emotional and behavioural wellbeing of four-year-olds in Canterbury by analysing data widely and routinely collected during the B4 School Check. Using methodology unique in this field of inquiry, we aimed to address some of the shortcomings of previous studies. Temporal and geographical trends in various measures of wellbeing were analysed using logistic regression to ascertain if the trends in Canterbury have been impacted by the earthquakes. Analyses indicated that an overall population-level impact due to the earthquakes was not present in the considered data. This finding is surprising and is not consistent with other research findings. Furthermore, these findings are surprising given the extent of community disruption and distress following the Canterbury earthquakes and require further study. Further work is needed to explore the health needs specific to children in Canterbury.

Thursday 25 February 2016: Recovery

Theme: Adult Mental Health and Anxiety

The impact of the Christchurch earthquakes on the mental health of the Christchurch population: An examination of three databases

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Keywords: Disaster, Mental Health, Earthquake

There is substantial literature documenting increased rates of mental illness following disasters. However, most studies examine a sample of people affected by a disaster and exclude pre-disaster rates of mental illness, which could be used to make comparisons. Consequently, the effects of disasters on the mental health of larger populations are less than clear. This paper provide insight into the effects of the Christchurch earthquakes on mental health in Christchurch. Background literature are briefly discussed, followed by data from three longitudinal databases that contain information on: admissions to a local psychiatric inpatient unit, prescribing of medication for mental health care, and secondary school student performance. The findings are placed in the context of other factors including population shifts and protective factors that minimise the adverse effects of disasters. The longitudinal nature of the databases and the ability to make comparisons with national figures will assist in distinguishing earthquake effects from other longitudinal trends.

Effectiveness of using eye movement desensitization reprocessing (EMDR) therapy on refugees

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Keywords: Eye Movement Desensitization Reprocessing Therapy, Refugees

Eye Movement Desensitization Reprocessing (EMDR) is an integrative psychotherapy approach that effectively treats people who have experienced traumatic events. It has been extensively researched and is widely used by mental health clinicians all over the world. It was discovered and developed by Francine Shapiro in 1987 (see Shapiro, 2001). This paper discusses EMDR therapy in helping refugees residing in Auckland, including their outcomes and case studies. The author uses EMDR therapy to assist clients with diagnoses such as post-traumatic stress disorder, major depressive disorder, and panic disorder. These clients present with issues such as sexual abuse, grief issues, torture, war traumas, domestic violence, somatic complaints, dissociation, and physical health difficulties (ulcerative colitis, chronic headaches, and chronic pain). Some of these people have witnessed gruesome traumas such as genocide, family members/friends being killed in front of them, or have been physically tortured, or gang-raped. Many of their symptoms have lessened after EMDR sessions enabling them to cope with their lives more effectively, study, and seek employment. Their self-confidence and self-esteem have also improved drastically - many have been able to lead a normal life. EMDR is an effective therapy because it avoids the need to re-traumatise people. People do not need to discuss the details of their traumatic experiences in order to process the memory of the events. EMDR can help in processing distressing memories and allow a natural healing process of assimilation and adjustment to function. People have reported that EMDR therapy actually empowers the very experiences that once controlled them negatively. EMDR may involve fewer therapy sessions than cognitive behavioural therapy. In addition, it is easy to apply this type of therapy to people who are illiterate or from different cultures.

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Trajectories of change in mental health from pre- to post- earthquake exposure

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Keywords: Disaster, Mental Health, Longitudinal Study

Previous research on natural disasters has been limited by a lack of pre-disaster data. The current study uses six waves of data from a longitudinal study examining trajectories of change in mental health from pre- to post-earthquake exposure. We also investigated whether pre-trauma factors (age, sex, perceived availability of social support) and post-trauma factors (earthquake impact, ongoing earthquake-related hassles, social support, and post-traumatic growth) predict trajectory patterns. Christchurch residents (n = 185) completed pre-earthquake questionnaires (T1, T2, and T3), and post-quake questionnaires at one month after the September 2010 earthquake (T4), at three months (T5), and at 12 months (T6) after the February 2011 earthquake. Mental health was assessed with the Short Form Health Survey (SF-12) at each time point. Using group-based trajectory modelling, three trajectories of change were found. Most participants (62%) entered the study with high levels of mental health, remained stable over time, with no changes occurring after the earthquakes. Smaller proportions of participants entered the study with below average (28%) or low (10%) levels of mental health, both reporting a drop in mental health after the first earthquake then recovering to baseline at T6. The 'below average' and 'low' mental health groups reported more earthquake-related hassles, and a lower sense of normality post-earthquakes compared to the 'high' mental health group. The 'low' mental health group reported less social support both before and after the earthquakes, and less post-traumatic growth in the personal strengths domain compared to the other two groups. The three groups did not differ in terms of objective earthquake impact (e.g. material loss). Although most people did not experience a decrease in mental health post-earthquakes and showed high levels of resilience, a minority of participants, in particular those with low levels of mental health at study entry, did.

Stepping out of the way of recovery: Metacognitive therapy for earthquake-related trauma

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Keywords: Post-Traumatic Stress Disorder, Metacognitive Therapy, Earthquake Narrative, Trauma, Recovery

Experiencing high levels of stress and a sense of uncontrollability is very common after exposure to trauma, such as the Canterbury earthquakes during 2010 and 2011. Most people in the community adjust and gradually recover without needing specialist psychological input. A minority do not recover and present with post-traumatic stress disorder (PTSD) months or years following the traumatic event. One recently recognised vulnerability factor for PTSD is an individual's (meta) cognitive processing style, which can promote resilience or prolong emotional distress. Metacognitive therapy is an innovative therapy directly targeting unhelpful metacognitive processing plans (beliefs about the meaning of cognitions and how to deal with them), attentional biases and coping strategies associated with the persistence of PTSD symptoms. Employing unhelpful processing plans in an effort to deal with distressing symptoms can inadvertently block normal recovery processes. This paper presents de-identified case material illustrating the application of metacognitive therapy for PTSD. Participants were adults referred for treatment of earthquake-related PTSD. The study received ethical approval. Pre-post data presented will include Depression Anxiety and Stress Scale scores and illustrative excerpts from earthquake narratives. Large pre-post changes were achieved on the Depression Anxiety and Stress Scale scores. On the second trauma narrative interview following treatment, accounts were shorter with reduced detail and emotional distress and evidence of changed perspectives of the earthquake experience, of themselves, and of their new processing plans. These very preliminary results from this novel application of metacognitive therapy suggest that it may be effective for treating PTSD, with particular salience for earthquake-related distress.

Thursday 25 February 2016: Recovery

Theme: Community and Social Recovery

Community and social service organisations in emergencies and disasters in Australia and New Zealand

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Keywords: Community Organisations, Social Services, Welfare

What happens when support services for issues such as mental health, foster care or homelessness are impacted by a disaster? What happens to their staff? What happens to their clients? The community sector is a unique, valuable and diverse component of Australasian economy and society. Through its significant numbers of employees and volunteers, its diversity, the range of service and advocacy programs it delivers, and the wide range of people it supports, it delivers value to communities and strengthens society. The community and social services sector builds resilience daily through services concerning aged care, child welfare and disability, domestic violence, housing and homelessness, and mental health care. The sector's role is particularly vital in assisting disadvantaged people and communities. For many, community sector organisations are their primary connection to the broader community and form the basis of their resilience to everyday adversity, as well as in times of crisis. However, community sector organisations are particularly vulnerable in a major emergency or disaster. Australian research shows that most community sector organisations are highly vulnerable and unprepared for emergencies. This lack of preparedness can have impacts on service delivery, business continuity, and the wellbeing of clients. The consequences of major disruptions to the provision of social services to vulnerable people are serious and could be life-threatening in a disaster. This paper reviews the Victorian Council of Social Service (Australia) and Social Equity and Wellbeing Network (formerly the Christchurch Council of Social Services) records on the impacts of emergencies on community sector organisations, staff, and clients. From the discussion of records, recommendations are suggested that could improve the resilience of this crucial sector.

Understanding the 'community action' that is part of 'community recovery'

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Keywords: Recovery, Resilience, Community, Research

Australia's disaster management policy framework emphasizes the central role of communities in disaster recovery; it argues that successful recovery engages communities and empowers their members as they emerge from the crisis. Australia's practice of disaster recovery involves local, state, and federal governments, and large non-governmental organisations - all advocating 'community-led recovery'. There is little scientific research on community experiences in leading disaster response and recovery. The current study investigated different perceptions and experiences of the recovery process, and identified what actions community members and others take after a natural disaster. The research was conducted during 2013 and 2014 in four different locations across eastern Australia. In each case, the research was conducted at least one year after a significant fire, flood, or cyclone. This systematic study gathers perspectives from two different groups: key individuals appointed to formal leadership roles that oversaw disaster recovery; and community members from the four affected communities. The individuals appointed to disaster recovery leadership roles provided their perceptions of the key domains that influenced recovery. Community members who directly experienced both the disaster and the recovery phase provided their perceptions of the key domains that influence recovery, including their actions and the actions of others that contributed to recovery in their community. Patterns emerged from an analysis of this evidence, and inferences can be drawn about both community action and disaster recovery. Importantly, this research informs understanding of what happens after natural disasters and what supports the process of community recovery. In particular, it provides evidence about community action and how this action contributes to recovery. This has significant implications for how governments, organisations and communities can prepare for and respond to disasters in the future.

The informal response to the 2010/2011 earthquakes: Social connections and neighbourhood

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Keywords: Social Connections, Resilience, Neighbourhood, Leadership

The disaster following the Canterbury/Christchurch 2010/2011 earthquakes left Civil Defence overwhelmed and with a need to focus on the devastation of the central city. This left communities across greater Christchurch to respond informally and to provide unofficial support. Increasingly research is showing that communities with good social connections are able to act collectively when needed and so community plans are gaining prominence as a part of disaster preparedness. The current study determined if access to social infrastructure and amenity helps to strengthen social connectedness and with it community resilience. This paper outlines the findings from interviews with key informants and residents who were directly involved in the February 2011 Christchurch earthquake post-disaster response, but who were not part of civil defence. Qualitative interviews with key informants and residents of four Christchurch suburbs confirmed that well-connected communities were able to respond collectively because people either had resources themselves or were aware of what other resources other residents had available. Communities continued to function in highly stressful times, adapted well, and solved problems collectively until normal life-lines were restored. Informal responses included using city maraes (Māori meeting houses) and local resident welfare centres as meeting places, and existing community structures. Emerging local leadership was a key factor. Residents who said they managed well had good local social connections, used their neighbourhoods, and had access to open public spaces, community services, and local gathering places.

