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# The Houses Children Live In

## policies to improve housing quality

New Zealand ranks near the bottom of the OECD in its health and safety rating for its children (Public Health Advisory Committee, 2010). One of the key drivers of this is the relatively poor state of our housing. Young children spend virtually all of their time in the home environment, much of which is poor quality rental housing (Baker, Keall et al., 2007). The Children's Commissioner's Expert Advisory Group on Solutions to

Child Poverty (EAG) recently highlighted the broad costs of not maintaining this essential infrastructure for the health of children, their educational opportunities and household income. New Zealand research has clearly demonstrated that improving the quality of housing enhances children's health and attendance at school, while more energy efficient houses reduce our carbon emissions. This article gives an overview of current research and discusses the feasibility of various policies to address this pressing problem.

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## Background

Public health professionals, paediatricians, the public and politicians have become increasingly concerned about the appalling rates of infectious diseases in New Zealand, which have increased markedly over the last 20 years (Baker, Telfar Barnard et al., 2012). Three recent surveys of children admitted to hospitals in Auckland and Wellington have starkly highlighted the strong association between poor housing standards and poor child health, a problem which is compounded by overcrowded households.

Trenholme and colleagues obtained information on 508 hospital admissions for lower respiratory tract infection in children under two in Counties Manukau in 2007, a period of relatively low

Canadian national occupancy standard. The quality of the children's housing was also very poor, with 59% of parents reporting that they were usually cold inside their home and 47% living in damp, musty or mouldy conditions. These hospitalised children predominantly live in households without secure tenure, with only 29% living in owner-occupied dwellings. Of the children who live in households that rent, 38% were living in private rentals, 30% were living in Housing New Zealand Corporation (HNZC) houses and 3% were living in 'other' accommodation, including garages, boarding houses, caravans and women's refuges. Overall, these children are more likely to live in more deprived households with 55% of the households, having a community services card and

poverty and poor health in these cross-sectional surveys is backed up by two decades of research on housing and health by researchers at the University of Otago, Wellington. The He Kainga Oranga Housing and Health Research Programme has highlighted that one of the main contributory factors to poor child health in New Zealand is the unsatisfactory physical state of much of our housing stock, in particular our unregulated rental housing stock. Over 70% of all children in poverty live in rental accommodation: 20% in HNZC state housing and 50% in private rental accommodation (Perry, 2012).

He Kainga Oranga has had the quality of several thousand houses assessed by trained building assessors using the Healthy Housing Index and has found a consistent pattern, with private rental housing being on average of poorer quality than state housing, which in turn is on average of poorer quality than houses that are owner occupied. Similar results were found in the BRANZ House Condition Survey (Buckett et al., 2012). The litany of problems is now familiar: poorly insulated, inadequately heated, damp and mouldy housing. Added to this is the stock of 'leaky' homes which have severe weatherproofing issues (Howden-Chapman, Bennett and Siebers, 2010; Howden-Chapman, Ruthe and Crichton, 2011).

New Zealand now has overwhelming research evidence about the advantages of reducing exposure to household crowding (Baker, McNicholas et al., 2000; Grant et al., 2012) and the benefits of home insulation and home heating on health (Howden-Chapman, Matheson et al., 2007; Howden-Chapman, Pierse et al., 2008) and school attendance (Free, Howden-Chapman et al., 2009). Probably the most compelling evidence for the health benefits of housing improvement comes from evaluating the effects of the HNZC Healthy Housing programme. This programme focused on housing improvements (insulation, ventilation, heating), as well as crowding reduction and improved access to primary health care and social services. The largest proportion of households receiving this intervention was in Counties Manukau.

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New Zealand unemployment (Trenholme et al., 2012). They identified markedly higher hospitalisation rates for Māori and Pasifika children and those living in the most deprived neighbourhoods. Two-thirds of children were potentially exposed to second-hand tobacco smoke, 27% reported no source of heating at home and 33% lived in households where there were four or more children.

