The Child and Adolescent Mental Health Service Response to the Christchurch Earthquakes: Have we recovered yet?

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Abstract: Canterbury, New Zealand was woken up literally and figuratively on September 4th, 2010 at 4:35 am with a magnitude 7.1 earthquake. Rattled, but largely unscathed, we rode out the aftershocks and congratulated ourselves on our resilience, utterly mentally unprepared for the devastation about to be faced on February 22nd 2011. Further large events (June and December 2011) and over 10,000 aftershocks have impacted on psychological recovery. We offer a description of the child and adolescent population referred to a publically funded mental health services earthquake pathway since July 2011. Delivered alongside existing services, the earthquake response pathway has been designed to enable targeted as needed intervention to young people struggling to cope as a result of the Canterbury earthquakes. We consider how our service wide response has met the anticipated psychological need and how our experience can inform mental health preparedness, response and recovery in future natural disasters.

Key words: *Earthquakes, disasters, children, adolescents, mental health services, psychological response*

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Background

There is a 100% change of an earthquake today. In fact, on average, worldwide there are four earthquakes magnitude 5 or greater every 24 hours (U.S. Geological Survey, www.usgs.gov).

New Zealand sits, along with Japan, California and Chile, on 'The Pacific Ring of Fire', an area well known for heightened seismic and volcanic activity. Large historical events have given New Zealand beautiful mountains, thermal springs, deep volcanic ports and acceptance of the possibility of future earthquakes. New Zealand's position abreast the colliding Australian and Pacific plates, has resulted in four major fault systems including the Macquarie Fault to the south, the South Island Alpine Fault, the Marlborough Fault system and the North Island Fault system). In addition, the country contains a great number of smaller fault lines including the newly-revealed Greendale Fault in the South Island province of Canterbury.

The Canterbury Earthquakes

On September 4th, the people of Christchurch and Canterbury were woken quite literally and figuratively by a magnitude 7.1 earthquake along the Greendale Fault. The shaking was felt across much of the South Island and some of the lower North Island. Since then, Canterbury has experienced three further large earthquake events (Feb 2011, June 2011 and December 2011) and over 10,000 aftershocks. The September earthquake occurred in the very early hours (4:35 am NZ time) on Saturday morning and was centred about 45 kilometres from Christchurch near the rural town of Darfield. There were no deaths, but there was much damage to brick buildings and chimneys, bridges, and significant liquefaction in some areas. Rattled, but largely unscathed, we rode out the aftershocks and congratulated ourselves on our resilience, wearing t-shirts that read "tested to 7.1."

Our experience on February 22 was dramatically different. February's earthquake was centred much closer to Christchurch near the port of Lyttelton at a distance of 10 km from the Christchurch Central Business District and even closer too many of the city's eastern Suburbs. It was incredibly shallow at 5 km deep and the reverse thrust of the fault resulted in vertical ground accelerations beneath the central city at a rate twice the speed of gravity (GNS Science, www.geonet.org.nz). In stark contrast to September, the magnitude 6.3 earthquake occurred during lunchtime on a busy work day resulting in 185 deaths and many more casualties predominantly due to building collapse. There was considerable damage to the city's infrastructure, significant displacement of people and permanent damage to residential and industrial land.

On February 22nd, our shaky city crumbled, we fell apart, and many of us, approximately 15,000, left Canterbury as our central Christchurch city was cordoned off with military patrol of the newly created 'The Red Zone'. In the suburbs, we welcomed friends and family who lost homes and we pulled together. Some of us met many of our neighbours for the first time. We mucked in and helped out. Areas such Bromley required 'heavy artillery' including support from the Volunteer Student Army and NZ Federated Farmers to clear liquefaction. Soon liquefaction and designer long drops became the subjects of everyday conversation. We were getting on with it. But by May, aggravation was setting is as we emptied our

camping toilets and battled “munted” roads to our new port-o-com offices. Then cue June 13, two more earthquakes, M 5.9 and M 6.4, ninety minutes apart centred near the seaside suburbs of Sumner and Redcliffs. We began to wonder - would this never end?