Canterbury Family Violence Collaboration: An innovative response to family violence following the Canterbury earthquakes - successes, challenges, and achievements

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Keywords: Family Violence, Collaboration, Cross Sector, Natural Disasters

Across a range of international jurisdictions there is growing evidence that shows a high prevalence of family violence, child abuse and sexual violence over a number of years following natural disasters (World Health Organisation, 2005). Such empirical findings were also reflected within the Canterbury region following the earthquake events in 2010 and 2011. For example, in the weekend following the September 2010 earthquake, Canterbury police reported a 53% increase in call-outs to family violence incidents. In 2012, Canterbury police investigated over 7,400 incidents involving family violence - approximately 19 incidents each day. Child, Youth and Family data also reflect an increase in family violence, with substantiated cases of abuse increasing markedly from 1,130 cases in 2009 to 1,650 cases in 2011. These numbers remain elevated. Challenging events like the Canterbury earthquakes highlight the importance of, and provide the catalyst for, strengthening connections with various communities of interest to explore new ways of responding to the complex issue of family violence. It was within this context that the Canterbury Family Violence Collaboration (the Collaboration) emerged. Operating since 2012, the Collaboration now comprises 45 agencies from across governmental and non-governmental sectors. The Collaboration's value proposition is that it delivers system-wide responses to family violence that could not be achieved by any one agency. These responses are being delivered within five strategic priority areas: housing; crisis response and intervention; prevention; youth; and staff learning and development. The purpose of this paper is to describe the experiences of the collaborative effort and lessons learnt by the collaborative partners in the first three years after its establishment. It will explore the key successes and challenges of the collaborative effort, and outline the major results achieved - a unique contribution, in unique circumstances, to address family violence experienced by Canterbury people throughout the period of recovery and rebuild.

World Health Organisation (2005). *Violence injury prevention*. Retrieved from http://www.who.int/violence_injury_prevention/publications/violence/violence_disasters.pdf

Friday 26 February 2016: Resilience

Theme: Resilience and Response

Investing in connectedness: Building social capital to save lives and aid recovery

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Keywords: Community Resilience, Preparedness, Community Development, Connectedness, Social Capital

Traditionally, experts have developed plans to prepare communities for disasters. This paper discusses the importance of relationship-building and social capital in building resilient communities that are both 'prepared' to respond to disaster events, and 'enabled' to lead their own recovery. As a member of the Canterbury Earthquake Recovery Authority's Community Resilience Team, the author describes the work that he undertook to catalyse community recovery. The discussion draws from case studies of initiatives that built community connectedness, community capacity, and provided new opportunities for social cohesion and neighbourhood planning. Three case studies are compared to highlight how social capital can aid recovery. Investment in relationships is crucial to aid preparedness and recovery.

Organisational support for staff in long-term recovery: A case study from Canterbury

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Keywords: Wellbeing, Organisational Support, Workplace Intervention, Recovery, Resilience

The present study describes a research-based, organisation-driven workplace intervention to improve employee wellbeing in a financial organisation in post-earthquake Canterbury, New Zealand. The intervention was based on a series of workshops that the authors held with middle managers to examine challenges they were facing. The workshops served as a point of departure for the subsequent initiatives. The workshop results indicated that employees were under a lot of stress, reporting a high degree of emotional labour, stress from dealing with distressed staff and clients, and difficulties detaching from work. There was a sense of lack of resources and staff, and that senior management located outside the region did not understand what was going on post-earthquakes. However, the managers were highly committed to the organisation and their own staff. Following the workshops, an organisation-driven intervention, based on the research, but developed and implemented within the organisation was implemented by the human resources department. In collaboration with different parties including the authors and mental health agencies already involved in wellbeing intervention, the human resources department devised a non-intrusive wellbeing campaign, based on the Five Ways to Wellbeing (see New Economics Foundation, 2016). The intervention program remains ongoing, but preliminary evidence suggests that it has started a culture change, where wellbeing at work is becoming part of business as usual. Qualitative data gathered among middle managers and information from the human resources manager also indicates that the initial issues identified by the managers have been addressed to some extent. There is a greater sense of support from upper management and more participation in decision-making.

New Economics Foundation (2016). *Five ways to wellbeing*. Retrieved from www.fivewaystowellbeing.org

Police as first responders: Disaster roles and coping styles following the Canterbury earthquakes

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Keywords: Police, Coping, First Responders

As a 'first responder' workforce, police play a major and varied role in responding to large-scale natural disasters. While their exposure to traumatic events could be considered 'routine', predictors of police developing later post-traumatic disorder symptoms and occupational burnout are poorly understood. Using a cross-sectional survey design, and in regard to the Canterbury earthquakes of 2010 and 2011, this study explored the types of emergency roles performed by police personnel (n = 687). It further explored the extent to which first responder roles, usual coping styles, and non-work earthquake consequences contributed to post-traumatic stress symptoms and professional burnout 12 to 18 months later. While police undertook multiple disaster roles and experienced high levels of distress about their own personal (non-work) earthquake consequences, multivariate analysis indicated that 'dispatch and communications' staff were the subgroup most at risk (p<0.05). As an under-researched and often overlooked subgroup involved in a disaster response, the paper concludes by discussing possible reasons for this finding.

Friday 26 February 2016: Resilience

Theme: Community and Social Response

Recovery planning together: Using a determinants of health approach

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Keywords: Disaster, Determinants of Health, Planning

Managing a disaster requires dealing with immediate threats to life and wellbeing while also attending to laying down the foundations for longer-term recovery. Decisions made in early days and weeks post disaster, when individuals involved are often tired and stressed, can have significant ramifications many years later. The Integrated Recovery Planning Guide was developed as a tool to assist planners and policy makers in all areas of society to ask the right questions to enable better decision-making. In a unique way, the guide melds a determinants of health framework with a relevant civil defence framework. The intention of the guide was to ensure that post-disaster work builds on existing agreed principles of integrated planning that prioritise health and wellbeing outcomes for populations. The guide was developed after the September 2010 earthquake with the input of several partner agencies including Christchurch City Council, Environment Canterbury, The Greater Canterbury Urban Development Strategy, and Community Public Health. Version two of the guide was produced after the February 2011 earthquake. It addresses issues raised in the evaluation of version one. It has been widely praised by agencies such as the New Zealand Human Rights Commission and Civil Defence authorities. It has been used in a variety of planning processes: suburban master planning projects, impact assessment, and district plans. The guide can be used as a capacity building tool and practically, as a project planning tool. Benefits have included: enabling thinking together across professional disciplines, making the costs and benefits of necessary trade-offs explicit so communities better understand why a particular decision has been made, providing a prompt for creative solutions, ensuring issues round equity and Treaty of Waitangi partnerships are explicitly addressed, making the links between planning processes and potential health and wellbeing outcomes very clear, and generating confidence that community health and wellbeing in its broadest sense are addressed.

The impact of the Canterbury earthquakes on couples' relationship quality: A dyadic and longitudinal study

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Keywords: Disaster, Adjustment, Couples, Longitudinal Research

In 2010 and 2011 Christchurch, New Zealand was struck by two severe earthquakes. Traumatic events such as these can have a profound psychological impact on individuals, however, much less is known about how they impact significant relationships. Data were collected from a sample of 99 couples at four time-points over a period of approximately 15 months, with Time 1 completed 14 months after the Darfield 2010 earthquake. Data were analysed using moderated growth curve modelling in an Actor-Partner Interdependence Model framework. Results showed that although loss of material resources and trauma exposure had no significant impact on individual's relationship quality at Time 1, post-traumatic stress symptoms (PTSS) and ongoing earthquake-related stressors (e.g. aftershocks, and living in a damaged property) did. More specifically, individuals experiencing higher PTSS reported significantly lower relationship quality at Time 1. In addition, the results revealed interesting and novel partner effects, whereby higher partner-reported earthquake stress (ongoing earthquake-related stressors and PTSS) was related to lower relationship quality in individuals at Time 1. This is the first post-disaster study to demonstrate that a romantic partner's trauma experience has a notable impact on an individual's own perceived relationship quality. Interestingly, the effect of PTSS abates over time. Therefore, although partner-reported PTSS negatively impacts relationship quality, the effect is not persistent. The results demonstrated the importance of examining both partners in a romantic couple (i.e. taking a dyadic perspective) when examining how traumatic events impact couples' relationship quality and to examine effects across time.

Relocation post-bushfire: 'I still talk about it as home'

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Keywords: Displacement, Relocation, Wellbeing, Sense of Community

Only a relatively small body of research, mostly focused on health outcomes, has addressed the impacts of post-disaster displacement and relocation (Uscher-Pines, 2009). Much less attention has been paid to ascertaining personal wellbeing. In this paper, data is analysed from the wider 'Beyond Bushfires' study to assess the impact of moving out of a disaster-affected community on personal wellbeing. A survey was conducted with 1010 participants (897 remaining, 113 left the community) from bushfire-affected communities in Victoria, Australia. Interviews were also conducted with 35 participants including eight who had relocated. A structural equation model (SEM) approach was used with the survey data to examine associations among disaster impact, life stressors, psychological sense of community, and the role that leaving the community may have in moderating these relationships. Inductive, thematic analysis was used for the interview data to explore perceptions and experiences of relocation and connection to community. Individuals who left the community reported greater disaster exposure and a lessened sense of belonging to their new community, both of which were associated with lower personal wellbeing. This effect was counterbalanced, however, by a moderation effect in which leaving the community lessened the impact of financial and relationship life stressors on personal wellbeing. Consistencies and elaborations from the interview data are discussed, including ongoing attachment to the disaster-affected community, sometimes still referred to as 'home'. These findings will assist community members to make informed decisions about whether to relocate and will contribute to targeted service provision.

Uscher-Pines, L. (2009). Health effects of relocation following disaster: a systematic review of the literature. *Disasters*, 33, 1-22.

Participatory community recovery: An index-based approach in Kesennuma city, Japan

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Keywords: Community Recovery, Community Resilience, Participatory Community Recovery Index, Community-Based Approach

The Great East Japan Earthquake and Tsunami occurred in Japan in March 2011. More than 40 municipalities were affected by this devastating disaster. Although four years have passed, recovery has not yet been achieved and more than 198,000 people are still living in temporary houses or other evacuated places. 'Build Back Better' was paid attention at the United Nations World Conference on Disaster Risk Reduction at Sendai, in 2015. The fourth priority in the Sendai Framework for action addresses recovery issues. However, there has been little research on recovery, especially implementation. One of the challenges in recovery is identifying local contexts and conditions and taking these into account in recovery plans. This research introduces the Participatory Community Recovery Index as an indicator-based approach that identifies needs of communities and helps them recover. Community participation and collective learning are key components of recovery decision-making. The Participatory Community Recovery Index measures inherent resilience in the community by identifying the capacity of communities, towns, and cities to participate in disaster recovery. Therefore, the index helps provide tailor-made solutions that fit a community's socio-economic, geographic and demographic background. The index was utilised in Kesennuma City in Japan, after the devastating tsunami that followed the Great East Japan Earthquake. This paper covers the three regions of Kesennuma City. Each region undertook different recovery actions and solutions based on the local contexts. Recommendations for each region were: openness for external support, private sector involvement, and sharing good practice.

Friday 26 February 2016: Resilience

Theme: Community Response

The relevance of temporary uses of vacant urban spaces for community resilience after a disaster: Transitional community-initiated open spaces in Christchurch, New Zealand

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Keywords: Temporary Urbanism, Post-Disaster, Community Resilience, Transitional Community-Initiated Open Spaces, CIOS

Following the devastating 2010 and 2011 earthquakes in Christchurch, New Zealand, various vacant urban sites have temporarily been used for community gardening, urban agriculture, art installations, event venues, eateries and cafes, leisure activities, and pocket parks. Research on these initiatives evaluated the tangible and intangible benefits of temporary urbanism with a focus on what they deliver rather than what they symbolise. This paper discusses bottom-up transitional community-initiated open spaces in Christchurch's central city in relationship to concepts of community resilience. Drawing on an analysis of exemplary temporary spaces, related literature, key informant interviews, and site observations, the paper examines possible benefits, challenges, and long-term values of post-disaster temporary urbanism. It reinforces a discussion on the relevance of participative forms of urban design for community resilience in contrast to top-down programmes after a natural disaster.

