2026

State of Child Health

in Aotearoa New Zealand

cure kids

big research
for little lives

CONTENTS

This report is published in March 2026 and represents the most up-to-date data available at the time of publication.

FOREWORD

As the largest non-governmental funder of Child Health Research in Aotearoa New Zealand, Cure Kids is in a unique position to highlight the state of health of our nation's children. In a resource-constrained environment, a scientific lens on the gaps in the evidence that impair effective delivery of interventions to improve these child health metrics and a call to action for scientifically backed conclusions that have been shown to do so, are powerful contributions to enable decision making on these matters. For any professional engaged in child health, whether it be in setting policy directions, funding decisions, service delivery and prioritising future research, this report is a treasure trove of evidence to inform practice.

In many ways this collaboration, between the New Zealand Child and Youth Epidemiology Service at University of Otago, the Paediatric Society of New Zealand, the Royal Australasian College of Physicians, Cure Kids and numerous subject area experts is unique in the Aotearoa New Zealand medical research environment. It is attuned to multiple perspectives — researchers, clinicians, allied health professionals and communities — to arrive at firm and unequivocal standpoints on matters that could be transformational for outcomes for our children. It deliberately aims to be non-partisan — pressing for action in areas where evidence is clear — while still honestly pointing to gaps in understanding and data.

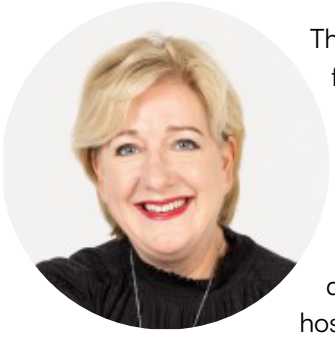
Good examples of this approach that are outlined in this report are the citing of clear evidence for health, economic and societal benefits for the use of nirsevimab and influenza vaccinations to mitigate respiratory disease. The need for more attuned provision of primary care interventions to curb the awful toll that rheumatic fever and consequent rheumatic heart disease continues to bring to bear on children across the nation is equally compelling. In contrast to these recommendations, the paucity of systematically acquired data on the rising incidence of mental health morbidity amongst our rangatahi in particular is a clarion call for the need for more research. Finally, neurodevelopmental conditions are one of the most complex clinical challenges facing us. The needs of children with neurodevelopmental conditions are cross sectorial and endure over a lifetime. A truly integrated approach brings dividends to children and families but also the communities they are embedded in.

I would like to loudly applaud the effort and attention to detail that so many individuals have put into the collation of this report. The challenges it relates all have components and elements that are unique to Aotearoa New Zealand. It is up to us to take action here in Aotearoa New Zealand since the solutions cannot be imported. Ensuring that the next generation of New Zealanders are thriving is an imperative that we all need to own.

Ngā manaakitanga,

Professor Stephen Robertson
Cure Kids Chair of Paediatric Genetics at the University of Otago

INTRODUCTION



The *2026 State of Child Health in Aotearoa New Zealand* report reinforces why our founders championed research as a tool to confront inequities in child health. They believed that no child's future should be shaped by preventable illness or the circumstances into which they are born, and this report shows how urgent that mission remains.

Respiratory illness continues to be one of the most significant and preventable drivers of harm for children and young people. It accounts for nearly one in five hospital admissions overall and more than one in three among infants. Over the past 25 years, hospitalisation rates for acute respiratory illness have increased by 60%, with current levels at record highs. Infants carry the heaviest burden: bronchiolitis, predominantly caused by RSV, is the leading cause of respiratory hospitalisation in children under two, while asthma and wheeze dominate in those aged 2—9. Repeated severe infections can lead to chronic conditions such as bronchiectasis, a progressive disease that reduces lung function and life expectancy.

The inequities highlighted are stark and unacceptable. Pacific children experience the highest rates of respiratory hospitalisation, followed by tamariki Māori and MELAA children. Socioeconomic deprivation remains a powerful determinant of health outcomes; children living in the most deprived communities are hospitalised far more often and are over three times as likely to be hospitalised for bronchiectasis. Poor housing quality, overcrowding, barriers to accessing primary care, tobacco smoke exposure, and environmental factors compound these disparities.

For Cure Kids, these findings reinforce the vital role of research in driving prevention and system change. The report identifies clear, evidence-based opportunities for improvement, including funding RSV immunisation (nirsevimab) for all infants, universal influenza vaccination for children under five, improving access to warm and healthy housing, and strengthening primary care access. Addressing these determinants could reduce respiratory hospitalisations by at least 23%, easing pressure on health services while significantly improving children's long-term health.

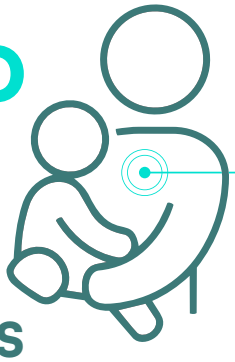
Updates on mental health and neurodevelopmental conditions further highlight the importance of early intervention and coordinated support to ensure children can thrive.

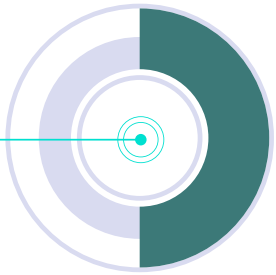
Overall, the report underscores the urgent need for equity-focused, prevention-driven action. It echoes the founding vision of Cure Kids: that research, collaboration, and targeted investment can reduce preventable illness and ensure every child in Aotearoa New Zealand has the opportunity for a healthy life and a brighter future.

Frances Soutter
Chief Executive, Cure Kids

RESPIRATORY CONDITIONS
MATE ROMAHĀ

INFANTS AGED
1 YEAR AND YOUNGER
ACCOUNT FOR
HALF OF ALL HOSPITALISATIONS
OF CHILDREN FOR
RESPIRATORY CONDITIONS



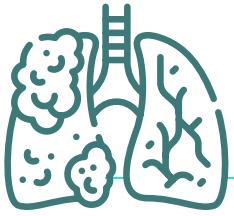


ASTHMA AND / OR WHEEZE WAS
RESPONSIBLE FOR ALMOST
HALF OF ALL RESPIRATORY HOSPITALISATIONS
FOR CHILDREN AGED
BETWEEN 2 AND 9 YEARS

OVER THE PAST
TWENTY FIVE YEARS,
HOSPITALISATION
RATES FOR
RESPIRATORY
CONDITIONS HAVE
INCREASED BY 60%

CHILDREN
ARE NOW
EXPERIENCING
RECORD RATES OF
HOSPITALISATIONS
WITH RESPIRATORY
CONDITIONS

SINCE 2000
MORE THAN
1,700
CHILDREN AND ADOLESCENTS HAVE BEEN
NEWLY DIAGNOSED
WITH **BRONCHIECTASIS**



RATES OF HOSPITALISATION FOR
RESPIRATORY CONDITIONS ARE
DISPROPORTIONATELY HIGH FOR **NON-EUROPEAN CHILDREN** AND **CHILDREN LIVING** IN THE **MOST DEPRIVED SOCIOECONOMIC AREAS**

RESPIRATORY CONDITIONS MATE ROMAHĀ

Cure Kids State of Child Health Report — Respiratory Section 2026, proudly supported by Daikin

KEY RECOMMENDATIONS

- **Fund nirsevimab** for all infants in Aotearoa NZ. Mounting international evidence shows that nirsevimab delivers a considerable **reduction in hospitalisation rates and severity for respiratory syncytial virus (RSV)-associated diseases (predominantly bronchiolitis).** Nirsevimab represents a once-in-a-generation opportunity to reduce respiratory burden among infants in Aotearoa NZ especially for those of Māori, Pacific, and MELAA ethnicity and those living with the most socioeconomic deprivation.
- **Universal funding of annual influenza vaccination for children aged 5 years and under,** with cross-agency efforts to support whānau to access vaccines. International data have shown that universal funding of the influenza vaccine is highly cost-effective as it reduces the risk of influenza-associated hospitalisation in children and, by association, in their elderly relatives. Infections in pre-school and school-age children are a driver of spread in the community.
- **Improving access to affordable, warm, dry, and suitably sized homes** will have significant effects on reducing the rates of respiratory-related hospital admissions in children and adolescents.

KEY FINDINGS

- Over the past 25 years, **hospitalisation rates for acute respiratory conditions in children and adolescents have increased 60%.**
- **One in five hospitalisations (19%)** of children and adolescents is for acute respiratory conditions. For **infants aged 1 year and younger, more than one in three** hospitalisations is for acute respiratory conditions.
- **Infants aged 1 year and younger account for half of all hospitalisations** of children for acute respiratory conditions. These infants are **27 times as likely to be hospitalised** for acute respiratory conditions as are children 10 years and older.
- The **seasonal pattern of acute respiratory hospitalisations** has returned following the COVID-19 pandemic. Aotearoa NZ is now experiencing **record rates** of hospitalisations of children with respiratory conditions.

- The **most common cause** of acute respiratory hospitalisations in **infants under 2 years** of age is **bronchiolitis** (44%). For **children aged 2—9 years**, the most common cause is asthma or wheeze (41—44%), and for **older children and adolescents,** the most common causes are **upper respiratory tract infections** (e.g., colds, sinusitis, tonsillitis, laryngitis, pharyngitis) (29%) and **asthma or wheeze** (27%).
- Since 2000, more than **1,700 children and adolescents** in Aotearoa NZ have been **newly diagnosed with bronchiectasis** (permanent widening and scarring of the airways). The **median age** at which children present to hospital with their **first diagnosis of bronchiectasis is 4 years**. Children who have ever been hospitalised with a diagnosis of bronchiectasis are, on average, **hospitalised for respiratory conditions twice per year.**
- Rates of hospitalisation for acute respiratory conditions are **disproportionately high for Pacific children, followed by tamariki Māori and Middle Eastern, Latin American, or African (MELAA)** children.
- Children who live in the **most deprived socioeconomic areas are hospitalised** for acute respiratory conditions **at higher rates** compared with children living in less deprived areas. Even after adjusting for ethnicity, children and adolescents living in the **most deprived areas** are **hospitalised for acute respiratory conditions 1.3 times as frequently** as those living in the least deprived areas. **The greatest socioeconomic disparities** are seen in hospitalisation **rates for bronchiectasis;** children living in areas with the most deprivation **are 3.3 times as likely** to be hospitalised.
- There is potential **for substantial cost savings** to the health sector by reducing hospitalisations for acute respiratory conditions among the most vulnerable groups of children and young people.

WHY PRIORITISE RESPIRATORY HEALTH FOR CHILDREN?

Acute respiratory illnesses are commonplace during childhood.[1] In more severe cases the wheezing, coughing, and difficulty breathing associated with respiratory illnesses requires hospitalisation.[2 3] Most respiratory tract infections are caused by viruses, such as influenza, RSV, human rhinovirus, and adenovirus, although bacteria (e.g., *pneumococcus, staphylococcus, Bordetella pertussis,* and *Haemophilus influenzae*) are important causes of more severe respiratory infections, including pneumonia.[4] Repeated, severe respiratory infections can lead to permanent, irreversible lung damage and chronic respiratory diseases, such as bronchiectasis or chronic obstructive pulmonary disease, ultimately affecting life expectancy.[5-7]

Triggers and risk factors for respiratory conditions in childhood interact cumulatively and include socioeconomic deprivation, poor-quality housing conditions, air pollution, tobacco smoke and vape exposure, malnutrition, and missed immunisations.[8-17] Climate change also exacerbates respiratory conditions through extreme weather events, wildfires, air pollutants, moulds, pollen and other allergens, and changes in the transmission of infectious diseases.[18-20] Whānau Māori and Pacific families have greater exposure to these risk factors and unequal access to primary care,[3 6 21-23] resulting in disproportionately high rates of hospitalisation for respiratory infections among tamariki Māori and Pacific children. There have been repeated calls by experts to address these inequities and reduce overall rates of respiratory disease by improving access to affordable, warm, dry, uncrowded homes; working to eliminate poverty; reducing tobacco smoking and exposure to tobacco smoke; reducing air pollution; and reducing childhood obesity.[8 13 24] In doing so, we stand to significantly decrease respiratory-related hospitalisations for the most vulnerable children, along with the economic and social costs.

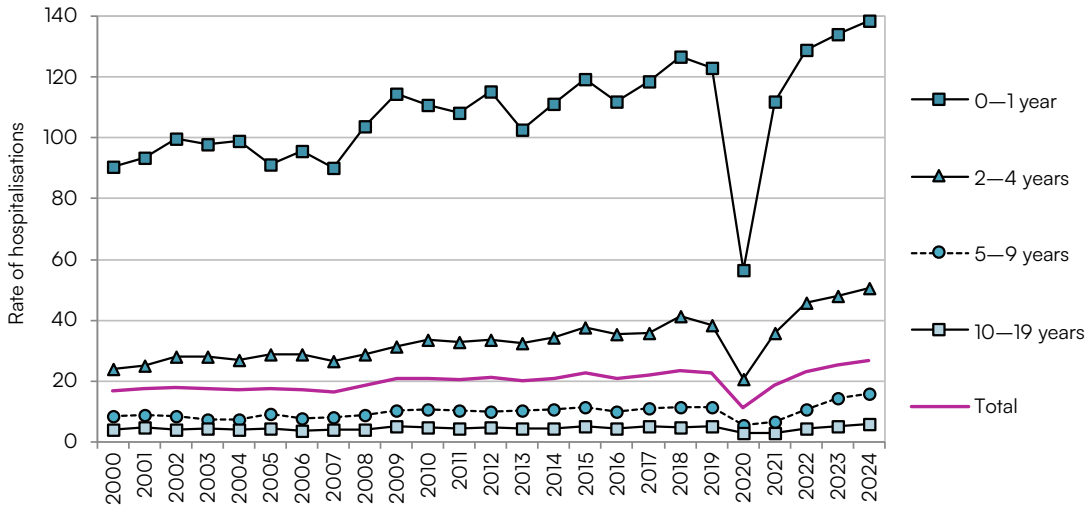
CURRENT DATA ON THE STATE OF RESPIRATORY HEALTH FOR CHILDREN IN AOTEAROA NZ

HOSPITALISATIONS FOR RESPIRATORY ILLNESSES

Over the 3 years to the end of 2024, the average number of hospitalisations of children aged 0—19 years for acute respiratory conditions (henceforth respiratory conditions) was 25 per 1,000 population per year. During the same period, hospitalisations for respiratory conditions represented 19% of all hospitalisations of 0—19-year-olds (excluding birth events).

Hospitalisation rates are highest for infants aged 1 year and younger; about half of all hospitalisations for respiratory conditions are for infants in this age group. In 2024, 36% of all hospitalisations (excluding birth events) for this age group were for respiratory conditions. These young infants are 27 times as likely to be hospitalised for respiratory conditions as are children and adolescents aged 10 years and older.

Although hospitalisation rates for respiratory conditions halved at the start of the COVID-19 pandemic in 2020, they now exceed pre-pandemic rates for all age groups (Figure 2.1). From 2000 to 2024, hospitalisation rates for respiratory conditions have increased by 60%. In the most recent year alone, rates have increased by 6%.

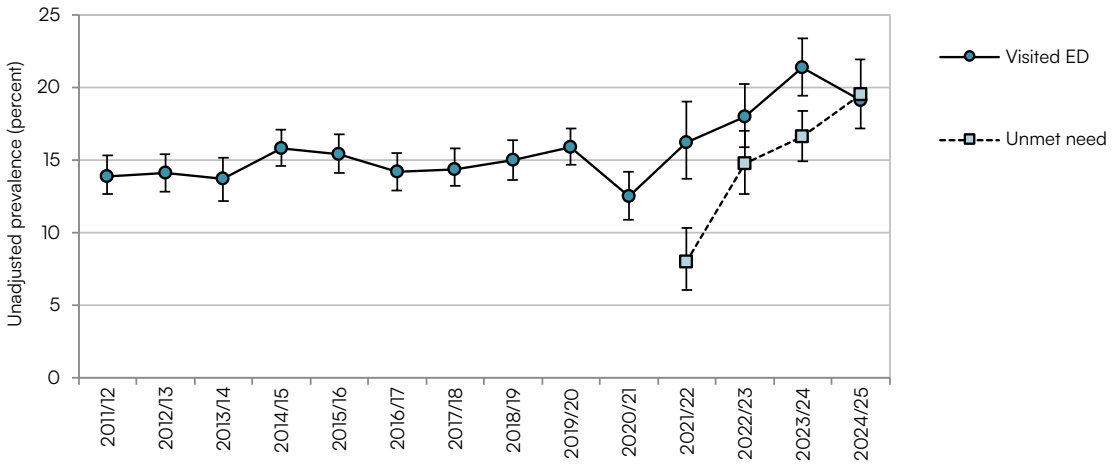


Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 age-specific population.

Figure 2.1: Trends in hospitalisations of 0—19-year-olds for acute respiratory conditions, by age group, Aotearoa NZ (2000—24)

Along with the increase in hospitalisations for respiratory conditions, there has been an increasing trend in emergency department (ED) visits in the last 4 years for children under the age of 15 years commensurate with an increasing inability to access GP appointments due to wait times (Figure 2.2).

A large proportion of paediatric GP visits and ED presentations are due to respiratory conditions,[25 26] and it is possible that difficulty accessing primary health care services in a timely manner is partly driving the increase in respiratory-related hospitalisations in children and young people.[26] Research from the Growing Up in NZ study has shown that children whose parents had reported barriers for their child seeing a GP were more than twice as likely to have had a hospitalisation.[27] Although cost barriers for children and young people have been reduced with the zero-fees policy for children, the most common barrier reported by parents was not being able to get an appointment.[27] Similarly, data from the most recent (2024/25) NZ Health Survey (NZHS) show that the most common barrier to accessing primary health care for children was wait times being too long (19.5%). Other barriers that were far less frequently reported included lack of time off work (3.4%), disliking or fearing the GP (1.8%), lack of transport (1.6%), lack of care for a dependent (1.4%), and cost (1.4%).

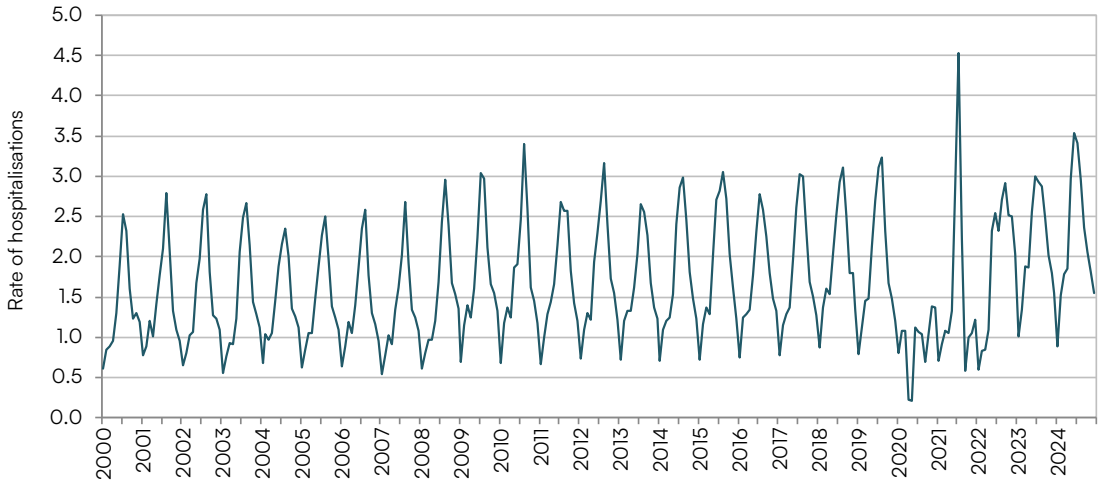


Source: NZHS. Visited ED: Children who visited an emergency department at least once in the past 12 months. Unmet need: Unmet need for a GP due to wait time being too long in the past 12 months.

