

Asthma prevalence

This factsheet presents statistics on the prevalence of medicated asthma among children aged 2–14 years in New Zealand. The data comes from the New Zealand Health Survey.

Key facts



In 2018/19, about 110,000 children (13.1%) aged 2–14 years had medicated asthma. The rate of medicated asthma has remained relatively consistent for over 10 years, from 2006/07 to 2018/19.



Prevalence rates of medicated asthma were higher for boys (15.4%) than girls (10.8%) in 2018/19. Boys were 1.4 times as likely as girls to have medicated asthma, after adjusting for age.



Māori children (16.1%) had the highest rate of medicated asthma in 2018/19. They were 1.3 times as likely to have medicated asthma as other children, after adjusting for age and sex.



In 2018/19, asthma prevalence was similar across neighbourhood deprivation quintiles.

A poor indoor environment can increase the risk of asthma in children

Asthma affects a person's airways and makes it difficult to breathe. Second-hand smoke exposure can increase the risk of having asthma and wheeze in children (US Department of Health and Human Services 2007). Indoor dampness/mould is also associated with asthma onset and exacerbation in children (Jaakkola et al 2011; Prezant and Douwes 2011). Additionally, several studies have found an increase in asthma prevalence or incidence associated with exposure to nitrogen dioxide (Guarnieri and Balmes 2014). Evidence also suggests that transport-related air pollution may increase the incidence of asthma (Orellano et al 2017).

New Zealand has high asthma rates in children compared with other countries (Lai et al 2009; OECD 2015). Each year, a small number of children die from asthma; in 2016, five children died from asthma in New Zealand (Ministry of Health 2019a).

In this factsheet, child respondents (aged 2-14 years) are defined as having medicated asthma if a child's parent or caregiver had ever been told by the doctor that a child has asthma, and if the child now takes treatments for asthma (inhalers, medicine, tablets or pills).

About 110,000 children aged 2–14 years had medicated asthma in 2018/19

In 2018/19, 13.1% of children aged 2–14 years had medicated asthma (95% confidence interval 11.9–14.5) (Figure 1). This is about 110,000 children.

The percentage of children with medicated asthma over the last ten years has been relatively consistent (Figure 1). However, there was a drop in asthma prevalence between 2015/16 (16.6%) and 2018/19 (13.1%), after adjusting for age.

Figure 1: Medicated asthma, children aged 2–14 years, 2006/07–2018/19 (unadjusted prevalence)



Note: There is no data available between 2006/07 and 2011/12 because the New Zealand Health Survey only became annual in 2011/12.

Source: New Zealand Health Survey (Ministry of Health 2019b)