Lyttelton Time Bank as a builder and mobiliser of resources during the Canterbury earthquakes

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Keywords: Time Bank, Hub Organisation, Community Resilience

This research examines a surprising partner in emergency management - a local community time bank. Specifically, we explain the role of the Lyttelton Time Bank before, during, and after the Christchurch earthquakes. This is based on the analysis of over three and a half years of fieldwork, observations, interviews, focus groups, trading activity, and secondary data. Before the earthquakes struck, the Time Bank created a local marketplace of its members' skills and facilitated trading among members. The explicit purpose of the trading was to solve individual problems. New skills were developed in many of these exchanges, such as learning to prune a tree or build a retaining wall. A stronger social network was built through exchanges across 30,000 trades prior to the crisis. Moreover, the Time Bank facilitated these trades through a robust communication system that was regularly used and trusted by its members. Members enjoyed trading and many accumulated surplus hours, which were donated into a community chest. These hours were invested back into the community on larger scale projects, such as building local capacity by investing in the local information centre and schools. Indirectly, members were learning to operate in self-organised teams that could quickly work together to solve community problems. During the earthquakes, the Lyttelton Time Bank had the best local communication system through which vital information flowed to members and local residents. Using a range of communication modes, timely information was provided to residents on practical and safety precautions. As a partner working with emergency workers and first responders, the Lyttelton Time Bank had better knowledge of the community. It acted as a hub organisation activating its extensive social network through which valuable resources could flow. Problems were solved in the immediate aftermath of the earthquakes, such as dismantling chimneys to be safely removed, thereby freeing emergency workers to assist on projects that needed greater skill. Some Time Bank members visited elderly residents providing emotional labour, which freed medical personnel to deal with more acute medical problems. Community resiliency involves the process through which a community positively adapts following a crisis. Research suggests that community resiliency improves when communities can quickly mobilise a range of resources. This is a real strength of the Time Bank model where resources are identified, developed, and activated using a great many trades.

Public health and resilience: The Canterbury earthquakes

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Keywords: Public Health, Recovery, Emergencies, Disasters

Five key components of resilience with respect to public health are: communication, risk awareness, learning, adaptability, and social capital. Key lessons learnt from pandemic preparation and the H1N1(09) pandemic which followed served the Canterbury community well in the subsequent earthquakes and demonstrated how the Public Health Unit of the Canterbury District Health Board can contribute to improvements in community resilience. Key aspects of communication included engaging senior media management in emergency planning, innovative delivery of health/emergency messages (such as the pandemic roadshow and community briefings during the earthquakes) and using clearly identified, credible spokespeople. Communicating the risk led to greater risk awareness in the Canterbury community. This was monitored by the Civil Defence and Emergency Management's biennial nationwide survey. The community and the agencies which serve it learnt from previous experiences. They applied this knowledge to the February earthquake, particularly with respect to water and sanitary health, and organisation and delivery of the emergency response. The community demonstrated its adaptability in a number of areas. Most notable were the 'Student Army' and the 'Farmy Army'. Finally, social capital was a key component of the success of the community response to the Christchurch earthquakes, but was already emphasised in pandemic planning and present in many forms before the disaster (e.g. The Lyttelton Time Bank). Mutual support was provided by neighbours across the city following the February earthquake and contributed to a strong start to Canterbury's recovery. Measuring, developing, and tapping into social capital is a key challenge for building resilience in the future.

The importance of the natural environment on health and wellbeing in a disaster

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Keywords: Natural Environment, Ecosystem Services, Wellbeing, Quality Of Life, Resilience, Recovery, Community, Disaster Risk Reduction

The Canterbury earthquakes exposed the vulnerability of social-ecological systems of greater Christchurch. The circumstances brought about by the earthquakes have made communities aware of their reliance on natural systems for their health and wellbeing. Functioning ecosystems are a fundamental foundation block for sustainable cities. They influence and affect human wellbeing. Correspondingly, humans affect ecosystems through development, resource consumption, and natural cycle disruption. There is a wealth of literature that describes interrelationships between society and ecosystems, including the concepts of social-ecological systems, resilience theory, and urban ecology. The Millennium Ecosystem Assessment correlated ecosystem services with the determinants of health, and provided a framework to understand and manage the benefits that nature provides to society. The interactions of humans with their environment are often taken for granted or not well understood. The Canterbury earthquakes have, however, raised awareness of community reliance on natural systems for wellbeing. There is now greater understanding of: the implications of the environmental characteristics of where people live, people's reliance on the natural environment to provide ecosystem services, human ability to reduce the risks from future disasters through thoughtful rebuild processes, the importance of the natural environment for quality of life, and the opportunities that recovery provides for enhancements. This paper explores the above learning using examples from the recovery of greater Christchurch and from the Natural Environment Recovery Programme, which include: geography, urban composition, and socio-economic factors. These are indicators of 1) vulnerability, 2) changes to ecosystem services and how communities safeguard environmental elements important to them (such as local food production and storm-water management), 3) potential for disaster risk reduction and improved resilience, (including climate change adaptation), 4) the effects of natural environmental changes on quality of life, and 5) projects that capture opportunities (such as integrating recreational networks and naturalised systems to complement engineered infrastructure).

Friday 26 February 2016: Resilience

Theme: Health Promotion and Wellbeing

All Right?: Promoting a population-wide conversation about wellbeing post-disaster

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Keywords: Wellbeing, Resilience, Secondary Stressors, Population Health

The 'All Right?' campaign is believed to be an international first in its attempt to address population wellbeing post-disaster. All Right? supports Canterbury people to practice prioritising their own and others' wellbeing as they recover from the earthquakes of 2010 and 2011. Led by the local Mental Health Foundation and the Canterbury District Health Board, the campaign uses international and local research to identify the varied experiences and wellbeing states of people in Canterbury and to resource people with simple tips and reminders to care for their wellbeing. In June 2015, 69% of greater Christchurch residents were aware of the campaign, and 41% of these people claimed it had influenced how they had thought or what they had chosen to do. The campaign's social marketing approach uses billboards, social media, mobile software applications, and other resources to promote a population-wide conversation about what helps people feel and function better. The campaign is underpinned by five ways to better wellbeing (New Economics Foundation, 2016), which were drawn from a meta review of evidence on what promotes wellbeing where people are able to give, be active, take notice, learn, and connect. Local research has identified the various ways that secondary stressors are affecting different parts of the population, with specific focus on Māori, Pacific, and culturally and linguistically diverse communities. The campaign's findings emphasise the wellbeing divide between people whose insurance claims have been settled and those who are still dealing with damaged houses and bureaucratic decisions. There are also indications that recovery policies are widening a pre-existing equity gap within the region. Higher housing rental costs and the overall toll of the earthquakes on housing stocks have had a disproportionate effect on poorer communities. This paper reviews the success of the campaign in promoting wellbeing promotion across diverse communities.

New Economics Foundation (2016). *Five ways to wellbeing*. Retrieved from www.fivewaystowellbeing.org

Thriving on challenge: Sustaining resilient performance following natural disaster

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Keywords: Leadership, Resilience, Learning, Shared Leadership

On 22 February 2011, a 6.3 magnitude earthquake occurred near the city of Christchurch, New Zealand. The paper introduces the idea of resilient engineering and to discuss how its components: responding, monitoring, learning and anticipating helped sustain a medical nursing team at Christchurch Hospital for three years post-earthquake. In particular, this paper focuses on the ability to learn as one of the main contributing factors to the resilience continuum, and explores the link between shared leadership and the team's overall resilience. The team's developing learning ability following the earthquake was centred on the concepts of double- and triple-loop learning. Integrating reframing and transforming into the overall model of resilient performance proved to be very effective and well worth the investment of time and effort. Leadership has been long identified as one of the key points for increased levels of adaptive capacity and team resilience. Over recent years, interest has grown in alternative models of leadership where leadership is not limited to the formally appointed leader. Shared leadership was one of the key contributors to sustained resilient performance of the team. Shared leadership in this particular case was not just a practical tool for crisis response, but a genuine process of collaborating, learning, and working together based on trust and open communication. This nursing team like many other teams in the Canterbury District Health Board demonstrated a remarkable ability to go beyond their original level of functioning and to grow and thrive despite repeated and prolonged exposure to stressful experiences.

Crafting resilience: A study of the connections between craft and wellbeing in post-earthquake Christchurch

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Keywords: Resilience, Crafting, Mental Health, Recovery, Communities

One of the aims of this research was to investigate the role of craft and creative pursuits in assisting Canterbury people affected by the recent earthquakes. Another aim was to explore the relationship between crafting and positive mental health and resilience. This paper identifies the therapeutic elements of crafting on people's biopsychosocial health post-disaster. Data was collected via nine individual and five focus group audio recorded semi-structured interviews with crafters. Thematic analysis was used to analyse the data and five themes were identified. One theme highlighted the importance of crafting on individuals' mental health and their resilience in relation to adverse events. The results emphasised the significance of crafting in the lives of the participants post-earthquake. The role of craft highlighted the positive gains in improving mental health of individuals post disaster when engaging in crafting either individually or with others. The positive effects of crafting on people's health and on strengthening their resilience and recovery was highlighted. The participants wanted health professionals to be aware of the benefits of crafting and of the need to provide individuals with helpful information and support regarding crafting groups and programmes available within their communities.

Te Waioratanga: Supporting Māori wellbeing

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Keywords: Wellbeing, Te Waioratanga, 'All Right', Mental Health, Support

'Te Waioratanga' is a health promotion project created in direct response to research carried out in 2013 by the 'All Right?' campaign of Community and Public Health (Canterbury District Health Board). The project's aim was to assess how effective All Right? had been in its aim to support mental health and wellbeing in Canterbury after the 2010 and 2011 earthquakes. Results clearly showed that the campaign had not been as effective for Māori as for the mainstream population. 'Te Waioratanga' was launched in the lead up to Te Matatini 2015 (the national Kapa Haka, Māori performing arts, festival) as a way for the All Right? campaign to ensure that it addressed the actual mental health and wellbeing needs of the Christchurch Māori Community. Its unique strengths-based formula, and positive messaging engaged Māori and non-Māori alike. Featuring prominent Māori Kapa Haka exponents who were recognised nationally made engagement much more relevant. It was featured on buses, billboards, and posters. 'Te Waioratanga' symbolises the soundness of mind and body that comes from doing simple things to support one's wellbeing. Māori cultural practices, traditional and contemporary, give sustenance and strength to their minds, bodies, and souls. 'Te Waioratanga' allows Māori to take pride in these beautiful aspects of Māoritanga, while sharing them with the world. As well as encouraging conversation within their whānau (family), hapū (extended family), and iwi (wider community), 'Te Waioratanga' is about celebrating the everyday things people can do to look after themselves and feel good. This project is an example of a highly effective relationship between the Canterbury District Health Board, Ngāi Tahu, The Mental Health Foundation, and the Christchurch City Council. The paper looks at the research process, creation, and activation of 'Te Waioratanga' and highlights the unique contribution that Māori culture has to offer in a wellbeing context post-disaster. To sum up, 'Te Waioratanga' is a unique strengths-based health promotion/social marketing campaign initially developed to support Māori health and wellbeing after the 2010 and 2011 Canterbury earthquakes. This project highlights the unique contribution that Māori culture has to offer in a wellbeing context.