Figure 2.2: Trends in prevalence of emergency department visits and unmet need for GP appointments due to wait time in 0—14-year-olds, Aotearoa NZ (2011/12—2024/25)

SEASONALITY OF RESPIRATORY HOSPITALISATIONS

Figure 2.3 illustrates the regular seasonal pattern associated with hospitalisations for acute respiratory conditions prior to the start of the COVID-19 pandemic, with peaks in rates of hospitalisation during the winter months and troughs during the summer months. In 2021, there was a very pronounced winter spike in respiratory hospitalisations, due in large part to a surge in bronchiolitis cases after the resurgence of RSV.[28] In subsequent years, the pattern has returned to the pre-pandemic cycle, peaking during the winter months. However, the burden of hospitalisations during winter as well as non-peak periods are now at their highest levels ever outside of the pandemic.



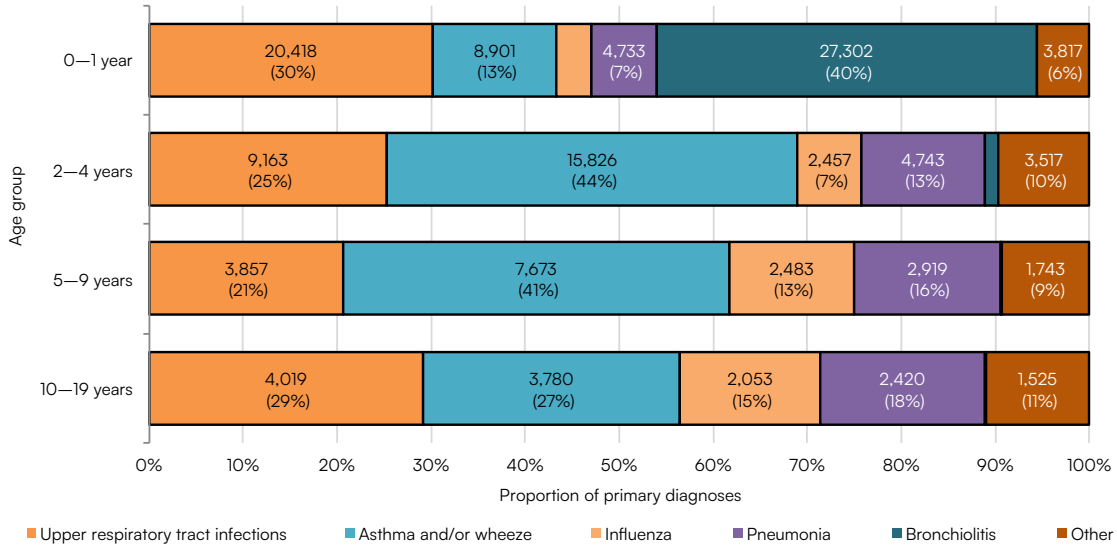
Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 age-specific population.

Figure 2.3: Monthly trends in hospitalisations of 0—19-year-olds for acute respiratory conditions, Aotearoa NZ (2000—24)

CAUSES OF RESPIRATORY HOSPITALISATIONS

Over the 5 years to the end of 2024, 45% of respiratory hospitalisations in children aged 0—19 years were for lower respiratory tract infections (including pneumonia, influenza, and acute bronchiolitis). Upper respiratory tract infections (such as colds, sinusitis, tonsillitis, laryngitis, and pharyngitis) made up about 27% of respiratory hospitalisations, and 27% were for asthma or wheeze.

Figure 2.4 shows that the type of respiratory conditions that children were hospitalised for varied by age. The most frequent causes of respiratory hospitalisations for children aged 1 year and younger were bronchiolitis (40%) and upper respiratory tract infections (30%). For children aged 2—4 years and 5—9 years, asthma and/or wheeze accounted for 44% and 41%, respectively, of all respiratory hospitalisations, with upper respiratory tract infections being the next most frequent cause (25% and 21%, respectively). For children and adolescents aged 10 years and older, asthma and/or wheeze and upper respiratory tract infections accounted for 27% and 29% of respiratory hospitalisations, respectively.

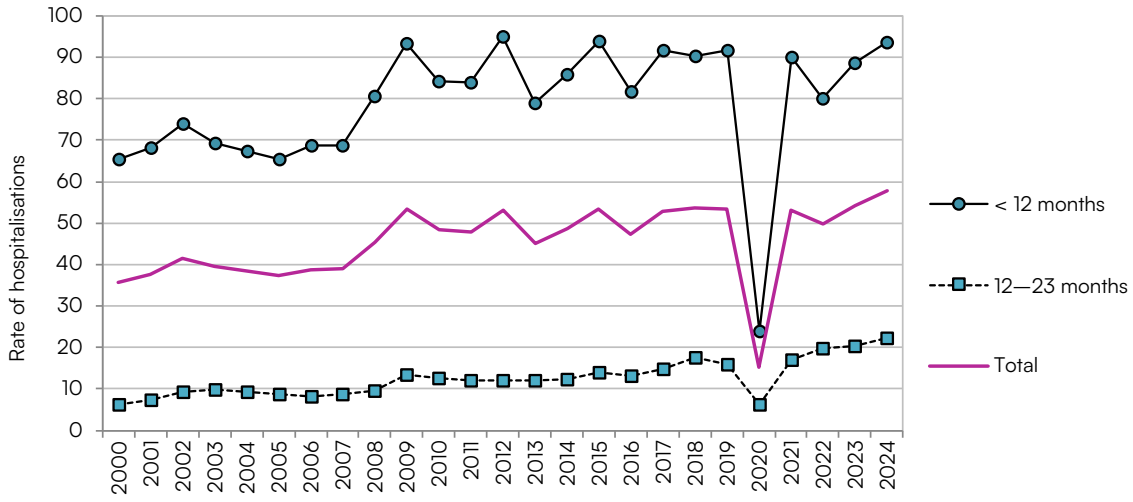


Source: NMDS. 'Other' includes bronchitis, bronchiectasis (excluding cystic fibrosis), unspecified acute lower respiratory infection.

Figure 2.4: Causes of hospitalisations for respiratory conditions by age group, Aotearoa NZ (2020—24)

BRONCHIOLITIS

Bronchiolitis is inflammation of the bronchioles in young infants that is usually caused by an acute viral illness, in two thirds of cases by respiratory syncytial virus (RSV).[29 30] In Aotearoa NZ bronchiolitis occurs predominantly in the colder months, although can occur throughout the year. As demonstrated in Figure 2.4, bronchiolitis remains the largest cause of hospitalisation for respiratory conditions amongst infants and young children; in 2024, bronchiolitis was the primary cause of more than 6,800 hospitalisations of children under the age of 2 years. The greatest burden of hospitalisation for bronchiolitis is in infants in their first year of life (Figure 2.5), accounting for 60% of all respiratory hospitalisations in this age group. Since 2000, rates of hospitalisation for bronchiolitis have increased 43% for under-12-month-olds and 255% for 12—23-month-olds, although hospitalisations for this older group constitute only one fifth of all bronchiolitis hospitalisations.



Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 age-specific population.

Figure 2.5: Trends in hospitalisations of under-2-year-olds for bronchiolitis, by age, Aotearoa NZ (2000—24)

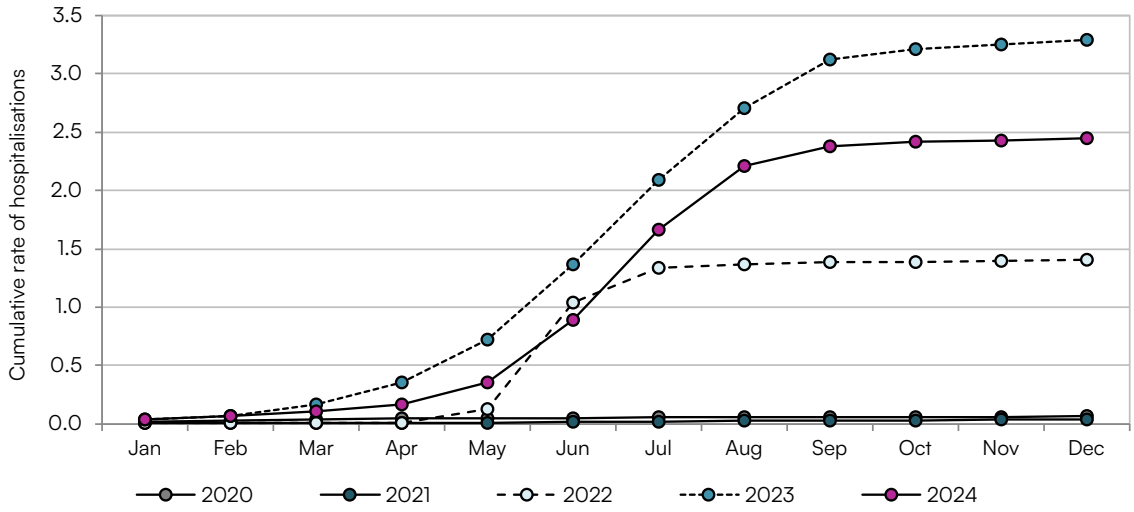
Management of bronchiolitis is traditionally supportive with a focus on respiratory status and hydration in hospitalised infants.[31] For over two decades, a monoclonal antibody, palivizumab, has been available internationally to prevent admission into hospital with bronchiolitis due to RSV infection. However, palivizumab requires monthly injections and is only licenced for a small proportion of infants who are hospitalised with bronchiolitis each year, albeit often with severe infection.[32] In response to the COVID-19 pandemic, Pharmac NZ temporarily funded palivizumab for the small proportion of infants for whom it was suitable, although withdrew this funding in 2023, and subsequently reintroduced it, with similar criteria, in 2024.[33]

Internationally, a newer monoclonal antibody, nirsevimab, has become available as immunoprophylactic therapy for RSV. Unlike palivizumab, nirsevimab is a single intramuscular injection, with long-lasting protection (at least 6 months) and is licenced for all infants. It has been universally offered to infants in a number of countries including Australia, North and South America, as well as some countries in Europe. Real-world evidence of the effectiveness of nirsevimab shows considerable reductions in the incidence of emergency department presentations, hospitalisations, and intensive care unit admissions due to bronchiolitis, leading to considerable cost savings.[34-47] Given that Aotearoa NZ has some of the highest rates of hospitalisations due to bronchiolitis internationally, nirsevimab represents a once-in-a-generation opportunity to significantly reduce bronchiolitis burden, and respiratory burden in general, amongst children. Nirsevimab has the added advantage of being able to be delivered early in life and, therefore, presents an opportunity to target, at the time of birth, hard-to-reach populations who are at highest risk of severe outcomes due to bronchiolitis.

INFLUENZA

Influenza is an orthomyxovirus which infects humans (types A and B) and a wide range of birds and other animals. In temperate countries such as Aotearoa NZ, influenza circulates mostly during the winter months. Although common, symptoms can be severe enough to require hospitalisation and lead to serious complications.[48]

Figure 2.6 shows the changing pattern of cumulative rates of hospitalisation by month of the year for influenza during and after the start of the COVID-19 pandemic. Prior to this, influenza was infrequently tested for within Aotearoa NZ hospitals (outside of sentinel testing sites) and data are difficult to interpret. As previously documented, with the closure of Aotearoa NZ's borders due to the COVID-19 pandemic, there was minimal circulating influenza in 2020 and 2021. In 2022, there was a return to higher rates of influenza-related hospitalisations with a surge in winter months. Rates in 2023 showed a doubling of those seen in the previous year, constituting 13% of all hospitalisations for acute respiratory conditions seen in 2023. Rates in 2024 decreased from those observed in 2023.



Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 age-specific population.

Figure 2.6: Cumulative hospitalisations of 0—19-year-olds for influenza, by month and year, Aotearoa NZ (2020—24)

Rates of influenza-related hospitalisations are highest for the very youngest children and decrease with age. During the period 2022—2024, infants aged 1 year and younger were more than 6 times as likely, young children aged 2—4 years were more than 4 times as likely, and children aged 5—9 years were more than twice as likely as were older children and adolescents aged 10—19 years to be hospitalised for influenza. More than half of the hospitalisations for influenza in children and adolescents were for infants and children under the age of 5 years, yet this group comprises less than a quarter of the 0—19-year-old population.

Severity of influenza is greatest in the very young and the very old. Although unlike the elderly, children rarely die from influenza, children aged younger than 5 years have similarly high rates of hospitalisation and other severe outcomes as do the elderly.[49-51] While the risk of hospitalisation for influenza is greatest in children with underlying disease, previously healthy children account for at least half of hospitalisations and deaths due to influenza[50] and infection in pre-school and school-age children is a driver of the spread of influenza viruses in the community, including in the elderly.[49 51 52] In response to the COVID-19 pandemic, Pharmac NZ temporarily funded influenza vaccination of all children younger than 12 years in 2023,[53] but withdrew this funding in 2024 to previous levels of support for only high-risk children. This targeted approach of only funding high-risk children is unnecessarily complicated and has failed Aotearoa NZ's children; only 15% of high-risk, funded children receive an influenza vaccination,[54] and few high-risk children consistently receive annual influenza vaccination throughout their childhood. In comparison, universal funding for elderly people aged 65 years and over consistently achieves annual rates of influenza vaccination of approximately 60%, although inequity in influenza vaccination still exists.[55] Many countries comparable to Aotearoa NZ have found influenza vaccination of all children, particularly those aged 5 years and younger, to be cost-effective not only for prevention of influenza in children, but also in the elderly.[56] This approach has been recommended with a high priority by the Immunisation Advisory Committee of Pharmac NZ, who also stress the need to better reach Māori and support whānau to access vaccines where barriers may exist, which will require cross-agency effort.[54]

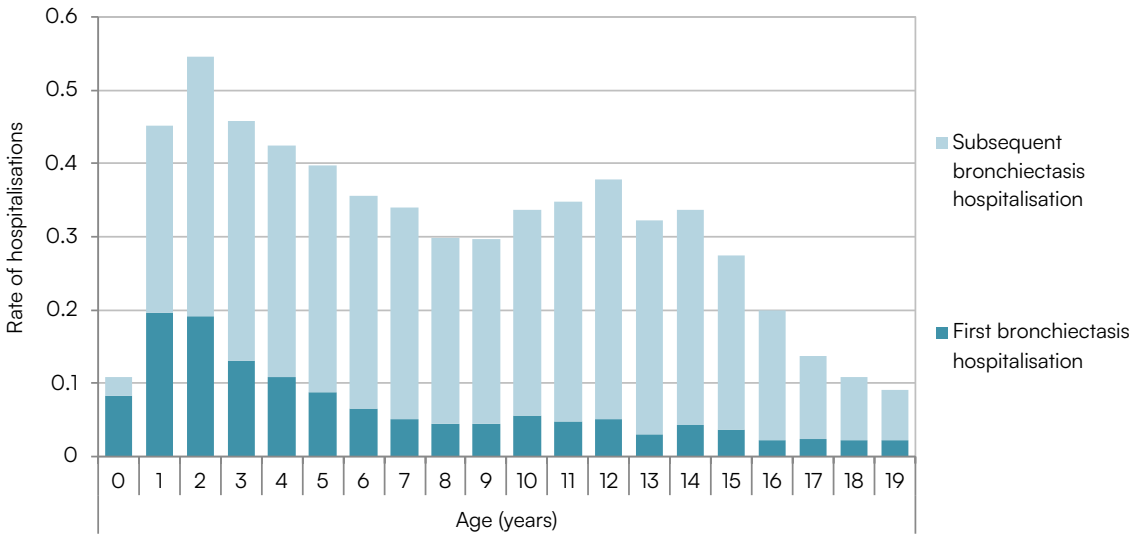
BRONCHIECTASIS

Bronchiectasis is a relatively rare respiratory condition arising from repeated, serious lung infections that permanently damage airways and cause mucus build-up.[5 57] Bronchiectasis is characterised by chronic inflammation and destruction of bronchial walls; it is irreversible, progressive, compromises lung function, and reduces life expectancy for children. The main symptom for children is a wet, chesty cough. Although bronchiectasis is a rare disease, prevalence rates are particularly high for children in Aotearoa NZ, and disproportionately so for Pacific and Māori children.[5 58]

Since 2000, 1,705 children and young people aged 0—19 years in Aotearoa NZ have been newly diagnosed with bronchiectasis. Nearly one fifth (17.2%) of these children had no history of hospitalisations for respiratory conditions, underscoring the importance of environmental factors as well as a need for better understanding of risk factors and earlier diagnosis and treatment.

Figure 2.7 shows that rates of hospitalisation for bronchiectasis are low for infants in their first year of life, after which they increase steeply to reach a peak at 2 years of age. The median age at which children present to hospital with their first diagnosis of bronchiectasis is 4 years. The proportions of hospitalisations classified as first bronchiectasis hospitalisations decrease with age after 2 years of age. Subsequent hospitalisations for bronchiectasis peak at age 2 years and remain steady until age 14 years, after which rates decrease.

Children who have ever been hospitalised with a diagnosis of bronchiectasis are hospitalised for respiratory conditions twice per year, on average (mean = 2.31, 95% CI [2.26, 2.35]). The most frequent primary causes of these hospitalisations are bronchiectasis (29%), followed by other lower respiratory conditions, such as pneumonia (17%), asthma or wheeze (14%), bronchiolitis (12%), and other acute lower respiratory infections (11%).

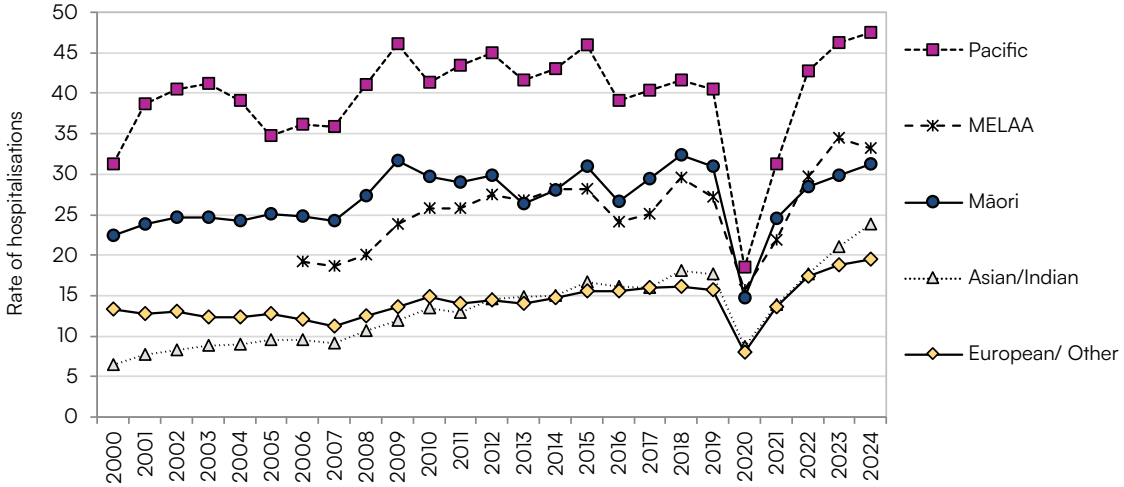


Source: NMDS, NZCYES Estimated Resident Population. Rate of hospitalisations per 1,000 age-specific population where bronchiectasis was documented within any of the first 30 diagnoses. Hospitalisations where cystic fibrosis was listed are excluded.

