Communicable Diseases Prevention Unit,
Public Health Services

Vaccine Preventable Diseases Surveillance Report 2022

Department of **Health**

Tasmanian Government

Contents

Abbreviation table

Abbreviation	Definition
Hib	Invasive *Haemophilus influenzae* type b
IMD	Invasive meningococcal disease
IPD	Invasive pneumococcal disease
NIP	National Immunisation Program
VPD	Vaccine Preventable Diseases
VZV	Varicella zoster virus
TNDSS	Tasmanian Notifiable Diseases Surveillance System

Summary

This report presents trends in notifiable vaccine preventable diseases (VPDs) in Tasmania for 2022. Data for the five-year period from 2017 to 2021 is included for comparison. The decline in notifications for the period 2020 to 2021 for some VPDs is likely associated with broad public health and social measures implemented during the COVID-19 pandemic. The number of notifications of VPDs received each year from 2017 to 2022 are presented in Table 1.

In 2022 in Tasmania:

- Varicella infections - chickenpox, shingles and 'varicella zoster- unspecified' infections - were the most notified VPD, accounting for 90% of all notifications. This was followed by rotavirus (7%) and invasive pneumococcal disease (3%).
- Invasive pneumococcal disease (IPD) notifications were the second lowest reported in Tasmania since it became notifiable in 2001. There was one reported death due to IPD infection in 2022.
- There were three notifications of invasive meningococcal disease (IMD) with all caused by serogroup B.
- Pertussis (whooping cough) notifications have remained low since the last cyclical epidemic in 2018/2019.
- There were no notifications of diphtheria, invasive *Haemophilus influenzae* type b, measles, mumps, poliovirus, rubella, or tetanus.
- Tasmanian VPD notification rates were lower than national rates for all VPDs, except IMD, which was similar to the national average.

Table 1. Notifications of vaccine preventable diseases in Tasmania by year, 2017 to 2022

Disease	2017	2018	2019	2020	2021	2022
Diphtheria	0	0	0	0	0	**0**
Invasive *Haemophilus influenzae* type b	0	0	0	0	0	**0**
Invasive meningococcal disease	16	11	6	3	2	**3**
Invasive pneumococcal disease	48	44	37	14	38	**26**
Measles	0	1	1	0	0	**0**
Mumps	3	1	4	0	0	**0**
Pertussis	39	418	565	65	6	**3**
Poliovirus	0	0	0	0	0	**0**
Rotavirus	135	38	76	46	20	**64**
Rubella	0	0	0	0	0	**0**
Tetanus	0	0	0	0	0	**0**
Varicella	587	654	734	765	897	**860**
Total	**828**	**1 167**	**1 423**	**893**	**963**	**956**

Source: Tasmanian Notifiable Disease Surveillance System (TNDSS)

Introduction

This report provides an overview of the epidemiology of notifiable vaccine preventable diseases (VPDs) in Tasmania for 2022 for which vaccines are funded under the National Immunisation Program (NIP). These diseases are diphtheria, invasive *Haemophilus influenzae* type b disease, measles, mumps, invasive meningococcal disease, pertussis (whooping cough), invasive pneumococcal disease, rotavirus, rubella, tetanus and varicella. Data on influenza are reported during the influenza season and are not included in this report. For the purposes of reporting, hepatitis B is considered a blood borne virus and not included in this report, although hepatitis B vaccines are funded on the NIP.

This report is based on data extracted from the Tasmanian Notifiable Diseases Surveillance System (TNDSS). The TNDSS is a live database, and these data are subject to change. In Tasmania, the *Public Health Act* (1997) requires laboratories and clinicians to notify the Director of Public Health of cases of certain diseases, including vaccine preventable diseases. Enhanced data on exposures, vaccination history and risk factors are collected for a subset of VPDs. Notifications presented in this report are classified as confirmed or probable as per the national surveillance case definitions, available at the CDNA surveillance case definitions website.

Australian Bureau of Statistics population data cubes (2022) were used to calculate Tasmanian and national rates of disease. Cases included in this report are classified using symptom onset date.

Caveats:

- Data presented in this report may not exactly match those in national reports due to differences in information management in respective databases.
- The completeness of Indigenous status for VPDs where there is no public health follow-up and only laboratory information provided is low.
- Reporting of mortality in association with a notifiable VPD reflects information known at the time of notification and may be incomplete.
- Vaccination status is obtained from the person notified and may be verified against multiple sources, including medical records and the Australian Immunisation Register (AIR) record. Vaccination status using the AIR may be underreported as mandatory reporting of NIP vaccines was only introduced from July 2021.