More recent results have been even more concerning and suggest that conditions for low-income children are deteriorating. From May to December 2012, the first year of the ongoing US Center for Disease Control and Prevention-funded SHIVERS study,<sup>1</sup> the research team reviewed 2,260 hospital admissions for severe acute respiratory infection at Auckland Hospital; 40% (904 hospitalisations) were for children under 15 years of age. In this population, the effect of the Auckland housing shortage is clear, with 14% living in severely crowded houses and a further 26% living in overcrowded houses, by the

45% being in receipt of a means-tested benefit (unpublished data).

Also in 2012, a study of 106 child admissions to Wellington Hospital in August 2012 identified a similar disturbing pattern of high rates of respiratory admissions in Māori and Pasifika children and a strong association with poor housing conditions (Denning-Kemp et al., 2012). Despite the parents of 40% of these children reporting that their children had a chronic health condition, one third of parents had noticed dampness and mould in their house, 50% stated that their house was colder than they preferred during the past month and 20% lived in uninsulated houses. Twenty per cent of children lived in overcrowded houses, which were disproportionately in highly deprived socio-economic areas.

### The health benefits of improving housing conditions

This dismal association between poor housing, cold indoor temperatures, fuel

Two separate evaluations have shown that this programme was extremely effective at reducing rates of hospitalisation for children living in intervention households (Baker, Zhang et al., 2011; Jackson et al., 2011), which underscores that this is a critical area for further public investment (Howden-Chapman, 2012).

Rising concern about the effects of poor housing standards informed the investigation of policies carried out by the EAG, which was established by the children's commissioner to analyse research and administrative evidence about the extent of child poverty and possible effective solutions (EAG, 2012).

#### **The Children's Commissioner's Expert Advisory Group on Solutions to Child Poverty**

The EAG's main recommendation to the government in relation to housing was that housing should be considered as essential infrastructure and included in the National Infrastructure Plan. Furthermore, current regulatory arrangements were considered inadequate, having not been amended since 1947. The EAG recommended that the government should ensure that all rental housing, both social and private sector, meet minimum health and safety standards, measured by an agreed warrant of fitness (WOF), such as the Healthy Housing Index. The Healthy Housing Index, developed by He Kainga Oranga and BRANZ, includes a health, safety and energy efficiency rating scale – the latter is mandatory in most OECD countries (Keall, Baker et al., 2010). Application of this tool has shown that there is a significant association between the number of respiratory symptoms (wheezing or whistling when breathing, or an asthma attack) of occupants and the number of respiratory hazards in a house (Keall, Crane et al., 2012). A similar association has been found between the number of home injuries (ACC claims) and the number of injury hazards in the house (Keall, Baker et al., 2008; Keall, Baker et al., 2012).

Underpinning the EAG's recommendation was the realisation that policy implementation for a warrant of fitness was crucial: standards should be set carefully, monitored periodically, effectively enforced and increased over

time when justified by available evidence and improvements in technology. Costs associated with the WOF should be borne by landlords, but this could be partially offset through favourable tax treatment of any required improvements. Implementation planning should carefully consider how to reduce the risk of costs associated with improvements required by the WOF being shifted onto tenants. One approach, which is currently being discussed with central and regional government, is to undertake a pilot programme to implement and evaluate the market effects of a WOF for rental housing at both local and regional community levels.