Figure 2.7: First and subsequent hospitalisations of 0—19-year-olds for bronchiectasis, by age, Aotearoa NZ (2000—24)

INEQUITIES IN RESPIRATORY HEALTH FOR CHILDREN IN AOTEAROA NZ

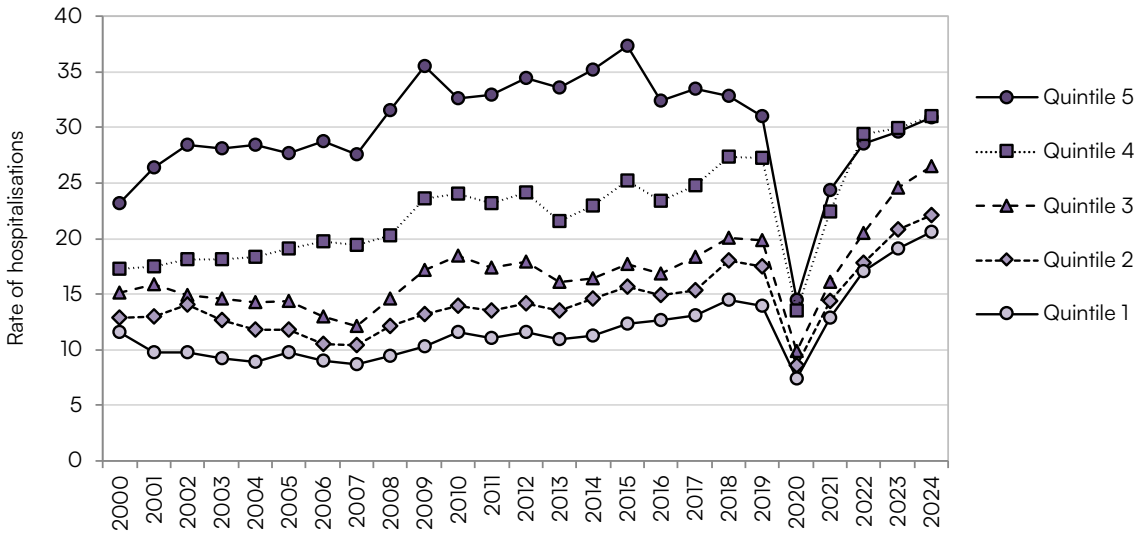
Figure 2.8 shows that over the past 25 years, Pacific children have experienced the highest rate of hospitalisations for respiratory conditions. Rates have also remained disproportionately high for tamariki Māori and children of MELAA ethnicities. Public health measures associated with the COVID-19 pandemic in 2020 reduced hospitalisations for all ethnic groups, related to enormous decreases in circulation of respiratory viruses, but as of 2024, rates have exceeded pre-pandemic levels for children of all ethnicities except tamariki Māori.



Source: NMDS, NZCYES Estimated Resident Population.
Rate per 1,000 0—19-year-olds. MELAA = Middle Eastern, Latin American, or African.

Figure 2.8: Trends in hospitalisations of 0—19-year-olds for respiratory conditions, by ethnicity, Aotearoa NZ (2000—24)

Figure 2.9 shows that rates of hospitalisation for respiratory conditions have also been disproportionately high for children and young people living in areas with the most socioeconomic deprivation. Rates decreased while borders were closed due to the COVID-19 pandemic but increased again after 2021 such that they now exceed pre-pandemic rates in most cases.

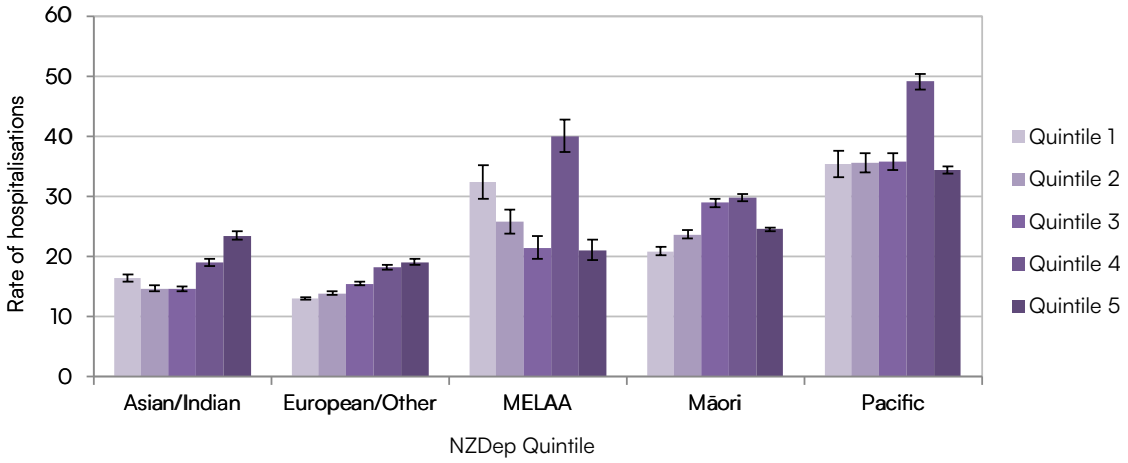


Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 0—19-year-olds.
Quintile: NZDep Index of deprivation (1 = least deprived; 5 = most deprived).

Figure 2.9: Trends in hospitalisations of 0—19-year-olds for respiratory conditions, by socioeconomic deprivation, Aotearoa NZ (2000—24)

In Aotearoa, children, particularly non-European children, are more likely to live in a household that is in a deprived neighbourhood (due to systemic issues like intergenerational transmission of poverty, which is, in turn, exacerbated by systemic issues like colonialism and racism for some ethnic groups). Therefore, it is important to take socioeconomic differences into account when looking at differences by ethnicity.

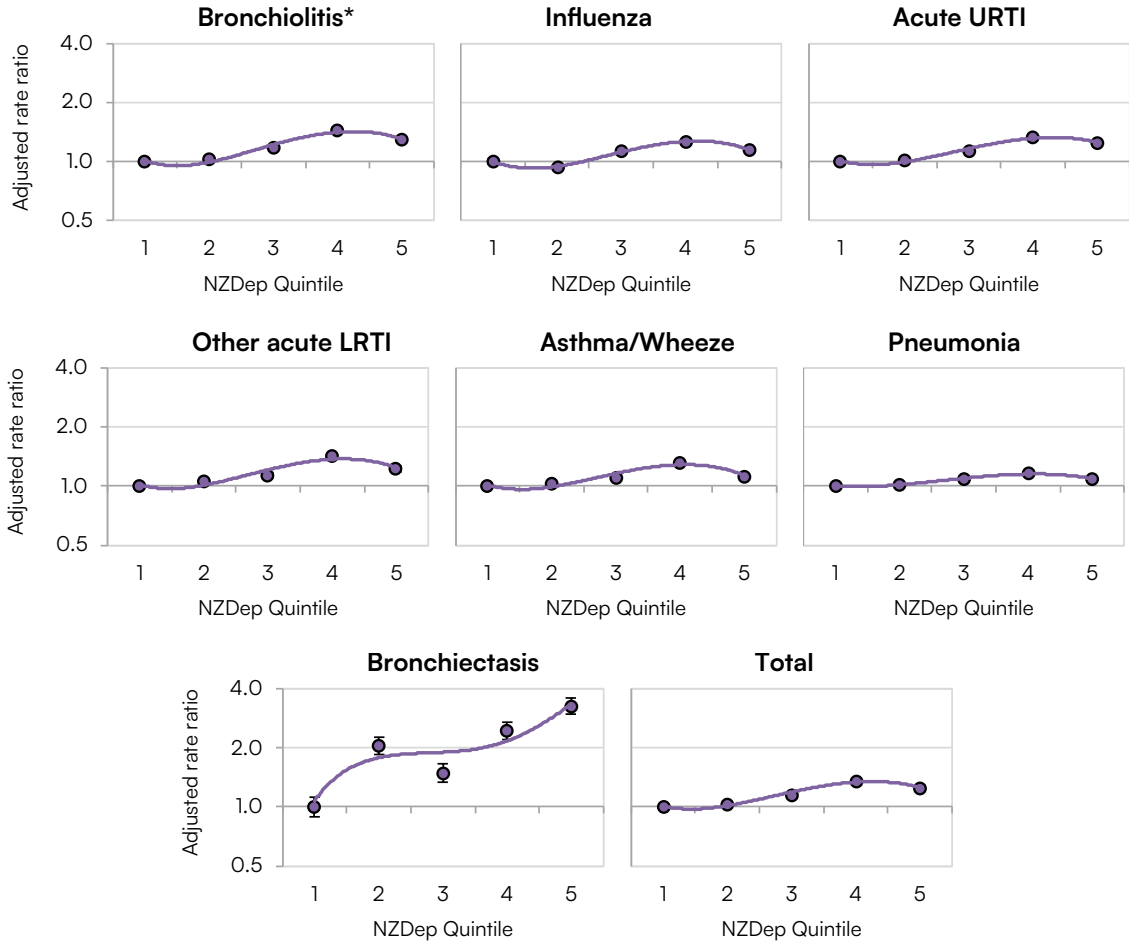
Figure 2.10 shows that, for the period from 2020 to 2024, rates of hospitalisations for respiratory conditions were highest for Pacific children, regardless of the socioeconomic area in which they lived. Rates for Pacific children were highest for those living in quintile 4 (second-most deprived areas). There was a similar pattern for MELAA children; rates for these children were higher than for European/Other and Asian/Indian children in all but quintile 5 (most deprived areas). Rates for tamariki Māori were also higher than those of European/Other and Asian/Indian children, regardless of the socioeconomic area in which they lived. For tamariki Māori, there was a stepwise deprivation gradient, with the exception of those living in the most deprived areas.



Source: NMDS and NZCYES estimated resident population. Rate per 1,000 0—19-year-olds.
Ethnicity is level 1 prioritised. MELAA = Middle Eastern, Latin American, or African.
Quintile: NZDep Index of deprivation (1 = least deprived; 5 = most deprived).

Figure 2.10: Hospitalisations of 0—19-year-olds for respiratory conditions, by socioeconomic deprivation and by ethnicity, Aotearoa NZ (2020—24)

Figure 2.11 shows the likelihood of children and adolescents being hospitalised for specific respiratory conditions by increasing socioeconomic deprivation relative to children living in areas with the least socioeconomic deprivation (quintile 1). These ratios have been adjusted for ethnicity and represent the additional effect of socioeconomic deprivation on the likelihood of hospitalisation for respiratory conditions. Overall, for the period between 2020 and 2024, children and adolescents living in the areas with the most socioeconomic deprivation (quintiles 4 and 5) were hospitalised for respiratory conditions approximately 1.3 times as frequently as were their peers living in the least deprived areas. This pattern was similar for all types of respiratory conditions, with the exception of bronchiectasis; children and adolescents living in areas with the most deprivation were hospitalised 3.3 times as frequently as were those living in the least deprived areas.



Source: NMDS, NZCYES Estimated Resident Population. NZDep Quintile: 1 = least deprived; 5 = most deprived. Ratios adjusted for ethnicity. * <5-year-olds only.

Figure 2.11: Likelihood of hospitalisation of 0—19-year-olds for respiratory conditions (adjusted rate ratios), by socioeconomic deprivation and cause of hospitalisation, Aotearoa NZ (2020—24)

In the face of increasing hospitalisations for these preventable respiratory conditions, it remains a priority to review service provision for any potential disparities and support equity-focused policies and practices.[59] The persistent effect of socioeconomic deprivation on the likelihood that a child will be hospitalised for a respiratory condition underscores how important it is to improve access to affordable, warm, dry, and suitably sized homes for families. Achieving equity for children and adolescents and their whānau living with more socioeconomic deprivation has the potential to reduce hospitalisations for respiratory conditions (and the associated costs) by at least 23% — a figure that is equivalent to in excess of 7,900 hospitalisations in 2024 alone.

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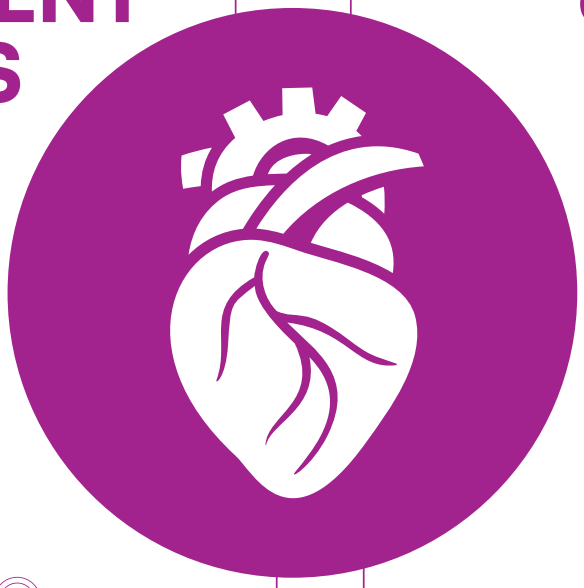
RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE
KIRIKĀ RŪMĀTIKI ME MATE MANAWA RŪMĀTIKI

11%
OF CHILDREN PRESENTING WITH ARF FOR THE FIRST TIME HAD A **CONCURRENT DIAGNOSIS OF RHD**

A FURTHER **12%** WENT ON TO BE **HOSPITALISED WITH RHD**



MOST HOSPITALISATIONS FOR RHD OCCUR IN **OLDER CHILDREN AND ADOLESCENTS** THEN **PEAK** IN ADULTHOOD

HOWEVER, THE HIGH RATES OF ARF MEAN THAT **YOUNGER CHILDREN ARE PRESENTING WITH RHD**

ELIMINATING ETHNIC AND SOCIOECONOMIC INEQUITIES COULD PREVENT MORE THAN **85%** OF HOSPITALISATIONS FOR ARF OR RHD

RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE
KIRIKĀ RŪMĀTIKI ME MATE MANAWA RŪMĀTIKI

KEY RECOMMENDATIONS

- **Ensure timely, equitable access to primary care** for the early treatment of Group A Streptococcus (GAS) infections by reducing barriers to care **through whānau navigator support and co-designed, culturally safe interventions** developed in partnership with Māori communities, in line with Te Tiriti o Waitangi.
- **Work with Pacific communities, primary healthcare organisations, and schools** to implement the co-design ideas outlined in the Rheumatic Fever Roadmap and the Aotearoa NZ ARF and RHD guidelines, raise awareness, implement effective screening strategies, and reduce barriers to effective and timely care.
- Continued funding of research programmes that are investigating **the immune pathogenesis of ARF,** developing **a diagnostic test for ARF,** and developing **Group A Streptococcus (GAS) vaccines**.

KEY FINDINGS

- As RHD represents cumulative damage to the heart valves from repeated episodes of ARF, **most hospitalisations for RHD occur in older children and adolescents and peak in adulthood.** However, the high rates of ARF in Aotearoa NZ mean that **even younger children are presenting with RHD**.
- During the **COVID-19** pandemic, the rates of hospitalisations for **ARF and RHD more than halved** but have **increased again** in 2023 and 2024 **to pre-pandemic levels**.
- Over the last 25 years, **11% of children hospitalised with their first primary diagnosis of ARF had a concurrent diagnosis of RHD**. A further **12% went on to be hospitalised with RHD** later.
- Compared to non-Māori non-Pacific children, **Pacific children were 43 times as likely and tamariki Māori were 16 times as likely to be hospitalised for ARF or RHD**.
- Children living in areas with **the most socioeconomic deprivation accounted for 58% of all hospitalisations** for ARF or RHD in 2024.
- **Hospitalisations for ARF or RHD could be reduced by more than 85%** if inequities by ethnicity and socioeconomic deprivation were eliminated.

WHY PRIORITISE ERADICATION OF RHEUMATIC FEVER FOR CHILDREN?

Acute rheumatic fever (ARF) is an autoimmune disease that can arise after an infection with Group A Streptococcus (GAS) bacteria.[1-4] GAS bacteria can infect the upper respiratory tract (typically presenting as a sore throat) or the skin (e.g. impetigo).[3-7] Inflammation due to recurrent or severe episodes of ARF can cause cumulative damage to the heart valves, causing long-term damage known as rheumatic heart disease (RHD).[4 8 9] RHD is irreversible, often requiring cardiac surgery, and increases the risk of premature death.[10]

Following a diagnosis of ARF, it is recommended that individuals receive long-term secondary prophylaxis, involving (painful) intramuscular injections of a long-acting antibiotic (benzathine penicillin G, BPG) every 28 days for a period not less than 10 years.[1 11] The antibiotic regimen minimises recurrent hospitalisation for ARF and halts progression of latent RHD.[12-14] Without it, the risk of recurrent ARF is as high as 75% among patients who develop another GAS throat infection.[13 15] Although adherence to the monthly schedule of injections is very high in children, adherence during late adolescence and adulthood declines as individuals may be lost as they change from paediatrics to adult systems, which run differently in every region in Aotearoa (J. Bennett, PhD, Health Protection Aotearoa Research Centre, May 26, 2025).[9 16] There is mounting evidence that a new model of delivery of secondary prophylaxis, subcutaneous high-dose BPG (SCIP) given every 10 weeks, not only results in more favourable penicillin concentrations but is safe, well tolerated, and preferred by individuals receiving the regimen.[17-19] In addition to significant cost savings to Aotearoa NZ, the longer-lasting and less painful SCIP will also likely increase adherence.[20 21]

Rates of both ARF and RHD in Aotearoa NZ are greater than in other high-income countries around the world, and the conditions almost exclusively affect underserved groups, such as Māori and Pacific populations and those living in socioeconomically deprived areas.[3 4 8 22-24] Because RHD represents cumulative damage to heart valves, most hospitalisations for RHD occur in older children and adolescents, with a peak in adulthood. However, the high rates of ARF in Aotearoa NZ mean that even younger children are presenting with RHD. Prior to the COVID-19 pandemic, rates of ARF were not decreasing for tamariki Māori and were increasing for Pacific children.[23] ARF is also twice as likely to progress to RHD for Māori and Pacific peoples and does so more rapidly than in other populations.[25] Unfortunately, because ARF is an uncommon disease affecting minority populations, the burden of these diseases on these populations can be masked.[4 8 26 27]

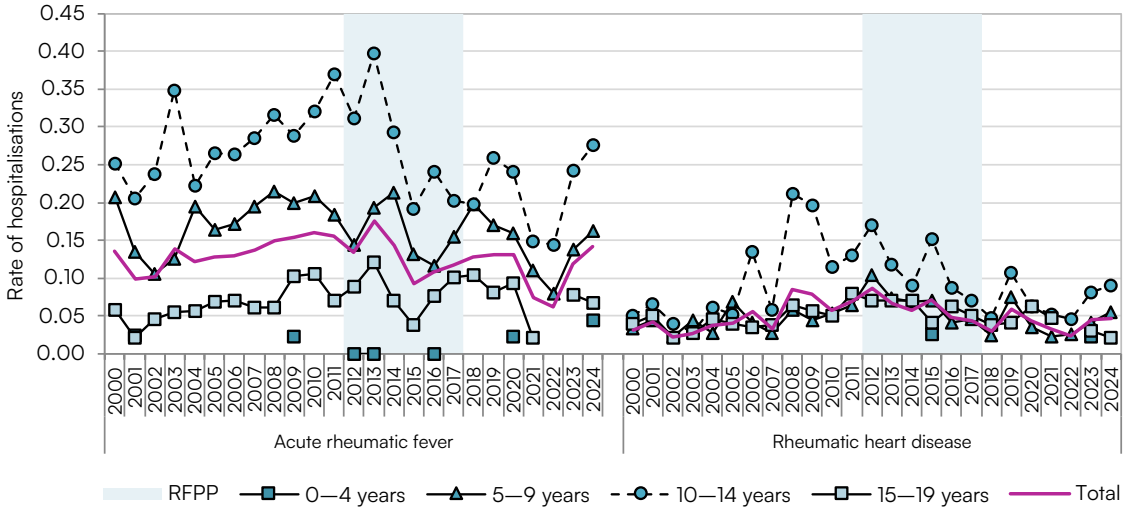
The financial cost to Aotearoa NZ of ARF and RHD was estimated to be NZD$12 million annually more than a decade ago[28] and will now be significantly higher. Most of the cost is associated with RHD and is incurred after the age of 30, with 71% purportedly for heart valve surgery.[28] This cost does not take into account the huge personal cost to individuals with ARF or RHD and their whānau.[10] As a country then, we stand to gain much by preventing ARF.