Boys were more likely to have medicated asthma than girls

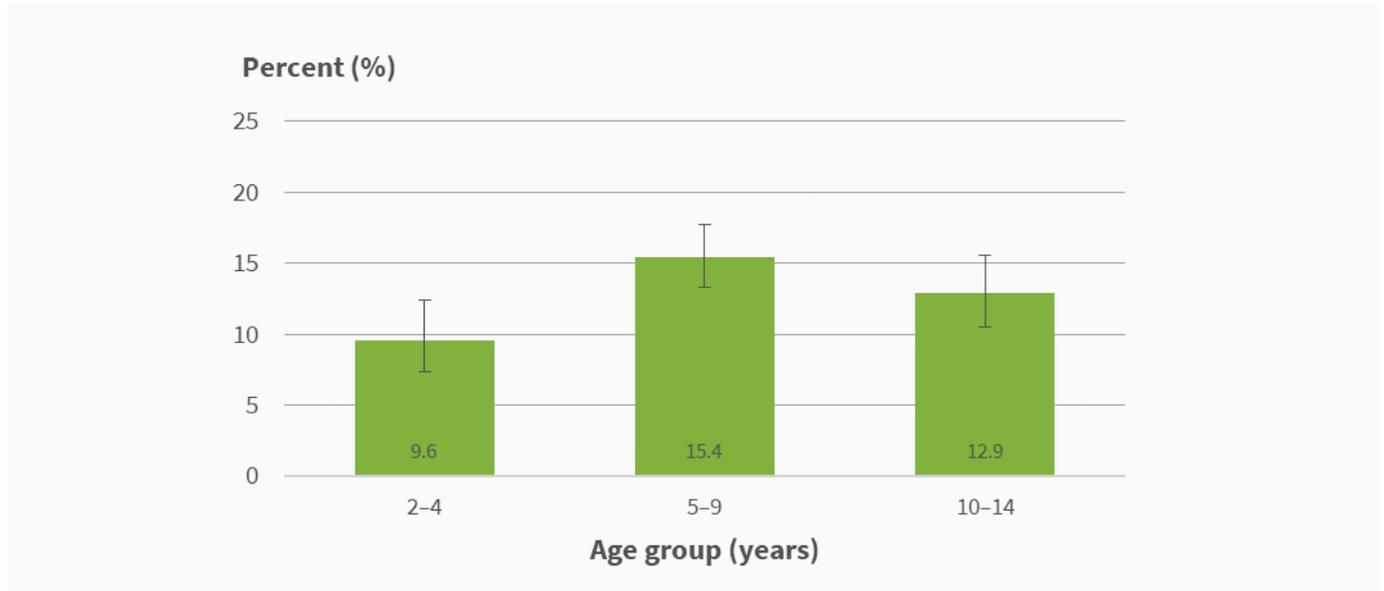
In 2018/19, 15.4% of boys (13.4–17.7) and 10.8% of girls (9.1–12.7) took medication for asthma. Adjusting for age differences, boys were 1.4 times as likely as girls to have medicated asthma (adjusted rate ratio 1.4, 1.1–1.8).

Several studies show that asthma prevalence is higher in boys than girls in childhood (Almqvist et al 2008; Moorman et al 2012). This is because boys have larger lungs but smaller airways, predisposing them to airway obstruction and wheeze. Boys also have a higher prevalence of atopy (genetic tendency to develop allergies) compared to girls (Arbes et al 2004; Becklake and Kauffman 1999; Wijga et al 2010). However, in and around the time of puberty, a gender switch occurs, and asthma becomes more prevalent in adult females than males (Arbes et al 2004; Carey et al 2007).

Children aged 5–9 years have higher asthma prevalence than their younger counterparts

In 2018/19, children taking asthma medication was higher for those aged 5–9 years (15.4%) than those aged 2–4 years (9.6%) (Figure 2).

Figure 2: Medicated asthma, children aged 2–14 years, by age group, 2018/19 (unadjusted prevalence)

