INTRODUCTION TO INFECTIOUS AND RESPIRATORY DISEASES SECTION

Introduction

New Zealand children experience a large burden of avoidable morbidity and mortality as a result of infectious and respiratory diseases. Examples include whooping cough, pneumonia, bronchiolitis and tuberculosis [102]. In 2001, a review of New Zealand's approaches to infectious disease control [103] found that in the past, well-organised government-run programmes had eliminated some infectious diseases transmitted from animals (e.g. *Brucella abortis* and hydatids). In more recent times however, the reviewers noted that success in controlling infectious diseases had been mixed, with rates of rheumatic fever, tuberculosis and enteric infections being high, and with many of these conditions disproportionately affecting Māori and Pacific peoples [103]. A more recent review also noted the significant contribution poverty, poor housing, poor nutrition, smoking, air pollution and difficulties with accessing primary, secondary and tertiary healthcare made to the burden of respiratory and infectious diseases in New Zealand children [102].

Given their significant impact on the wellbeing of New Zealand children, infectious and respiratory diseases have been awarded a relatively high priority in this report, with a range of conditions being reviewed in three main sections as follows:

1. **Upper Respiratory Tract Conditions**: This section contains two chapters:
    - *Acute Upper Respiratory Infections and Tonsillectomy* reviews acute and arranged hospital admissions for a range of acute upper respiratory tract infections in children, as well as waiting list admission for tonsillectomy +/− adenoidectomy.
    - *Middle Ear Conditions: Otitis Media and Grommets* reviews acute hospital admissions for otitis media in children, as well as arranged and waiting list admission for the insertion of grommets.
2. **Lower Respiratory Tract Conditions**: This section contains four chapters, with the first reviewing hospital admissions and mortality from *Bronchiolitis* in infants. The remaining chapters review hospital admissions and mortality from *Pneumonia, Asthma* and *Bronchiectasis* in children and young people aged 0–24 years.
3. **Infectious Diseases**: This section contains six chapters, with the first reviewing hospital admissions and mortality from *Pertussis* in infants. The remaining chapters review hospital admissions and mortality from *Meningococcal Disease, Tuberculosis, Acute Rheumatic Fever and Rheumatic Heart Disease, Serious Skin Infections* and *Gastroenteritis* in children and young people aged 0–24 years.

While each of these conditions is unique in terms of its distribution, risk factor profile and management, from a population health perspective they share a set of common determinants including housing, nutrition, exposure to second hand cigarette smoke and access to primary health care. As a result, there is some merit in reviewing approaches to their prevention collectively, and the section that follows thus provides a brief overview of local policy documents and evidence-based reviews which consider population level approaches to the prevention or control of infectious and respiratory disease.

Local Policy Documents and Evidence-Based Reviews Relevant to Infectious and Respiratory Diseases

Given their multi-factorial aetiology (e.g. exposure to infectious agents, cigarette smoke, poor nutrition, sub-standard housing, overcrowding), approaches to the prevention of infectious and respiratory diseases take a variety of forms. The following tables thus

review local policy documents and evidence-based reviews which consider approaches to the prevention of infectious and respiratory diseases under the following sub-headings:

1. **Generic Approaches to Infectious and Respiratory Diseases:** A range of local policy documents and evidence-based reviews consider approaches to infectious and respiratory diseases in general, and these are briefly summarised in **Table 46**.
2. **Exposure to Second Hand Cigarette Smoke** is a well known risk factor for respiratory and infectious diseases. **Table 47** considers local policy documents and evidence-based reviews which explore population and individual level approaches to tobacco control, with an emphasis on the prevention of second hand cigarette smoke exposure. Interventions which aim to prevent the uptake of smoking in young people will be considered in next year's report.
3. **Substandard Housing and Crowding** are well recognised upstream determinants of respiratory and infectious disease. **Table 48** summarises a number of documents which consider approaches to improving housing at the population level.
4. **Breastfeeding** confers significant protection against respiratory and infectious disease and interventions aimed at increasing its uptake are reviewed in **Table 27** commencing on Page 107.
5. **Immunisation** confers protection against a number of respiratory and infectious diseases and interventions aimed at increasing coverage will be reviewed in more detail in next year's report.
6. Interventions aimed at specific respiratory and infectious diseases are also considered in the following sections: **Acute Upper Respiratory Infections** (Page 175), **Otitis Media** (Page 197), **Bronchiolitis** (Page 217), **Pneumonia** (Page 227), **Asthma** (Page 242), **Bronchiectasis** (Page 255), **Pertussis** (Page 267), **Meningococcal Disease** (Page 275), **Tuberculosis** (Page 284), **Rheumatic Fever** (Page 292), **Serious Skin Infections** (Page 302), and **Gastroenteritis** (Page 321).