Friday 26 February 2016: Resilience

Theme: Leadership and Organisation

Indigenous leadership

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Keywords: Indigenous, Māori, Iwi, leadership

Leadership ensured government recognition of their statutory partner status of iwi through the Treaty of Waitangi. This has enabled Ngāi Tahu to influence outcomes that best meet the needs of Māori people. A targeted response to the needs of Māori communities has led to enhanced outcomes. As an example, the Rū Whenua Kaitoko Whānau programme was established to meet the needs of vulnerable Māori families ensuring these needs were met in a responsive and culturally appropriate manner. Over the past four years, this programme has employed 35 workers who have provided targeted support for 1251 families including: navigating earthquake services, social and health issues, housing, education, and access to employment-related training. Economic opportunities have been created through the development of training programmes to grow and develop a workforce to respond to employment demands. He Toki ki te Rika is a pre-trade training scheme established post-quakes to upskill and support Māori into the workforce. To date over 800 students have enrolled in the course, which has become widely recognized throughout New Zealand. Based on the success of He Toki ki te Rika, He Toki ki te Mahi was established to focus on leadership pathways and apprenticeships as a means of sustainable employment. Cultural wellbeing was advanced by recognising the community as bi-cultural in both the physical landscape and built environment. The opportunity for the indigenous culture to influence the design of the city has been ground-breaking and affords an exciting opportunity to ensure a lasting footprint on the built environment through input into guiding key design documents and frameworks. Environmental wellbeing has been developed by restoring an abundant natural environment that recognises the traditional cultural values of the indigenous people. An exemplar is the revitalisation of the Ōtākaro /Avon River that runs through the heart of the city and traditionally an important food source for local Māori. Ngāi Tahu continues to provide significant investment in the community, creating infrastructure and facilities for the government and working in partnership with both private and community sectors to rebuild the city for future generations. This is a long-term view to recovery and one based firmly on a vision for growing a stronger, healthier, and more resilient community – Mō tātou, ā, mō kā uri ā muri ake nei - for us and our children after us.

Resilience, organisations, and workers: A new perspective on people in disasters

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Keywords: Resilience, Employee Wellbeing, Alliances, Disaster Recovery

The concept of resilience is of growing importance for organisations and individuals. It is a vital element in coping with sudden-onset disasters, and other situations involving volatility and uncertainty (Norris et al., 2008; Paton & Johnston, 2006). This research explores the factors that influence organisational resilience after the extended Canterbury seismic events. In contrast to the traditional emphasis on risk mitigation and business continuity planning, the study investigates a potentially more influential area - the factors that promote adaptive resilience. These include the dynamic processes involved in responding to unforeseen and emergent situations (Cutter et al., 2008). This is a major three-year study that involved more than 160 in-depth interviews plus focus groups and surveys of workers from infrastructure organisations. The data were analysed using grounded procedures, with open and focused coding, constant comparison, and theoretical memos. Four central themes emerged as critical, interrelated elements that determine organisational resilience. These included: the nature of leadership, the attention given to employee wellbeing and engagement, the extent of collaboration through internal and external networks, and the extent of collective organisational learning. The findings provide new insight highlighting the criticality of human factors. However, they challenge approaches that view organisational resilience simply in terms of members' personal resilience. Instead, personal resilience is itself a contextual phenomenon; both individual and organisational resilience are shaped by multiple, highly influential organisational

factors. The findings have significant implications regarding leadership roles and worker involvement post-disaster. Resilience requires leadership at middle and senior levels that differs from traditional stereotypes and is characterised by features such as empathy and openness to learning. A leader's role involves establishing the capabilities and culture that support the critical areas of collaboration, organisational learning, and staff wellbeing and engagement.

Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & Webb, J. (2008). A place-based model for understanding community resilience to natural disasters. *Global Environmental Change*, 18, 598-606.

Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41, 127-150.

Paton, D., & Johnston, D. (2006). *Disaster resilience: An integrated approach*. Springfield, IL: Charles C. Thomas.

Thriving incubators of leadership in communities

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Keywords: Leadership, Community, Recovery, Wellbeing, Resilience

It has been widely recognised that a combination of centralised specialist support, grass-roots community engagement, and self-organised interaction have had a vital role to play in the recovery of the people in greater Christchurch since the 2010 and 2011 earthquakes and aftershocks. However, the prolific community-level leadership that emerged post-quake has been described as vulnerable in the ongoing recovery period because of its reliance on the energy and goodwill that supported earlier efforts. This paper describes the Leadership in Communities project (LinC; see LinC, 2016) that has been designed and implemented through a strategic partnership of local, trusted and competent community leaders, non-governmental organisations, consultants, philanthropic funders, and local and central governmental agencies. The project is focused on acknowledging the essential role of community leadership with a view to supporting and growing the resiliency and skills of emerging leaders in residential communities and other communities of interest. This project was launched in late 2014 and has now completed supporting the first cohort of 40 leaders including community volunteers, staff of small non-governmental organisations, and governmental agencies (including Canterbury City Council, Canterbury Earthquake Recovery Authority, and Ministry of Social Development) who work alongside communities. A second cohort of leaders from 45 other communities has also been selected and this part of the project commenced in December 2015. The Leadership in Communities project is designed as a leadership incubator where participants connect with like-minded peers, share practices, explore frameworks and grow collaborative projects. This paper explores the design principles that underpin this project and the collaboration that is central to its effectiveness. It also shares stories of progress and learning that have emerged to date. (LinC, 2016).

LinC (2016). *Leadership in Communities Project*. Retrieved from www.lincproject.org.nz

Breaking free: Employee turnover in a post-disaster context

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Keywords: Employee Turnover, Critical Reflection, Decision Making, Tipping Point

This paper focuses on the response of individual employees to a disaster event. Voluntary turnover has been the subject of scholarly inquiry for several decades. Much is understood about the antecedents of turnover decisions and the decision-making processes involved. However, scant research attention has been paid to turnover decision-making in a post-disaster context. The impact of a significant and commonly experienced, extra-organisational shock, such as natural disaster, has yet to be considered. Additionally, the dynamic and cumulative impacts of multiple shocks on turnover decision-making have not been examined by researchers. The aim of this paper is to offer a nuanced and leaver-centric perspective on employee turnover decision-making in the context of a major disaster. Drawing on first-person accounts of 32 leavers from four organizations affected by the Canterbury earthquake sequence, grounded theory methods were used to generate a multi-path model of voluntary turnover. The model suggests that, contrary to existing turnover literature, dissatisfaction with the job is not the primary driver of turnover decisions in a post-disaster context. Rather, the findings suggest that 'shocks' hold differential impacts on turnover decision making and that emergent concepts of latent disquiet, critical reflection, hiatus, and watershed are significant causal mechanisms through which shocks are translated into leaving. Based on these emergent concepts this study identified four types of leavers: new beginnings, reluctant departures, tragic endings, and deliberate departures. This paper outlines the turnover process for each of these four types of leavers, and seeks to offer advice to managers on what actions they might take to mitigate employee turnover following a disaster or crisis event.

Friday 26 February 2016: Resilience

Theme: Elderly

Facing being on shaky ground: Exploring the concept of courage

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Keywords: Courage, Adversity, Coping, Strategies, Support, Older Adults

This qualitative study (currently underway through the University of Auckland doctoral programme) utilises a constructivist grounded theory approach to explore the concept of courage. It explores the knowledge and ideas of adults over the age of 70 years who experienced the two major Christchurch earthquakes in 2010 and 2011, and who continue to live in the Christchurch region. This cohort was chosen because it is under-researched in post-disaster environments, and a group that potentially offers rich data due to length of life and higher likelihood of engaging in reflective and reminiscent behaviour. The common adverse experiences explored are the two earthquakes, with wider exploration of the concept of courage. Through a process of analysing data collected from focus group and key informant interviews and literature review, the study should provide more in-depth description, understanding, and theory on the concept of courage. Greater understanding of this relatively unexplored concept will yield results that could benefit people facing mental or physical threats, other challenges, or adversity associated with everyday life. The research outcomes may also assist professionals working with people who are experiencing these types of difficulties and may in turn support better mental health outcomes. This paper provides preliminary findings and emerging themes from the focus group interviews where participants were invited to discuss the concept of courage within the context of the Christchurch earthquakes and other adverse situations. Key themes from existing literature on the concept of courage will also be shared in the paper.

Ripples of recovery and resilience through older people's social ties across New Zealand

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Keywords: Older People, Reported Earthquake Effects, National Longitudinal Study

This paper presents data from the longitudinal Health, Work and Retirement (HWR) study of older New Zealanders who were surveyed in 2010 (before the Canterbury earthquake events) and then in 2012 and 2014. An important finding was that a variety of direct and indirect effects of the earthquakes were reported by older people across all of New Zealand and these effects persisted over three years. A quarter of the study's national participants (including 80% of the Christchurch participants) were affected by the Canterbury earthquakes. These effects reduced with both physical and temporal distance from the Christchurch events. Effects from loss of life or injury (to family, friends, or others), and providing social support during earthquake responses were reported, but decreased over time. Emotional and economic impacts were more likely to be reported in the longer term. After taking into account general changes in the health and wellbeing of older people over time, there was no effect of exposure to earthquake effects on health. However, there was a short-term benefit in terms of emotional loneliness for those affected by the earthquake. People who had experienced the earthquake were more likely to report reduced loneliness immediately after the event. This study is a reminder that through family and social connectedness, older people in New Zealand can be part of post-disaster recovery and resilience in ways that are not simply related to immediate exposure.

Balancing psychache and resilience in ageing Holocaust survivors

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Keywords: Holocaust, Psychache, Resilience

Psychache can and does co-exist alongside resilience and coping amongst trauma survivors. This has been the centre of the a-integrative theory of ageing demonstrating an attitude to life based on cognitive and emotional dimensions. Ageing of Holocaust survivors is especially difficult when focus is brought to the issue of integrating their life history. The present study aimed to investigate the interplay between psychache and resilience amongst ageing Holocaust survivors. A cross-sectional study of Holocaust survivors and a matched comparison group recruited from the general population was carried out. All underwent a personal interview and endorsed quantifiable psychache and resilience scales. Two-hundred fourteen elderly people were enrolled: 107 Holocaust survivors and 107 comparison participants. The mean age of the participants was 80.7 years; there were 101 women and 113 men in each group. Holocaust survivors did not differ in the level of resilience from the comparison group (mean: 5.82 ± 0.68 vs 5.88 ± 0.55 , respectively). Psychache was significantly more intense in the Holocaust survivors group ($F(8,205) = 2.21$; $p < 0.05$). The present study demonstrates the complex interplay between psychache and resilience. Ageing Holocaust survivors still have to cope with high levels of psychache while realizing a life-long process of development through resilience.