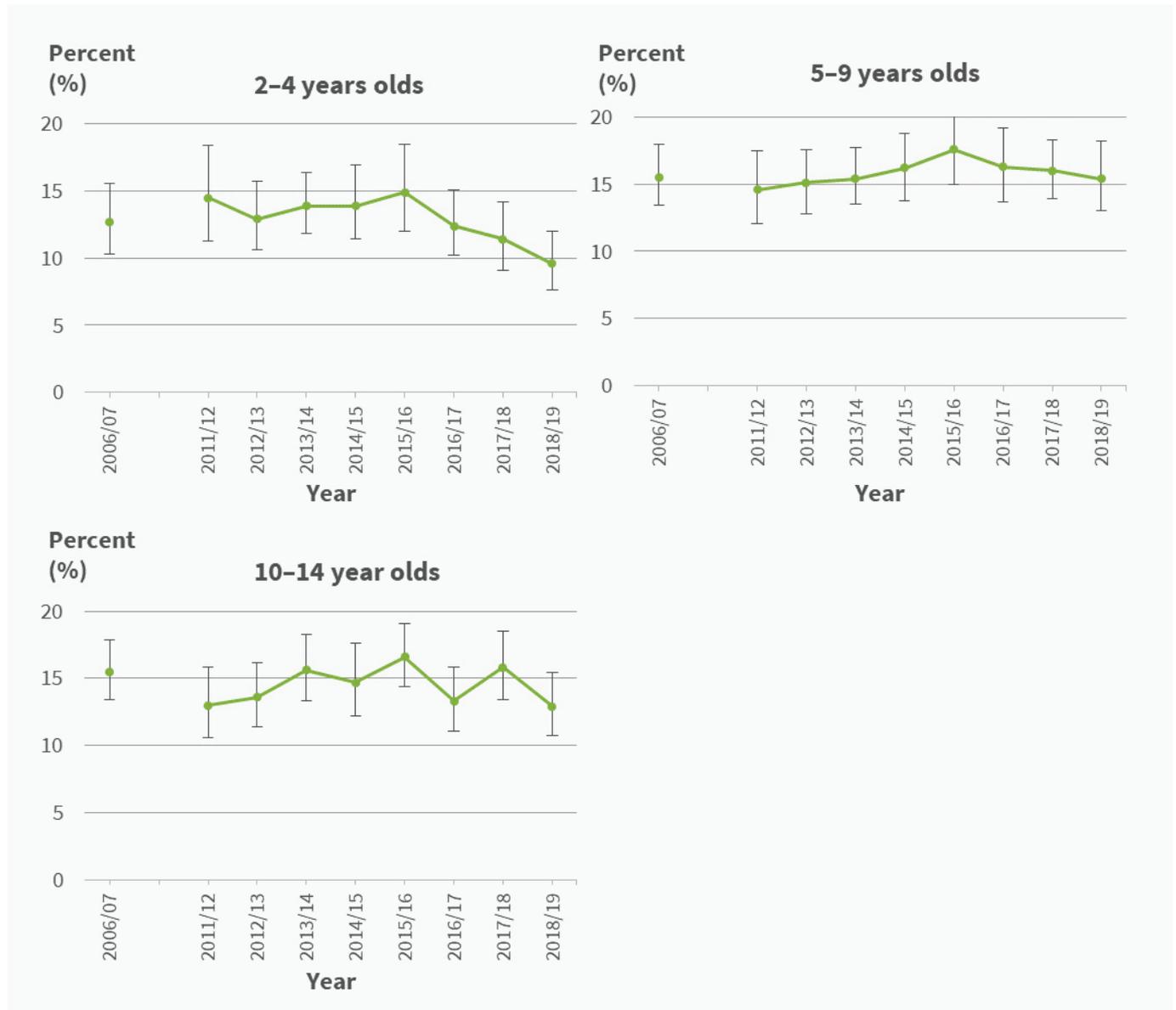


Source: New Zealand Health Survey (Ministry of Health 2019b).

Asthma prevalence has dropped in children aged 2–4 and 10–14 years between 2015/16 and 2018/19

The percentage of children aged 2–4 years with medicated asthma has decreased from 14.9% in 2015/16 to 9.6% in 2018/19. A decline in asthma prevalence was also seen in older children (10–14 years) between 2015/16 and 2018/19 (16.6% and 12.9% respectively). For children aged 5–9 years, the rate of medicated asthma continued to remain stable over time (Figure 3).

Figure 3: Medicated asthma, children aged 2–14 years, by age group, 2006/07–2018/19 (unadjusted prevalence)



Source: New Zealand Health Survey (Ministry of Health 2019b).

Māori children were more likely than non-Māori children to have medicated asthma

In 2018/19, the highest rates of medicated asthma were among Māori children (16.1%) and Pacific children (15.9%). This was followed by European/Other children (13.6%) (Table 1).

Table 1: Medicated asthma, children aged 2–14 years, by ethnic group (total response), 2018/19

Ethnic group (total response)	Unadjusted prevalence (%; 95% CI)	Estimated number of children	Comparison groups for adjusted rate ratio	Adjusted rate ratio (RR, 95% CI) [^]
Total	13.1 (11.9–14.5)	110,000		
Māori	16.1 (13.8–18.6)	32,000	Māori vs non-Māori	1.3 (1.1–1.6)*
Pacific	15.9 (12.0–20.8)	18,000	Pacific vs non-Pacific	1.2 (0.9–1.6)
Asian	9.9 (7.5–12.9)	14,000	Asian vs non-Asian	0.7 (0.6–1.0)*
European/Other	13.6 (12.0–15.4)	79,000		Not available

[^] Rate ratios (RR) are used to compare results for different population subgroups. Adjusted rate ratios are for age and sex differences that could influence the comparison. An adjusted rate ratio above 1.0 shows that the indicator is more likely in the group of interest than in the reference group. An adjusted ratio below 1.0 shows the indicator is less likely in the group of interest than the reference group.