Table 46. Local Policy Documents and Evidence-Based Reviews Which Consider Generic Approaches to Infectious and Respiratory Diseases

Ministry of Health Policy Documents
Ministry of Health. 2007. **Direct Laboratory Notification of Communicable Diseases National Guidelines**. Wellington: Ministry of Health. http://www.surv.esr.cri.nz/LabSurv/Documents/dln-national-guidelines-dec07.pdf The purpose of these guidelines is to inform those working in the health sector, so that they can fulfil their legislative requirements (Section 74AA of the Health Act 1956) with respect to notifying a Medical Officer of Health (and a territorial authority for some conditions) when a notifiable disease case is suspected and when it is confirmed by laboratory testing. Many of the infectious diseases covered in this report are notifiable diseases including acute gastroenteritis (in some situations only), meningitis, vaccine preventable diseases (including pertussis), tuberculosis and rheumatic fever.
Ministry of Health. 2001. **An Integrated Approach to Infectious Disease: Priorities for Action**. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/0/B1A861634F82C22CCC256AFA00792AF6/$File/integratedapproachtoinfectiousdisease-prioritiesforaction.pdf This publication addresses the NZ Health Strategy objective: "To reduce the incidence and impact of infectious disease". It sets out key priorities for action to assist DHBs and PHOs with determining resource allocations. The six infectious diseases in the highest priority category are: vaccine-preventable disease, infectious respiratory diseases, blood-borne infections, sexually transmitted infections, food-borne enteric diseases and hospital-acquired infections, particularly antibiotic-resistant infections. Environmentally acquired and close-contact infectious diseases are given lower priority. For each group of diseases objectives, targets and strategies are set out together with responsibilities for central government, health services, local government agencies, non-health organisations such as schools, youth organisations and workplaces, communities and individuals, and surveillance and research organisations.
Ministry of Health. 1998. **Communicable Disease Control Manual**. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/49ba80c00757b8804c256673001d47d0/019e54d1de5e73534c25666e00835b79/$FILE/cdcm.pdf This manual provides information on the prevention of communicable diseases in New Zealand and protocols for their control. Part One covers vaccine-preventable diseases. Part Two covers food and waterborne diseases. Parts 3 and 4 cover rare diseases and other notifiable diseases.

Systematic and Other Reviews of the International Literature

Jefferson T, Del Mar C, Dooley L, et al. 2010. **Physical interventions to interrupt or reduce the spread of respiratory viruses**. Cochrane Database of Systematic Reviews, 2010(1), Art. No.: CD006207. DOI: 10.1002/14651858.CD006207.pub3. (republished, online with edits, Issue 7 2011)

This review considers the effectiveness of physical interventions such as isolation, quarantine, hand washing and wearing masks, gloves and gowns in preventing the spread of respiratory viruses, particularly during epidemics. It includes 66 papers from 67 studies of various types (RCTs, cluster-RCTs, case-control studies, cohort studies and before-and-after studies). The reviewers concluded that hand washing interventions are effective, particularly when directed at younger children. This may be because they are less capable of managing their own hygiene as well as having longer-lived infections and more social contact (thus being more likely to make other people ill). Barrier methods such as gowns, gloves and masks are also effective, as is isolation of suspected cases. These interventions are even more effective when used in combination. The benefits of adding virucidals or antiseptics to normal hand washing are uncertain. There was limited evidence of the superior effectiveness of N95 respirators over simple surgical masks however the respirators were more expensive and more uncomfortable to wear. The authors state that N95 respirators may be useful in very high risk situations but that further research is needed to define these situations.