CURRENT DATA ON THE STATE OF RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE FOR CHILDREN IN AOTEAROA NZ

HOSPITALISATIONS FOR ARF OR RHD

From 2000 to 2024 inclusive, more than 3,000 children and adolescents younger than 20 years have been hospitalised with ARF and more than 900 children and adolescents have been hospitalised with RHD in Aotearoa NZ. Approximately 11% of children who were hospitalised with their first primary diagnosis of ARF also had a concurrent diagnosis of RHD. A further 12% went on to be hospitalised with RHD subsequently.

Figure 3.1 shows that over the past 25 years the rates of hospitalisations for ARF and RHD have been highest for children aged between 10 and 14 years followed by children aged between 5 and 9 years. Overall, hospitalisations for ARF are roughly three times as high as hospitalisations for RHD and are particularly high for children aged between 10 and 14 years, reflecting the cumulative damage via repeated episodes of ARF that causes RHD and the fact that RHD tends to get diagnosed in adulthood.[4] Hospitalisations for ARF or RHD are rare for children younger than 5 years old.



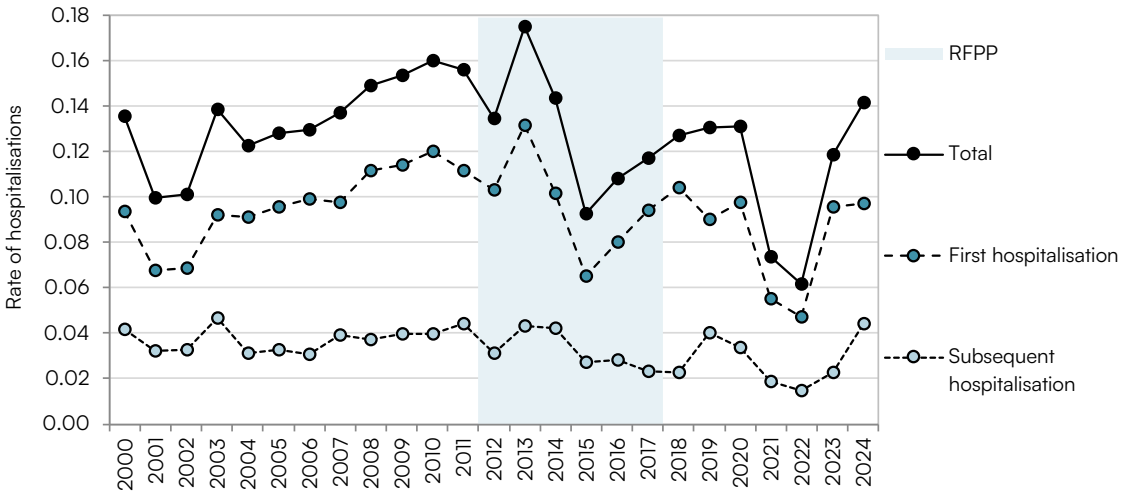
Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 age-specific population.
Rates suppressed where n < 6. RFPP = Rheumatic Fever Prevention Programme (July 2012—June 2017).

Figure 3.1: Trends in hospitalisations of 0—19-year-olds for acute rheumatic fever and rheumatic heart disease, by age group, Aotearoa NZ (2000—24)

FIRST HOSPITALISATIONS FOR ARF

Between 2012 and 2017, the NZ government funded a targeted Rheumatic Fever Prevention Programme that involved awareness campaigns and school-based screening and treatment for sore throats.[29] The programme aimed to prevent ARF by identifying and treating GAS pharyngitis for the most at-risk children. Skin infection management was also implemented in some regions.[29 30]

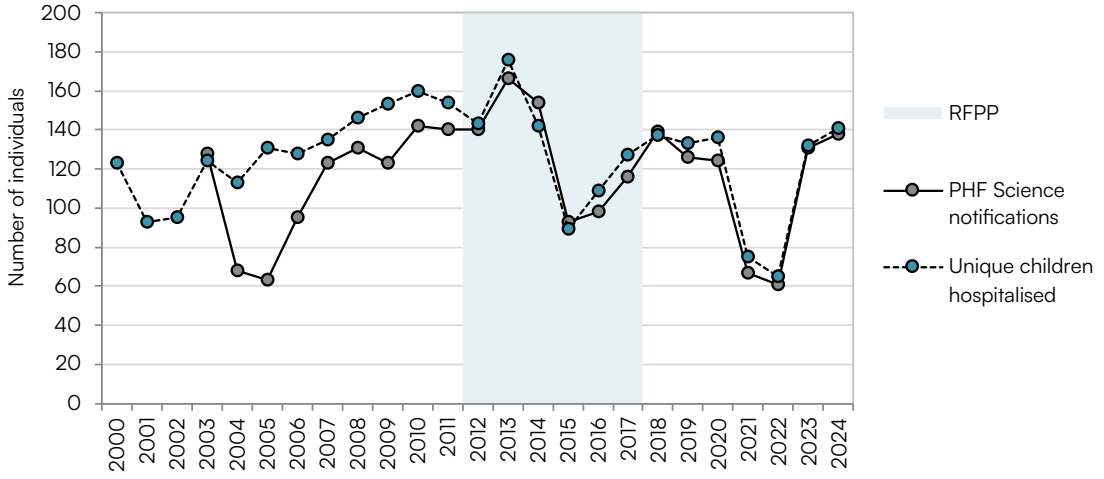
Hospitalisations for ARF decreased during the implementation of the Rheumatic Fever Prevention Programme, particularly first hospitalisations for ARF (which constitute 75% of all hospitalisations for ARF), but this decrease was not sustained (Figure 3.2). Hospitalisations for ARF decreased again after the start of the COVID-19 pandemic in 2020, likely secondary to public health measures in response to the pandemic and individuals not presenting to hospital during the early parts of the pandemic. Between 2020 and 2022, the rate of hospitalisations for ARF more than halved (Figure 3.2) for all age groups (see Figure 3.1), but have since increased again to pre-pandemic rates.



Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 0—19-year-olds.
RFPP = Rheumatic Fever Prevention Programme (July 2012—June 2017).

Figure 3.2: Trends in hospitalisations of 0—19-year-olds for acute rheumatic fever, Aotearoa NZ (2000—24)

Figure 3.3 shows the number of ARF notifications from the Institute for Public Health and Forensic Science (PHF Science) (formerly ESR) since 2003 alongside the number of individual children hospitalised for ARF since the beginning of 2000. The most recent notification and hospitalisation data for 2024 show a sustained increase in cases of ARF that are on par with pre-pandemic levels (Figure 3.3). Going forward, timely access to, and appropriate treatment in, primary care will be essential so that GAS pharyngitis and skin infections can be treated and their sequelae, such as ARF, reduced.[3 31] Currently, almost 1 in 5 children are missing out on GP appointments because the time taken to get an appointment is too long (see also Figure 2.2).[32] This figure has more than doubled over the last 4 years.



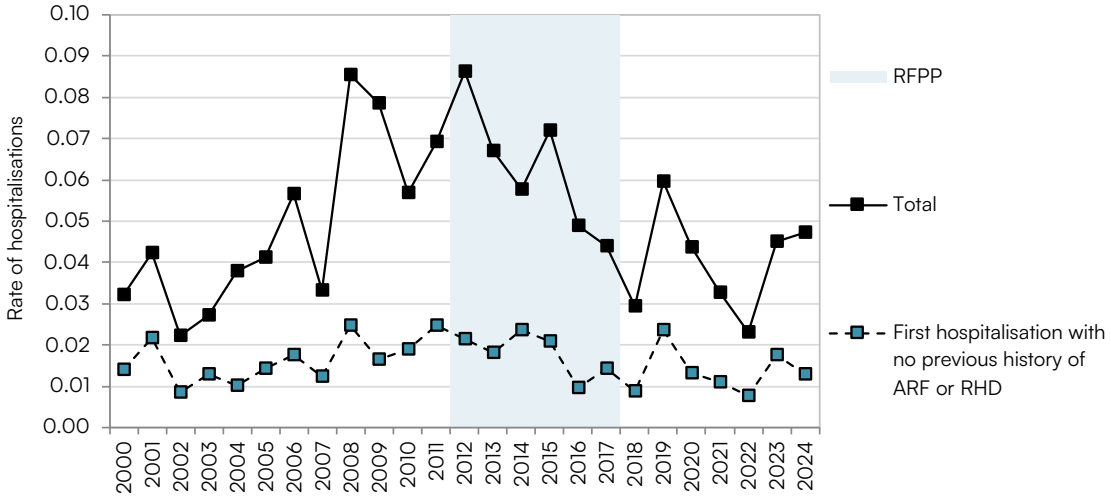
Source: PHF Science, NMDS.
RFPP = Rheumatic Fever Prevention Programme (July 2012—June 2017).

Figure 3.3: Trends in notifications for acute rheumatic fever and hospitalisations of unique 0—19-year-olds, Aotearoa NZ (2000—24)

FIRST HOSPITALISATIONS FOR RHD

On average, 59% of hospitalisations for RHD in children and adolescents are the first RHD hospitalisation for those individuals. Of those who were hospitalised for RHD for the first time, 55% had no previous hospitalisation for either ARF or RHD. Overall, approximately one third of all hospitalisations for RHD constitute hospitalisations where there had been no previous hospitalisation for ARF or RHD (see Figure 3.4). The high proportion of patients who are admitted to hospital with RHD but have no prior history of ARF suggests that previous episodes of ARF have gone undiagnosed or are clinically silent without the painful joints of ARF.[26 33]

There was a 59% reduction in the rate of first hospitalisations of RHD with no prior history of ARF after implementation of the 6-year Rheumatic Fever Prevention Programme (Figure 3.4). It is possible that the programme enabled early diagnosis of and treatment for ARF during this period, resulting in fewer children being admitted to hospital for the first time with RHD and no history of ARF. Rates of hospitalisations for RHD increased markedly after the end of the programme in 2019 but fell again after the start of the COVID-19 pandemic in 2020. As with ARF, this reduction is likely secondary to public health measures in response to the COVID-19 pandemic and individuals not presenting to hospital during the early parts of the pandemic. In 2023, there was a 95% increase in rates of hospitalisation for RHD overall, and a 130% increase in those presenting with RHD for the first time with no previous history of ARF or RHD, suggesting that episodes of ARF may have been missed during the pandemic. Research is ongoing to understand the complex effects of the pandemic, the response measures, and restrictions on access to hospital care.[34 35] If the most effective measures can be identified, it may be feasible to adapt them for prevention of ARF and RHD on an ongoing basis.



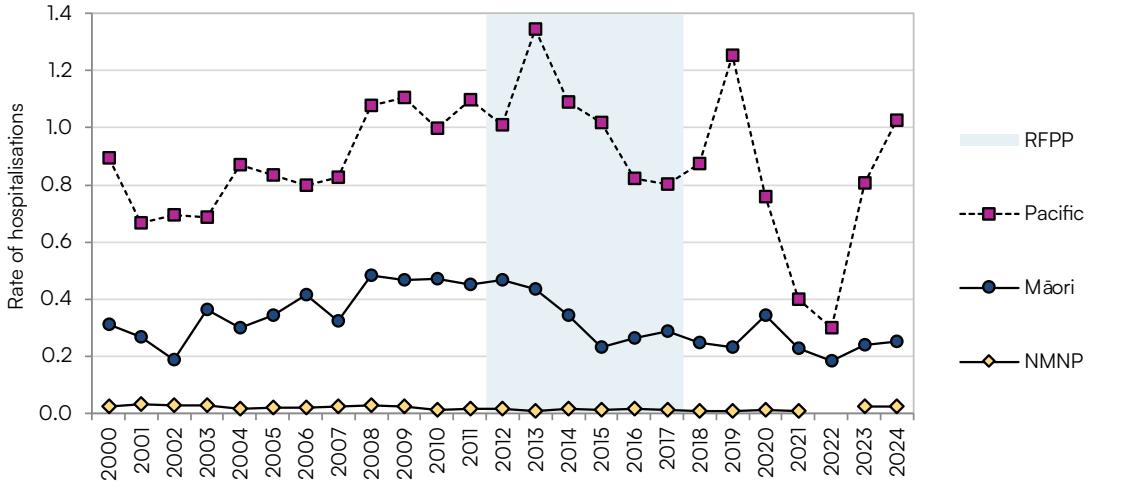
Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 0—19-year-olds.
RFPP = Rheumatic Fever Prevention Programme (July 2012—June 2017).

Figure 3.4: Trends in hospitalisations of 0—19-year-olds for rheumatic heart disease, Aotearoa NZ (2000—24)

RHD echocardiography screening has the potential to identify RHD before clinical disease develops.[16] Administration of BPG to children with mild RHD (identified via echocardiography) has been shown to prevent disease progression.[36] Workforce shortages of qualified sonographers and cardiology reporters in Aotearoa NZ mean that implementation of a national RHD screening programme would require strategic investment.[16] However, recent international evidence shows that RHD screening performed by non-experts has good diagnostic accuracy and specificity.[16] Work is underway in Aotearoa to examine whether a co-designed, culturally safe, nurse-led RHD model of delivery can increase equity in access to RHD screening.[16]

INEQUITIES IN RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE

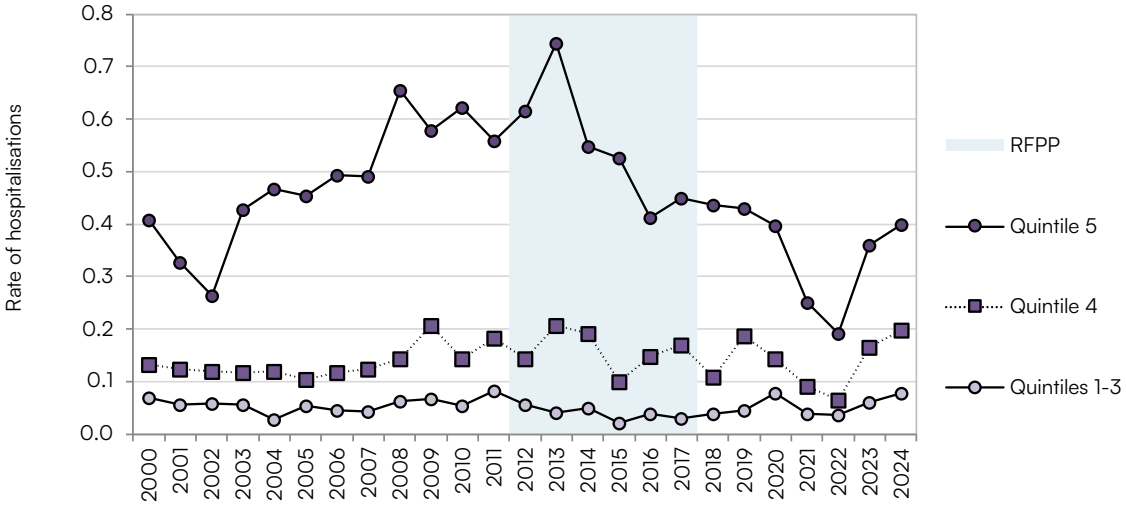
Figure 3.5 shows consistent ethnic differences in rates of hospitalisation for ARF or RHD for the past 25 years; Pacific children have experienced the highest rates of hospitalisation for ARF or RHD, followed by tamariki Māori, since at least 2000. The rate of hospitalisations for ARF or RHD decreased during the Rheumatic Fever Prevention Programme for both Pacific children and tamariki Māori but subsequently increased sharply, particularly for Pacific children. Disparities were lesser for 2 years after the start of the COVID-19 pandemic but increased for all ethnic groups in 2023 and 2024.



Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 0—19-year-olds.
RFPP = Rheumatic Fever Prevention Programme (July 2012—June 2017).
NMNP = Non-Māori non-Pacific. Rates suppressed where n < 6.

Figure 3.5: Trends in hospitalisations of 0—19-year-olds for acute rheumatic fever or rheumatic heart disease, by ethnicity, Aotearoa NZ (2000—24)

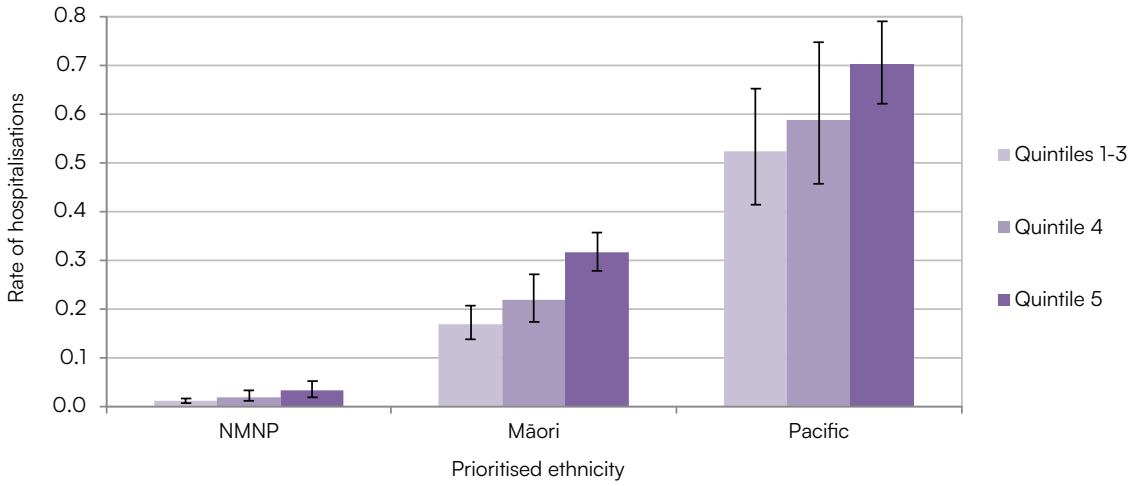
Hospitalisation rates for ARF or RHD have also been disproportionately high for children living in areas with the most socioeconomic deprivation (Figure 3.6). Although rates for those children reached a peak in 2013 and have subsequently declined, they have increased in 2023 and 2024 and remain inequitable; children living in areas with the most socioeconomic deprivation (quintile 5) accounted for 58% of all hospitalisations for ARF or RHD in 2024.



Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 0—19-year-olds.
RFPP = Rheumatic Fever Prevention Programme (July 2012—June 2017).
Quintile: 1 = least deprived; 5 = most deprived. Rates for quintiles 1-3 combined due to small numbers.

Figure 3.6: Trends in hospitalisations of 0—19-year-olds for acute rheumatic fever or rheumatic heart disease, by socioeconomic deprivation, Aotearoa NZ (2000—24)

For the period from 2020 to 2024, rates of hospitalisation for ARF or RHD increased by level of socioeconomic deprivation for children of all ethnic groups but note that, in most cases, differences by deprivation quintile were not statistically significant (Figure 3.7). Rates of hospitalisation for ARF or RHD were highest for Pacific children followed by tamariki Māori, regardless of the socioeconomic area in which they lived.



