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| **Title of Research Presentation** The benefits of changed building regulations between two major earthquakes: Learning from the injuries and deaths in 1931 and 2011 New Zealand earthquakes |
| **Objectives**To help in disaster mitigation worldwide, we contrasted the severe injury and mortality impacts of two major earthquakes in New Zealand (1931 Hawke’s Bay and 2011 Christchurch) and the likely role of building construction and regulation in the impacts.**Methods**Compilation and analysis of archival data (hospitalisations and deaths) for the 1931 earthquake compared with published 2011 earthquake data. **Results**For the 1931 earthquake, there were 662 people for whom some hospitalisation data were available four weeks post-earthquake, for an estimated population of under 50,000 people. The hospitalised injury rate of 8.2 per 1000 population was at least 25 times that of the 2011 Christchurch earthquake, where there were 142 injuries for an estimated 450,000 people (0.32/1000). In 1931, there were 256 earthquake-attributable deaths, giving a death rate of 5.6/1000, at least 13 times that of the Christchurch earthquake (0.14/1000). In Hawkes Bay, there were seven buildings where 10 or more deaths occurred (from collapse and fire) and there were 17 buildings associated with three or more deaths each (accounting for 64% of all deaths). Many of these buildings were multi-story and involved masonry – with some of this falling into the street and killing people outside (18% of deaths). In contrast, deaths in homes (nearly entirely wood construction and single stories) were uncommon (4% of deaths). Over a third (35%) of the deaths occurred in buildings owned by government (central or local), including a major hospital in the region and school buildings. In Christchurch 141 of the 185 deaths (78%) occurred in or because of three commercial buildings previously damaged in a 2010 earthquake.**Conclusions**Health promoters can learn from disaster history. The higher injury and mortality impact of the 1931 earthquake appears partly related to the lack of regulations relating to earthquake risk for building construction. This was despite evidence from prior earthquakes in this country (since 1848) where reports showed the higher risks of brick and stone vs wood as construction materials.These results have major implications for countries where there is little effective implementation of earthquake-related building regulations. However, even in countries where there appear to be stronger regulations, the Christchurch deaths and injuries indicate the need for the proper implementation of regulations, and appropriate caution about buildings weakened by previous earthquakes.**Keywords**Earthquake impacts, Disaster prevention, Regulations for safety, Health lessons from history |