Aiello AE, Coulborn RM, Perez V, et al. 2008. **Effect of hand hygiene on infectious disease risk in the community setting: a meta-analysis**. American Journal of Public Health, 98(8), 1372-81

This review considered 30 articles reporting randomised or quasi-randomised intervention trials in community settings investigating the effect of hand hygiene measures on rates of gastrointestinal and respiratory disease. Meta-analysis was used to generate pooled rate ratios. Improvements in hand hygiene resulted in a reduction in respiratory illness rates of 21% (95% CI 5%–34%) and a reduction in gastrointestinal illness rates of 31% (95% CI 19%–42%). Use of soap together with hand hygiene education showed the greatest benefit in reducing both respiratory and gastrointestinal disease. Antibacterial soap was no more effective than plain soap. Reductions in rates of gastrointestinal illness were found for the use of either alcohol-based sanitizer (pooled results of 5 studies, RR = 0.77, 95% CI 0.52–1.13) or benzalkonium chloride (pooled results of 2 studies, RR = 0.58, 95% CI 0.30–1.12). The pooled results of 6 studies showed that alcohol based sanitizers were only weakly effective in preventing respiratory disease (RR=0.93, 95% CI 0.84–1.03) but the pooled results of 2 studies indicated that benzalkonium chloride sanitizers were protective against respiratory disease (RR = 0.60, 95% CI 0.45–0.81).

Lee T, Jordan NN, Sanchez JL, et al. 2005. **Selected nonvaccine interventions to prevent infectious acute respiratory disease**. American Journal of Preventive Medicine, 28(3), 305-16.

This review of 38 population based studies of various designs, mostly described as “interventional” aimed to identify non-vaccine preventive measures that could be feasible in military settings. They concluded that promoting hand washing and reducing crowding may offer benefits in reducing respiratory disease.

Centre for Reviews and Dissemination. 2011. **Selected nonvaccine interventions to prevent infectious acute respiratory disease** (Structured abstract). Database of Abstracts of Reviews of Effects, 2011(3).

The reviewers at the CRD stated that this review has a number of limitations which may limit its reliability. In particular there were no inclusion criteria for study design and the quality of the included studies was not assessed. Also, since the authors were especially concerned with preventing illness in military settings they may have overlooked some studies in other community settings.

Other Relevant Publications

The Asthma and Respiratory Foundation of New Zealand, Innes Asher and Cass Byrnes, editors. 2006. **Trying to Catch our Breath: The burden of preventable breathing disorders in children and young people**. Wellington: The Asthma and Respiratory Foundation of New Zealand. http://www.asthmanz.co.nz/files/PDF-files/Burden_FullDocument.pdf

This document reviews a range of significant respiratory conditions in New Zealand children, including whooping cough, pneumonia, bronchiolitis, tuberculosis, bronchiectasis, obstructive sleep apnoea, asthma, and smoking related respiratory illness. It emphasises the significant contribution poor housing, poverty, poor nutrition, issues with access to health care (primary, secondary and tertiary), smoking and air pollution make to the burden of paediatric respiratory disease in this country. The report also makes a number of recommendations, some of which involve changes to government policy. Recommendations specifically for DHBs include: monitoring appropriate indicators of child and youth respiratory health, developing strategies to reduce rates of respiratory disease including specific strategies for Māori and Pacific children and young people, developing Māori workforce capability, developing strategies to improve nutrition, implementing a systems approach to identifying smoking/smoke exposure in patients, improving smoking cessation programmes for parents and adults; increasing awareness of key respiratory symptoms amongst the public and health professionals, and implementing the Paediatric Society’s best practice guidelines.

Table 47. Local Policy Documents and Evidence-Based Reviews Relevant to the Prevention of Second Hand Cigarette Smoke Exposure