Diphtheria

Diphtheria is a bacterial disease usually affecting the respiratory system but sometimes the skin and other mucous membranes. It is caused by strains of *Corynebacterium diphtheriae* that produce the diphtheria toxin. The diphtheria toxin can have serious effects on the heart and nervous system and 5-10% of cases with respiratory disease may die. Infection is acquired through breathing in the bacteria or direct contact with skin or articles contaminated by an infected person.

Diphtheria is now rare in Australia and most cases are acquired overseas. Diphtheria usually occurs in non- or under-immunised children but may also affect adults as immunity declines with increasing age. Diphtheria vaccination is recommended and funded under the NIP for children at six weeks, four months, six months, 18 months, 4 years and 11-13 years of age.

Diphtheria in Tasmania 2022

There were no notifications of diphtheria in 2022. There have been no cases of diphtheria reported in Tasmania since it became notifiable in 1991.

Invasive *Haemophilus influenzae* type b disease

Haemophilus influenzae bacteria are commonly found in the throat of healthy people. Any strain of *H. influenzae* can occasionally invade the body and cause serious disease but the type b strain is the most pathogenic. Invasive disease due to *Haemophilus influenzae* type b (Hib) can cause meningitis, epiglottitis, septic arthritis, cellulitis and pneumonia. Hib infection may be acquired through breathing in the bacteria through respiratory droplets or nasal discharges from people with or without symptoms. Invasive disease due to Hib most commonly affects young children aged between two months and three years and among people that are immunocompromised.

Invasive Hib disease is now rare in Australia following the introduction of routine vaccination in 1993. Hib vaccination is recommended and funded under the NIP for children at six weeks, four months, six months and 18 months of age.

Invasive *Haemophilus influenzae* type b disease in Tasmania 2022

There were no notifications of invasive *Haemophilus influenzae* type b (Hib) in 2022. The last case of invasive Hib notified in Tasmania was in 2012.

Invasive meningococcal disease

Invasive meningococcal disease (IMD) is caused by invasive infection with one of several serogroups of *Neisseria meningitidis* bacteria. The bacteria are spread through respiratory droplets from the nose and throat of a person carrying the organism. Most infections with *N. meningitidis* result in very mild illness or no symptoms. Invasive infection is rare and clinically manifests in a range of syndromes, such as meningitis and septicaemia. Ten to fifteen percent of people with invasive disease die and those that survive may have long-term neurological effects, hearing loss or loss of limbs. In recent years, the most common serogroups of this bacteria in Australia are B, W and Y.

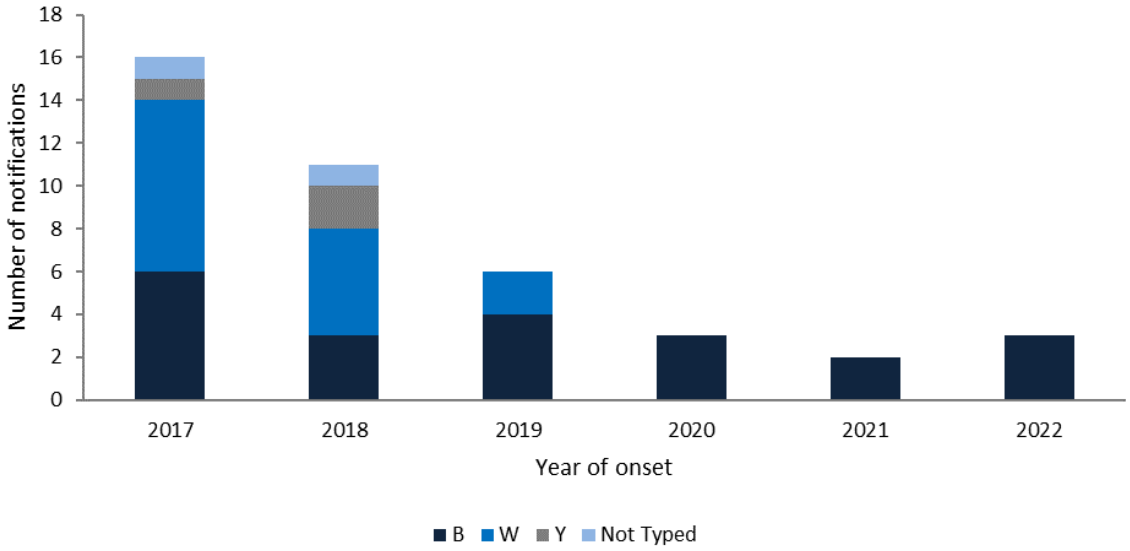
Meningococcal C infections are now rare in Australia following the introduction of meningococcal C vaccination on the NIP from 2003 for all children at 12 months of age. In 2017, in response to the increase in IMD due to serogroup W in Tasmania, the State Government provided a ACWY vaccination program for all people aged between six weeks and 21 years of age. From 1 July 2018, due to the changing epidemiology of IMD in Australia, the meningococcal ACWY vaccine replaced the meningococcal C vaccine on the NIP for all children at 12 months of age. Meningococcal ACWY vaccine is also provided to year 10 students as part of the school based immunisation program. From July 2020, meningococcal B vaccine was funded by the NIP for Aboriginal and Torres Strait Islander children at 12 months of age (and as catch-up up at two years of age until December 2023) and for individuals of all ages with certain medical risk factors for IMD.