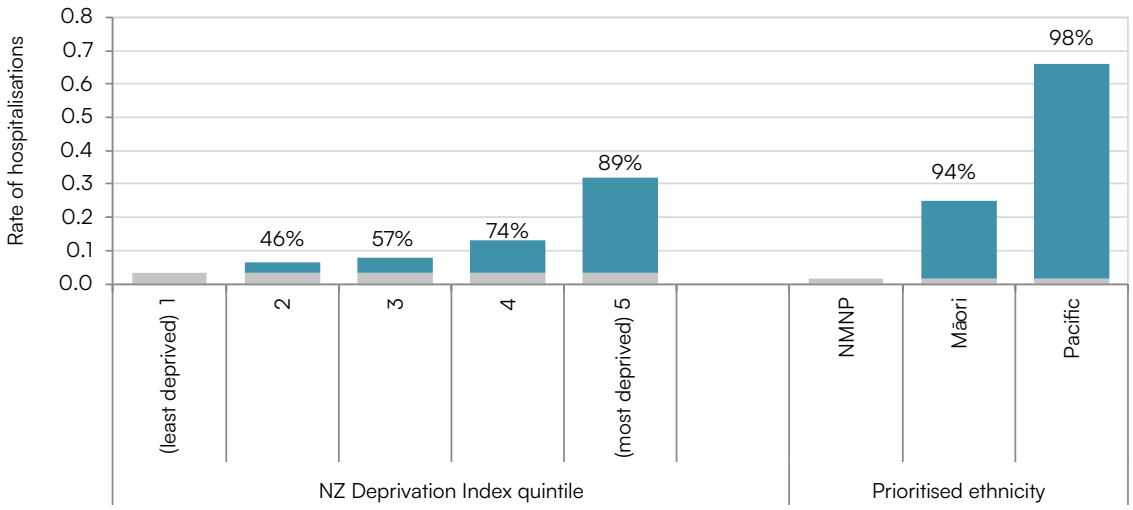
Source: NMDS, NZCYES estimated resident population. Rate per 1,000 0—19-year-olds. NZDep quintile (1 = least deprived; 5 = most deprived). Ethnicity is level 1 prioritised. NMNP = Non-Māori non-Pacific.

Figure 3.7: Hospitalisations of 0—19-year-olds for acute rheumatic fever or rheumatic heart disease, by socioeconomic deprivation and by ethnicity, Aotearoa NZ (2020—24)

Between 2020 and 2024, the rate of hospitalisations for ARF or RHD of children living with the most socioeconomic deprivation was 9 times the rate of hospitalisations of children living with the least socioeconomic deprivation (reference group). Statistically adjusting for ethnicity substantially lowers rates of hospitalisation for children living with the most socioeconomic deprivation but the rate of hospitalisations for ARF or RHD for these children was still twice as high as was the rate of hospitalisations of children living in the least deprived areas. Overall, rates of hospitalisations for ARF or RHD for Pacific children and tamariki Māori were 43 times and 16 times, respectively, the rate of hospitalisations of non-Māori non-Pacific children, highlighting the disproportionate burden of ARF and RHD on Pacific families and whānau Māori.

Figure 3.8 shows the proportion of hospitalisations that could potentially be reduced if inequities by ethnicity and socioeconomic deprivation were eliminated. For instance, from 2020 to 2024, if Pacific children had the same rate of hospitalisation for ARF or RHD as non-Māori or non-Pacific children (reference group), their rate of hospitalisations would decrease by 98%. Similarly, hospitalisations for tamariki Māori would decrease by 94% and hospitalisations for children living with the most socioeconomic deprivation would decrease by 89%. Using the most conservative estimate, eliminating inequities would have prevented approximately 200 hospitalisations for ARF or RHD among children and adolescents in 2024 alone.

Given that individuals with RHD have shorter life expectancy, it is crucial that repeated episodes of ARF are prevented. It is clear from the data presented here that sociodemographic factors play a major role in the likelihood that an individual will be hospitalised with ARF or RHD and require upstream approaches. For example, socioeconomic inequities require measures to address poverty, household crowding, and housing conditions,[37-39] while ethnic inequities require measures to address cultural aspects of timely and effective clinical care.[34 40-49]



Source: NMDS, NZCYES Estimated Resident Population.
NMNP = Non-Māori non-Pacific.

Figure 3.8: Potential reduction (attributable fraction) in hospitalisation rates for acute rheumatic fever or rheumatic heart disease in 0—19-year-olds, by demographic factors, Aotearoa NZ (2020—24)

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BRIEF UPDATE:
MENTAL HEALTH
HAUORA HINENGARO

MORE THAN

1 IN 5

YOUNG PEOPLE

REPORT SERIOUS

PSYCHOLOGICAL DISTRESS

A PROPORTION THAT HAS

INCREASED

FROM **1 IN 20**

OVER THE PAST 13 YEARS

HOSPITALISATIONS FOR

MENTAL HEALTH CONCERNS

AMONG ADOLESCENTS AGED **15** TO **19**

INCREASED FROM

1 PER 1,000

IN 2000 TO

9 PER 1,000

IN 2019

FROM

2022

ONWARDS THERE HAVE BEEN

DOWNWARD TRENDS

IN RATES

BRIEF UPDATE:
MENTAL HEALTH
HAUORA HINENGARO

KEY RECOMMENDATIONS

- **High quality, New Zealand-specific epidemiological data** are needed in order to understand the scale of **mental health difficulties** in the community so that the care provided matches need.
- **Increased investment in easily accessible, convenient, and timely mental health services** for young people is required, e.g. school-based health services, one-stop shops, and other community services (including online).

KEY FINDINGS

- **More than 1 in 5 young people report serious psychological distress,** a proportion that has increased from 1 in 20 over the past 13 years.
- **Hospitalisations for mental health concerns** among adolescents aged 15—19 years **increased** from 1 per 1,000 in 2000 to **9 per 1,000** in 2019. From 2022 onwards there have been downward trends in rates.

WHY PRIORITISE MENTAL HEALTH FOR CHILDREN AND YOUNG PEOPLE?

Here, we provide a brief update on the state of overall mental wellbeing for children and young people in Aotearoa NZ. Mental health is a key component of overall health and wellbeing, and most children and young people in Aotearoa NZ are happy, healthy, and are satisfied with their lives overall.[1-3]

Mental health concerns, mental illnesses, and mental disorders interfere with children's and young people's cognitive, emotional, or social abilities, and affect how they feel, think, behave, and interact with others.[4] Young people with mental health concerns are less able to cope with the normal stresses of life, to engage with the education system, and to realise their potential to live fulfilling and productive lives.[5-7] If mental health concerns are not addressed early, they can progress to more serious mental illnesses. Furthermore, the younger someone is when they experience mental health difficulties, the greater the functional impact and accumulation of comorbid disorders and psychopathology.[8]

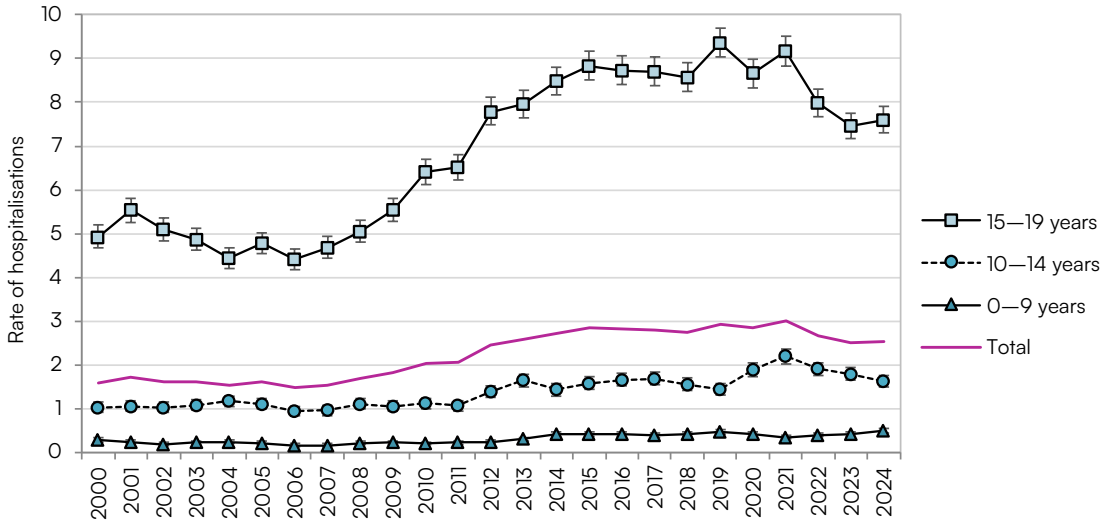
CURRENT DATA ON THE STATE OF MENTAL HEALTH FOR CHILDREN AND YOUNG PEOPLE IN AOTEAROA NZ

HOSPITALISATIONS FOR MENTAL HEALTH CONCERNS

Over the 5 years to the end of 2024, the average number of hospitalisations for mental and behavioural disorders among children and adolescents in Aotearoa NZ was 2.7 per 1,000 population per year. Most (75%) of these hospitalisations were for adolescents aged 15—19 years, followed by younger adolescents aged 10—14 years (18%).

Hospitalisations for child and adolescent mental health problems are uncommon in Aotearoa NZ, with most children and young people being treated in the community. Nevertheless, mental and behavioural disorders made up 2.1% of all hospitalisations of 0—19-year-olds (excluding birth events) during the period 2020—2024. This proportion differed by age group, with mental and behavioural disorders making up 0.3% of hospitalisations for children younger than 10 years and 6.8% of hospitalisations for adolescents aged 15—19 years.

Figure 4.1 shows that rates of hospitalisation (per 1,000 population) for mental and behavioural disorders among children and adolescents have increased over the past 25 years. Rates increased from about 2009 for adolescents 15 years and older, and although rates have been much lower for younger adolescents, they had doubled by 2021. There have been slight downward trends for both groups of adolescents after 2021, which may reflect post-COVID-19 reductions in severe mental health-related presentations requiring hospitalisation. Alternatively, it is possible that greater mental distress is being managed in community settings or that there is increased difficulty for young people to access hospital-level care for mental health.



Source: NMDS, NZCYES Estimated Resident Population. Rate per 1,000 age-specific population.

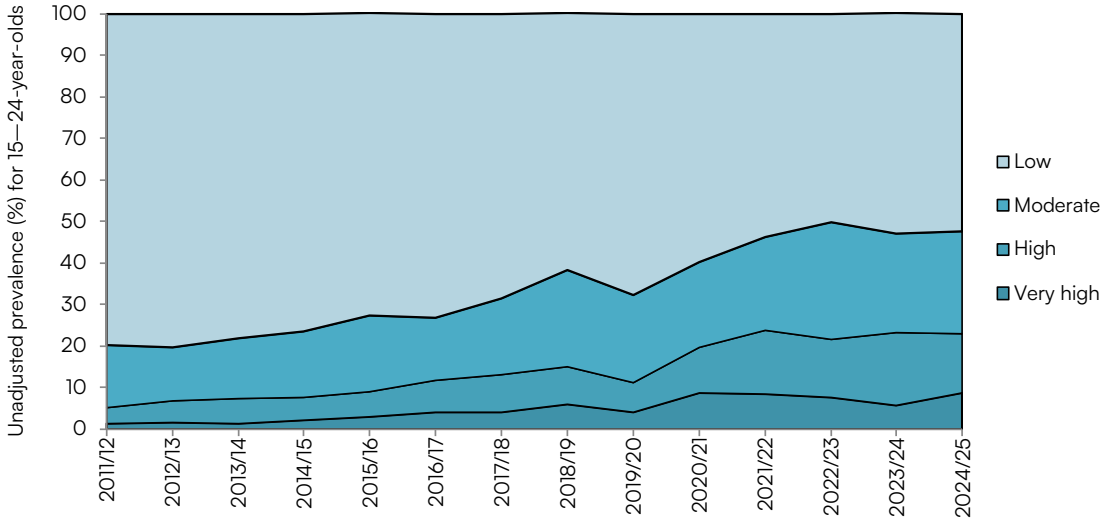
Figure 4.1: Trends in hospitalisations of 0—19-year-olds for mental and behavioural disorders, by age group, Aotearoa NZ (2000—24)

PSYCHOLOGICAL DISTRESS IN ADOLESCENTS AND YOUNG ADULTS

The New Zealand Health Survey (NZHS) asks young people and adults about feelings of loneliness in the past 4 weeks. In the most recent survey (2024/25), 7% of young people aged 15—24 years reported feeling lonely most or all of the time. Since 2020/21, this proportion has remained relatively stable.

NZHS data show a marked increase in young people aged 15—24 years reporting more psychological distress over time with the proportion of those who reported high or very high levels of psychological distress within the past 4 weeks increasing from 5.1% in 2011/12 to 22.9% in 2024/25 (Figure 4.2). Although there was a slight dip in the proportions reporting high/very high levels of psychological distress in 2022/23, this decrease appears not to have been sustained but has not increased further from the peak in 2021/22 (Figure 4.2).

In the 2024/25 survey, 13.5% reported unmet need for mental health or addiction services in the past 12 months. Although the proportions of those reporting unmet need for mental health or addiction services have not changed significantly since 2021, the proportions of young people who sought help for mental health issues from family or friends increased from 25%, on average, during the period from 2021/22 to 2023/24 to 34.2% in 2024/25. Young people were most likely to seek help for mental health issues from family or friends, followed by a GP or nurse (15.5%), or a mental health professional (14.1%).

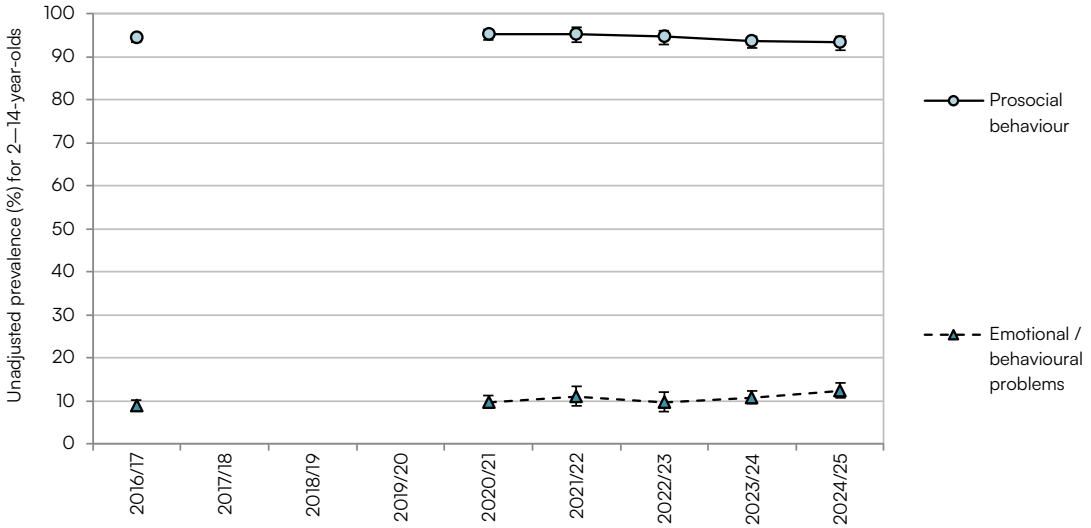


Source: NZHS. Kessler Psychological Distress Scale (K10).
Note: Smaller sample sizes in 2019/20 and 2020/21. These data are not available for younger children.

Figure 4.2: Trends in prevalence of levels of psychological distress in 15—24-year-olds, Aotearoa NZ (2011/12—2024/25)

MENTAL HEALTH CONCERNS FOR CHILDREN

The latest (2024/25) NZHS data show that one in eight (12.4%) children aged 2—14 years were likely to have emotional symptoms and/or behavioural problems. As shown in Figure 4.3 this proportion has been relatively static over time, and the majority of children are shown to demonstrate prosocial behaviour.



Source: NZHS. Emotional/behavioural problems = children 'likely to have symptoms' and prosocial behaviour = children 'demonstrating prosocial behaviour' based on the relevant subscales of the Strengths and Difficulties Questionnaire (SDQ).

Figure 4.3: Trends in prevalence of emotional and/or behavioural problems and prosocial behaviour in 2—14-year-olds, Aotearoa NZ (2016/17—2024/25)

For 6.3% of children, parents reported unmet need for mental health or addiction services in the past 12 months, a figure that has remained relatively static since 2021/22. Similar proportions of parents sought help for their children's mental health issues from family or friends (13.5%) or a teacher (12.5%), with lower proportions seeking help from a GP or nurse (7.6%) or a mental health professional (6.2%) in the past 12 months. The proportions of parents seeking help for their children from a teacher or from family or friends have increased significantly from the previous year (2023/24) during which 9.6% and 9.9% of parents sought help from a teacher or from family or friends, respectively. Given that teachers appear to be among the most frequently consulted for concerns about children's mental health issues, it may be pertinent to increase funding for mental health supports, such as access to counselling, and school-based health teams in schools.[9-12]

The data on mental health issues presented above undoubtedly underestimate the types and magnitude of mental health concerns among children and young people in Aotearoa NZ. The recent announcement of funding for the Child and Youth Mental Health Study[13] and the continued commitment to the national Youth Health and Wellbeing Survey[14] to monitor youth mental health will provide some much-needed information on the state of mental health among young people in Aotearoa NZ. There remains, however, an urgent need for good-quality, population-level data (ideally integrating primary care, school-based health services, Iwi providers, paediatric outpatients, and specialist mental health services) on the prevalence of mental health concerns among both children and young people to inform prevention efforts as well as the funding and provision of timely, accessible care for all those who need it.[15 16]

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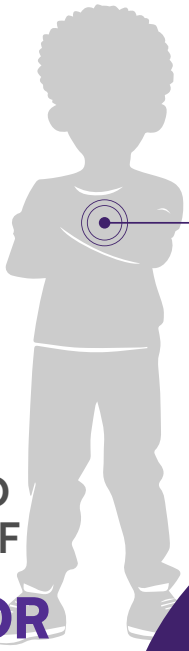
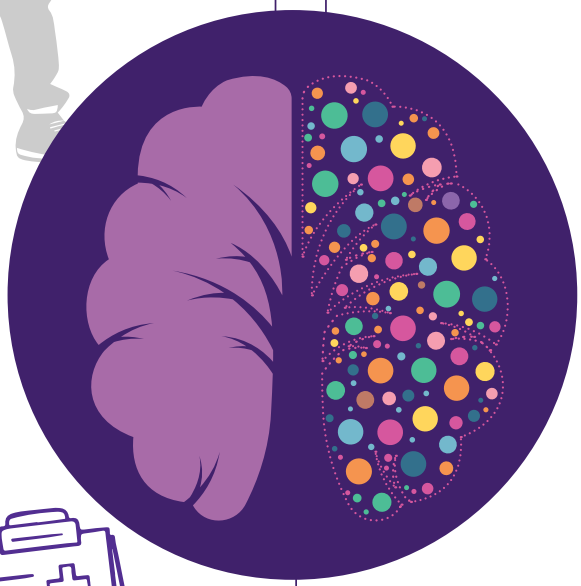
NEURODEVELOPMENTAL CONDITIONS
KANORAU Ā-RORO

MALES WERE MORE THAN **3x** AS LIKELY AS FEMALES TO HAVE RECEIVED A DIAGNOSIS OF **ADHD OR AUTISM**



POPULATION-LEVEL DATA FOR THE 2021/22 YEAR SHOW THAT **1.9% OF CHILDREN** HAD A RECORDED DIAGNOSIS OF **ADHD** AND **1.2% OF CHILDREN** HAD A RECORDED DIAGNOSIS OF **AUTISM**



CHILDREN LIVING IN MORE **RURAL AREAS** EXPERIENCED **MORE DIFFICULTY ACCESSING DIAGNOSIS**

SURVEY DATA SHOW THAT THERE HAVE BEEN **INCREASES IN DIAGNOSES** OF AUTISM AND ADHD

CO-OCCURRING NEURODEVELOPMENTAL CONDITIONS WERE **COMMON** FOR CHILDREN AND YOUNG PEOPLE WITH AUTISM AND ADHD

NEURODEVELOPMENTAL CONDITIONS KANORAU Ā-RORO

KEY RECOMMENDATIONS

- **Improved and timely access to diagnosis, supports, and intervention** for children and young people suspected or shown to have **neurodevelopmental conditions.**
- **Integrated referral pathways for ADHD, autism, and other neurodevelopmental conditions** that connect medical, educational, and community supports, with particular attention to the needs of whānau Māori and Pacific **families who face systemic barriers.**
- Strengthen system-wide awareness and **support for co-existing mental health conditions** among people with neurodevelopmental conditions by **improving responsiveness in mainstream mental health services** and **enhancing specialist dual diagnosis services** for those with the highest and most complex needs.