Ministry of Health Policy Documents and Other Relevant Publications
Ministerial Committee on Drug Policy. 2007. **2007. National Drug Policy 2007–2012** Wellington: Ministry of Health. http://www.ndp.govt.nz/moh.nsf/pagescm/685/$File/nationaldrugpolicy20072012.pdf The National Drug Policy 2007-2012 outlines a single framework for the Government's policy for tobacco, alcohol, illegal and other drugs.
Ministry of Health. 2004. **Clearing the Smoke: A five-year plan for tobacco control in New Zealand (2004–2009)**. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/0/AAFC588B348744B9CC256F39006EB29E/$File/clearingthesmoke.pdf There are 5 objectives in the tobacco control plan, with preventing harm to non-smokers from second-hand smoke being the third. There are a number of guiding principles for the plan including giving substantial weight to interventions for which there is strong scientific evidence of effectiveness. The plan states that there is strong evidence from both New Zealand and overseas that counselling pregnant women to quit is effective. While the plan states that there is insufficient evidence for the effectiveness of community education in reducing second-hand smoke in the home, it indicates that the Ministry will consider media campaigns to promote smoke-free homes and cars.
There are a considerable number of other Ministry of Health publications relating to tobacco control and the majority of them can be found on the following webpage: http://www.moh.govt.nz/moh.nsf/indexmh/tobacco-resources-publications. A few of the most relevant are listed below:
Ministry of Health. 2009. **Implementing the ABC Approach for Smoking Cessation - Framework and work programme**. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/pagesmh/8794/$File/implementing-abc-approach-smoking-cessation-feb09.pdf This document outlines the **ABC** approach to stopping smoking: **Ask** everyone whether or not they smoke, Provide **Brief** advice on quitting, then offer, refer to, or provide evidence-based **Cessation** treatment. Pregnant women are identified as a priority group and are the focus of the Tackling Smoking in Pregnancy Project.
Wilson N. 2007. **Review of the Evidence for Major Population-Level Tobacco Control Intervention**. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/pagesmh/6142/$File/review-evidence-major-population-level-tobacco-control-interventions.pdf Chapter 5 of this publication deals with population-level approaches to reducing exposure to second-hand smoke. It cites the U.S. Surgeon General's report (see below) which found that workplace smoking bans and bans on smoking indoors in hospitals, restaurants, bars and offices were effective in reducing exposure to second-hand smoke (in New Zealand, under the Smoke-free Environments Amendment Act 2003, smoking is banned in schools and early childhood centres, licensed premises and workplaces). It reports that there has been little research on the effectiveness of banning outdoor smoking. Some city councils have bans on smoking in parks and some universities and hospitals ban outdoor smoking. It reported that although bans on smoking in cars where children are passengers have been implemented in several places since 2006 there were no evaluations reported when the review was done in 2007. It discusses New Zealand research and mass media campaigns. Chapter 7 is entitled "Interventions and research that DHBs can consider". It is suggested that DHBs could be involved in community education to reduce exposure to second-hand smoke in homes and cars.
Ministry of Health. 2007. **New Zealand Smoking Cessation Guidelines.** Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/pagesmh/6663/$File/nz-smoking-cessation-guidelines-v2-aug07.pdf This publication provides evidence-based guidance for healthcare workers in their work with people who smoke tobacco, in particular those who belong to the priority groups: Māori, Pacific peoples, pregnant women and people who use mental health and addiction services. The guidelines recommend the **ABC** approach. (see above)
Ministry of Health. 2001. **New Zealand Health Strategy DHB Toolkit: Tobacco Control**. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/pagesmh/5542/$File/tobacco-control-toolkit.pdf This publication aims to assist DHBs in implementing the New Zealand Health Strategy priority population health objective: Reducing smoking (and the harm from second-hand smoke). A more recent brief publication, which addresses one of the six 2010/11 government health targets for DHBs is: Ministry of Health. 2011. **Targeting Smokers: Better Help for Smokers to Quit**. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/pagesmh/10704/$File/targeting-smokers-to-quit.pdf
Systematic and Other Reviews From the International Literature
Callinan JE, Clarke A, Doherty K, et al. 2010. **Legislative smoking bans for reducing second hand smoke exposure, smoking prevalence and tobacco consumption**. Cochrane Database of Systematic Reviews, 2010(4), Art. No.: CD005992. DOI:10.1002/14651858.CD005992.pub2. This review included 50 studies and found that there was consistent evidence that smoking bans reduced second hand smoke (SHS) exposure in workplaces, restaurants, pubs and public places. No studies reported any change in smoke exposure in cars after the implementation of public place smoking bans (5 studies, one of which measured the percentage of children exposed). In general, the studies which measured SHS in homes (15 in total) reported no change although a few, including one from New Zealand, reported reduced exposure.

Priest N, Roseby R, Waters E, et al. 2008. **Family and carer smoking control programmes for reducing children's exposure to environmental tobacco smoke**. Cochrane Database of Systematic Reviews, 2008(4), Art. No.: CD001746. DOI: 10.1002/14651858.CD001746.pub2.

This review is based on the findings of 36 controlled trials of various interventions, most of which were undertaken in high income countries. Thirty-one trials were done in healthcare settings, (16 "well child", 13 "ill child" and 2 unspecified) and 4 used interventions targeted at populations or communities. Only 11 of the 36 studies reported a statistically significant effect of the intervention in reducing children's exposure to environmental tobacco smoke. Four of these used intensive counselling interventions for smoking parents. Whether the child was well or ill when they visited a healthcare facility made no difference to the effectiveness of parent smoking cessation interventions. The authors concluded that there was no clear evidence for recommending any particular type of intervention, or setting for intervention, however the evidence did provide limited support for more intensive counselling interventions for parents. Interventions aimed at changing participants' attitudes and behaviours were more effective than those which aimed to increase participants' knowledge.

