

# ASTHMA

## What is this?

People with asthma have sensitive airways in their lungs that may tighten, partially close up, swell inside, and make more mucus, when faced with certain triggers. Those suffering from asthma may struggle to breathe in and find it even harder to breathe out. Symptoms include wheezing, chest tightness, cough and shortness of breath.<sup>1</sup> “Anyone can get asthma, and it can start at any time.”<sup>2</sup>



## Why is it important?

Asthma is a major public health problem in New Zealand, which has one of the highest rates in the world. Well-recognised research results have shown that in New Zealand approximately 15% of adults and 20% of children (under 15 years old) have asthma, and that Māori and Pacific people are most affected.<sup>3</sup> There are regional differences, and the main urban centres, including Christchurch, have a higher incidence of asthma than rural areas. The latest report from a longitudinal study, the International Study of Asthma and Allergies in Childhood (ISAAC), found that the percentage of children who had ever had asthma was still increasing in New Zealand, although the number of children with current symptoms had decreased over the previous nine years, demonstrating a reduction in severity.<sup>4</sup>

Children have the highest rate of hospital admissions due to asthma, with about one-third of all asthma admissions occurring in children aged under 5 years, and one-quarter in the 5-to-14-year age group<sup>5</sup>. Over the age of 14, the average monthly hospitalisation rate was about 1.8 per 1000, compared with 4 per 1000 in the 5-to-14-year age group. Asthma deaths, however, are lower in children than adults, with the death rate in 5- to 14-year-old children being 10 times less than in those over the age of 45 years, suggesting that the threshold for intervention and hospitalisation is lower.<sup>6</sup>

## Data

Children in Canterbury get admitted to hospital at a similar rate to children nationally although ‘NZ European/Other’ children get admitted at a slightly higher rate in Canterbury. Pacific and Māori children have much higher rates of hospital admissions than European/Other children in Canterbury and for all New Zealand (see Table 1).

<sup>1</sup> Information from the Asthma Foundation website (<http://asthmafoundation.org.nz/your-health/living-with-asthma/what-is-asthma/>). Accessed 10.09.12.

<sup>2</sup> Ibid.

<sup>3</sup> Robson B, Harris R. (eds). 2007. Maori Standards of Health IV. A Study of the years 2000-2005. Wellington: Te Rōpū Rangahau a Eru Pōmare.

<sup>4</sup> Asher, I., Stewart, A., Clayton, T., Crane, J., Ellwood, P., MacKay, R., Mitchell, E. et al. 2008. Has the prevalence and severity of symptoms of asthma changed among children in New Zealand? ISAAC Phase Three. *New Zealand Medical Journal* 121 (1284), 52-63.

<sup>5</sup> Holt, S., Beasley, R. 2002. The burden of asthma in New Zealand. Wellington: Asthma and Respiratory Foundation of New Zealand and Medical Research Institute of New Zealand. Available from <http://asthmafoundation.org.nz/wp-content/uploads/2012/03/burdenfull1.pdf> Accessed 10.09.12

<sup>6</sup> Holt, S., Beasley, R., op. cit.

**Table 1** Age-standardised asthma publicly funded hospitalisation rates (per 100,000), 0-14 years, 2009-10

|                   |        | Māori | Pacific | European/<br>Other | Total |
|-------------------|--------|-------|---------|--------------------|-------|
| Canterbury<br>DHB | Female | 586.6 | 523.5   | 334.9              | 385.2 |
|                   | Male   | 957.1 | 639.6   | 677.2              | 718.3 |
|                   | Total  | 775.5 | 583.2   | 510.7              | 556.0 |
| New Zealand       | Female | 631.9 | 631.5   | 336.6              | 453.3 |
|                   | Male   | 945.6 | 846.8   | 533.9              | 686.7 |
|                   | Total  | 793.5 | 742.4   | 437.5              | 573.1 |

In Canterbury, hospitalisation rates due to asthma in those aged 15+ are lower than the national rates. Māori and Pacific in Canterbury and all New Zealand have a higher rate of asthma than European/Other ethnicity (see Table 2).

**Table 2** Age-standardised asthma publicly funded hospitalisation rates (per 100,000), 15+ years, 2009-10

|                   |        | Māori | Pacific | European/<br>Other | Total |
|-------------------|--------|-------|---------|--------------------|-------|
| Canterbury<br>DHB | Female | 157.9 | 443.9   | 90.4               | 108.6 |
|                   | Male   | 113.3 | 377.5   | 69.9               | 80.8  |
|                   | Total  | 136.9 | 413.7   | 84.6               | 94.8  |
| New Zealand       | Female | 381.4 | 436.5   | 110.2              | 166.1 |
|                   | Male   | 177.9 | 176.1   | 54.5               | 79.5  |
|                   | Total  | 283.9 | 312.1   | 82.8               | 123.1 |