The accommodation supplement is a demand-driven benefit, currently costing

per year until 2020. Social housing refers to housing that is provided based on assessed financial and social need, at subsidised rates, and with active tenancy management (Howden-Chapman, 2004). Social housing can include rental housing or home ownership support to individuals or families. In New Zealand social housing is provided by the government (between 66,000 and 69,000 HNZC properties), local government (around 14,000 units) and community housing providers (around 5,000 units). The EAG considered that social housing can directly mitigate the effects of child poverty and is of critical importance for many low-income families. However, demand for social housing significantly exceeds supply. Hence, increasing the

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\$1.2 billion annually, the second largest benefit after National Superannuation, but the government does not require any minimum rental standards before it is accessed. In the US, the federal housing voucher is paid to landlords, on condition that their accommodation passes the modified English Decent Home standard, similar to the Healthy Housing Index. Although some landlords in New Zealand currently have arrangements with the Ministry of Social Development to be paid directly, there is no requirement that their accommodation meets any standards. Without this quid pro quo, under this current system tenants have little leverage to improve the quality and maintenance of their rental houses or apartments.

Another recommendation from the EAG was that the government address the serious under-supply of affordable housing for families with children living in poverty by taking immediate actions to increase the number of social houses by a minimum of 2,000 units

number of social housing units needs to be a long-term commitment, requiring a considerable capital investment over an extended period of time. Similarly, the EAG wanted consideration of spreading the income-related rent subsidies to community organisations. A related recommendation was that the government should develop a range of measures to increase the ability of low-income households to purchase their own home.

Overall, concerns about housing elicited the highest number of public responses to the EAG. There was almost unanimous support for having a rental housing WOF from the feedback received, including the children's perspectives, community meetings, survey responses and formal submissions. Young people consulted by the EAG highlighted the need to address the quality and cost of housing and overcrowding. Children spoke about the effects of damp, cold houses on their health and described their families struggling or unable to

pay household bills because rents are too high. This often meant no heating, no hot water and the inability to cook. They asked for better insulated homes which are more affordable to heat and told the commission that there is a need for stricter rules for rental properties. The children and young people spoke of a lack of privacy in overcrowded homes, and arguments and tensions which affect family relationships. They also said that overcrowding affects their ability to do homework (EAG, 2012).

#### The case for government action on housing supply and quality

There is abundant evidence that the housing market has failed to deliver both the quantity and quality of housing needed.<sup>2</sup> There are historically low levels of building consents, particularly for affordable housing (New Zealand Productivity Commission, 2012). This situation has caused a growing housing crisis in Auckland, which has the most rapid population growth in the country and has a shortfall of new house construction of at least 4,000 units a year (Johnson, 2012). The situation has been compounded by the Canterbury earthquakes, which have destroyed an estimated 11,000 houses and damaged tens of thousands of others (EAG, 2012).

An inevitable consequence of a shortage of affordable housing is household crowding. A recent report undertaken by the University of Otago and Statistics New Zealand has shown that in the 2006 census, 10% of Māori children under 15 years and 21% of Pasifika children under 15 years were exposed to severe household crowding (i.e. the household in which they were living was short of at least two bedrooms) compared to European children or children of other ethnicities (2%) (Baker, Goodyear et al., 2012). Thousands of children are experiencing severe housing deprivation (Amore, Baker et al., forthcoming), officially defined as lack of access to minimally adequate housing (Statistics New Zealand, 2009). These children are living in situations where they have no security of tenure, little privacy, and in some cases not even basic amenities. These problems

are further compounded by 'functional crowding', where children and other household members all sleep in the same room to keep warm during cold winter months (Denning-Kemp et al., 2012). An important driver for households behaving in this way is fuel poverty (see the separate article on this matter in this issue of *Policy Quarterly*), with an increasing proportion of low-income people who cannot afford to heat their homes (Howden-Chapman, Viggers et al., 2011). Low-income families, some with poor credit ratings, may have little choice but to use prepayment meters, which usually have higher tariffs and often lead to so-called 'self-disconnection' budgeting, which in some cases is for prolonged and disruptive periods (O'Sullivan et al., 2013). Structural and functional crowding also have the obvious potential to greatly increase transmission of infectious disease.