U.S. Department of Health and Human Services. 2006. **The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General**. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. http://www.surgeongeneral.gov/library/secondhandsmoke/report/fullreport.pdf

This comprehensive report (600+ pages) reviewed a large body of evidence, which included all relevant observational and experimental studies. The evidence was analysed to identify causal associations between smoking and disease using the "Surgeon General's Criteria" or the "Hill criteria". These criteria included: consistency of association, strength of association, specificity of association, temporality of association and coherence of association.

Chapter 6 reviewed studies linking children's respiratory illnesses with second hand smoke. Updated meta-analyses of the health effects of parental smoking were undertaken, with the reviews finding there was sufficient evidence to infer a causal relationship between parental smoking and:

- Lower respiratory illnesses and middle ear disease in children
- Cough, phlegm, wheeze and breathlessness and ever having asthma in school age children
- The onset of wheeze illnesses in early childhood. However there was only suggestive, but not sufficient, evidence to infer a causal relationship between parental smoking and the onset of childhood asthma.

There was also sufficient evidence to infer a causal relationship between maternal smoking in pregnancy, and exposure to second hand smoke after birth, and impaired lung function in childhood.

Chapter 5 concerned the reproductive and developmental effects of second hand smoke on fertility, pregnancy (spontaneous abortion and fetal deaths), infant deaths, sudden infant death syndrome (SIDS), preterm delivery and low birth weight (these are discussed elsewhere in the relevant sections of this report).

Chapter 10 dealt with the control of second-hand smoke. It covered attitudes and beliefs about second-hand smoke and policy approaches to controlling second-hand smoke exposure. Due to workplace smoking bans the home is now the predominant place of exposure to second hand smoke for both adults and children. Members of a household can voluntarily adopt smoking rules. The only such rule effective in protecting non-smokers is making the home completely smoke-free. It is stated that there are no clearly established interventions for reducing smoke exposure at home. Table 10.16 (p 622) provides details on a number of studies assessing the effectiveness of interventions to reduce second hand smoke exposure in children at home. Two U.S. RCTs, one involving 291 smoking parents of young children and one involving 108 mothers of young children, were found to have produced substantial reductions in second hand smoke exposure. In one, the intervention was a 30–45 minute motivational interview with a trained health educator and four follow-up telephone counselling calls. In the other study the intervention was a seven-session three-month counselling intervention. A systematic review by Gehrman and Hovell (2003) is also reported on in this chapter (see below).

An abbreviated version of the sections of above publication relevant to children has been published as:

U.S. Department of Health and Human Services. 2007. **Children and Second hand Smoke Exposure. Excerpts from The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General.** Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. http://www.surgeongeneral.gov/library/smokeexposure/report/fullreport.pdf

Thomson G, Wilson N, Howden-Chapman P. 2006. **Population level policy options for increasing the prevalence of smokefree homes**. Journal of Epidemiology & Community Health, 60(4), 298-304.

This review considered the effectiveness of population level tobacco policies on the prevalence of smokefree homes in Britain, the U.S., Australia and New Zealand. It also considered the cost-effectiveness of policy options and their effects on reducing inequalities in second hand smoke exposure. In all four countries there was some evidence for an association between the introduction of comprehensive tobacco control programs and increases in the prevalence of smokefree homes (comprehensive programmes were defined as involving all of the following: active policies on tobacco prices, effective education, smokefree places policies, and population level cessation support). There was indirect evidence that, within comprehensive tobacco control programmes, policies to change the public's knowledge and behaviour regarding second hand smoke (e.g. mass media campaigns) may be effective in increasing the proportion of homes that are smokefree but there was conflicting evidence regarding their effects on inequalities in the prevalence of smokefree homes. The review did not find any evidence regarding the cost-effectiveness or otherwise of comprehensive tobacco control programmes for increasing the proportion of homes that are smokefree. The reviewers concluded that comprehensive tobacco control programmes which aim to reduce the prevalence of smoking in the whole population are likely to be the best option for increasing the prevalence of smoke free homes.

Gehrman CA, Hovell MF. 2003. **Protecting children from environmental tobacco smoke (ETS) exposure: a critical review**. Nicotine & Tobacco Research, 5(3), 289-301.

This review reports on 19 studies, 12 of which were RCTs, published between 1987 and 2002. Eleven of the 19 studies (and 8 of the 12 RCTs) found significant reductions in ETS exposure as a result of an intervention. There were 10 physician based interventions (e.g. providing brief counselling +/− take home publications at well child appointments), and 8 home-based interventions. In general, the home based interventions were more intensive, involving a greater number and duration of contacts between health care advisors and parents. They also seemed to be more effective although this conclusion is based on a relatively small number of heterogeneous studies of variable methodological rigour.