KEY FINDINGS

- **Males were more than 3 times as likely** as were females to have received a diagnosis of **ADHD or autism**.
- **Co-occurring neurodevelopmental conditions were common** for children and young people with autism and ADHD, including specific learning disorders, intellectual disability, and communication and language disorders.
- Survey data show that there have been **increases in diagnosed ADHD and diagnosed autism** in children and young people over time.
- Population-level data for the 2021/22 year show that **1.9% of children had a recorded diagnosis of ADHD** and **1.2% of children had a recorded diagnosis of autism.**
- Tamariki Māori and Pacific children, particularly those living with the most socioeconomic deprivation, experience **substantial difficulty and inequity in accessing diagnosis and support** for autism and ADHD.
- **Children living in more rural areas** also experience **more difficulty accessing diagnosis and support** for autism and ADHD.

WHY PRIORITISE RESEARCH ON NEURODEVELOPMENTAL CONDITIONS IN CHILDREN AND YOUNG PEOPLE?

This year we have decided to focus on neurodivergence in children in Aotearoa. A neurodivergent person is one whose mind functions differently to societal norms. The use of the term emerged in the 1990s and has, as a core principle, the idea that all brains are different, and people respond to the world around them differently. Some of these differences impact on people's ability to "fit in" with the society around them, so that the overall term encompasses a number of neurodevelopmental conditions such as learning difficulties but also attention deficit hyperactivity disorder (ADHD) and Autism Spectrum Disorder (ASD; henceforth referred to as autism), which are the focus of this chapter.

Neurodevelopmental conditions, also known as developmental disabilities, are a subset of neurodivergence and include behavioural and cognitive disorders that arise during the developmental period (i.e. prior to the age of 18 years) and that involve significant difficulties in the acquisition and execution of specific intellectual, motor, language, or social functions.[1] Neurodevelopmental conditions vary in clinical complexity and it is not always clear where the boundary between normal and atypical development lies.[2]

For children and young people, these neurodevelopmental conditions affect educational achievement and peer and family relationships, often leading to distress and reduced participation in school and community life. Children and young people with neurodevelopmental conditions often have co-occurring mental health and/or behavioural disorders, including anxiety, depression, problems with attention, or self-injurious behaviour.[2-9] These expressions of distress may have a substantial impact on the quality of life of both the individual and those who make up their support network, and can lead to social vulnerability.[10] Without timely and equitable support, the long-term costs — to individuals, whānau, and the wider economy — are magnified by school disengagement, mental health difficulties, unemployment, and increased involvement with social and justice systems.[11-13]

Evidence shows that the most effective approaches to address neurodevelopmental conditions are those that emphasise early identification, whānau-centred support, and sustained interventions that focus on function and participation in daily life.[14 15] Management and support approaches differ by condition. For autism, universal screening tools exist, but evidence does not yet confirm improved long-term outcomes from population-wide screening, making vigilant developmental surveillance and rapid response to concerns the best practice.[16-21] Behavioural and developmental interventions that are strengths-based and goal-directed can improve communication, social interaction, and adaptive skills for Autistic children when delivered consistently across home, school, and community settings.[22-24] For ADHD, early detection and support of high-risk children is important, particularly for those with co-occurring learning difficulties, autism, or early behavioural concerns.[25-27] While stimulants are often helpful, particularly for children aged over 5 years, it is important that these sit alongside support for parents, including parent training programmes (such as The Incredible Years and Triple P) and cognitive-behavioural interventions.[25]

CURRENT DATA ON NEURODEVELOPMENTAL CONDITIONS AMONG CHILDREN IN AOTEAROA NZ

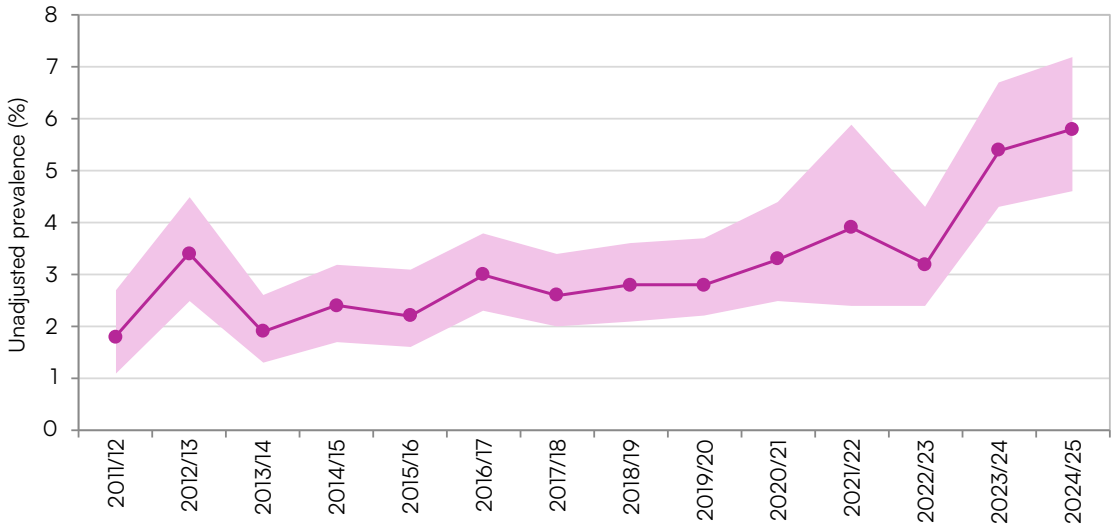
The analyses that follow present data from the New Zealand Integrated Data Infrastructure (IDI) on the prevalence of children and young people aged 0—14 years in Aotearoa during the year 2021/22 who are recorded as having received a diagnosis of ADHD or autism at any point during their lives either via contact with specialist mental health services, hospitalisation, eligibility for disability support services, or dispensed ADHD medication. Additional data from the New Zealand Health Survey on diagnosed ADHD and diagnosed autism are also presented.

We acknowledge that these diagnostic terms (as per DSM-5) are often deficit-based and that mana-enhancing Māori language and frameworks are essential for reframing our understanding of these conditions. However, our analysis is constrained by the way these data are collected — primarily by contact with health and disability support services. In addition, many diagnoses of neurodevelopmental conditions are made in paediatric clinics or Child Development Services (or via private providers) and coded diagnoses from sources such as these are not available within the IDI. Because many children and young people will never reach services and/or receive a diagnosis that is not recorded in the datasets used, the 'prevalence' of neurodevelopmental conditions reported here is likely to be a substantial underestimate of the true community prevalence. Instead, the term 'identification rate' will be used henceforth. For consistency between data sources and to enable comparison with international estimates, rates are expressed as percentages (i.e. per 100 population). The age (in years) at which children are first recorded in any of the IDI data sources with a diagnosis of ADHD or autism has been used as a proxy for (and referred to as) age at diagnosis of the condition.

ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

The mana-enhancing term for attention deficit hyperactivity disorder (ADHD) is *arororeretini*, which translates to 'attention goes to many things.'[28] ADHD is characterised by inattention, disorganisation, and/or hyperactivity/impulsivity at levels sufficient to cause impairment in daily life activities and that are inconsistent with age or developmental level.[2 29] Inattention and disorganisation results in an inability to stay on task, losing materials necessary for tasks, and appearing not to listen.[2] Hyperactivity/impulsivity involves overactivity, inability to sit still, fidgeting, intruding into other people's activities, and being unable to wait when required to.

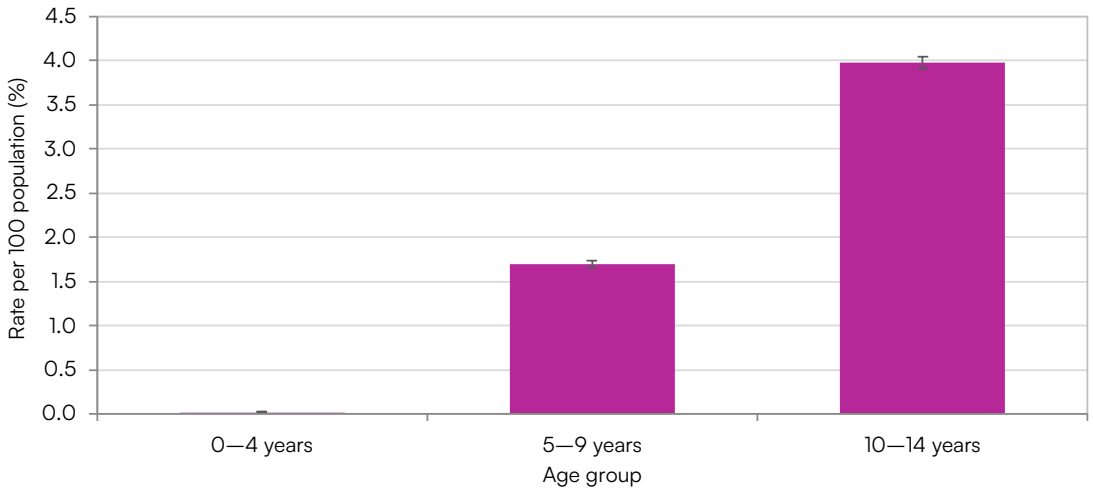
Recent systematic and umbrella reviews report wide ranges of ADHD prevalence estimates in children and adolescents globally (3.2—13.9%) depending on diagnostic practices, service access, and cultural context.[30 31] In Aotearoa, NZHS data show that, over the last 5 years, there has been a 76% increase in children aged 5—14 years diagnosed by a doctor as having ADHD, from 3.3% in 2020/21 to 5.8% in 2024/25 (Figure 5.1). Most of this increase has occurred in the last 2 years. Given higher population estimates from elsewhere, this could suggest a better recognition of ADHD, with, one hopes, better access to support.



Source: NZHS. Diagnosed Attention Deficit Hyperactivity Disorder. Lighter shading represents 95% confidence intervals.

Figure 5.1: Trends in diagnosed ADHD in 5—14-year-olds, Aotearoa NZ (2011/12—2024/25)

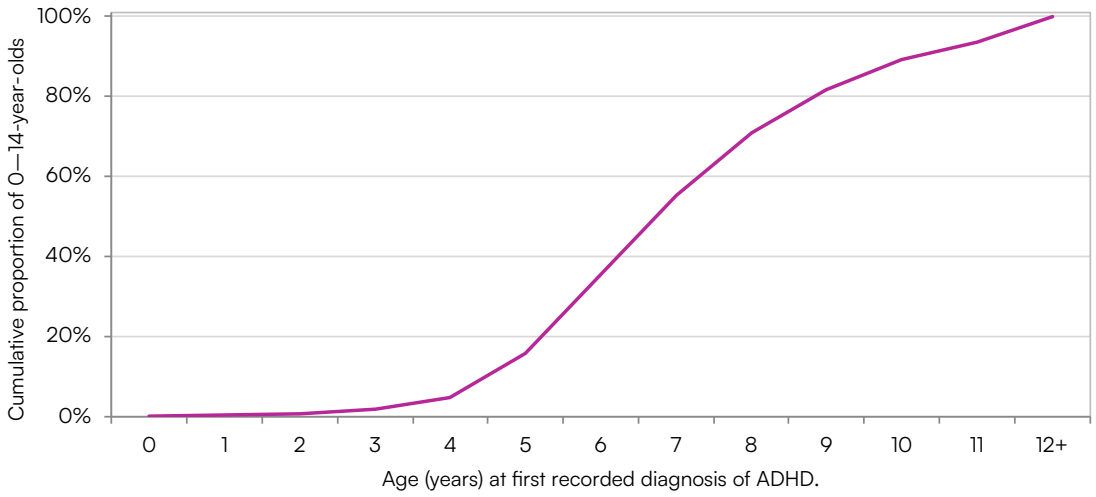
Data from the IDI show that in 2021/22, approximately 1.9% of children aged 0—14 years were recorded as having ADHD. Figure 5.2 shows that this rate differs by age group; ADHD is most likely to be recorded for 10—14-year-olds (approximately 4.0%) and is least likely to be recorded for under-5-year-olds (approximately 0.02%). To enable comparison with NZHS data, an identification rate of 2.8% (95% CI [2.7%, 2.8%]) was calculated for 5—14-year-olds. Although this rate seems slightly lower than the 3.9% (95% CI [2.4%, 5.9%]) of same-aged children reporting diagnoses of ADHD in the 2021/22 NZHS, it is within 95% confidence limits. As mentioned previously, this apparent difference is not unexpected given that identification rates using the IDI only reflect those who have accessed treatment, care, or support via contact with specialist mental health services, hospitalisation, disability support services, or who have been dispensed ADHD medication.



Source: IDI. Rates of ADHD per 100 age-specific population.

Figure 5.2: Children aged 0—14 years with ADHD, by age group, Aotearoa NZ (2021/22)

The very low number of children diagnosed with ADHD in the under-5-year-old group reflects differences in the timing of diagnosis. The flagship symptoms of ADHD (inattention, disorganisation, hyperactivity/impulsivity) are common in preschoolers and tend to settle with time and increasing maturity so that a diagnosis of ADHD becomes more certain after the age of 5 years once most children start formal schooling. Figure 5.3 shows the cumulative proportion of 0—14-year-old children diagnosed with ADHD by the age at their first recorded diagnosis. Here, we use this age at first recorded diagnosis as a proxy for age at diagnosis of ADHD. It is clear from Figure 5.3 that the vast majority of children were diagnosed with ADHD after the age of 5 years, with a median age at diagnosis of 7 years.



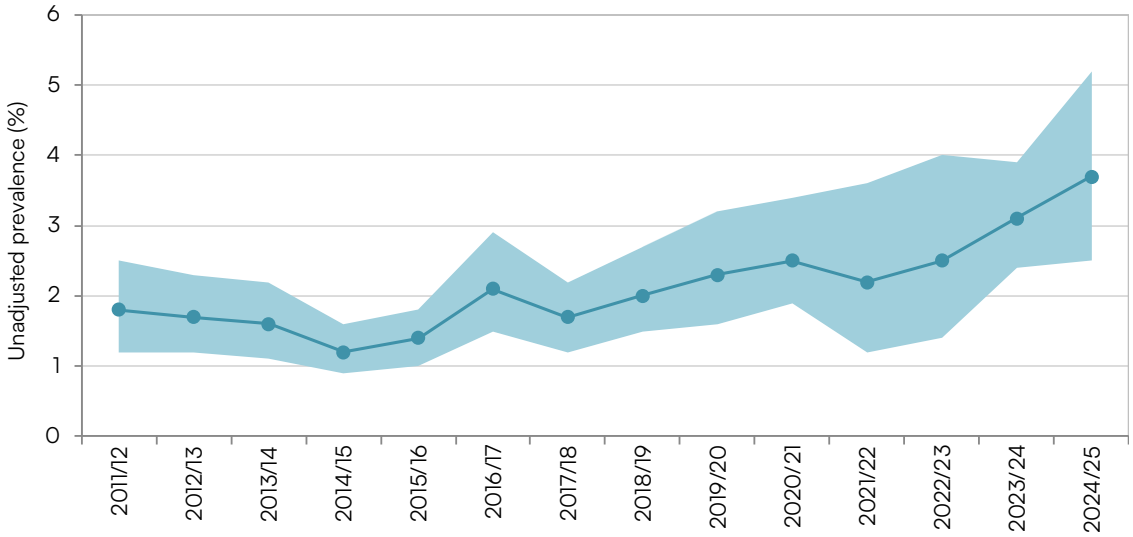
Source: IDI.

Figure 5.3: Age at first recorded diagnosis of ADHD in children aged 0—14 years, Aotearoa NZ (2021/22)

AUTISM

The mana-enhancing term for autism is *takiwātanga*, which translates to 'my/his/her own time and space.'[28] Autism is a complex neurological and developmental condition affecting social interaction, communication, learning, and behaviour.[32] Autism is characterised by persistent difficulties with social communication and social interaction in multiple contexts, including difficulties with social and emotional reciprocity. Autism is also characterised by the use of nonverbal communicative behaviours for social interaction and social relationships.[2] In addition to social communication difficulties, a diagnosis of autism requires the presence of focused or intense interests or repetitive movements.[2]

The global prevalence of autism is estimated to be approximately 1%.[33] The US Centers for Disease Control and Prevention's (CDC) figures for 2022 estimated that 3.2% 8-year-olds in the US were Autistic,[34] an increase from previous estimates in 2000 (when the CDC began monitoring) of 0.7%.[35] In Aotearoa (in 2015/16), the rate of autism identified in individuals was 0.06% for those aged 0—24 years and 1% for 8-year-olds (the equivalent for 8-year-olds in the US at the time was 1.7% according to CDC estimates[36]).[3] More recent NZHS data show that, over the last 5 years, there has been a 48% increase in children aged 2—14 years who have been diagnosed by a doctor as having autism, from 2.5% in 2020/21 to 3.7% in 2024/25 (Figure 5.4).

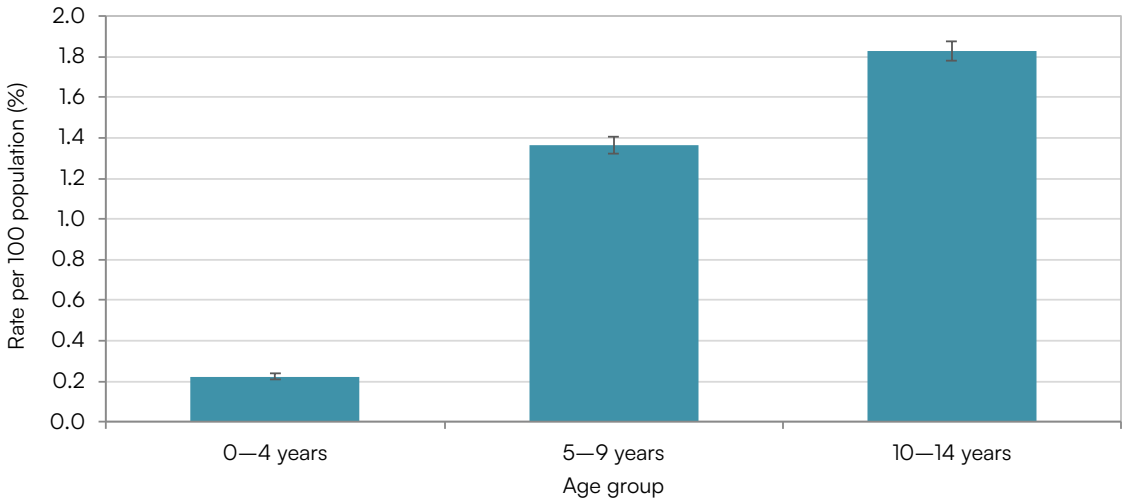


Source: NZHS. Diagnosed Autism Spectrum Disorder. Lighter shading represents 95% confidence intervals.

