

TB associated with household crowding in NZ

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Research using census data and notified tuberculosis (TB) cases over a five year period shows that the risk of this disease is significantly associated with household crowding in New Zealand.

The research by [He Kainga Oranga/Housing and Health Research Programme](#) at the [University of Otago, Wellington](#) found that TB is still an important infectious disease in this country and the risk of infection is increased by household crowding. The study, which was published in the latest issue of the [Journal of Epidemiology and Community Health](#), examined 1898 cases of TB over the five year period 2000-2004.

"While the focus of TB control is on prompt case detection and effective treatment, better housing conditions and reduced levels of crowding also have a role in controlling the spread of this disease," says lead researcher Associate Professor Michael Baker.

This is the first published study of its type in New Zealand or Australia to look at the effects of household crowding on TB, while controlling for other important risk factors for this disease.

"Unlike some previous studies, we were able to control for the effects of known risk factors, notably poverty and migration from high incidence countries. Linking to census data also allowed us to include a relatively large number of cases." says Associate Professor Michael Baker.

The study particularly focussed on the young (under 40 years) New Zealand-born population where TB is most likely to have been caused by recent infection. In this group, the study found that for every 1% increase in the average household crowding level of a neighbourhood there would be an 8% increase in the expected TB count, assuming the other variables were held constant. People living in the most crowded quintile (20%) of neighbourhoods would expect to have a TB risk approximately 70% higher than those living in the least crowded quintile.

"The finding that TB rates are associated with crowded living conditions fits with what we know about the transmission of this bacteria via small airborne droplets," says Associate Professor Michael Baker. "Household crowding increases opportunities for active cases to infect other household members, particularly children."

The study was not able to determine if ethnicity had an independent effect on the risk of TB in NZ, separate from overcrowding and low income. Dr Baker says this question will require further research and ideally an individual-based study (e.g. case-control) in recently infected cases.

The second important finding from the study was that there was little evidence of TB transmission from migrants to the NZ born population. TB incidence among NZ born people under 40 years was not significantly associated with the proportion of the neighbourhood population who were migrants from high incidence countries.

This study builds on previous work by researchers at He Kainga Oranga/Housing and Health Research Programme on the epidemiology of TB. This research has shown that, contrary to common belief, New Zealand's TB rate is not increasing and has stayed at or below 10 cases per 100,000 since the mid-1980s. Although the majority of TB cases are in recent immigrants from developing countries there is no indication that migrants are spreading the disease locally to any significant degree.

At a global level TB remains one of the most important infectious disease in terms of infection rates and as a cause of premature death. At least one third of the world's population is infected with the bacterium and 10% of these people will progress to active disease. The impact of TB is further worsened by the HIV epidemic and rising levels of drug resistance.

"Even though New Zealand is managing TB well within our own borders, there is no cause for complacency in the face of this global epidemic," says Associate Professor Michael Baker.

Funding for this study was through the Health Research Council and the NZ Population Health Charitable Trust.

Full reference for paper: M Baker, D Das, K Venugopal and P Howden-Chapman. Tuberculosis associated with household crowding in a developed country. *J. Epidemiol. Community Health* 2008;62;715-721.

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Associate Professor Michael Baker will be speaking on results of this study and other research on infectious diseases at public lectures in Auckland and Wellington on 13-14 August

6.00pm Wed 13 August, Wellington

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Westpac Stadium, Waterloo Quay, Wellington

FREE CAR PARKING

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