Centre for Reviews and Dissemination. 2011. **Protecting children from environmental tobacco smoke (ETS) exposure: a critical review** (Structured abstract). Database of Abstracts of Reviews of Effects (3).

The reviewers at the CRD noted that this review lacked a quality assessment and that "the unknown validity of methods used to assess outcomes, and the inconsistent results among studies mean that the conclusions may not be reliable."

Other Relevant Publications and Websites

Tobacco Control Reference Group. 2009. **The Beginner's Guide to Tobacco Control**. Wellington: The Health Sponsorship Council (HSC). http://www.hsc.org.nz/pdfs/The_Beginner's_Guide.pdf

This concise, well referenced New Zealand publication aims "*to provide all the information you need to get up to speed quickly when you start working in the tobacco control sector*". It covers key information sources, both local (governmental and non-governmental) and international, the history of tobacco control, health promotion and public health, research, addiction and smoking cessation, priority groups, the effects of tobacco and second-hand smoke, facts and figures, the Framework Convention on Tobacco Control, and the tobacco industry.

Freeman B, Chapman S, Storey P. 2008. **Banning smoking in cars carrying children: an analytical history of a public health advocacy campaign**. Australian & New Zealand Journal of Public Health, 32(1), 60-5.

This paper reports on 12 years of advocacy for the banning of smoking in cars with children and the eventual passage of legislation in South Australia and Tasmania. It states that the issue received extensive and emotive media coverage and that public opinion studies have shown consistently strong support for laws banning smoking in cars with children.

American Academy of Pediatrics **Julius B. Richmond Center of Excellence**http://www.aap.org/richmondcenter/

This site provides information about the AAP Julius B. Richmond Center of Excellence which has as its mission to improve child health by eliminating exposure to tobacco and second-hand smoke. Also on the website are links to a large number of useful resources for both families and professionals.

Table 48. Local Policy Documents and Evidence-Based Reviews Relevant to Housing

New Zealand Policy Documents

Housing New Zealand Corporation. 2009. **Orama Nui Housing Strategy for Pacific Peoples**. Wellington: Housing New Zealand Corporation. http://wellingtonfijicommunity.files.wordpress.com/2010/06/hnz-pacific-housing-strategy-nov-2009.pdf

This strategy aims to ensure that "*All Pacific Peoples have a choice of housing in safe and healthy communities*". It sets out a strategic direction for the ten year period 2009-2019. It notes that Pacific peoples have the lowest rates of home ownership in New Zealand, frequently live in poor and/or overcrowded housing and make up 25% of state housing tenants nationally. The strategy focuses on improving the ability of Housing New Zealand Corporation to deliver services to Pacific peoples. Four key outcomes are set out along with objectives to achieve those outcomes including improving the quality of state housing, assisting Pacific people towards home ownership, improving the Corporation's ability to communicate effectively with Pacific people and obtain good information about their needs, and working with other community and business agencies (including local councils and churches) to facilitate joint housing initiatives.

The Energy Efficiency and Conservation Authority. 2007. **New Zealand Energy Efficiency and Conservation Strategy**. Wellington: EECA http://www.eeca.govt.nz/sites/all/files/nzeecs-07.pdf

Section 2 of this strategy is entitled "Energywise Homes". Its key objective is "Warm, dry healthy homes, improved air quality and reduced energy costs". The strategy acknowledges the relationship between cold and damp homes and poor health and also the barriers families face in investing in energy efficiency and renewable energy. It sets out the details of the Energywise Homes package announced in the 2007 budget. Funding is available to help with the costs of home insulation and the installation of clean heating with extra funding available for community services card holders.

Housing New Zealand Corporation. 2005. **Building the Future: The New Zealand Housing Strategy**. Wellington: Housing New Zealand Corporation. http://www.hnzc.co.nz/hnzc/dms/380D2C40C069A4CE4665F55A8C4523D1.pdf

This publication sets out priorities for housing and a programme of action for the next ten years from 2005. The Government's vision for housing is stated to be that "All New Zealanders have access to affordable, sustainable, good quality housing appropriate to their needs." Seven areas of action are set out to achieve six strategic goals: Increased access to affordable and sustainable housing, more efficient and effective housing markets, increased choice and diversity in housing markets, improved housing standards across tenures, increased integration of housing with the community and other services, and increased capability in the housing sector.