The impact of the Canterbury earthquakes on the health and wellbeing of older people - aged 75 years

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Keywords: Older People, Health Status, Health Related Quality Of Life, Post-Earthquake

This paper outlines the findings from the 'Shaken Up' study, which provided a unique opportunity to understand population-level health of older people in the 12-month period after the Canterbury earthquakes. This enabled vulnerable groups to be identified. A nested case control study design was used where 1095 older adults already enrolled in the 'BRIGHT Trial' were re-interviewed to determine their health status in the 12 months post-earthquakes. The main outcomes measured included health-related quality of life, activities of daily living, depression, standard of living, family and social support, and life satisfaction before, between, and post-earthquakes. The relationship with the trajectories of health status (improved, maintained, or declined) over the same and subsequent period was explored. Pre-existing health status (prior to the September 2010 earthquake) and factors related to earthquake exposure were revealed to be predictors of poor outcomes for older people following the earthquakes. These findings have both national and international relevance because detailed health data before, during, and after a disaster is seldom available.

Friday 26 February 2016: Resilience

Theme: Mental Health

Thriving after trauma: Post-traumatic growth following the Canterbury earthquake sequence

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Keywords: Post-Traumatic Growth, Resilience, Qualitative Research

Research on responses to trauma has historically focused on negative repercussions of struggles with adversity. More recently, researchers have examined post-traumatic growth: the positive psychological change that emerges from the struggle with a potentially traumatic event. Post-traumatic growth has been measured typically in individuals with varying levels of post-traumatic stress disorder symptoms and other psychological difficulties such as depression and anxiety. None have examined post-traumatic growth in a distinctly resilient sample. The Canterbury earthquake sequence of 2010 and 2011 involved potentially traumatic events that saw individuals struggle with a variety of challenges. However, in the midst of earthquake destruction, some positive initiatives emerged, driven by locals. Examples include the Gap Filler project (using city spaces left empty from fallen buildings for art and interactive community projects) and the Volunteer Army (groups of volunteers coordinated to help others in need). In this context, it seemed likely that post-traumatic growth was occurring, and might be seen in individuals who were coping reasonably well with challenges. The current study measures and describes post-traumatic growth in a distinctly resilient population after the earthquake sequence of 2010 and 2011 in Canterbury, New Zealand. Correlates of post-traumatic growth were examined and likely supporting factors of post-traumatic growth identified for this population. Participants included 101 residents of Christchurch aged 18 to 70 years, who were identified as coping well in spite of moderate to severe exposure to earthquake events. The first part of the study used quantitative analyses to measure post-traumatic growth and explore its association with resilience, peritraumatic distress, objective and subjective stressfulness of earthquake-related events, stressful life events, social adjustment, gender, age, and education. Greater post-traumatic growth was related to greater peritraumatic distress, greater perceived stressfulness of earthquake events, greater objective stressfulness of earthquake events, greater difficulty with stressful life events, less satisfaction with social support, and female gender. In the second part of the study, the perception of post-traumatic growth in the same resilient population was explored using qualitative analysis. Themes relating to post-traumatic growth were identified including: 'self as stronger', 'appreciate the present', 'better relationships', 'spiritual change', and 'greater sense of community'. Positive appraisal and acting to meet one's needs encouraged post-traumatic growth in the form of appreciation of life and connection with others. Women and men described post-traumatic growth similarly. Implications include: the importance of providing opportunities for individuals to take on a role after a crisis, allowing them to respond to difficulties and to meet personal needs for relatedness, competence, and autonomy. Finding positive aspects in a difficult situation and acknowledging adversity can be supported in future to help individuals process their traumas. Canterbury society can help individuals cope with adversity by providing ways that people can meet their needs for relatedness, competence, and autonomy. Community groups could provide opportunities for members to act in ways that meet such needs - therefore helping people to effectively act to meet their needs in times of crisis.

Exposure to physical earthquake impacts and its implications on mood and anxiety disorder treatments

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Keywords: Natural Disaster, Mental Health, Spatial-Temporal Modelling, Exposure Assessment

The 2010 and 2011 Canterbury earthquake sequence had severe impacts on the social, built, economic, and natural environment of Christchurch, and still challenges the resilience of affected populations over 4 years after the catastrophic Christchurch earthquake of 2011. Earthquake-related traumatic experiences, living in disrupted communities, and fear and uncertainty about the future as a consequence of thousands of aftershocks caused a lot of distress. This contributed to the development of adverse stress-related mental health outcomes. However, the degree of exposure to physical earthquake impacts and their secondary stressors can vary greatly across small areas. This study tested the hypothesis that Christchurch residents who experienced a high degree of exposure to the earthquakes and their impacts were more likely to receive treatment or care for moderate or severe mood or anxiety symptoms than those who were less exposed. Mood and anxiety disorder treatments recorded in New Zealand Ministry of Health's administrative databases were used to assess their spatio-temporal variation across the city, as well as their relationship to various earthquake impacts. The role of mobility was also examined since a population shift occurred from the severely affected eastern to less affected western parts of the city. Results of the study indicated an earthquake exposure effect on mood/anxiety disorder treatments. People who lived in closer proximity to physical earthquake impacts like liquefaction or lateral spreading, and those moving within the city in the short-term after the Christchurch earthquake were more likely to receive treatment for a mood or anxiety disorder. However, little changes in the spatial patterning of mood and anxiety treatments could be observed and the initial negative effect of within-city relocation vanished over time. These findings provide a unique insight into moderate or severe mood or anxiety symptoms among care seekers and should help target intervention programs in the future.

The psychology of earthquake stress cardiomyopathy, non-cardiac chest pain, and myocardial infarction

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Keywords: Earthquakes, Cardiac Conditions, Psychological Symptoms

Stress cardiomyopathy is the classic psychologically precipitated physical illness. Non-cardiac chest pain and myocardial infarction can also be triggered by emotional stress. The September 2010 Darfield earthquake provided a unique opportunity to compare the psychological factors underlying these conditions. Seventeen women prospectively identified by cardiology staff as meeting criteria for one of these diagnoses underwent assessment for pre-morbid psychological factors, experience of the earthquake, and psychological response to the earthquake. Assessment was via a semi-structured clinical interview and validated psychometric measures. It was found that, contrary to the hypothesis, stress cardiomyopathy following an earthquake does not appear to be specific to psychologically vulnerable women. Women presenting with non-cardiac chest pain had higher health anxiety, generalized anxiety, and scores on 'neuroticism' scales than women diagnosed with either myocardial infarction or stress cardiomyopathy.

Friday 26 February 2016: Resilience

Theme: Local Government

Deconstructing resilience: The politics of disasters and the human services

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Keywords: Resilience, Sociology, Politics, Neoliberalism

This paper outlines the results of grounded theory research carried out with 43 human service practitioners in the aftermath of the 2010 and 2011 Canterbury earthquakes. The results of the research were published in Human Service Organizations in the Disaster Context (Van Heugten, 2014). This discussion builds on findings of this Canterbury-based research that relate to the politics of disasters. Although the researcher had initially set out to consider wellbeing-related impacts of disasters on human service managers and frontline workers at a more individual or intra-organisational level, it soon emerged that participants from public and third sector human service organisations were concerned about decisions made at policy and political levels. The participants identified policies and political approaches that were negatively impacting vulnerable service user populations. In their narratives, they noted how poverty and inequality became further entrenched in the disaster aftermath. The participants were also concerned about how decisions about the organisation of welfare and human services affected the capacity of human service organisations to advocate for disadvantaged service users. They suggested that human service organisations were being restructured in ways that could negatively impact service delivery in the long term and spread outside the disaster-affected region. In the analysis of the research findings, events identified in Canterbury were seen to follow neoliberal trends that have also been identified by international social scientists in the wake of other disasters. As part of this trend, the concept of resilience can become (mis)used to entrench discourses about individual self-sufficiency and economic liberalisation. Following the Canterbury earthquakes, human service practitioners endeavoured to challenge such discourses, including using existing human rights and Treaty of Waitangi legislation to advocate for service users.

Van Heugten, K. (2014). *Human service organizations in the disaster context*. New York: Palgrave Macmillan.

What can Christchurch learn from the community-driven reconstruction projects in Tōhoku (Japan), after the 2011 Tsunami?

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Keywords: Community-Driven, Reconstruction, Recovery, Urban Planning

The Christchurch earthquakes of 2010 and 2011 resulted in severe physical damage and human loss, and saw an unfolding process of social and economic disruption across several areas of the city. The impacts were unprecedented in the history of New Zealand and they are thought to be some of the most severe urban disasters of modern times (Chang et al., 2014). Given the magnitude and nature of Christchurch's disaster, it would be beneficial to examine the experience of similar cases in order to reinforce awareness and understanding of which factors may jeopardize or boost post-disaster community resilience. The 2011 Tōhoku Earthquake and Tsunami severely affected twenty prefectures in North-Eastern Japan. Lessons on community recovery and reconstruction from Japan could help other countries, cities, and communities, to aid post-disaster recovery. The main purpose of this paper is to examine relationships between natural disasters and community resilience, which is a fundamental basis for sustainable recovery and reconstruction. This paper presents a number of community-driven reconstruction projects in Tōhoku, and identifies key principles and experiences learned that could assist Christchurch's reconstruction initiatives. By examining Tōhoku, through the relationships between community initiatives and top-down reconstruction policies, it may be possible to draw a set of relevant lessons for Christchurch's reconstruction planning process.

Chang, S.E., Taylor, J.E., Elwood, K.J., Seville, E., Brunsdon, D., & Gartner, M. (2014). Urban disaster recovery in Christchurch: The Central Business District cordon and other critical decisions. *Earthquake Spectra*, 30, 513-532.

Friday 26 February 2016: Resilience

Theme: Community Resilience

Resilience, poverty, and seismic culture

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Keywords: Resilience, Poverty, Community, Seattle, Chile

A strategy of resilience is built around the recognition that effective emergency response requires community involvement and mobilization. It further recognizes that many of the characteristics that equip communities to respond most effectively to short-term emergencies are also characteristics that equip responses to longer term challenges.

Building resilient communities means integrating people's approaches to poverty, community engagement, economic development, and housing into a coherent strategy that empowers community members to engage with each other and with other communities. In this way, resilience becomes a complementary concept to sustainability. This requires an asset-based change strategy where external agencies meet communities where they are, in their own space, and use collective impact approaches to work in partnership. It also requires understanding and assessing poverty, including physical, financial, and social capital in their myriad manifestations. Poverty is not exclusively a matter of class. It is a complex subject, and different communities manifest multiple versions of poverty, which must be respected and understood through the asset-based lens. Resilience is a quality of a community and a system, and develops over time as a result of careful analysis of strengths and vulnerabilities and taking actions to increase competencies and reduce risk situations. Resilience requires maintenance and must be developed in a way that includes practicing continuous improvement and adaptation. The characteristics of a resilient community include both physical qualities and 'soft infrastructure', such as community knowledge, resourcefulness, and overall health. This paper reviews the experience of some earlier disasters, before outlining a working model of how emergency response, resilience, and poverty interact and can be addressed in concert. It concludes with a summary of what the 2010 Chilean earthquake reveals about how a 'seismic culture' can function effectively in communities even when governments suffer from unexpected shortcomings.