* Indicates a statistically significant result for an adjusted rate ratio greater or lower than 1.0.

Notes: 95% confidence intervals (CI) are given in brackets. Estimated numbers will add to more than the total for ethnic groups, due to total response ethnic groups being used (where everyone is included in every ethnic group they report).

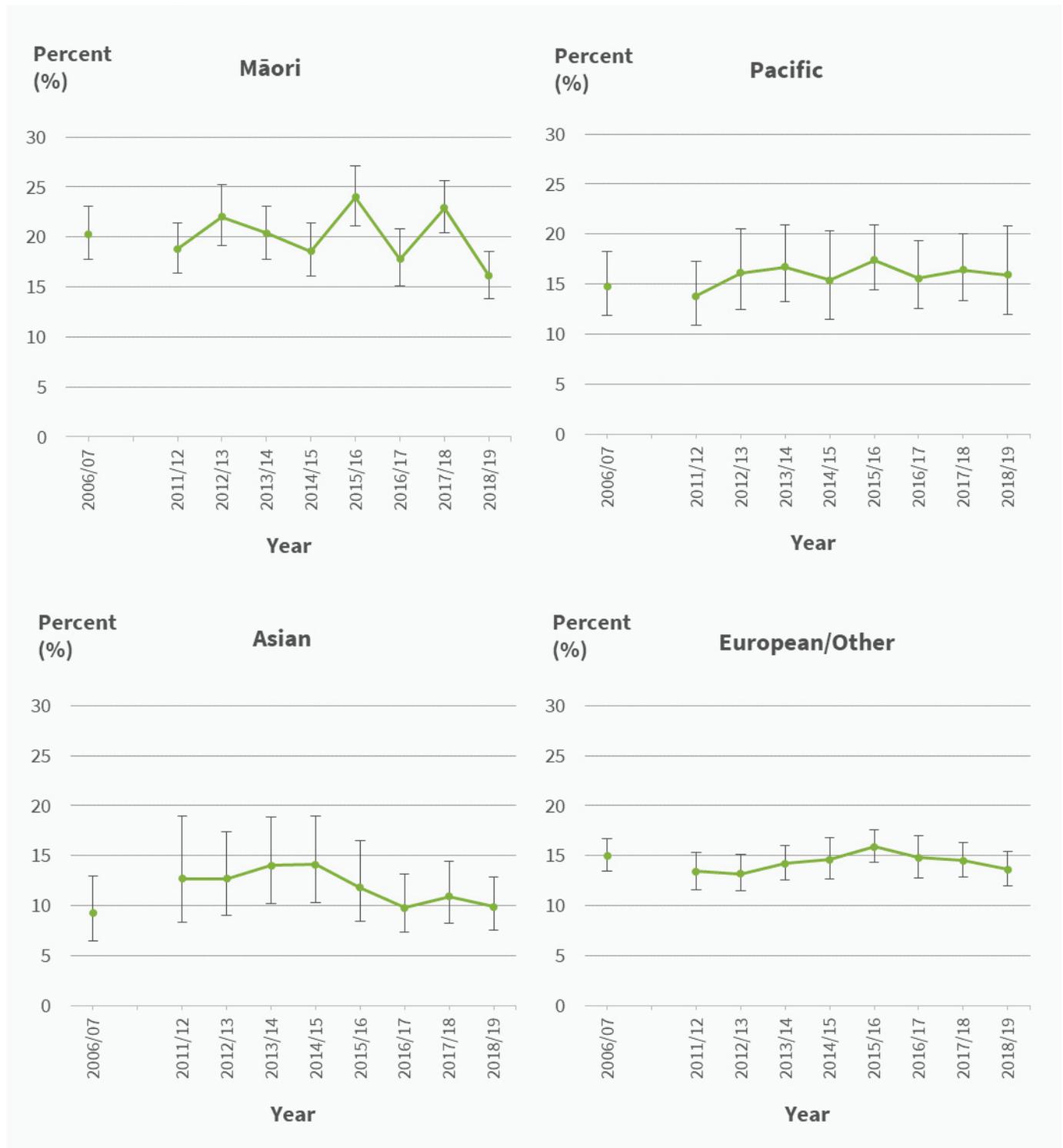
Source: New Zealand Health Survey (Ministry of Health 2019b).

