FEMORAL FRACTURE RATES FOLLOWING THE 2010-2011 CANTERBURY EARTHQUAKES. CHOI C, BROAD JB, JIANG Y, CONNOLLY MJ. DEPARTMENT OF STATISTICS AND FREEMASON'S DEPARTMENT OF GERIATRIC MEDICINE, UNIVERSITY OF AUCKLAND.

Introduction: Unpredictable nature of earthquakes can lead to an increased risk of femoral fracture, resulting in greater adverse health consequences for older people. This study examined the impact on the risk of femoral fracture from a sequence of large earthquakes that occurred in Christchurch, New Zealand, during 2010-2011.

Methods: An observational study was conducted using individual hospital stay records in the National Minimum Dataset from 2009-2013. Generalized linear regression models were used to assess the impact on the weekly number of acute admissions for the fracture from both overall and individual earthquakes. Patients' demographics (age, gender) and geographic locations were adjusted in all analyses, as well as time and seasonal trends.

Results: On average, during the week of four major earthquakes (≥ 6.0 on Richter scale), fracture incidence doubled (relative risk [RR] 2.01, 95% confidence interval [CI] 1.71-2.36, $p < 0.0001$) in people aged 50+ years who were exposed to these earthquakes compared to those who were not. The immediate impact of the major earthquakes could be as high as RR of 3.14 (95% CI 2.25-4.37, $p < 0.0001$) and the effect maintained up to 10 weeks post earthquake (RR 1.19, 95% CI 1.02-1.40, $p = 0.03$).

Conclusions: The impact of strong earthquakes on rates of femoral fracture is high and continues over 10 weeks after the last major earthquake (December 2011 earthquake). This shows how physical changes to the landscape, such as uneven ground and sloping floors and unfamiliar travel or locations after a disaster may have detrimental effect on residents well after the initial shock. This study emphasises the need to clear or repair environmental hazards after earthquakes, and also to identify the higher risk of falls and fractures among older residents post earthquake.