This was our first experience of a large foreshock and even larger aftershock. After previous large events the immediate aftershocks were substantially smaller. This new experience heightened our sense of unpredictability in relation to the earthquakes. Several people were injured and one elderly resident died. Property, land and infrastructure were further damaged. Thousands of homes were again without electricity and much of the city was again required to boil water. Perhaps the most destructive aspect of these earthquakes was the reality for many that this natural disaster had not ended. Many experienced considerable demoralisation, fear and a lack of control. But, we used our emergency kits, skills and community connections gained following the February event to again foster our recovery. And, we ‘got on with it’ until our next large sequence of events on December 23rd (M 5.8 and subsequent M 6.0). Our thoughts went from “will this never end” to “you have got to be kidding me!” These earthquakes were the nail in the coffin for many buildings and businesses, and many individual’s hope in rebuilding.

The Child and Adolescent Mental Health Service response

As a result of the February event, we expected a significant effect on the mental health the Canterbury population and began planning our response. Previous research had indicated that it would be 3 - 9 months or longer following a natural disaster before the mental health needs of the child and adolescent population would become apparent [1]. Further, evidence suggests that the experience of trauma in childhood or adolescence can interrupt healthy psychological development [2] and difficulties are likely to persist into adulthood if left unaddressed [3]. We recognised that specialist services had a role in addressing these needs. However, local specialist mental health services did not have the immediate capacity to address the anticipated need without additional training, resources’ and staffing.

The New Zealand Ministry of Health subsequently awarded funding for 7 FTE to Specialist Mental Health Services to respond to the mental health effects of the earthquakes. Three FTE were awarded to child and adolescent services. Two FTE have been utilised for assessment and triage at the ‘front door’ to the child and adolescent service (CAFLink) and one FTE has been split to provide individual trauma focused cognitive behavioural therapy (TF-CBT) and run a series of group programmes. Funding was initially limited to 12 months from 1 June 2011, although this may be extended.

In recognition of the many and varied responses and programmes’ being carried out in the city and province, it has been important for the child and adolescent service to pitch our response at that level of specialist clinical care. With limited resource and reduced capacity due to staff losses, we have not attempted to extend beyond our core business but have ‘relaxed’ the criteria for the referral being assessed, if the referral is earthquake related.

The Earthquake Response Pathway

Delivered alongside existing services, the earthquake response pathway has been designed to enable targeted as needed intervention to young people struggling to cope as a result of the Canterbury earthquakes [4]. The vast majority of referrals are made by family doctors and education professionals, although some internal health service referrals are

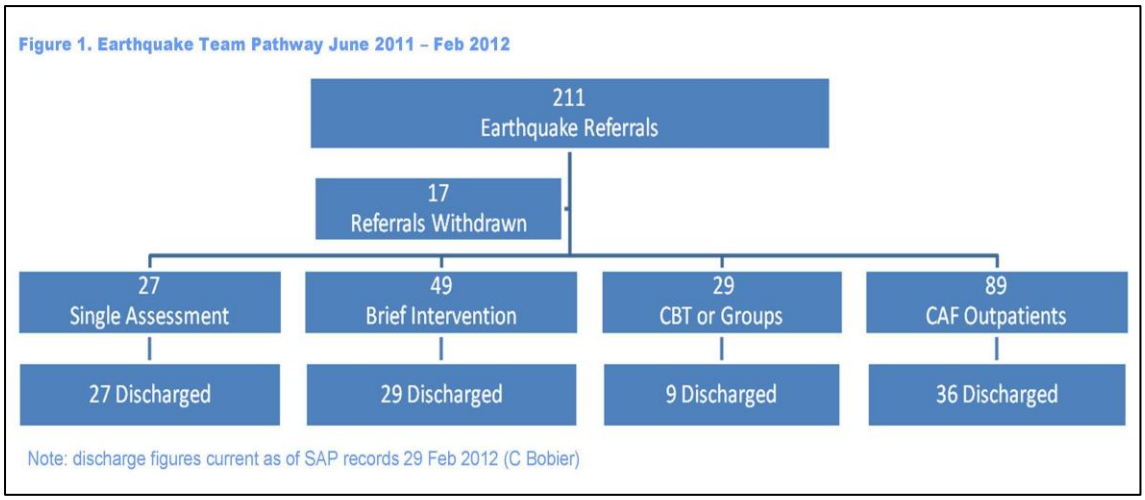
also received. All earthquake referrals are assessed face to face over 1 to 3 sessions to assess the mental health needs, address immediate safety and risk concerns, and offer support and treatment options.