Invasive meningococcal disease in Tasmania 2022

There were three notifications of IMD in Tasmanian residents in 2022; all were serogroup B (Figure 1). The notification rate of IMD in Tasmania was similar to the national rate of 0.5 per 100 000 population. The overall number of IMD notifications has declined following a meningococcal W outbreak in 2017. This is consistent with national trends and follows the introduction of the meningococcal ACWY vaccine.

The cases were aged one, 16 and 24 years old, and none were Aboriginal or Torres Strait Islander. All three cases were admitted to ICU and no deaths were reported. None of the cases were vaccinated against meningococcal B. The number of notifications of serogroup B infection in 2022 has remained similar to the previous five years in Tasmania, with notifications ranging from two to six per annum. All notifications of IMD were sporadic from 2017 to 2022, with no epidemiologically linked cases.

Figure 1. Notifications of invasive meningococcal disease in Tasmania by serogroup and year, 2017 to 2022



Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

Invasive pneumococcal disease

Invasive pneumococcal disease (IPD) is an infection caused by the bacterium *Streptococcus pneumoniae* (also known as pneumococcus). IPD occurs when the bacteria invade the body and cause serious disease such as pneumonia, septicaemia and meningitis. The bacteria can spread from person to person through breathing in respiratory droplets from infectious individuals or healthy carriers. Symptoms of IPD include fever, lethargy, seizures, coughing, breathing difficulties and chest pain, depending on the clinical manifestation of the disease. Young infants, the elderly, Aboriginal and Torres Strait Islander people and people with certain medical conditions are most at risk of developing invasive disease. There are over 90 serotypes of pneumococcal bacteria which vary in their propensity to cause disease.

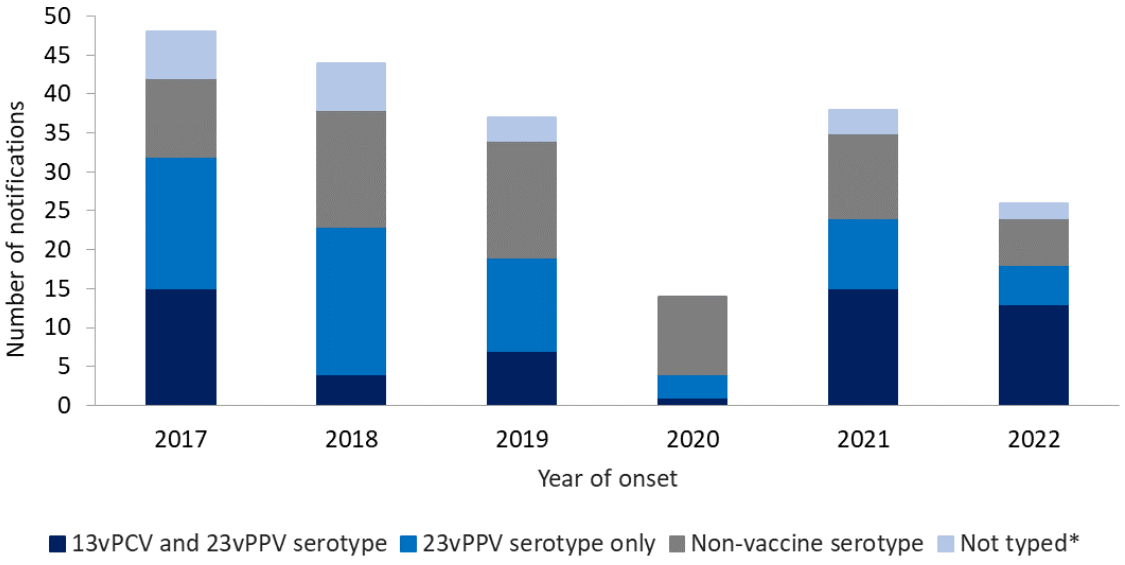
The NIP funds vaccination against pneumococcal disease serotypes depending on age and risk group. 13-valent vaccine pneumococcal conjugate vaccines (13vPCV) protect against 13 serotypes; 23-valent pneumococcal polysaccharide vaccines (23vPPV) protect against 23. All children should receive 13vPCV vaccination at six weeks, four months and 12 months of age. Children with medical risk factors should receive additional vaccination at six months (13vPCV) and four years of age (23vPPV), plus another dose 5 years later (23vPPV). Aboriginal and Torres Strait Islander adults aged 50 years and over should receive a course of three vaccinations (one dose of 13vPCV, two doses of 23vPPV); non-Indigenous adults aged 70 years and over should receive a single dose of 13vPCV vaccine.