The case for more active government intervention in the housing market therefore appears overwhelming. This need has been recognised already with the current Warm Up New Zealand: Heat Smart programme, which has insulated over 204,000 houses. This programme was supported by several controlled trials (Howden-Chapman, Matheson et al., 2007; Howden-Chapman, Pierse et al., 2008) and economic evaluations (Chapman et al., 2009; Preval et al., 2010; Grimes et al., 2011) showing health benefits and positive benefit-cost ratios of up to five to one. The EAG, among other parties, has recommended that the government extend beyond June 2013 and target the current subsidy programme for insulating homes, with the longer-term aim of ensuring that all remaining uninsulated or poorly insulated homes (estimated at approximately 700,000) are properly insulated and effectively heated. Specific targeting is needed to incentivise landlords to insulate their rental properties, as landlords have been reluctant to take up the two-third subsidies currently available.

A WOF could require basic health and safety features such as insulation and protection from falls. Housing New Zealand should be realistically funded to revitalise its very successful Healthy

Housing programme. This programme could be extended to cover all of its 69,000 properties, which contain many of New Zealand's most vulnerable children (Baker, Zhang and Howden-Chapman, 2012). Better housing conditions would support the government's admirable target of reducing the incidence of rheumatic fever by two-thirds by 2017 (Jaine, Baker and Kamalesh, 2011).

#### Conclusion

Evidence, ethics and economics all point towards the need for greater investment in better housing for children. Housing should be seen as important national infrastructure, with the government using its considerable regulatory powers to improve housing quality in New Zealand. As recommended by the EAG, a good starting point would be a warrant of fitness for rental housing and a reinvigorated HNZC Healthy Housing programme. Establishing a large-scale programme for construction of medium-density social housing in Auckland and Christchurch would also produce many benefits, particularly if it involved the community housing sector. Not only would such housing reduce crowding and improve child health, it would also provide a valuable economic stimulus and help retain skilled labour in New Zealand.

- 1 The Southern Hemisphere Influenza and Vaccine Effectiveness Research and Surveillance (SHIVERS) project was established in October 2011. It is a multi-centre and multidisciplinary collaboration between the Institute of Environmental Science and Research, Auckland District Health Board, Counties Manukau District Health Board, University of Otago, University of Auckland, WHO Collaborating Centre at St Jude Children's Hospital and the US Centers for Disease Control and Prevention. The SARI surveillance is funded by the US Department of Health and Human Services, Centers for Disease Control and Prevention (1U01IP000480-01). It is a key component of the SHIVERS project. The SARI surveillance protocol development and platform establishment are carried out by Sue Huang, Sally Roberts, Colin McArthur, Michael Baker, Cameron Grant, Deborah Williamson, Adrian Trenholme, Conroy Wong, Susan Taylor, Graham Mackereth, Don Bandaranayake, Nikki Turner, Nevil Pierse, Richard Webby, Diane Gross, Jazmin Duque, and Marc-Alain Widdowson on behalf of the SHIVERS investigation team.
- 2 This issue is explored in a forthcoming book, *How To Build Houses That People Can Afford to Live In*, edited by Sarah Bierre, Philippa Howden-Chapman and Lisa Early and published by Steele Roberts.