### ***Impact on inequalities***

Asthma tends to be more severe in Māori and Pacific Island children and also tends to be more common in Māori and Pacific Island adults, as compared with non-Polynesian New Zealanders. The suggested reasons for this inequality include differential access to quality healthcare. The greater severity of asthma in Māori children is thought to be because of under-prescribing of prophylactic medication. Children with asthma are estimated to lose 12 days a year in schooling, with adverse effects on educational opportunity. Adults with asthma are estimated to lose five working days a year, with resulting loss of income and productivity.<sup>7</sup>

Evidence is growing that symptoms of asthma can be aggravated or triggered by adverse aspects of the indoor environment, including cold temperatures, damp and mould, and pollutants. Two studies by the Wellington School of Medicine and Health Sciences have shown that installing insulation in New Zealand homes can significantly reduce respiratory

<sup>7</sup> Holt, S., Beasley, R., op. cit.

illnesses and have a positive impact on the health and wellbeing of residents. People living in warmer homes require fewer GP visits, tend to have fewer hospital admissions and fewer sick days off work and school.<sup>8</sup> International research has reached similar conclusions.<sup>9, 10</sup>

The Infant Cohort Study, which was initially set up in 1998 in collaboration with the Wellington Asthma Research Group, looks at risk factors for the development of asthma and enrolled over 500 children in both Christchurch and Wellington. An outcome of this study was that breastfeeding was shown to have a protective effect by being associated with a significant reduction in the risk of adverse respiratory outcomes, eczema and atopy at 15 months of age, which may be early indicators for asthma in this age group.<sup>11</sup>

### **Solutions**

Preventive strategies include addressing tobacco control and smoking prevalence, poor housing and air pollution,<sup>12</sup> as well as improving access to health care services and pharmaceuticals. Canbreathe is a local service that provides education and support free to individuals and families to help with the management of asthma and COPD in Christchurch and Canterbury. This service is partly funded by CDHB.

The Warm Families Project (Canterbury) is an example in part of Energy Efficiency and Conservation Authority (EECA) funding being used to retrofit insulation in cold, damp houses to improve the respiratory health of their occupants. A further project on Warm Homes is identifying people with regular hospital admissions for respiratory diseases and working with home owners and landlords to insulate these homes – this is also funded by the CDHB.

### **Data limitations**

Asthma data is collected via national hospitalisation statistics but accurate national statistics from Primary Care is not available. It is a topic that has seen much research over the years so a range of up to date research information is available.

### **Connections with other indicators**

Air Pollution, Housing, Fuel Poverty, Access to Primary Healthcare, Smoking, Education, Employment, Cancer, Breastfeeding.

### **Impact of the earthquakes**

*As time passes and these papers are updated the initial sections on the impact of the earthquake are going to be kept as an archive of what we thought the situation was at the time. Updates where possible are provided.*

### **As at December 2012**

Air quality issues are yet unknown, however, dust and other respiratory irritants generated from the nearby demolition of buildings could temporarily impact on people's asthma.

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<sup>8</sup> Howden-Chapman, P., Pierse, N., Nicholls, S., Gillespie-Bennett, J., Viggers, H., Cunningham, M., Phipps, R. et al. 2008. Effects of improved home heating on asthma in community dwelling children: randomised controlled trial. *BMJ* 337, a1411.

<sup>9</sup> Evans, J., Hyndman, S., Stewart-Brown, S., Petersen, S. 2000. An epidemiological study of the relative importance of damp housing in relation to adult health. *Journal of Epidemiology and Community Health* 54(9), 677-686.

<sup>10</sup> Lloyd, E.L., McCormack, C., McKeever, M., Syme, M. 2008. The effect of improving the thermal quality of cold housing on blood pressure and general health: a research note. *Journal of Epidemiology and Community Health* 62(9), 793-797.

<sup>11</sup> Silvers, K., Frampton, C.M., Epton, M.J., Pattermore, P.K., Ingham, T., Fishwick, D., Crane, J. et al. 2009. Breastfeeding protects against adverse respiratory outcomes at 15 months of age. *Maternal and Child Nutrition* 5(3): 243-250.

<sup>12</sup> Shaw, Ian. 2006. Asthma. In: Asher, I & Byrnes, C. (eds) *Trying to catch our breath: the burden of preventable diseases in children and young people*. Auckland: Paediatric Society of New Zealand & University of Auckland, p. 60-65. Available from: [http://asthmafoundation.org.nz/wp-content/uploads/2012/03/Burden\\_FullDocument.pdf](http://asthmafoundation.org.nz/wp-content/uploads/2012/03/Burden_FullDocument.pdf) Accessed 10.09.12.

Housing issues such as cold damp homes still being cleared of liquefaction or awaiting repairs continue to create problems for some families.

**As a November 2011**

There is not yet any known affect from the earthquakes on asthma rates but it is reasonable to expect there may be a negative affect given the impact of the earthquakes on home insulation and heating and the suggested increases in tobacco smoking.

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