A community wellbeing centric approach to disaster resilience

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Keywords: Disasters, Resilience, Wellbeing, Community, Identity

A higher bar can be set for advancing community disaster resilience by conducting research and developing capacity-building initiatives that are based on understanding and monitoring community wellbeing. This paper sets off from this view, arguing that wellbeing is the most important concept for improving the disaster resilience of communities. It uses examples from the 2010 and 2011 Canterbury earthquakes to illustrate the need and effectiveness of a wellbeing-centric approach. While wellbeing has been integrated in the Canterbury recovery process, community wellbeing and resilience need to guide research and planning. This paper unpacks wellbeing in order to synthesize it with other concepts that are relevant to community disaster resilience. Conceptualizing wellbeing as either the opportunity for or achievement of affiliation, autonomy, health, material needs, satisfaction, and security is common and relatively accepted across non-disaster fields. These six variables can be systematically linked to fundamental elements of resilience. The wellbeing variables are subject to potential loss, recovery, and adaptation based on the empirically established ties to community identity, such as sense of place. Variables of community identity are what translate the disruption, damage, restoration, reconstruction, and reconfiguration of a community's different critical services and capital resources to different states of wellbeing across a community that has been impacted by a hazard event. With reference to empirical research and the Canterbury case, this paper integrates these insights into a robust framework to facilitate meeting the challenge of raising the standard of community disaster resilience research and capacity building through development of wellbeing-centric approaches.

A qualitative study of paramedic duty to treat during disaster response

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Keywords: Disaster; Response, Paramedic, Duty to Treat, Duty of Care

Disasters place unprecedented demands on emergency medical services and test paramedics' personal commitment to the health care profession. Despite this challenge, legal guidelines, professional codes of ethics and ambulance service management guidelines are largely silent on the issue of professional obligations during disasters. They provide little to no guidance on what is expected of paramedics or how they ought to approach their duty to treat in the face of risk. This research explores how paramedics view their duty to treat during disasters. Reasons that may limit or override such a duty are examined. Understanding these issues is important in enabling paramedics to make informed and defensible decisions during disasters. The authors employed qualitative methods to gather Australian paramedic perspectives. Participants' views were analysed and organised according to three emerging themes: the scope of individual paramedic obligations, the role and obligations of ambulance services, and the broader ethical context. The findings suggest that paramedic decisions around duty to treat will largely depend on their individual perception of risk and competing obligations. A reciprocal obligation is expected of paramedic employers. Ambulance services need to provide their employees with the best current information about risks in order to assist paramedics in making defensible decisions in difficult circumstances. Education plays a key role in providing paramedics with an understanding and appreciation of fundamental professional obligations by focusing attention on both the medical and ethical challenges involved with disaster response. Finally, codes of ethics might be useful, but ultimately paramedic decisions around professional obligations will largely depend on their individual risk assessment, perception of risk, and personal value systems.

Friday 26 February 2016: Resilience

Theme: Psychosocial Responses

Medical Clowning in Disaster Zones

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Keywords: Permission to Laugh, Humour for Health

To be in a crisis caused by different kinds of natural disasters (as well as a man-made incidents), dealing with ongoing increase of problems and frequent confrontation with very bad news, is not something that many people can easily cope with. This applies obviously to disaster affected people, but also to the members of Search and Rescue teams, doctors in the field, and experienced humanitarians. The appropriate use of humour in crisis situations and dysfunctional environments is a great tool to make those difficult moments more bearable for everyone. It helps injured and traumatised people cope with what they're facing, and can help them to recover more quickly. At the same time, humorous thinking can help to solve some of the complex problems emergency responders face. This is additional to emergency and medical only reactions – allowing for a more holistic human perspective, which can provide a lasting positive effect. The ability to laugh is hardwired into people bringing a huge variety of physical, mental, and social benefits. Even a simple smile can cultivate optimism and hope, while laughter can boost a hormone cocktail that helps to cope with pain, enhance the immune system, reduce stress, re-focus, connect, and unite people during difficult times. Humour as an element of psychological response in crisis situations is increasingly understood in a much wider sense as the human capacity to plan and achieve desired outcomes with less stress, therefore resulting in more 'predictable' work in unpredictable situations. So, if people approach certain problems in the same way Medical Clowns do, they may find a more positive solution. Everyone knows that laughter is an essential component of a healthy and happy life. The delivery of 'permission to laugh' into disaster zones makes a big difference to the quality of life for everyone, even if it's for a very short, but important, period of time. And it's crucial to get it right as there is no second chance for the first response.

Role of education in post-disaster recovery phase: Experiences of tsunami-affected schools in Ishinomaki, Japan

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Keywords: Education, Post-Disaster, School, Children, Community Recovery, Japan

Ishinomaki City in Miyagi Prefecture, Japan was the region worst affected by the 2011 Great East Japan Earthquake and Tsunami, in terms of death toll. Damages to the education sector were also enormous. Fifty percent of the school children who died or remain missing were in Miyagi Prefecture at the time of the disaster. During the five years since the disaster, schools in the city are progressing towards recovery and learning from the disaster. This study describes ongoing school efforts in the post-disaster recovery phase, which were guided by a disaster education program at elementary schools located in coastal areas of Ishinomaki City. The disaster recovery program, Reconstruction Mapping Program, has been developed and implemented at schools in Ishinomaki since 2012 - one year after the 2011 earthquake and tsunami. Outputs of the educational program were analysed to determine changes in fourth grade children's perceptions towards their damaged communities in the first three years post-disaster. This study provides insight into the role of disaster recovery educational programs. It indicates that education in post-disaster recovery could help children's psychosocial recovery if properly designed. It could also help schools to record progress of their community's recovery, which could be utilized in the future for maintaining and transcending memories of disaster recovery. Through collaboration among university researchers and schoolteachers, a teaching plan has been developed from the program and expanded to neighbouring schools.

Friday 26 February 2016: Resilience

Theme: Communication

Communication about aftershocks: Lessons from the Canterbury earthquake sequence

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Keywords: Canterbury Earthquakes, Communication

A study was conducted to investigate how information about aftershocks was communicated during the Canterbury earthquake sequence of 2010-11. A series of focus groups was undertaken in 2013 with representatives from a variety of agencies and the public to better understand the types of information that were received regarding aftershocks, and how people used that information. We found that there were diverse needs and uses for information, and that future communications should account for this. For example, people involved in response operations required immediate aftershock forecast information to guide their decision-making for rescue and recovery operations. Agencies involved in longer-term recovery issues, such as insurance and re-build, required specific longer-term forecasts to aid decisions about when, where, and how to re-build. The public required easily understandable information to help with their comprehension of what was happening, and to provide psychological reassurance. The public also needed reminders of how to respond to aftershock events, and assistance with coping. Additionally, for best effect, communications should be coordinated between agencies (e.g. scientists, emergency management, welfare) to ensure people with expertise are communicating the appropriate messages. The initial recommendations from this work have already been applied to aftershock communication both in New Zealand (Eketahuna and Wilberforce Earthquakes) and overseas (Nepal Earthquake).

Curriculum and learning design: How one polytechnic innovated to cope with the after effects of the 2011 and 2012 Christchurch earthquakes

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Keywords: Learning Design, Curriculum Development, Disaster

The Christchurch earthquakes required rapid response and innovative curriculum design to ensure students were able to complete qualifications while studying at Christchurch Polytechnic Institute of Technology. Despite challenging circumstances, which included no access to the city campus for a semester, academic staff were able to offer learning solutions. This paper provides examples of innovative responses and an update on the curriculum design elements retained in current programmes.

Friday 26 February 2016: Resilience

Theme: Post-Traumatic Growth and the Disaster Responder

Workshop: Post-Traumatic Growth

Jeanne LeBlanc

Post-Traumatic Growth is defined as: "The experience of positive change that the individual experiences as a result of the struggle with a traumatic event" (Calhoun & Tedeschi, 1999, p. 11). This workshop provides an overview of elements of psychological growth often reported by responders after exposure to traumatic events, such as a disaster. It also covers factors which may contribute to increased challenges.

Calhoun, L., & Tedeschi, R. (1999). *Facilitating posttraumatic growth. A Clinician's Guide*. Mahway, NJ: Lawrence Erlbaum Associates.

Poster Abstracts

The RHISE Group - Researching the Health Implications of Seismic Events: A collaborative research structure emerging from the Christchurch earthquakes

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Keywords: Christchurch Earthquakes, Researching the Health Implications of Seismic Events Group, Collaboration

After the devastating Christchurch earthquakes of 2010 and 2011 there was great potential for enhancing understanding, but constraints from the disrupted environment and limited funding limited opportunities. The RHISE group was established to facilitate collaborative, high-quality disaster research. RHISE is a large, inclusive group of more than 200 researchers who have access to the opportunities and activities made available by the RHISE management team. The management team, a small group of researchers and health professionals, facilitates the activities of RHISE. This includes hosting meetings, symposia and conferences, interacting with researchers locally, nationally and internationally, maintaining a 'cloud' web site which supports communication, collaboration and sharing of resources, and managing the RHISE Database. The database is a comprehensive repository of health-related information concerning people who were injured in New Zealand earthquakes since September 2010. Data is sourced from unique New Zealand national and local databases, in particular that of the Accident Compensation Corporation (ACC). Outcomes to date include a number of peer reviewed publications and collaborations with national and international researchers. RHISE has enhanced knowledge and understanding with limited funding. Collaborative principles, structure and relationships and the comprehensive database offer considerable opportunity for quality research, including better understanding of the contributions to, and management of, the health implications of earthquakes and other natural disasters.

Resilience in youth with type 1 diabetes following an earthquake

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Keywords: Disaster, Medicine, Type 1 Diabetes, Resilience

Natural disasters impact negatively on diabetes self-care, with potentially catastrophic consequences for patients with type 1 diabetes mellitus. Insulin may be inaccessible or spoiled due to inadequate storage conditions, diabetes gear may be misplaced or damaged, food security may be compromised, and the hormonal impact of stress may cause 'brittle' diabetes. Following the February 2011 Christchurch earthquake, there was no local increase in type 1 diabetes mellitus-related hospital admissions for metabolic decompensation. To better understand patient resilience, an online survey of local youth with type 1 diabetes was undertaken. People aged 16-25 were identified from a type 1 diabetes mellitus database and invited a year after the earthquake to participate in an online Survey Monkey questionnaire. The survey explored the physical and psychological consequences of the earthquake on diabetes self-management. Of the 63 respondents, 42 experienced major physical disruptions in their living conditions. Eighteen reported immediate changes in insulin requirements, which settled after four to 210 days. However, glycated haemoglobin (HbA1c; a long-term measure of overall diabetes control) showed only a minor post-earthquake increase. 12 respondents sought professional psychological support, but support of family was also considered important. Some changes were positive: 'began to eat healthier; junk food less available'. While acknowledging that the respondents represent a minority of people with type 1 diabetes mellitus, the metabolic impact of the earthquake was minimal. In this patient subgroup, awareness of disaster planning is likely to have been positively influenced by an earlier (September 2010) local earthquake. Personal disaster planning should form part of the patient education curriculum in type 1 diabetes mellitus.