Adjusting for age and sex differences, Māori children were 1.3 times as likely as non-Māori children to have medicated asthma (Table 1). Asian children were less likely (adjusted rate ratio 0.7) to have medicated asthma than non-Asian children.

Medicated asthma rates were consistent for most ethnic groups over time

The unadjusted rate of medicated asthma for each ethnic group has been relatively stable since 2006/07, except for Māori children (Figure 4). The asthma rate for Māori children fell from 22.9% in 2017/18 to 16.1% in 2018/19, after adjusting for age. Between 2014/15 and 2018/19, the asthma rates for Māori children fluctuated from year to year.

Figure 4: Medicated asthma, children aged 2–14 years, by ethnic group (total response), 2006/07–2018/19 (unadjusted prevalence)

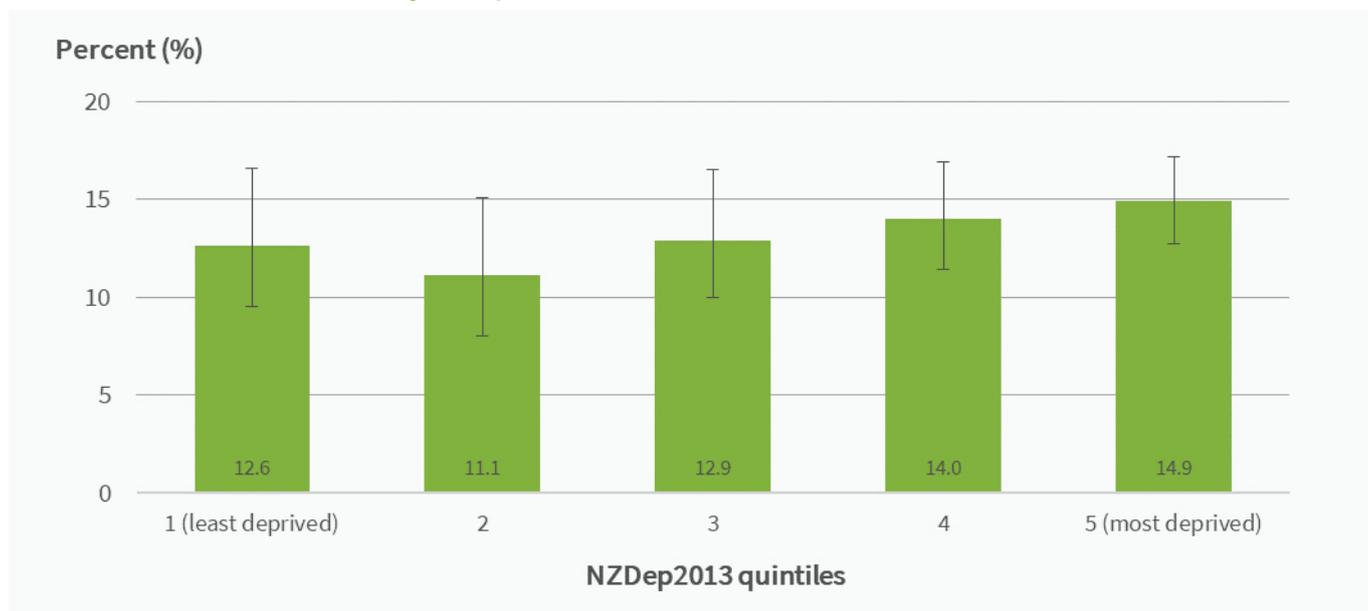


Source: New Zealand Health Survey (Ministry of Health 2019b).