## References

- Amore, K., M. Baker, P. Howden-Chapman and H. Viggers (forthcoming) *Severe Housing Deprivation: the problem and its measurement*, official statistics research series, 6, to be available from [www.statisphere.govt.nz](http://www.statisphere.govt.nz)
- Baker, M., R. Goodyear, L. Telfar Barnard and P. Howden-Chapman (2012) *The Distribution of Household Crowding in New Zealand: an analysis based on 1991 to 2006 census data*, Wellington: He Kainga Oranga Housing and Health Research Programme, University of Otago
- Baker, M., M. Keall, E. Lyn Au and P. Howden-Chapman (2007) 'Home is where the heart is – most of the time', *New Zealand Medical Journal*, 120 (1264)
- Baker, M., A. McNicholas, M.H. Garrett, N. Jones, J. Stewart, V. Koberstein and D. Lennon (2000) 'Household crowding a major risk factor for epidemic meningococcal disease in Auckland children', *Pediatric Infectious Disease Journal*, 19 (10) pp.983-90
- Baker, M., L. Telfar Barnard, A. Kvalsvig, A. Verrall, J. Zhang, M. Keall, N. Wilson, T. Wall and P. Howden-Chapman (2012) 'Increasing incidence of serious infectious diseases and inequalities in New Zealand: a national epidemiological study', *The Lancet*, 379 (9821), pp.1112-19
- Baker, M., J. Zhang, M. Keall and P. Howden-Chapman (2011) *Health Impacts of the Healthy Housing Programme on Housing New Zealand Tenants, 2004–2008*, Wellington: He Kainga Oranga Housing and Health Research Programme, University of Otago
- Baker, M.G., J. Zhang and P. Howden-Chapman (2012) *Health Status of Housing New Zealand Applicants and Tenants: key indicators for 2004–2010*, Wellington: He Kainga Oranga Housing and Health Research Programme, University of Otago
- Buckett, N.R., M.S. Jones and N.J. Marston (2012) *BRANZ 2010 House Condition Survey: condition comparison by tenure*, Wellington: BRANZ
- Chapman, R., P. Howden-Chapman, H. Viggers, D. O'Dea and M. Kennedy (2009) 'Retrofitting housing with insulation: a cost-benefit analysis of a randomised community trial', *Journal of Epidemiology and Community Health*, 63, pp.271–7
- Denning-Kemp, G., A. Abdulhamid, A. Albabtain, M. Beard, J. Brimble, A. Campbell, S. Feng, K. Geiringer, M. Haminudin, J. Hunter, A. Kelly, N. Kunac, P. Lin and N. Lundon (2012) *Kiwi Pride? A snapshot of Wellington paediatric admissions: an audit of potential risk factors in child hospitalisation*, fourth-year MBChB student public health project, Wellington: Department of Public Health, University of Otago
- Expert Advisory Group on Solutions to Child Poverty (2012) *Solutions to Child Poverty in New Zealand: evidence for action*, Wellington: Office of the Children's Commissioner
- Free, S., P. Howden-Chapman, N. Pierse, H. Viggers and Housing Heating and Health Study Research Team Study Team (2009) 'Does more effective home heating reduce school absences for children with asthma?', *Journal of Epidemiology and Community Health*, doi:10.1136/jech.2008.086520
- Grant, C.C., D. Emery, T. Milne, G. Coster, C.B. Forrest, C.R. Wall and E.M. Robinson (2012) 'Risk factors for community-acquired pneumonia in pre-school-aged children', *Journal of Paediatrics and Child Health*, 48 (5), pp.402-12
- Grimes, A., T. Denne, P. Howden-Chapman, R. Arnold, L. Telfar-Barnard, N. Nicholas Preval and C. Young (2011) *Cost Benefit Analysis of the Warm Up New Zealand: Heat Smart Programme*, report for Ministry of Economic Development, Wellington: Motu
- Howden-Chapman, P. (2004). 'Housing standards: a glossary of housing and health', *Journal of Epidemiology and Community Health*, 58, pp.162-8
- Howden-Chapman, P. (2012) 'We should cap the health budget and spend more money on housing and food', *Journal of Primary Health Care*, 4 (4), pp.337-9
- Howden-Chapman, P., J. Bennett and R. Siebers (eds) (2010) *Do Damp and Mould Matter? Health impacts of leaky homes*, Wellington: Steele Roberts