Treatment options include brief solution focused intervention, individual TF-CBT [5], group programmes and referral to specialist outpatient teams for medium to long term individual case management. Treatment options are offered to best meet the perceived needs of the individual. For example, individual TF-CBT (6 to 10 sessions) is offered to children and adolescents who experience a severe reaction to the earthquakes to address associated mood, anxiety and post traumatic symptoms. Mild reactions requiring assurance and parenting strategies are often offered as brief interventions (up to 3 sessions). Separate group programmes (up to 10 sessions) are run for children and adolescents with moderate to severe reactions consisting of psycho-education and group stress management skills within a cognitive behavioural framework. A parent only group, Parent Managing Challenging Behaviour, is also available. This group is run in a public education style with parents recruited through schools and community groups. Future groups will be provided based on presenting need and may include a parent only group for anxious parents and a parent only group for parents of pre-school children.

Children with multiple or complex difficulties which extend beyond their earthquake experience are referred to specialist outpatient mental health teams within the service for further assessment and treatment. The service consists of three main specialist outpatient teams: Child and Family Specialty Service (ages 0 - 12), Youth Specialty Service (ages 13 - 18), Child and Adolescent Rural Service (ages 0 - 18). Referrals from the earthquake pathway to these specialist teams generally fit within the expected 1-3% population target for specialist Mental Health Services.

Referred children and adolescents

We have specifically screened over 200 young people since 1 June 2011 (see Figure 1). About half of those seen have been referred to the three main outpatient teams (n = 89), whilst the remainder have attended brief intervention (n = 49), a single session of assessment and advice (n = 27) and groups or TF-CBT (n = 29). At the time of data collection (end February 2012), 101 had been discharged from the service, with 20 currently attending brief therapy and 20 currently attending groups or TF-CBT. The remaining 53 were currently attending outpatient services.



Demographic information has generally been consistent with the overall trends for referrals to the Child and Adolescent Mental Health Service. More children (65%) have been referred than adolescents (35%) and more females (58%) have been referred than males (42%). Initial trends for referrals were those of 9 year old boys and 15-16 year old girls. Following the December 2011 earthquakes, there have been more referrals of younger children (aged 3 – 6) with a preponderance of 5 year old girls.

Consistent with Christchurch population estimates, the ethnicities of referrals have been predominantly New Zealand born European (Pakeha, 80%) or non New Zealand born European (9%); followed by Maori (Indigenous New Zealander, 10%) and other (1%). Most of the non New Zealand born Europeans are recent immigrants to Canterbury. The socio-economic situation and domiciliary location of referrals has been diverse.

Questionnaires

A package of questionnaires is utilised at assessment for diagnostic screening and as a baseline for possible follow up. The Strengths and Difficulties Questionnaire (SDQ) is a behavioural screening measure of child and adolescent emotional health, conduct problems, hyperactivity, peer relationship problems and pro social behaviour [6] completed by parents and by children aged 8 and over [7]. To date, we have seen an overall reporting trend of high to very high emotional distress with high impact on the child's life, but close to average overall stress on the family. A smaller number reports high emotional distress *and* high behavioural difficulties with high to very high overall stress on the family.