An exploration of the ability of people diagnosed with type II diabetes mellitus to self-manage post-earthquakes

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Keywords: Type II Diabetes, Self-Management Practices, Earthquakes

On 4 September 2010, the Canterbury region of New Zealand experienced an earthquake of magnitude 7.1 on the Richter scale followed by a magnitude 6.3 earthquake on 22 February 2011. Thousands of aftershocks occurred in the following years. The damage was widespread with the collapse and/or destruction of thousands of homes, buildings, pharmacies, primary care practices, and other health care facilities. Living with type II diabetes can be complex and challenging with many individuals often struggling to successfully self-manage their condition. This study's aim was to find ways to reduce the disruption caused by a disaster and help people with Type II diabetes maintain optimal self-management practices. This poster presents findings from a qualitative sub-study of individuals enrolled in a randomised controlled study, which commenced in August 2010, prior to the earthquakes. The wider study focused on examining the effectiveness of therapeutic interventions on improving glycaemic control. After the earthquakes, the focus was then extended to explore the impact the quakes had on the participants' ability to self-manage their diabetes. Nine participants were recruited from the control group of the larger study. Audio-recorded interviews were conducted at baseline, and at three and six month intervals, and were then transcribed verbatim. Data from these interviews were analysed using a general inductive approach. Three themes were identified that focused on the recognition of the earthquake on self-management practices, the need for physical and/or psychological support, and the need to adapt to a changed environment – 'the new normal'. Findings revealed people diagnosed with type II diabetes need to receive physical and psychological support after an earthquake due to the disruption the disaster has on their ability to successfully self-manage their diabetes, and to adapt to their changed environment.

The psychology of earthquake stress cardiomyopathy, non-cardiac chest pain, and myocardial infarction

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Keywords: Earthquakes, Cardiac Conditions, Psychological Symptoms

Stress cardiomyopathy is the classic psychologically precipitated physical illness. Non-cardiac chest pain and myocardial infarction can also be triggered by emotional stress. The September 2010 Darfield earthquake provided a unique opportunity to compare the psychological factors underlying these conditions. Seventeen women prospectively identified by cardiology staff as meeting criteria for one of these diagnoses underwent assessment for pre-morbid psychological factors, experience of the earthquake, and psychological response to the earthquake. Assessment was via a semi-structured clinical interview and validated psychometric measures. It was found that, contrary to our hypothesis, stress cardiomyopathy following an earthquake does not appear to be specific to psychologically vulnerable women. Women presenting with non-cardiac chest pain had higher health anxiety, generalized anxiety, and scores on 'neuroticism' scales than women diagnosed with either myocardial infarction or stress cardiomyopathy.

An integrated people-centred early warning system to enhance community disaster resilience in the United Arab Emirates

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Keywords: Early Warning System, Natural Disasters, Emergency Management, Response Capabilities, United Arab Emirates

The impacts of risks and costs of natural disasters on people, properties and environment are often severe when they occur on a large scale, or when people are not prepared. The impact of climate change, urban growth, poor planning - to mention a few factors- have also significantly increased the impacts of natural disasters across the world, including in the United Arab Emirates. The need for more effective early warning systems has become highly important. In recent years, a lack of early warning systems and a lack of integrated approaches to disaster responses are some of the reasons many deaths have occurred when natural disasters strike, especially in developing countries. Some communities in the United Arab Emirates have suffered the impact of natural disasters in recent years due to poor early warning systems, lack of integration of components of early warning systems, and lack of awareness of risks of natural disasters. These problems emphasise the importance of our research, which aims to decrease the vulnerability of communities in the Emirates by helping develop a framework of integrated early warning systems for communities. Integrated early warning systems would increase community response capabilities during natural disasters. The deployment of early warning systems alongside community and other stakeholder requirements were investigated in two communities prone to the impact of natural disasters. We used mixed methods of qualitative and quantitative analysis. Primary and secondary data were collected through semi-structured interviews with 12 strategic officers from organisations involved in emergency, crisis and disaster management in the emirates of Fujairah and Abu Dhabi. Questionnaires were administered to 1,065 people in the two emirates. The effectiveness of the early warning systems was evaluated against international best practice in hazard early warning systems, and ten principles which guide early warning system deployment in seven countries.

How Pomona Valley Hospital prepares for the first 96 hours of a catastrophic disaster

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Keywords: Disaster, Emergency preparedness, Support, Response

In the United States, the Joint Commission is the accrediting agency for the majority of healthcare facilities. It established '96 hours' as the standard for emergency preparedness. To help guide hospitals in their mission for 96 hours of preparedness, the Joint Commission implemented standards in the following areas: communications, resources and assets, safety and security, staff responsibilities, utilities, and patient clinical and support activities. Following the terrorist attacks of 11th September 2001, Pomona Valley Hospital and Medical Center was designated a Disaster Resource Center Hospital (one of the eventual 13 such hospitals for Los Angeles County) by the Department of Homeland Security's National Bioterrorism Hospital Preparedness Program. As such, the medical centre received a sizable grant from the Health Resources and Services Administration (HRSA), with funding later redirected through the Assistant Secretary for Emergency Preparedness and Response (ASPR). The medical centre's mission continues to be developing strong community relationships and regional disaster response plans that address surge capacity, availability of supplies and resources, and procedures for responding to terrorist events anywhere in Los Angeles County. The centre has accomplished this mission by working extensively with the community and by responsibly and innovatively selecting and purchasing equipment and supplies. Many of the centre's strategies have emerged from lessons learned from past disasters and have subsequently been adapted to comply with The Joint Commission's 96-hour requirement for emergency preparedness.

Recovery: Disaster preparedness in nursing education

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Keywords: Disaster Preparedness, Nursing Education, Earthquake, Canterbury

How relevant is disaster preparedness to nursing education? In 2011, the lives of Christchurch people were disrupted by more than 15,000 seismic events. A number of research projects emerged in the aftermath of these events, with direct relevance to nursing practice, education, and the wider healthcare environment. Despite increasing global experiences of disasters, the subsequent 'lessons' are not always acted on, nor new knowledge effectively disseminated. The focus of this poster is to review the learning for nurses that emerged following the Canterbury earthquakes, within a context of international disaster education. This learning includes recognising a number of themes such as reflection on nurses' ability to manage the immediate impact of a disaster, challenges in balancing competing priorities, and efforts to continue studying. Of particular importance is the need for educational and health care institutions to actively develop, disseminate, and encourage crisis response strategies. These need to be flexible, responsive, and collaborative, drawing on existing knowledge and engaging with nurses and other healthcare professionals. Recognition is given to the ongoing impact of events such as natural disasters, and the additional learning opportunities, support needs, and implications for curriculum development. Educators need to recognise that there are also positive elements associated with a crisis event. These can impact both students and educators. By recognising and actively supporting adaptive behaviours, ongoing resilience can be fostered.

Self-protective behaviour during earthquake shaking: Defining human behaviour during the February 2011 Christchurch earthquake

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Keywords: Self-Protective Behaviour, Actions, Earthquake Shaking, Preparedness

This study aimed to understand the behaviour and actions people took during Christchurch earthquake shaking on the 22nd February 2011. A review of New Zealand earthquake preparedness advice and plans was undertaken along with a quantitative survey of people aged 20 years and older in Christchurch. The survey was sent to a random sample from the Christchurch population asking them their location, actions, emotions, and injuries during the earthquake, and their general earthquake preparedness and experience. Results from the survey showed slightly more than half of respondents reported it would have been possible and safe to 'Drop, Cover, and Hold'. However, the 'Drop, Cover, Hold' action was only performed by 8% of people. The most frequently given reason for taking these actions was that it was an instinctive response, which was equal between genders. Nearly twice as many males as females said that it seemed sensible to take the actions they did. When asked about emotions experienced during shaking (calm, confident, fearful, anxious, in control, and helpless), in each case, women rated more 'strongly felt' scores than men. It is well documented that earthquakes have the power to cause tens of thousands of deaths with many more injured. This research found some differences between genders in the intensity of emotions experienced during earthquake shaking. Public awareness of recommended actions to take during an earthquake, such as 'Drop, Cover, Hold' is high, but the number of people actually performing them appears to be low. Identifying the relationship between official advice on protective actions to undertake during earthquakes, and the actual self-protective behaviour people carry out will enable clearer understanding of the link between earthquakes, the environment, and people.

Memorialising disasters: The many pathways to remembrance

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Keywords: Memorialising Disasters, Remembrance

As Canterbury residents approach the fifth anniversary of the Canterbury earthquakes of 2010 and 2011, many people are reflecting on the significance of those seismic events. Memorialising disasters such as the Canterbury earthquakes enables people and societies to remember and come to terms with what has occurred. The process of memorialisation can take tangible forms that include museum displays, memorial publications and monuments (both secular and religious), or intangible acts of remembrance, such as private or public services or commemorations. This poster presents two Aotearoa/New Zealand maritime disasters, the shipwrecks of the SS Penguin in 1909 and the Wahine in 1968. Both disasters involved storm events and inter-island ferries transporting people from Picton to Wellington. The SS Penguin sank at the entrance to the Wellington Harbour with 75 casualties, while the Wahine disaster occurred in the Wellington harbour with 53 lives lost on the day. This study explored how these disasters were made meaningful through memorialising practices, and how the physical memorialisations of these events came into being. The poster narrates the social and cultural practices that include public debate and competition over what is memorialised and how these changes over time are enabled. It also addresses the enduring role these events have in our society and the way they shape the ongoing telling of our maritime and disaster histories in the present day.

Managing public health hazards in a volcanic crisis

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Keywords: Volcanic Ashfalls, Communication, Public Health Hazards Management, New Zealand

Volcanic ashfalls are infrequent events compared to other natural hazard events such as floods or storms. Perhaps because they are somewhat exotic, they typically create intense interest across a range of groups: the public, the media, farmers, critical infrastructure providers and government agencies, including health and agricultural agencies. Risks to public and animal health are considered most urgent by both public and public health authorities. Even with small eruptions generating minor quantities of ash, information demands may be heavy and complex. A recent example is the 6 August 2012 eruption of Tongariro volcano, New Zealand. Despite its small size, following this eruption there was intense demand for information from the public, media, and government agencies on questions such as: Was this event a precursor to larger scale activity? What hazards were expected? Was the ashfall hazardous? To a certain extent, pre-prepared, consistent messages can be relied on to communicate risks to the public. However, each eruption generates ash with different properties relevant to health such as grain size and levels of potentially-toxic elements such as fluorine. Furthermore, the ash properties differ within eruptions and also with distance away from the volcano. Therefore, the provision of authoritative health advice to the public requires systems in place for collecting and analysing volcanic ash samples, interpreting the results and communicating them to the public – all within a very short timeframe. Ashfall mapping, collection, and testing are substantial activities that require rapid, widespread collaboration. This poster presents an overview of current arrangements for managing public health hazards of volcanic ashfall in New Zealand, which reflect a genuinely collaborative approach between the Ministry of Civil Defence and Emergency Management (MCDEM), GNS Science, the Ministries of Health and Primary Industries (MoH and MPI) and the Institute of Environmental Science and Research (ESR).

The relevance of temporary uses of vacant urban spaces for community resilience after a disaster: Transitional community-initiated open spaces in Christchurch, New Zealand

Andreas Wesener, Roy Montgomery

Lincoln University, Christchurch, New Zealand

Keywords: Temporary Urbanism, Post-Disaster, Community Resilience, Transitional Community-Initiated Open Spaces

Following the devastating 2010 and 2011 earthquakes in Christchurch, New Zealand, various vacant urban sites have temporarily been used for community gardening, urban agriculture, art installations, event venues, eateries and cafes, leisure activities and pocket parks. Research on these initiatives evaluated the tangible and intangible benefits of temporary urbanism with a focus on what they deliver rather than what they symbolise. This poster discusses bottom-up transitional community-initiated open spaces in Christchurch's central city in relation to concepts of community resilience. Drawing on an analysis of exemplary temporary spaces, correlated literature, key informant interviews, and site observations, the poster examines possible benefits, challenges, and long-term values of post-disaster temporary urbanism. It reinforces a discussion on the relevance of participative forms of urban design for community resilience in contrast to top-down programmes after a natural disaster.

