

# Canterbury

## District Health Board

Te Poari Hauora o Waitaha

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19 April 2011

Mr John Ombler  
Interim Chief Executive  
Canterbury Earthquake Recovery Authority (CERA)

Via email: [cera@dia.govt.nz](mailto:cera@dia.govt.nz)

Dear John

### **Population Movement After Natural Disasters: a Literature Review and Assessment of Christchurch Data**

Please find attached a copy of a report commissioned by the Canterbury District Health Board to help it better understand the impact of population movement after natural disasters in planning for the provision of future health services.

The seismic event of 22 February 2011 resulted in a number of residents of Christchurch City moving to alternative accommodation. The reasons for moving include damage to a main residence making it uninhabitable; broken support infrastructure (such as water and sewage systems); unavailability of important social services (such as schools); or a desire to avoid the continuing experience of aftershocks.

Shortly after the event, it was announced at a press conference that 70,000 people had left Christchurch, a figure that became widely quoted in the media and fuelled speculation of a long term population boost for provincial centres in the South Island.

The likely magnitude and duration of population movement after the disaster is an important piece of information for future health planning, informing decisions about future demand and the recovery of services and facilities. This review considers the evidence from research on previous disasters in developed countries, and places the Christchurch experience in that context. It seeks to estimate the likely magnitude and duration of population movements out of Canterbury after the February 22 earthquake.

The social science literature provides a limited amount of data which can be used to estimate the impact of a natural disaster upon population flows. The most comparable disasters for which published data are available are Hurricane Andrew in Florida, and the Kobe earthquake in Japan.

Applying Hurricane Andrew and Kobe earthquake estimates to the breakdown of damaged buildings across Christchurch produces estimates of a net population decrease of 2.4% for Hurricane Andrew, and an increase of 1.7% on the basis of the Kobe experience.

It seems likely that the population shift for Christchurch after the 2011 earthquake is likely to be of the order of magnitude described in these studies. After a period of 6 to 12 months, the population is likely to have changed by 1 to 2 percent, either up or down. This conclusion is broadly consistent with the available data on school re-enrolments, which finds that after 6 weeks the out-migration of school children has reduced to 6.4 percent, and is probably going to drop further.

It is important to bear in mind the mixed effects which take place in a population after a disaster. A number of researchers concluded that disasters have the impact of accelerating pre-existing population trends, which suggests in the case of Christchurch that growth can be expected to at least partly counterbalance any permanent loss of population.

In one or two years it is likely that the total population of Christchurch will be slightly smaller than it might have been if there had been no one off out-migration to temporarily interrupt growth. But it is also likely that population growth will continue at, at least, the pre-existing trajectory. Growth may even be enhanced to some extent, if there is an in-migration of construction workers.

The major conclusion to be drawn from the literature review and the available data is populations tend to return rapidly to the site of a disaster, particularly if drawn by ties of home ownership, family and when supported by an effective recovery and reconstruction process.

It is probable that specific areas of the city which have experienced particularly heavy damage will see considerable numbers of people leaving, but many of these are likely to seek homes in less damaged regions of the city. Effective reconstruction and planning for new residential areas is likely to ameliorate the tendency to move out of Christchurch.

As further datasets become available, it will be important to monitor the ongoing movement of population after the Christchurch earthquake with as many different methods as possible. School enrolment data has been considered in this review, but it will also be possible to consider information on re-enrolments in general practice, as well as changed patterns of pharmaceutical dispensing. Social Welfare payments may also be able to contribute information on the relocation and return of the population.

Yours sincerely



**David Meates**  
**Chief Executive**

**Copy to:** Kevin Woods, Director General of Health, Ministry of Health  
John Hamilton, National Controller, Civil Defence  
Roger Sutton, CEO Orion NZ Ltd  
Dan Coward, Chief Fire Officer, NZ Fire Service  
Dave Cliff, District Commander, Canterbury, NZ Police