- Howden-Chapman, P., A. Matheson, H. Viggers, J. Crane, M. Cunningham, T. Blakely, D. O'Dea, C. Cunningham, A. Woodward, K. Saville-Smith, M. Baker and N. Waipara (2007) 'Retrofitting houses with insulation to reduce health inequalities: results of a clustered, randomised trial in a community setting', *British Medical Journal*, 334, pp.460-4
- Howden-Chapman, P., N. Pierse, S. Nicholls, J. Gillespie-Bennett, H. Viggers, M. Cunningham, R. Phipps, M. Boulic, P. Fjällström, S. Free, R. Chapman, B. Lloyd, K. Wickens, D. Shields, M. Baker, C. Cunningham, A. Woodward, C. Bullen and J. Crane (2008) 'Effects of improved home heating on asthma in community dwelling children: randomised community study', *British Medical Journal*, 337, pp.852-5
- Howden-Chapman, P., C. Ruthe and S. Crichton (2011) 'Habitable houses: lessons learned?', in *The Leaky Building Crisis: understanding the issues*, Wellington: Thomson Reuters
- Howden-Chapman, P., H. Viggers, R. Chapman, K. O'Sullivan, L. Telfar Barnard and B. Lloyd (2011) 'Tackling cold housing and fuel poverty in New Zealand: a review of policies, research, and health impacts', *Energy Policy*, doi:10.1016/j.enpol.2011.09.044
- Jackson, G., S. Thornley, J. Woolston, D. Papa, A. Bernacchi and T. Moore (2011) 'Reduced acute hospitalisation with the healthy housing programme', *Journal of Epidemiology and Community Health*, 10.1136/jech.2009.107441
- Jaine, R., M. Baker and V. Kamalesh (2011) 'Acute rheumatic fever associated with household crowding in a developed country', *Pediatric Infectious Disease Journal*, 30 (4), pp.1-5
- Johnson, A. (2012) *Adding It All Up: the political economy of Auckland's housing*, Auckland: Salvation Army Social Policy and Parliamentary Unit
- Keall, M., M. Baker, P. Howden-Chapman and C. Cunningham (2008) 'Association between the number of home injury hazards and home injury', *Accident Analysis and Prevention*, 40 (3), pp.887-93
- Keall, M., M. Baker, P. Howden-Chapman, M. Cunningham and C. Cunningham (2012) 'Home injury hazards and home injury in New Zealand', *Injury Prevention*, 18 (Supplement 1), p.A48
- Keall, M., M. Baker, P. Howden-Chapman, M. Cunningham and D. Ormandy (2010) 'Assessing health-related aspects of housing quality', *Journal of Epidemiology and Community Health*, 64 (9), pp.765-71
- Keall, M. D., J. Crane, M.G. Baker, K. Wickens, P. Howden-Chapman and M. Cunningham (2012) 'A measure for quantifying the impact of housing quality on respiratory health: a cross-sectional study', *Environmental Health*, 11 (1), p.33
- New Zealand Productivity Commission (2012) *Housing Affordability*, Wellington: New Zealand Productivity Commission
- O'Sullivan, K.C., P. Howden-Chapman, J. Stanley and S. Hales (2013) 'Kids in the cold: outcomes for New Zealand households with children using prepayment metering for electricity', *New Zealand Medical Journal*, 126 (1371)
- Perry, B. (2012) *Household Incomes in New Zealand: trends in indicators of inequality and hardship 1982 to 2011*, Wellington: Ministry of Social Development
- Preval, N., R. Chapman, N. Pierse, P. Howden-Chapman and Housing Heating and Health Study Research Team (2010) 'Evaluating energy, health and carbon co-benefits from improved domestic space heating: a randomised community trial', *Energy Policy*, 38 (9), pp.3965-72
- Public Health Advisory Committee (2010) *The Best Start in Life: achieving effective action on child health and wellbeing*, Wellington: Public Health Advisory Committee
- Statistics New Zealand (2009) *New Zealand Definition of Homelessness*, Wellington: Statistics New Zealand
- Trenholme, A., A. Vogel, D. Lennon et al. (2012) 'Household characteristics of children under 2 years admitted with lower respiratory tract infection in Counties Manukau, South Auckland', *New Zealand Medical Journal*, 125 (1367)