Are self-organised youth volunteers the key to effective crisis response?

Sarah Lockwood

The University of Waikato, Hamilton, New Zealand

Keywords: Self-organising, Youth Volunteers, Crisis Response

This study explores the communication and organising of youth volunteers during a crisis, focusing on how they conceived, framed, and executed self-organising efforts during the 2011 Rena oil spill in New Zealand. It offers insights into the intersections of self-organising, youth volunteering, and crisis events which have not been researched before. The study addresses two core research questions: (1) how was 'volunteering' conceptualized by youth volunteers involved in the Rena crisis? (2) how did these volunteers communicate and self-organise during this crisis? The findings indicate that self-organising emerged out of a resistance towards structured responses and as a reaction to the inability of the official volunteer response to meet community needs. Self-organised efforts were particularly attractive among youth volunteers because they offered flexibility, required minimal administrative processes, and fostered an environment of innovation and creativity. The volunteers' youthful energy and technological aptitude also drove their self-organised responses. The study identifies the considerable challenges that crisis officials faced in utilising youth volunteers despite the significant advantages of self-organising.

Challenges of supporting recovery after disaster: Insights from earthquake support coordinators

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Keywords: Earthquake Support, Psychosocial, Qualitative

Limited research studies have been undertaken that focus on the role of health and social welfare professionals in supporting long-term recovery after disasters. This qualitative, exploratory study investigated the challenges experienced by earthquake support coordinators when: supporting their clients to create recovery plans, providing their clients with relevant information, connecting their clients to other services they may need, and coordinating meetings between clients and other experts or agencies. Open-ended semi-structured interviews were undertaken with 18 earthquake support coordinators working in the Christchurch area after the Christchurch earthquakes. The interviews explored support coordinators' experiences while supporting earthquake-affected households. The interviews were undertaken four years after the start of the earthquake sequence with the purpose of exploring longer-term aspects of the recovery process, and changes over time. The interview transcripts were analysed and coded using a grounded theory approach. Most of the support coordinators interviewed were female (15/18; 83%), aged between 26 to 67 years (with most between 50 and 69 years). The coordinators came from a variety of agencies including secondments from governmental agencies and non-governmental

organisations. The length of time people were in the role ranged from seven months to more than three years. Interview analysis identified a number of challenges experienced by the support coordinators, which included: perception of their role, relationships with clients, the need for support and self-care, and changing needs of clients as the recovery progressed. Despite these challenges, most support coordinators enjoyed the role and found it both professionally and personally fulfilling. The study provided insight into how the Christchurch recovery process impacted the affected population. It also shed light on how earthquake support coordination services operate from a delivery perspective, and on the support needs of people working in a recovery role.

Finding the positives: Insights from health care professionals following the Canterbury earthquakes

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Keywords: Psychosocial, Recovery, Positives, Nurses

Research examining resilience and post-traumatic growth has suggested that individuals exposed to traumatic events may experience long-term positive consequences following exposure to extreme stressors. This poster illustrates positive aspects of recovery from the Canterbury 2010 to 2011 earthquake events - from the perspectives of primary care doctors, nurses, and mental health care professionals. Qualitative semi-structured interviews were undertaken to explore the challenges faced both during and following the earthquakes. Eight primary care doctors, 11 nurses, 15 mental health care professionals, and 10 counsellors from the Christchurch area were interviewed. The interviews took place between two and four years after the start of the earthquake experience with the purpose of exploring longer-term aspects of the recovery process. The interview transcripts were analysed and coded using a grounded theory approach. Despite the many challenges faced by health care professionals during and in the aftermath of the earthquakes, an analysis of the data revealed that they were able to identify positive aspects of their experience of the disaster and recovery process. A number of themes were identified that are related to post-traumatic growth including: improved relationships with others, changed perspectives or values, changed views of self, and acknowledgement of the value of the experience. These findings suggest that both positive and negative impacts of disasters on wellbeing are not mutually exclusive. The study outcomes have value for employers designing support processes following disasters that could enhance the wellbeing of health care professionals during stressful times.

A beautiful display of humanity: Exploring the role of social media as psychological first aid in Australasian natural disasters

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Keywords: Social Media, Psychological First Aid, Community Resilience, Disasters

This poster will use data from research studies to explore the role that social media can play in natural disasters; specifically, how it has been used by the public in a number of Australasian natural disasters as a source of emotional and practical support, mirroring many of the core principles of formal psychological first aid. Psychological first aid is an evidence-informed approach to helping people affected by emergencies, disasters, or other traumatic events. Formal psychological first aid training has been developed and supported in our region by both the Australian and New Zealand Red Cross organisations in collaboration with a number of other groups. In our study context, we are focussing on parallels with psychological first aid that may be provided within the first few hours of a disaster - such as helping people to feel safe, informed, connected, reunited with loved ones, and able to help themselves. Using data collected from more than 1600 people affected by a number of disaster events in 2011 and 2013 (Brisbane floods, Christchurch earthquake, Cyclone Yasi, floods in Bundaberg/Burnett, and bushfires in Dunally), this poster overviews what people were doing on social media during those events, and more importantly, how social media usage made them feel. It contains quotes that demonstrate the compassion shown by strangers in these situations and how that impacted individuals. During disasters, people will converge on social media to source and supply timely and locally relevant information and to offer and request help. Our data show that engaging with social media during disasters resulted in people feeling useful and connected to others and feeling both encouraged by the support being offered and hopeful about the future.

What impact might the post-disaster setting have on creative tendencies, the enactment of creative ideas and ability to sustain those ideas?

Trudi Cameron-Agnew

Lincoln University, Lincoln, New Zealand

Keywords: Creativity, Innovation, Ideas, Personal Influences, Contextual Influences, Post-Disaster

This presentation introduces a study designed to investigate factors that influence the enactment and sustainment of creative ideas in a post-disaster setting. The study aims to identify and explore the personal and contextual factors that influence individuals to enact creative ideas for community or commercial benefit in the post-quake environment of Christchurch, New Zealand. The project also aims to investigate the factors that hinder or support the process of creative idea enactment, and the ability to sustain any success achieved. This is an exploratory study utilising a mixed-method approach to data gathering.

Mother Earth and Quakeia babies

Rose Spijkerman, Michelle Lagatule

Consultants, Christchurch, New Zealand

Keywords: Canterbury Earthquakes, Children

This story was written to help young children who have lived through the recent Canterbury earthquakes in New Zealand find healing, comfort, and emotional wellbeing. Many children feel fearful and anxious about what happened in their environment. Equally, they feel confused or bewildered about the impact the earthquakes had and are having on them because they cannot stop it. This story uses familiar themes from home to take children on a journey that helps them connect in a meaningful way to every day concepts. Using the educational resources of the book 'Mother earth and the quakeia babies' and its associated activity book, children can connect with the story and its characters and find the themes relevant to their own lives. This story was created to share with children of New Zealand and around the world who have experienced earthquakes or who live in earthquake zones. Until children have experienced earthquakes themselves, they cannot grasp the full meaning of earthquakes or how they might feel during or after such an experience. Earthquakes bring up a raft of emotions that children suddenly have to cope with.

Suicidality amongst Israeli combat veterans suffering from post-traumatic stress disorder

Yoram Barak

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Keywords: Suicidality, Dissociation, Depression, Post-Traumatic Stress Disorder (PTSD)

The association between post-traumatic stress disorder (PTSD), depression and anxiety is well researched. Each of these disorders increases the risk of suicide, possibly in a synergistic manner. The risk of suicide amongst combat veterans suffering from post-traumatic stress disorder has not been studied extensively. We aimed to assess suicidality amongst a group of Israeli army veterans suffering from combat-related post-traumatic stress disorder. All referrals to the Israeli Defence Force (IDF) combat trauma reactions unit diagnosed as suffering from combat-related post-traumatic stress disorder (n=61) were assessed for dissociation, depression, and presence of suicidal thoughts or plans. Twenty of the 61 patients (32.8%) reported thoughts or plans of suicide. The severity of dissociation, depression, and severity of post-traumatic stress disorder symptoms was associated with thoughts of suicide. Veterans suffering from combat-related post-traumatic stress disorder who also had more severe depression and dissociation symptoms were more likely to report suicidal ideation. Reduction in these symptoms may confer some protection to patients suffering from post-traumatic stress disorder. The higher rates of suicidal ideation seen with greater severity of post-traumatic stress disorder symptoms was both statistically and clinically significant in this group of individuals who had been experiencing these symptoms over very long periods of time. Greater rates of suicidal thoughts were found in veterans suffering from combat-related post-traumatic stress disorder who reported more severe dissociative, depressive, and post-traumatic stress disorder symptoms.

How did the Canterbury earthquakes impact on people presenting to an anxiety clinic?

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Keywords: Anxiety Disorders, Trauma Exposure, Resource Loss, Post-Traumatic Stress Disorder (PTSD)

Although negative impacts are seen in populations exposed to natural disasters, it is clear that not all are affected equally. Existing literature suggests that extent of exposure is certainly one of the variables that can contribute to developing subsequent mental health issues. A small number of studies also report that individuals with pre-existing anxiety may be more likely to develop post-traumatic stress disorder following a natural disaster. This cross-sectional study investigated earthquake-related trauma exposures experienced by a cohort of adults referred to the specialist Anxiety Disorders Service for treatment of an anxiety disorder, in relation to the development of new mental health issues following the Canterbury earthquakes. Participants were 53 adult patients recruited in late 2011 or early 2012 who provided informed consent, and represented 40 percent of those eligible for participation. This study was approved by the Specialist Mental Health Research Committee. Assessment data included demographics, questions about the impacts of the earthquakes and incidence of new mental health problems, and measures included the Post-Traumatic Checklist and the Traumatic Exposure Severity Scale. Most patients reported pre-earthquake mental health difficulties. Those who developed new problems had lost more resources, had greater home damage, were more concerned about loss of loved ones, and were more distressed than those who did not develop new mental health problems following the earthquakes. In conclusion, these data suggest that without high exposure to negative circumstances, people with pre-existing mental health problems may not be at greater risk of developing post-traumatic stress disorder subsequent to a natural disaster.

Successfully travelling the rocky road to recovery

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Keywords: Earthquake, Christchurch, Education, Relocation

Between March and October 2011, following the devastating Canterbury earthquakes, the Centre for Postgraduate Nursing Studies successfully ran 12 courses, which included 37 study blocks that students attended in Christchurch and Dunedin. Christchurch teaching spaces were unavailable due to earthquake damage so these study blocks were taught from various temporary locations, including sports centres and clubrooms. This poster presents a pictorial history of those extraordinary times and in particular, highlights the difficulties faced by the three general staff members who strived to maintain the programmes and overall functioning of the centre. Over this time, staff demonstrated ingenuity, flexibility, portability, and adaptability while ensuring continuity for the 260 students enrolled. Staff reported that the challenges faced over this period led to positive changes in the way the centre planned and delivered their programmes.