Asthma prevalence was similar across neighbourhood deprivation

In 2018/19, there was no statistically significant difference in the rate of medicated asthma between children living in the most deprived areas (NZDep 2013 quintile 5) and least deprived areas (NZDep2013 quintile 1), after adjusting for age, sex, and ethnic group (Figure 5).

Figure 5: Medicated asthma, children aged 2–14 years, by neighbourhood deprivation (NZDep2013 quintiles), 2018/19 (unadjusted prevalence)

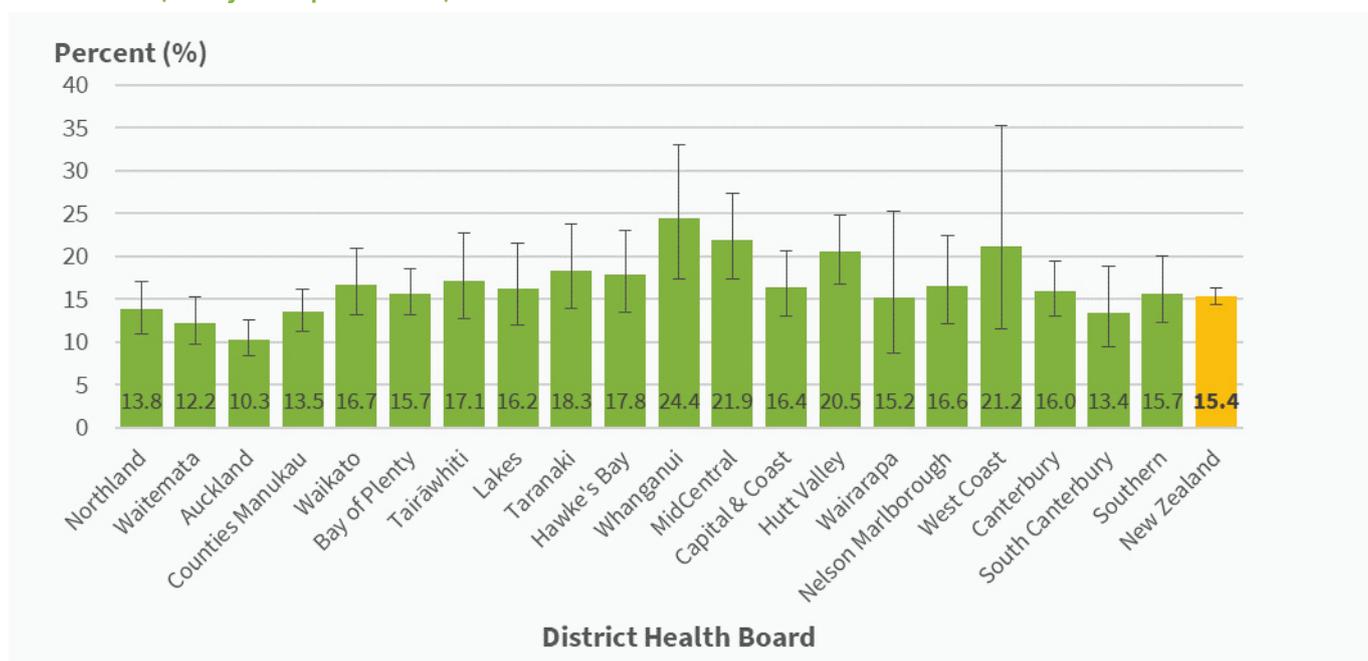


Source: New Zealand Health Survey (Ministry of Health 2019b).

Auckland DHB had the lowest rate of medicated asthma in 2014–17

In 2014–17, children living in the Auckland district health board (DHB) had the lowest rate of medicated asthma from the whole of New Zealand (Figure 6). Adjusting for age differences between DHBs gave similar findings.