Systematic and Other Reviews from the International Literature
Sauni R, Uitti J, Jauhiainen M, et al. 2011. **Remediating buildings damaged by dampness and mould for preventing or reducing respiratory tract symptoms, infections and asthma**. Cochrane Database of Systematic Reviews, 2011(9), Art. No.: CD007897. DOI: 10.1002/14651858.CD007897.pub2. This review included two RCTs (294 participants), one cluster RCT (4407 participants) and five controlled before and after studies (1837 participants) involving a variety of interventions to remediate moisture damaged buildings. Each study assessed the effects of the interventions on some of the following outcomes: asthma and respiratory symptoms, presence of mould, medication use, sick days, hospital admissions, emergency department visits, measured lung function, self-reported allergy and other symptoms, number of respiratory infections, indoor temperature, and stress/mental illness. The authors found moderate to low quality evidence in adults that repairing houses and offices decreased respiratory infections and asthma-related symptoms. The study also found when physician visits for all respiratory conditions were considered, there were no differences between pupils of a mould-damaged school and a control school before or after remediation.
Fisk WJ, Eliseeva EA, Mendell MJ. 2010. **Association of residential dampness and mould with respiratory tract infections and bronchitis: a meta-analysis**. Environmental Health: A Global Access Science Source, 9, 72. This paper reports the results a number of meta-analyses of published studies (English language only) that examined the relationship between dampness or mould in homes and respiratory infections and bronchitis. In total there were 23 studies included (4 birth cohort, 17 cross-sectional and 2 case-control). Summary estimates of odds ratios for various respiratory health outcomes ranged from 1.38 to 1.50 from random effects models with 95% confidence intervals excluding the null value (indicating no effect) in all cases. For respiratory infections in children the reported odds ratio was 1.48, (95% CI 1.34–1.62) indicating that children living in damp and/or mouldy homes have about 50% more respiratory infections. The authors concluded that "dampness and mould are associated with moderate but statistically significant increase in respiratory infections and bronchitis. If these associations were causal, reducing dampness and mould in buildings would reduce the occurrence of respiratory infections."
Taske Nichole, Taylor Lorraine, Mulvihill Caroline, et al. 2005. **Housing and Public Health: a review of reviews of interventions for improving health *Evidence Briefing***. London: National Institute for Health and Clinical Excellence. http://www.nice.org.uk/niceMedia/pdf/housing_MAIN%20FINAL.pdf This briefing, intended for policy and decision makers, NHS providers, housing providers and all those working in public health aimed to: identify all relevant systematic and other reviews on housing-related public health interventions, highlight interventions that these reviews indicated work particularly for vulnerable and disadvantaged groups, identify cost-effectiveness data for housing-related interventions and highlight any gaps in the evidence base and provide recommendations for future research. Regarding respiratory illness in children it is reported that there is a lack of review-level evidence for the effectiveness of air filtration systems or interventions that aim to reduce exposure to house dust mite allergen in the home (unless combined with maintenance drug treatments) in improving health outcomes for people with asthma. The authors conclude that large studies investigating the wider social context of housing interventions are required and report that some of these are underway in the U.K.
Saegert SC, Klitzman S, Freudenberg N, et al. 2003. **Healthy housing: a structured review of published evaluations of US interventions to improve health by modifying housing in the United States, 1990-2001**. American Journal of Public Health, 93(9), 1471-7. http://ajph.aphapublications.org/cgi/reprint/93/9/1471 This review of 72 studies found that 92% of interventions addressed a single condition, most commonly lead poisoning, injury or asthma. Fifty-seven per cent targeted children. The most common intervention strategies were a one-time intervention to change the environment and/or attitudes, behaviour or knowledge. Most studies reported that the intervention produced a statistically significant benefit however few (14%) were judged to be very successful. The review authors identified three factors that seemed to be generally associated with successful interventions: firstly policy interventions, secondly technological interventions that were effective, cheap, durable and relatively maintenance-free, especially if these interventions were accompanied by the provision of information or counselling and, thirdly, the involvement of people in the solutions to their own health problems. The authors argued that a broad ecological approach to health and housing issues which considers the interaction of environmental and psychosocial factors is likely to be more effective than interventions which target a single health condition.
Krieger J, Higgins DL. 2002. **Housing and health: time again for public health action**. American Journal of Public Health, 92(5), 758-68. http://ajph.aphapublications.org/cgi/reprint/92/5/758.pdf This article provides a general overview of the health effects of poor housing. It reports on some of the research in this area and on some of the historical background to the issue. There is a discussion of various "Healthy Homes" projects in the U.S. and on approaches to making homes healthier via refinement of building codes. There is a comprehensive list of 154 references.