Figure 5.4: Trends in diagnosed autism in 2—14-year-olds, Aotearoa NZ (2011/12—2024/25)

Data from the IDI show that in 2021/22, approximately 1.2% of children aged 0—14 years were recorded as having autism. To enable comparison with NZHS data, identification rates of 1.4% (95% CI [1.3%, 1.4%]) and 1.8% (95% CI [1.8%, 1.9%]) were calculated for 5—9-year-olds and 10—14-year-olds, respectively (Figure 5.5). Again, these estimates seem lower than those reported for children in the 2021/22 NZHS; 2.2% (95% CI [0.7%, 5.1%]) for 5—9-year-olds and 2.8% (95% CI [1.2%, 5.6%]) for 10-14-year-olds but they are well within 95% confidence limits.[a] As mentioned previously, this apparent difference is not unexpected given that identification rates using the IDI only reflect those who have accessed treatment, care, or support via contact with specialist mental health services, hospitalisation, or disability support services. It does suggest, unfortunately, that many young people with these challenges are not being recognised and, therefore, are not receiving support early.

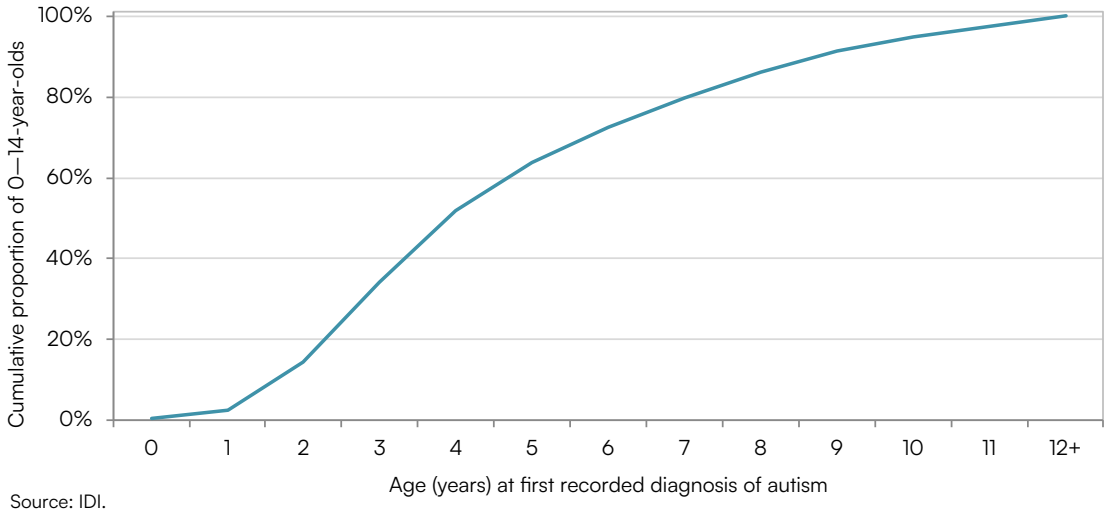
a Note also that the relative sampling error (the size of the sampling error relative to the result) is over 30% for the NZHS estimates.



Source: IDI. Rates of autism per 100 age-specific population.

Figure 5.5: Children aged 0—14 years with autism, by age group, Aotearoa NZ (2021/22)

Figure 5.6 shows the cumulative proportion of 0—14-year-old children diagnosed with autism by the age at their first recorded diagnosis. Again, we use this age at first recorded diagnosis as a proxy for age at diagnosis of autism. The majority of children (61%) were diagnosed with autism between the ages of 2 and 5 years, with a median age at diagnosis of 4 years.



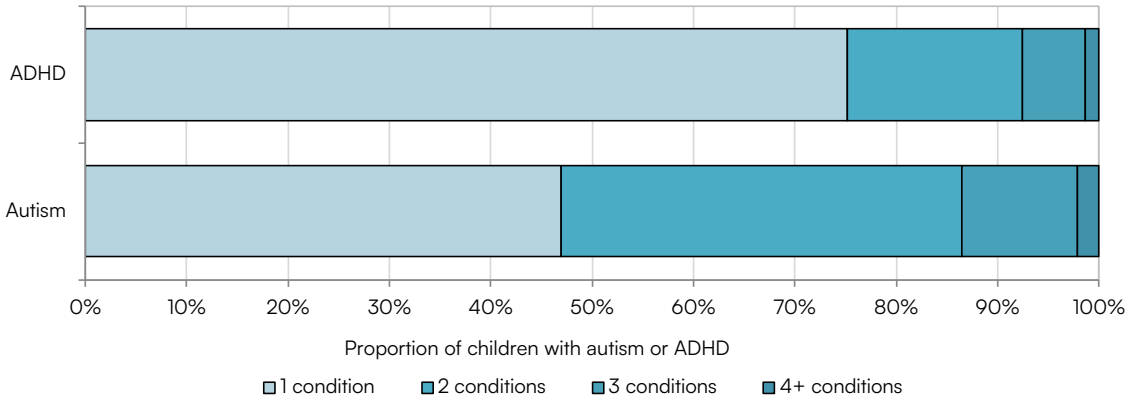
Source: IDI.

Figure 5.6: Age at first recorded diagnosis of autism in children aged 0—14 years, Aotearoa NZ (2021/22)

CO-OCCURRING NEURODEVELOPMENTAL CONDITIONS

Children and adolescents with ADHD or autism are often diagnosed with other neurodevelopmental conditions, and co-occurring ADHD and autism is common.[9 37-41] Previous international estimates show that approximately 1 in 8 children with ADHD have a concurrent diagnosis of autism[37 39 40] and that up to half of Autistic children have a concurrent diagnosis of ADHD.[42]

In Aotearoa, Figure 5.7 shows that in 2021/22, more than half of Autistic children had co-occurring neurodevelopmental conditions whereas a quarter of children with ADHD had co-occurring neurodevelopmental conditions. Co-occurring neurodevelopmental conditions included intellectual disability, learning disorders, communication or language disorders, foetal alcohol spectrum disorder (FASD), and motor skills disorders.



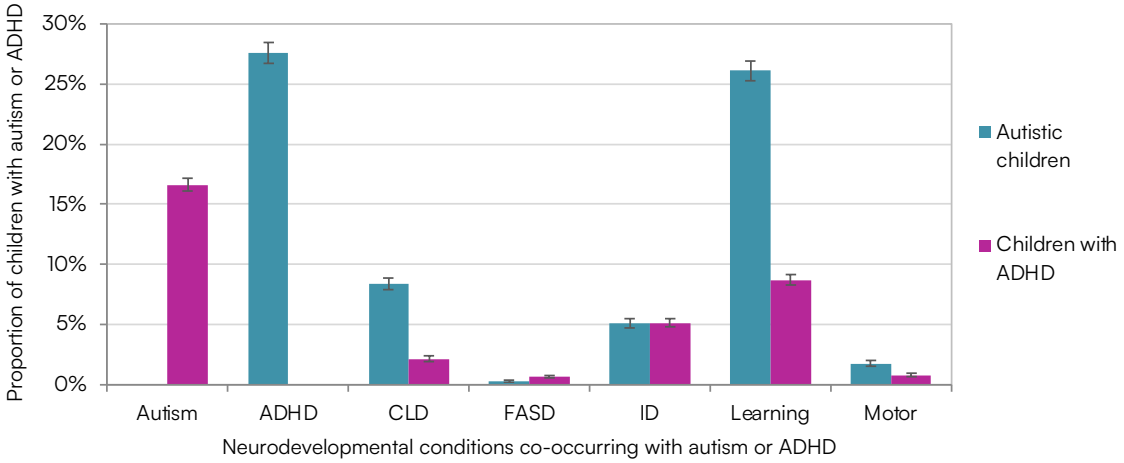
Source: IDI. Proportions of individuals with autism or ADHD.
1 condition = autism or ADHD only;
2 or more conditions = autism or ADHD + other neurodevelopmental condition(s).

Figure 5.7: Children aged 0—14 years with autism or ADHD, by number of neurodevelopmental conditions, Aotearoa NZ (2021/22)

Approximately 0.3% of children aged 0—14 years in Aotearoa were recorded as having both autism and ADHD. Among Autistic children, approximately 28% had co-occurring ADHD (Figure 5.8). Specific learning disorders were also common among Autistic children (26%), as were communication and language disorders (8%) and intellectual disability (5%).

Although autism was the most common co-occurring neurodevelopmental condition for children with ADHD (17%), this proportion was smaller than that for Autistic children with ADHD (Figure 5.8). Similar to Autistic children, specific learning disorders were also fairly common among children with ADHD (9%), as was intellectual disability (5%) and, to a lesser extent, communication and language disorders (2%).

Note that estimates of co-occurring intellectual disability may be lower than expected due to challenges around diagnosis for younger children as well as limited diagnosis information within IDI datasets. Note also that foetal alcohol spectrum disorder (FASD) is likely underdiagnosed due to lack of access to multidisciplinary diagnostic pathways in Aotearoa NZ. Children with co-occurring FASD and ADHD or autism often have complex mental health, educational, and social challenges and these children and whānau are not well served by current services and pathways.



Source: IDI. Proportions of individuals with autism or ADHD.
CLD = communication or language disorders; FASD = foetal alcohol spectrum disorder;
ID = intellectual disability; Learning = specific learning disorders; Motor = motor skills disorders.

Figure 5.8: Children aged 0—14 years with autism or ADHD, by co-occurring neurodevelopmental conditions, Aotearoa NZ (2021/22)

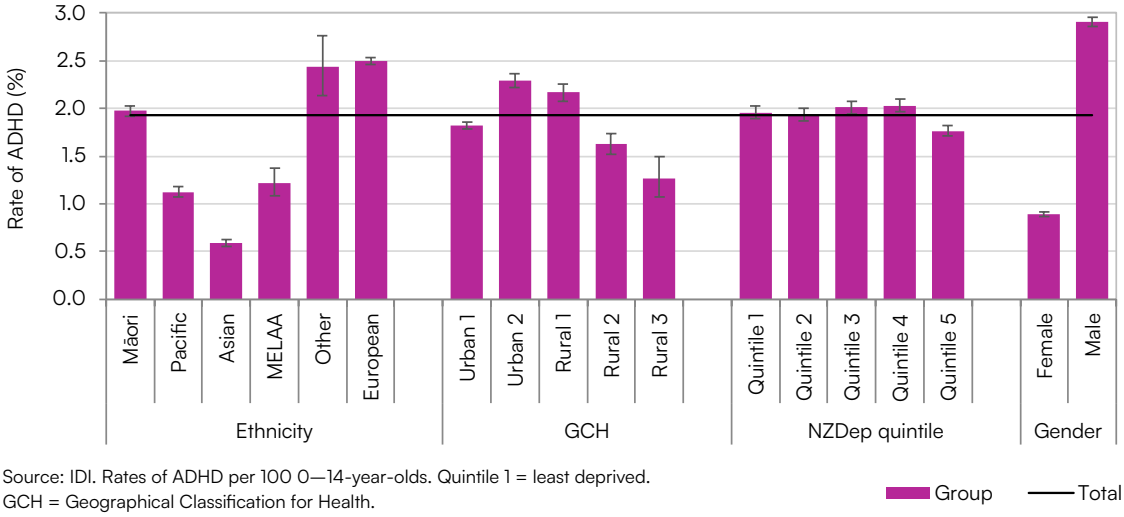
ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

Figure 5.9 shows ADHD identification rates for 0—14-year-olds by ethnicity, Geographic Classification for Health (GCH; a measure of urbanicity and rurality), socioeconomic deprivation (NZDep), and gender.

What distinguishes Aotearoa from other countries is the marked ethnic gradient, highlighting inequities in access to assessment that are not always as visible in other jurisdictions. The ADHD identification rate was highest for children of European or Other ethnicity and was significantly higher than that for children of all other ethnicities. ADHD identification rates were lowest for Asian children, followed by children of Pacific and MELAA ethnicities, and then tamariki Māori. Similar patterns are evident in trend data from the NZ Health Survey (not pictured): Diagnosed ADHD in 5—14-year-olds has been consistently highest for European/Other children (which includes MELAA children) and tamariki Māori. Although rates of diagnosed ADHD have been lower for Pacific children and lowest for Asian children, these two groups of children have experienced increases in rates of diagnosed ADHD since 2011/12.

Children living in the most rural areas (Rural 2 and 3 areas) were the least likely to have recorded diagnoses of ADHD. ADHD identification rates were similar for children living in quintile 1—4 areas, but significantly lower for those living in quintile 5 areas (the most deprived). Together these findings suggest that there may be barriers to accessing diagnoses of, and treatment for, ADHD for children living in the most deprived areas and the most rural areas.

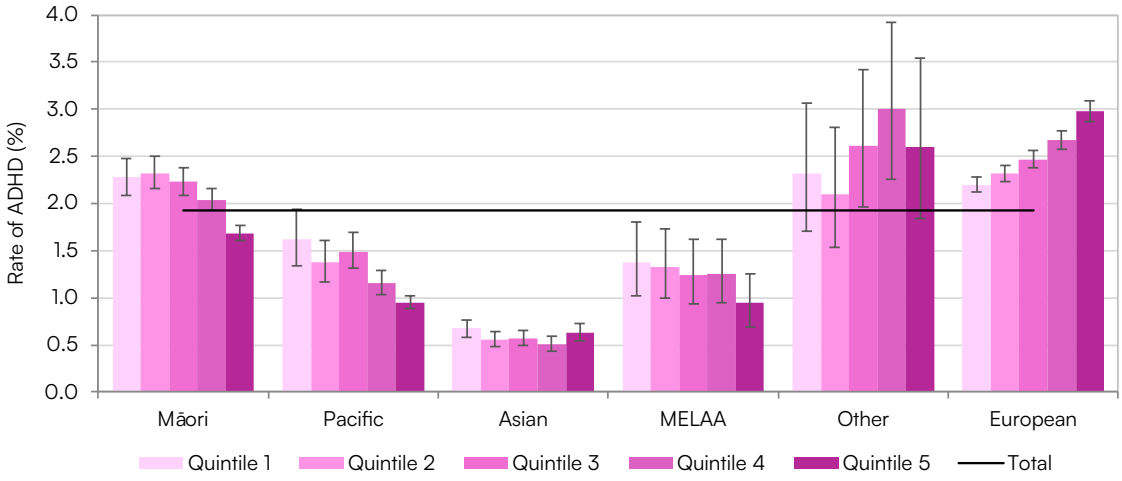
There was a large gender difference in ADHD identification rates, males being more than 3 times as likely as are females to have received a diagnosis. The greater prevalence of ADHD in males reflects both a greater likelihood of childhood ADHD being diagnosed in males as well as males with ADHD being more disruptive than girls with ADHD and, thus, being more likely to be referred for treatment.[43] The same pattern was evident in trend data from the NZ Health Survey (not pictured) but despite lower rates for 5—14-year-old females, the rate of increase in diagnosed ADHD has been greater for females than males, such that for the most recent survey year (2024/25) rates of diagnosed ADHD did not differ between males and females.



Source: IDI. Rates of ADHD per 100 0—14-year-olds. Quintile 1 = least deprived.
GCH = Geographical Classification for Health.

Figure 5.9: Children aged 0—14 years with ADHD, by demographic factor, Aotearoa NZ (2021/22)

Figure 5.10 illustrates the clear effects of socioeconomic deprivation on the likelihood of having a recorded diagnosis of ADHD, however, the direction of the effect differs according to ethnicity. For European children, ADHD identification rates increase with increasing socioeconomic deprivation. In contrast, ADHD identification rates for tamariki Māori and Pacific children show reverse deprivation gradients; rates decrease with increasing socioeconomic deprivation. These findings highlight the added difficulty in accessing diagnosis and treatment for ADHD for tamariki Māori and Pacific children living with the most socioeconomic deprivation. For children of Asian, MELAA, and Other ethnicities, there were no significant differences in ADHD identification rates by socioeconomic deprivation.



Source: IDI. Rates of ADHD per 100 0—14-year-olds. Quintile 1 = least deprived.

Figure 5.10: Children aged 0—14 years with ADHD, by ethnicity and socioeconomic deprivation, Aotearoa NZ (2021/22)

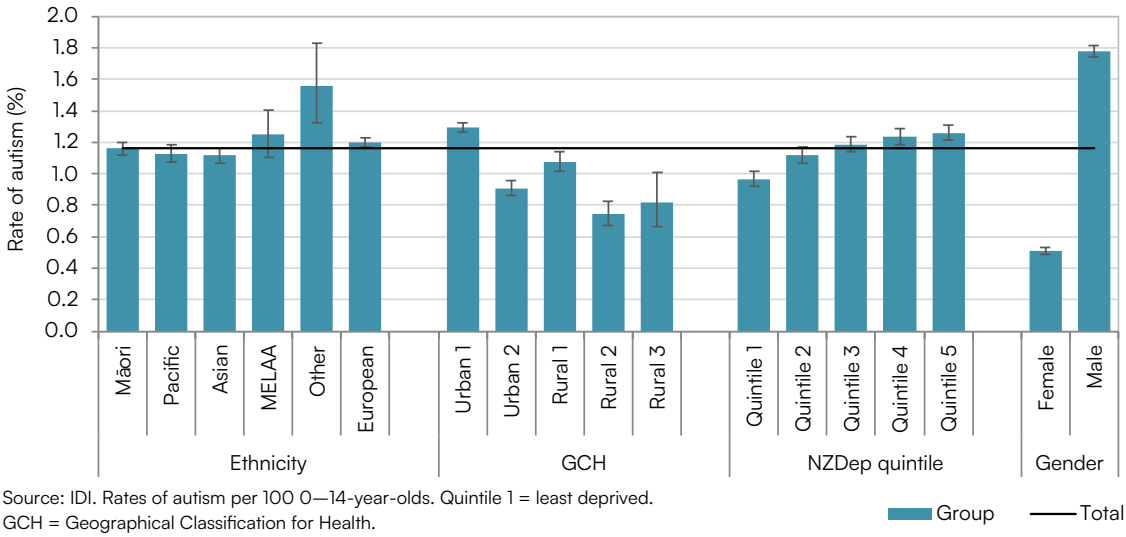
AUTISM

Figure 5.11 shows autism identification rates for 0—14-year-olds by ethnicity, GCH, socioeconomic deprivation (NZDep), and gender.

Autism identification rates were very similar for children of European, Māori, Pacific, Asian, or MELAA ethnicity. Children of Other ethnicity were significantly more likely to be recorded as being Autistic than were children of all other ethnicities (with the exception of MELAA children). Similarly, NZ Health Survey data for the latest survey year (2024/25) show that 2—14-year-old children of all ethnicities (with the exception of Asian children) were equally likely to have been diagnosed with autism. In addition, trend data from the NZ Health Survey (not pictured) show that diagnosed autism has increased over time (since 2011/12) for children of all ethnicities but to the greatest extent for tamariki Māori (1% to 4.5%) and Pacific children (1.3% to 4.2%).

Compared to children residing in the most urban areas (Urban 1), children living in all less urban and rural areas were significantly less likely to be recorded as being Autistic. Autism identification rates in children increased with increasing socioeconomic deprivation but flattened off for children living in quintiles 4 and 5.