Figure 6: Medicated asthma children aged 2–14 years, by District Health Board, 2014–17 (unadjusted prevalence)



Source: New Zealand Health Survey (Ministry of Health 2018).

Data for this indicator

Data for this indicator come from the New Zealand Health Survey. Statistics come from the 2018/19 New Zealand Health Survey data tables (Ministry of Health 2019b), and the 2014–17 New Zealand Health Survey regional results data tables (Ministry of Health 2018).

For additional information, see the metadata link below.

REFERENCES

- Almqvist C, Worm M, Leynaert B. 2008. Impact of gender on asthma in childhood and adolescence: a GA²LEN review. *Allergy* 68: 47–57.
- Arbes SJ, Guo X, Orelie D, et al. (2004). Interaction between sex and age in the prevalence of current asthma. *Journal of Allergy and Clinical Immunology* 113(2): S302.
- Becklake MR, Kauffman F. 1999. Gender differences in airway behaviour over the human life span. *Thorax* 54: 1119–38.
- Carey MA, Card JW, Voltz JW, et al. 2007. It's all about sex: gender, lung development and lung disease. *Trends in Endocrinology and Metabolism*. 18(8): 308–13.
- Guarnieri M, Balmes JR. 2014. Outdoor air pollution and asthma. *Lancet* 383(9928): 1581–1592.
- Jaakkola MS, Haverinen-Shaughnessy U, Douwes J, et al. 2011. Indoor dampness and mould problems in homes and asthma onset in children. In Braubach M, Jacobs DE, Ormandy D (eds), *Environmental burden of disease associated with inadequate housing: A method guide to the quantification of health effects of selected housing risks in the WHO European Region* (pp. 5–31). Copenhagen: World Health Organization Regional Office for Europe.
- Lai CKW, Beasley R, Crane J, et al. 2009. Global variation in the prevalence and severity of asthma symptoms: Phase Three of the International Study of Asthma and Allergies in Childhood (ISAAC). *Thorax* 64: 476–483.
- Ministry of Health. 2018. *Regional Results 2014–17: New Zealand Health Survey*. Wellington: Ministry of Health. URL: <https://www.health.govt.nz/publication/regional-results-2014-2017-new-zealand-health-survey> (Accessed 11/06/2018).
- Ministry of Health. 2019a. *Mortality 2016 data tables: Mortality and Demographic Data - series*. Wellington: Ministry of Health. URL: <https://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/mortality-and-demographic-data-series> (Accessed 22/10/2019).
- Ministry of Health. 2019b. *Annual Update of Key Results 2018/19: New Zealand Health Survey*. Annual Data Explorer 2018/19. Wellington: Ministry of Health. URL: <https://www.health.govt.nz/publication/annual-update-key-results-2018-19-new-zealand-health-survey> (Accessed 21/7/2020).
- Moorman JE, Akinbami LJ, Bailey CM, et al. 2012. *National Surveillance of Asthma: United States, 2001–2010*. National Center for Health Statistics. *Vital Health Stat* 3(35): URL: https://www.cdc.gov/nchs/data/series/sr_03/sr03_035.pdf (Accessed 10/08/2020).

OECD. 2015. *CO1.6: Disease-based indicators: prevalence of diabetes and asthma among children*. Organisation for Economic Co-operation and Development (OECD) Family Database. URL: https://www.oecd.org/els/family/CO_1_6_Diabetes_Asthma_Children.pdf (accessed 30/10/2017).

Orellano P, Quaranta N, Reynoso J, et al. 2017. Effect of outdoor air pollution on asthma exacerbations in children and adults: Systematic review and multilevel meta-analysis. *PLoS ONE* 12(3): e0174050.

Prezant B, Douwes J. 2011. *Calculating the burden of disease attributable to indoor dampness in New Zealand: Technical Report*. Wellington: Centre for Public Health Research.

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.

Wijga A, Tabak C, Postman DS, et al. 2010. Sex differences in asthma during the first 8 years of life: The prevention and incidence of asthma and mite allergy (PIAMA) birth cohort study. *Journal of Allergy and Clinical Immunology* 127(1): 275–77.

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