Other Government Publications and Websites
Housing New Zealand Corporation. **Healthy Housing**.http://www.hnzc.co.nz/hnzc/web/housing-improvements-&-development/property-improvement/healthy-housing.htm This webpage provides information on the Healthy Housing Programme which is a joint initiative between Housing New Zealand and DHBs. The aims are: to raise awareness of infectious diseases, to improve access to health and social services, to reduce the risk of housing-related health problems and to reduce overcrowding. It involves a public health nurse and staff from Housing New Zealand meeting with Housing New Zealand tenants in selected areas (currently parts of the Hutt Valley, Otara, Glen Innes and Mangere) to identify housing and health issues within households. A clinician from the DHB reviews the information from the interview and the DHB makes sure tenants and their families can access healthcare for any identified health problems. The DHB also links tenants with social services agencies if they require welfare services. A summary of the outcomes evaluation for this programme has been published as: Housing New Zealand Corporation. 2008. **The Healthy Housing Programme Outcomes Evaluation**. Wellington: Housing New Zealand Corporation. http://www.hnzc.co.nz/hnzc/dms/94A76C4ABCB39FED972CEF9E09DCF445.pdf The evaluation found that the programme (which started in 2001) has significantly reduced rates of housing related disease (asthma and respiratory disease, rheumatic fever, meningitis and cellulitis) as well as injury rates. More detailed evaluation reports were published by Auckland UniServices Ltd in 2005, 2006 and 2007.
Other Relevant Publications and Websites
The Housing and Health Research Programme. 2011. **Healthy Housing He Kainga Orana**. http://www.healthyhousing.org.nz/ The Housing and Health Research programme is based at the University of Otago, Wellington and it undertakes research on the links between housing and health. Information about this programme can be found on this website as can a list of numerous publications relating to its activities.
James Bev, Savilee-Smith Kay. 2010. **Children's Housing Futures**. Wellington: Centre for Housing Research Aotearoa New Zealand. http://www.chranz.co.nz/pdfs/childrens-housing-futures-report.pdf Significant numbers of children in New Zealand live in unaffordable housing, crowded housing and housing with insecure tenure. The proportion of children who live in rented housing is increasing. Rental housing tends to be older and more poorly maintained than owner occupied housing. Section 4 of this publication reviews a range of international and New Zealand Research on the links between housing experiences and poor life chances and wellbeing.
Rankine Jenny. 2005. **Housing and Health - A summary of selected research for Auckland Regional Public Health services** Auckland: Auckland Regional Public Health Service. http://www.arphs.govt.nz/Publications_reports/archive/HealthyHousing/HsgHlthinAuckland.pdf This report, commissioned by the ARPHS, summarises selected research into housing and health in Auckland. Substandard housing which is crowded, cold, damp and mouldy, with no or unsafe heating (such as unflued gas heaters) increases the likelihood of the inhabitants suffering respiratory and other illness. Poor housing also increases the risks of injury and mental health conditions. Government policy affects the supply, quality and affordability of housing for people on low incomes. Existing state housing stock is poorly suited to large Pacific families. This report includes a long list of references, many of which are New Zealand specific.
The Public Health Advisory Committee. 2002. **The Health of People and Communities: the effect of environmental factors on the health of New Zealanders**. Wellington: National Health Committee. http://www.phac.health.govt.nz/moh.nsf/pagescm/775/$File/Health+of+People.pdf This report to the Minister of Health highlights environmental issues which have links to ill health and are also likely to contribute to health inequalities. Section 3 deals with air quality. It notes that poor indoor air quality is associated with the exacerbation of respiratory conditions and also allergic and toxic reactions especially in vulnerable groups such as children, older people and Māori. Poor quality housing may be damp and mouldy. Second hand smoke and the use of unvented gas appliances for heating and cooking produce toxins that aggravate respiratory conditions. It notes that multiply-disadvantaged people are the most likely to live in poor housing and to suffer poor health and that these people should be a priority for research and action. The committee makes a number of recommendations for the Ministry of Health including supporting policies to improve housing quality, encouraging the Ministry of Consumer Affairs to investigate the use of unflued gas heaters and identify affordable, safer alternatives, examining options for promoting smokefree homes and cars, and developing a set of core human health indicators for air quality in New Zealand.