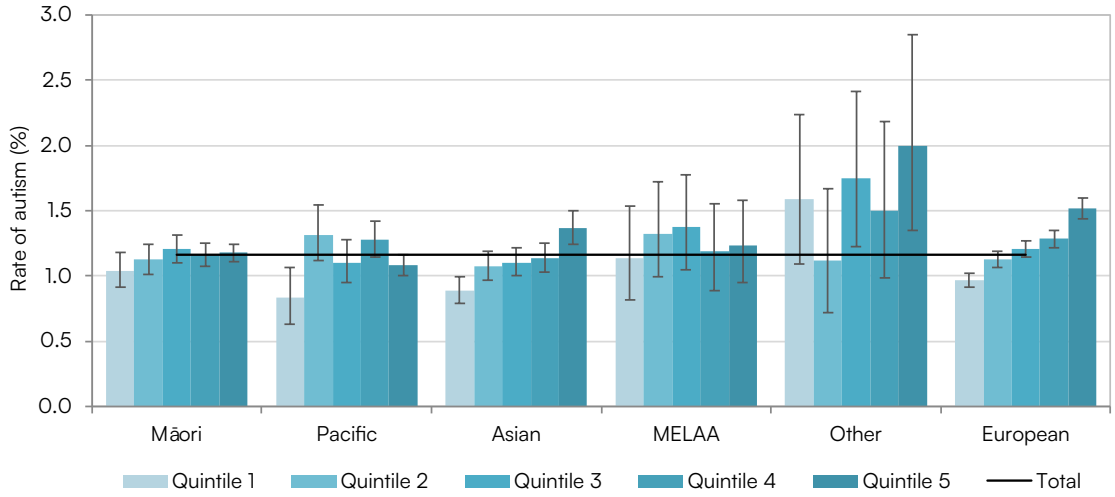
There was a large gender difference in autism identification rates for children; males were 3.5 times as likely as were females to be recorded as being Autistic. The same pattern was evident in trend data from the NZ Health Survey (not pictured) but despite lower rates for 2—14-year-old females, the rate of increase in diagnosed autism has been greater for females compared to males. International research has shown that although autism affects around 4 times as many males as females, large increases in rates for females[36] mean that this ratio is decreasing as recognition of autism among females and diagnostic pathways improve.[41]



Source: IDI. Rates of autism per 100 0—14-year-olds. Quintile 1 = least deprived.
GCH = Geographical Classification for Health.

Figure 5.11: Autistic children aged 0—14 years, by demographic factor, Aotearoa NZ (2021/22)

Figure 5.12 shows that autism identification rates increase with increasing socioeconomic deprivation for European and Asian children only. In contrast, autism identification rates for tamariki Māori, MELAA, and Other children did not differ significantly by socioeconomic deprivation. For Pacific children, the autism identification rate was significantly lower for children living in the least deprived areas (quintile 1) compared to those living in quintiles 2 and 4, but there were no other significant differences.



Source: IDI. Rates of autism per 100 0—14-year-olds. Quintile 1 = least deprived.

Figure 5.12: Autistic children aged 0—14 years, by ethnicity and socioeconomic deprivation, Aotearoa NZ (2021/22)

Access to services and support depends strongly on specialist assessment, most often by paediatricians or psychiatrists. As such, Paediatric, Child and Adolescent Mental Health, and Child Development Services require increased funding to keep up with the increasing numbers of referrals. At the same time, reliance on diagnostic confirmation as the gateway to services perpetuates delays and inconsistencies, further disadvantaging already underserved groups. In some districts in Aotearoa, newer models of care empower Nurse Practitioners to assess, diagnose, and co-ordinate care for ADHD and autism. This reduces delays and improves service access for children and their whānau. However, wide differences in referral thresholds, age criteria, and service responsibilities across the motu create major inequities in who is diagnosed and when. Integrated referral pathways that connect medical, educational, and community supports are essential, particularly for whānau Māori and Pacific families who face systemic barriers.

There are important cultural differences in our understandings of neurodevelopmental concerns. For instance, cultural understandings may affect whānau Māori and their decision to seek a diagnosis, as they may feel it will diminish the mana of their child.[44] For example, the Māori word for autism is takiwātanga, meaning "in their/my own time and space" *(tōku/tōna anō takiwā)*.[28 45] It describes autism not as a disorder, but as a unique way of being, emphasising that tamariki may have their own rhythm, pacing, and strengths. It promotes understanding, acceptance, and inclusion. Despite this, neurodivergence is often difficult for whānau Māori to negotiate, requiring them to highlight (and often emphasise) their child's problems (as opposed to strengths) to get support.[46] Similarly, for Pacific families, a diverse range of factors may impact help-seeking and support, including stigma, wanting to care for children within their family/culture, and difficulty negotiating Western healthcare systems.[47] Having strengths-based, culturally safe, and culturally co-designed pathways, with language-specific resources, are necessary to address persistent inequities in health and social outcomes,[48 49] improve access, and ensure that taitamariki kanorau ā-roro (neurodiverse children) receive the support they need to thrive.

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GLOSSARY OF KEY TERMS

RESPIRATORY CONDITIONS

Asthma: a common, non-communicable, chronic lung condition in which airways become inflamed and narrow. The symptoms include difficulty breathing, chest pain, cough, and wheezing.

Bronchiolitis: a chest condition caused by a viral infection (often RSV), which usually affects infants, and causes rapid breathing, wheezing, and retraction of the chest wall. Bronchiolitis involves inflammation of the bronchioles, the smallest airways in the lungs.

Bronchiectasis: a long-term lung condition where repeated, serious lung infections damage airways and cause mucus build-up. Bronchiectasis is characterised by chronic inflammation and destruction of bronchial walls. The main symptom for children is a wet, chesty cough.

Influenza: a virus that infects humans (types A and B) and a wide range of birds and other animals. It causes symptoms such as fever, chills, muscle or body aches, headache, runny or stuffy nose, cough, and sore throat (among others) and can lead to serious complications.

Pneumonia: a serious viral or bacterial infection causing inflammation of the lungs. Children with pneumonia can experience symptoms such as cough, difficulty breathing, fever, chills, and chest pain. If untreated, very severe pneumonia can be fatal.

Wheeze: defined clinically as musical, continuous sounds caused by breathing through narrowed airways, wheeze can be associated with bronchiolitis (in infants), viral-induced preschool wheeze, and asthma.

RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE

Acute rheumatic fever (ARF): a disease caused by an autoimmune reaction after infection by streptococcus bacteria. Acute rheumatic fever is an inflammation in the heart, joints, skin, or central nervous system.

Group A Streptococcus (GAS): a type of bacteria that can cause skin, soft tissue, and respiratory tract infections. GAS infections can range from mild infection (e.g., a sore throat) to severe or life-threatening conditions (invasive GAS disease) and require antibiotic treatment.

Rheumatic heart disease (RHD): a condition in which permanent damage to heart valves is caused by recurrent episodes of rheumatic fever.

MENTAL HEALTH

Psychological distress: feelings of extreme stress, anxiety, nervousness, hopelessness, depression, fear, anger, tiredness, or sadness.

NEURODEVELOPMENTAL CONDITIONS

Neurodivergence: variations in brain functioning, where individuals think, learn, and behave differently to societal norms.

Neurodevelopmental conditions: developmental disabilities that involve significant difficulties in the acquisition and execution of specific intellectual, motor, language, or social functions.

Attention Deficit/Hyperactivity Disorder (ADHD): a neurodevelopmental condition characterised by persistent patterns of inattention, disorganisation, and/or hyperactivity or impulsivity at levels sufficient to cause impairment in daily life activities and that are inconsistent with age or developmental level.

Autism spectrum disorder (ASD): a complex neurodevelopmental condition affecting social interaction, communication, learning, and behaviour.

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APPENDIX: DATA SOURCES, MEASUREMENT, AND METHODS

The estimated population of Aotearoa NZ includes over 1.3 million children younger than 20 years — about a quarter of the total population.[1] This report includes nationally representative data for infants, children, and young people aged under 20 years (unless otherwise stated) in Aotearoa NZ from the sources that follow.

NATIONAL MINIMUM DATASET (NMDS)

The National Minimum Dataset (NMDS) is an administrative data collection held by the NZ Ministry of Health, which captures information about all discharges from publicly funded hospitals in Aotearoa NZ.[2] This report presents data extracted by the Ministry in August 2025 on discharges as representative of hospitalisations and represents the most up-to-date data available at the time of publication. Note that data are limited to acute hospitalisations (i.e., unplanned admissions on the day of presentation at the admitting healthcare facility, including emergency department [ED] stays of >3 hours) and semi-acute hospitalisations (i.e., arranged admissions within a week of referral for, e.g., investigation of severe disease or intensive therapy). Hospitalisation events were excluded if there were transfers. Unless stated otherwise, hospitalisation information is presented by calendar year (Jan to Dec).

Rates of hospitalisation are presented per 1,000 children. Unless otherwise stated, rates are age specific and are calculated by dividing the number of observed discharge events for a specified age group over a specified period (for example, a year) by the total population at risk of the event in that age group. The NZ Child and Youth Epidemiology Service (NZCYES) estimated resident population denominators are derived from customised census data from Stats NZ, with linear interpolation and extrapolation for non-census years.

Ethnicity is self-identified at each hospital admission and is prioritised according to the Stats NZ ethnicity standard classification.[3,4] Prioritised ethnicity means that if a child identifies with more than one of the six ethnic groups defined, they are allocated to a single group according to the following order of priority: Māori, Pacific, Asian/Indian, Middle Eastern/Latin American/African (MELAA), Other, and European. Māori are the indigenous people of Aotearoa NZ; this is a heterogeneous and dynamic ethnic group, with diverse lifestyles and identities. Pacific includes people from Samoa, Tonga, Fiji, the Cook Islands, Niue, and Tokelau. This ethnic group encompasses people with unique and distinctive identities, cultures, and languages. Asian and Indian includes people from Chinese, Indian, Korean, and Filipino ethnic groups, including indirect Indian (e.g., Indo-Fijian and Chinese-Samoan). The MELAA ethnic group constitutes a small proportion of the NZ population. The European group is the largest ethnic group; it includes Pākehā, European (e.g., British, Dutch, German, Russian), and indirect European (e.g., American, Canadian, South African, Australian). The Other ethnic group comprises people who do not identify with any of these ethnic groups. In this report, European and Other ethnic groups are combined due to small numbers in the latter group and to enable consistency in time-series analyses following changes to the way in which ethnicity has been coded by Stats NZ and in health collection databases.[3,4] For health conditions for which there are small numbers of hospitalisations (e.g., rheumatic fever and rheumatic heart disease), children of European, Asian/Indian, MELAA, and Other ethnicities have been combined into a single non-Māori non-Pacific group.

The New Zealand Index of Deprivation measures the level of socioeconomic deprivation in neighbourhood areas and is based on variables from the NZ Census. Quintile 1 represents the 20% of areas with the lowest socioeconomic deprivation and quintile 5 represents the 20% of areas with the highest deprivation.[5]

DEFINITIONS AND CODES USED FOR IDENTIFYING HOSPITALISATIONS

The rates of children treated in hospital for the conditions in this report are taken from the NMDS based on the diagnostic codes at discharge between January 2000 and December 2024. Rates include all acute and semi-acute (arranged) hospitalisations for those aged 0—19 years whose primary diagnoses (ICD-10-AM) were coded as:

Acute rheumatic fever / rheumatic heart disease:

- Acute rheumatic fever (I00—I02)
- Chronic rheumatic heart disease (I05—I09)

Note that researchers have argued that some codes for RHD (e.g., tricuspid valve diseases, multiple valve diseases with no mitral involvement) may include individuals who have heart conditions that are not RHD and thus including these codes may overestimate the prevalence of RHD.[6-9] Published responses to clinical coding queries submitted to the New Zealand Coding Authority state that because there is a high level of interest in rates of RHD in Aotearoa NZ, from a public health perspective it is important to identify where possible if the heart valve disease, and in particular multiple valve disease, is rheumatic or non-rheumatic.[10] As such, disorders of multiple heart valves that are specified as non-rheumatic should not be coded under multiple valve diseases. Because these guidelines should decrease the number of non-RHD heart conditions coded to the RHD group of codes and to maintain consistency with Ministry of Health and Te Whatu Ora (Health NZ) guidelines and other published research, all codes for RHD have been included here.

Respiratory conditions:

- Upper respiratory infections (J00—J06)
- Influenza (J09—J11)
- Lower respiratory infections:
  - Pneumonia (J12—J18; J69; J85.1)
  - Acute bronchitis (J20)
  - Acute bronchiolitis (J21)
  - Unspecified acute lower respiratory infection (J22)
- Asthma and wheeze (J45—J46; R06.2)
- Bronchiectasis (J47, excluding cystic fibrosis)

Together, these selected respiratory conditions account for approximately 88% of all hospitalisations for respiratory-related conditions in children.

Mental health concerns:

- Mental health and behavioural disorders (F00—F99)

NEW ZEALAND HEALTH SURVEY (NZHS)

Started in 2011, the New Zealand Health Survey (NZHS) is an annual survey. In 2024/25, the Survey included data for 2,805 under-15-year-old children (as reported by their parents or caregivers) and 820 young people aged 15—24 years (who answered independently).[11] Data from the Health Survey have not been analysed according to age, ethnicity, or socioeconomic deprivation for young people because demographic data are provided as an aggregate. The results for the NZHS in 2024/25 were weighted to take account of the lower-than-usual response rates (72% for children, 75% for adults).

Data from several questions in the NZHS are provided in this report, including:

Mental health concerns:

- Emotional and/or behavioural problems for children aged 2—14 years:
  - Strengths and Difficulties Questionnaire (SDQ) — measures the risk of experiencing substantial difficulties in emotional symptoms, conduct problems, hyperactivity, and peer problems as measured by the relevant scales.
- Prosocial behaviour for children aged 2—14 years:
  - Prosocial Behaviour Scale of the SDQ.
- Loneliness for young people aged 15—24 years:
  - During the past four weeks, how often did you feel lonely? [All of the time / Most of the time / Some of the time / A little of the time / None of the time]
- Psychological distress for young people aged 15—24 years
  - Kessler Psychological Distress Scale (K10) — scores grouped into 4 levels from low distress to very high distress.
- Help-seeking for mental health concerns:
  - 2—14-year-olds: In the past 12 months, did you consult any of the following people for concerns about [Name's] emotions, stress, mental health, or substance use? [Multiple responses possible — categorised as GP or nurse, mental health professional, teacher, and family, whānau or friends]
  - 15—24-year-olds: In the past 12 months, have you consulted any of the following people for concerns about your emotions, stress, mental health, or substance use? [Multiple responses possible — categorised as GP or nurse, mental health professional, and family, whānau or friends]
- Unmet need for mental health or addiction services:
  - 2—14-year-olds: In the last 12 months, did you ever feel that [Name] needed professional help for their emotions, stress, mental health, or substance use, but they didn't receive that help? This could have been because of personal reasons (for example, it cost too much) or reasons you couldn't control (for example, no appointments available).
  - 15—24-year-olds: In the last 12 months, did you ever feel that you needed professional help for your emotions, stress, mental health, or substance use, but you didn't receive that help? This could have been because of personal reasons (for example, it cost too much) or reasons you couldn't control (for example, no appointments available).

Neurodevelopmental conditions:

- Diagnoses of attention deficit hyperactivity disorder (ADHD) or Autism Spectrum Disorder for children aged 2—14 years:
  - Have you ever been told by a doctor that [child's name] has attention deficit hyperactivity disorder (ADHD)?
  - Have you ever been told by a doctor that [child's name] has autism spectrum disorder?

Respiratory conditions:

- Barriers to accessing primary health care for children aged 0—14 years:
  - In the past 12 months, was there a time when [child's name] had a medical problem but did not visit a GP because of cost?
  - In the past 12 months, was there a time when [Name] had a medical problem but did not visit a GP for any of the following reasons? [Time taken to get an appointment was too long / Owed money to the medical centre / Dislike or fear of the GP / Difficult to take time off work / No transport or too far to travel / Could not arrange childcare (for other children) or care for a dependent adult / Didn't have a carer, support person, or interpreter to go with you]
- Emergency department use for children aged 0—14 years:
  - In the past 12 months, how many times did [child's name] go to an emergency department at a public hospital about their own health?

INSTITUTE FOR PUBLIC HEALTH AND FORENSIC SCIENCE (PHF SCIENCE)

The New Zealand Institute for Public Health and Forensic Science (PHF Science) (formerly the Institute of Environmental Science and Research, ESR) provides intelligence on notifiable diseases and other serious health threats and manages the national notifiable disease database (EpiSurv) on behalf of the Ministry of Health.[12] Episodes of ARF are notifiable to the Medical Officer of Health under the Health Act 1956.[13] Information on numbers of notifications for ARF are provided by PHF Science by age group, sex/gender, prioritised ethnicity, and district.

INTEGRATED DATA INFRASTRUCTURE (IDI)

The Integrated Data Infrastructure (IDI) is a large research database containing de-identified, linked microdata about people and households.[14] Data held in the IDI include information about education, income, benefits, migration, justice, and health. Data come from government agencies, surveys, and non-government organisations (NGOs).

In this report, we have used datasets in the IDI to identify children in Aotearoa who are recorded as having attention deficit hyperactivity disorder (ADHD) and/or autism spectrum disorder (ASD). Data have been provided for 0—14-year-old children only due to incompleteness of some data sources within the IDI for older adolescents and young people.

Note that ethnicity recorded in the IDI is total response (i.e., not prioritised). As such, individuals could be recorded as belonging to more than one ethnic group and were counted once for each ethnic group to which they belonged.

IDI DATASETS AND CODES USED FOR IDENTIFYING CHILDREN WITH ADHD OR ASD

Pharmaceutical Collection:

The pharmaceutical dispensing collection[15] supports the management of pharmaceutical subsidies. It contains claim and payment information from pharmacists for subsidised dispensed medications. This data source does not observe individuals who have been prescribed medicine but not collected it.

The medicines and corresponding chemical IDs used to identify those with dispensed medications for ADHD were:

- Dexamfetamine sulfate (1389)
- Methylphenidate hydrochloride (1809)
- Methylphenidate hydrochloride extended release (3880)
- Atomoxetine (3998)

Socrates:

The Socrates[16] dataset captures information from the Disability Support Services database. The National Needs Assessment and Service Coordination Information contained in Socrates is used by Ministry-funded Needs Assessment and Service Coordination (NASC) agencies to record information about clients who are eligible for Disability Support Services (DSS). Socrates is indirectly linked to the IDI through health records only and further linkages need to be made to link these records to other IDI records for analysis, which introduces opportunities for false positive and false negative linkages.

The Disability codes used were:

- ADHD (1201)
- ASD (1211; 1206; 1207 [retired])

National Minimum Dataset (NMDS):

Please see section above for further information regarding the NMDS.

The ICD-10-AM codes[a] used were:

- ADHD (F90.0; F90.8; F90.9)
- ASD (F84.0; F84.1; F84.3; F84.5—F84.9)

PRIMHD (Programme for the Integration of Mental Health Data):

PRIMHD is the Ministry of Health's national database covering the provision of publicly funded specialist mental health and alcohol and drug services.[17] It integrates information from the previous Mental Health Information National Collection (MHINC) and the MH-SMART data collection. It includes specialist inpatient, outpatient, and community care provided by hospitals and NGOs (although some data from NGOs may be incomplete). It does not include information on mental health care in primary or private settings or outpatient visits to paediatricians. As such, where local referral pathways result in children seeing a paediatrician rather than a mental health professional for behavioural or emotional problems, this may significantly underestimate the prevalence of mental health issues (e.g., autism, ADHD, learning disorders) in the community. Referral pathways (i.e., the relative balance between paediatrics vs mental health services) are likely to vary both by region (depending on the availability of specialist child and youth mental health services) and by age (with the role of the paediatrician decreasing as adolescence approaches). As paediatric outpatient data is currently not coded by diagnosis, the workload of community/developmental paediatricians in this context remains invisible, making it difficult to assess the underlying prevalence of mental health conditions for children in the community. For adolescents/young adults however, PRIMHD may provide a better reflection of access to specialist services for mental and behavioural issues.

In addition to the ICD-10-AM codes used for the NMDS (above), the DSM-IV codes used in the PRIMHD dataset were:

- ADHD (314)
- ASD (299.00; 299.10; 299.80)

a The corresponding ICD-9-CMA II codes were used to capture pre-2005 data.

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