To assess self reported symptoms of Post Traumatic Stress Disorder as rated by the older child or adolescent, the Post Traumatic Stress Disorder – Reaction Index*,* PTSD-RI [8] was adapted with permission from the National Center for Child Traumatic Stress UCLA to word earthquake as the potentially traumatic event (Finley, H. P. pers. Comm.., 2011). Additional measures of post traumatic stress reactions include the parent completed Pediatric Emotional Distress Scale, PEDS [9], utilised for children aged less than 8 years and the self report Children's Revised Impact of Events, CRIES [10]. All completed PEDS questionnaires met criteria for Traumatic Event Exposure and the majority of the PTSD-RI and CRIES questionnaires suggest moderate to severe risk of post traumatic reactions. Although, we have been unable to collect questionnaires for all assessments, available reports taken together advocate strongly for the value of specialist intervention.

In addition, parents were asked to complete a global measure of their own mental health, the Kessler-10 [11]. Most parents reported general wellness although some were referred to adult services following their child's assessment by joint agreement. Parents also completed the Parenting Reactions after Trauma questionnaire adapted from the 2009 Victorian bushfires *Parenting Reactions after Trauma* to assess common parenting reactions after the earthquake (McDermott, B. pers. comm.., 2011).The most commonly reported reaction was being "more protective of my child".

Reactions and recovery children, adolescents and parents

So far most of the primary school aged children have experienced difficulties with sleep, behaviour, separation and anxiety. Many children already had difficulties and were known to services. Most children seen by the earthquake response team have lived with property damage and some degree of disruption since the quakes. The predominantly occurring

Post Traumatic Stress Disorder symptom is that of hyper arousal. Reassuringly, many children have and are showing signs of recovery between seismic events.

The adolescents seen thus far are anxious, withdrawing from their usual activities, unable or reluctant to attend school and often meet criteria for a mood and or anxiety disorders with varying degrees of intrusive Post Traumatic Stress Disorder symptoms. They may or may not have a traumatic earthquake story and they may or may not have experienced property damage, disruption or displacement. Many are otherwise very high functioning. It is our sense, that many of these adolescents would not have been seen by specialist mental health services unless something as terrible as these earthquakes had happened. A number are not showing signs of recovery and some are deteriorating significantly.

Parents of referred children and adolescents have experienced varying levels of personal and financial stressors as a result of the earthquakes and seek reassurance, personal emotional support, and parenting strategies for children's behaviours. Explanation and normalisation of the child's reactions to the earthquake along with the earthquake response team's 'Fuss Busters' brief behavioural intervention has been sufficient to met the current needs of many families. General advice concerning media exposure of the earthquakes and other disasters and advice on sensitive future planning with children have also been well received.

Conclusions

Our service experience is one of many in relation to the Canterbury earthquakes.
We continue to learn from the children, adolescents and parents attending the earthquake response pathway to better meet their needs. Overall, we have received positive feedback from families and other health professionals about the timely co-ordinated response provided by the child and adolescent mental health service. We have found that offering brief intervention at the 'font-door' of the service appears to be valuable. We have found that group programmes were most utilised by children and adolescents already engaged in attending the service. And, we have found that Trauma Focused CBT has been the least utilised treatment at this early stage of our recovery. Like others post natural disaster, we have seen anxiety in younger patients generalised to weather and noise [12] and increased substance use in adolescents [13]. Additional comparisons may emerge, but are presently difficult to identify due to the ongoing and repetitive nature of the the events. Further, questions remain as to the level of unseen distress present in the community, the yet to be seen psychological reactions and the added value of future community outreach. We hope that our experience may shape future planning of child and adolescent mental health services post natural disaster.

One year on from our devastating February Earthquake, projects such as Gap filler, Greening the Rubble, and our CBD shipping container shopping mall have injected colour and vibrancy in our city and suburbs. It is a very exciting time to be in Christchurch as we work toward our rebuild and recovery.

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