Information on the serotypes included in each vaccine is shown in Table A2 in Appendix 2.

Invasive pneumococcal disease in Tasmania 2022

There were 26 notifications of IPD in Tasmanian residents in 2022, a 32% decrease from 38 notifications in 2021 and the second lowest since it became notifiable in 2001 (Figure 2). Historically, IPD notifications have remained relatively stable. However the lowest number of notifications was observed in 2020, followed by a return to pre-pandemic levels in 2021. The notification rate of IPD in Tasmania was 4.5 per 100 000 population, which was lower than the national rate of 7.2 per 100 000.

Figure 2. Notifications of invasive pneumococcal disease in Tasmania by year and vaccine category of infecting serotype, 2017 to 2022



The serotype of each notification is categorised according to their inclusion in the vaccine: serotypes included in the 13-valent vaccine as 13vPCV only, serotypes included in both the 13-valent and 23-valent vaccine as 13vPCV and 23vPPV, those included in the 23-valent vaccine as 23vPPV only. Serotypes not included in a NIP vaccine are categorised as a non-vaccine serotype. *Includes 10 notifications not typed, two with indeterminate typing, two non-typable, and serotype was not reported in six notifications. Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

In 2022, 14 (54%) cases were females and three (12%) were Aboriginal and/or Torres Strait Islander.

Pneumococcal serotype was known for 24 (92%) cases. One notification could not be typed, and one had indeterminate typing. Of the known serotypes, 13 (54%) cases were due to serotypes contained in the 13vPCV and 23vPPV vaccines, 6 (25%) in the 23vPPV vaccine only, and 5 (21%) were non-vaccine serotypes. Notifications of IPD in Tasmania by age group and vaccine category of infecting serotype are presented in Table 2. The most commonly notified serotypes were serotype 3 (n=10, 38%) and serotype 33F (n=3, 12%), followed by two notifications each of serotypes 6C, 9N, 19F, and 23A, and one notification each of serotypes 15A, 19A, and 21.

Table 2. Notifications of invasive pneumococcal disease in Tasmania by age group, and vaccine category of infecting serotype, 2022

Age group (years)	13vPCV and 23vPPV serotype	23vPPV only serotype	Non-vaccine serotype	Not typed*	Total
<1	-	-	1	-	1
1-4	1	-	-	1	2
5-14	1	-	-	-	1
15-24	1	1	-	-	2
25-49	1	-	-	-	1
50-64	4	-	-	-	4
65+	5	5	4	1	15
Total	13	6	5	2	26

*Includes one notification not typed, and one with indeterminate typing. Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

Considering vaccination status, all three cases under five years of age were fully vaccinated for their age. A serotype included in the 13vPCV vaccine was the cause of infection for one case who had received this vaccine.

In 2022, there was one reported death associated with IPD infection in a person aged 65 years and over. From 2017 to 2022, most of the 17 deaths associated with IPD in Tasmania were in adults aged 50 years and over (n=16, 94%) and there were no deaths reported in children aged 18 years and under.

Measles

Measles is a highly contagious viral respiratory infection that is acquired through breathing in respiratory droplets from an infectious individual. It typically begins with coryza, conjunctivitis, cough and fever, followed by a red blotchy rash on the face and neck. Complications may include ear infection, pneumonia and encephalitis.

Measles is now rare in Australia and all cases are associated with overseas travel or contact with a returned infectious traveller. Measles outbreaks still occur, especially among children too young to be immunised or in non- or under-immunised people. Measles vaccination is recommended and funded under the NIP for children at 12 and 18 months of age. The State Government also currently funds free vaccination for anyone born during or after 1966 who does not have documented evidence of two measles containing vaccines, as well as infants aged six to under 12 months who are travelling overseas.

Measles in Tasmania 2022

There were no notifications of measles in 2022. The two most recent notifications in 2018 and 2019 were both imported cases from the Philippines with unknown vaccination status.

Mumps

Mumps is a viral infection transmitted by breathing in respiratory droplets and direct contact with saliva from an infected individual. Common symptoms include muscle aches, headache, tiredness, low appetite and fever, progressing to swelling of the salivary glands. Complications are rare but can be serious including swelling of the testes (orchitis), pancreatitis, hearing loss, encephalitis, meningitis and miscarriage.

Outbreaks do still occur in Australia in non - and under-immunised populations, most recently in remote Aboriginal and Torres Strait Islander communities. Mumps vaccination is recommended and funded under the NIP at 12 and 18 months of age.

Mumps in Tasmania 2022

There were no notifications of mumps in 2022. There have been no cases of mumps notified in Tasmania since 2019.

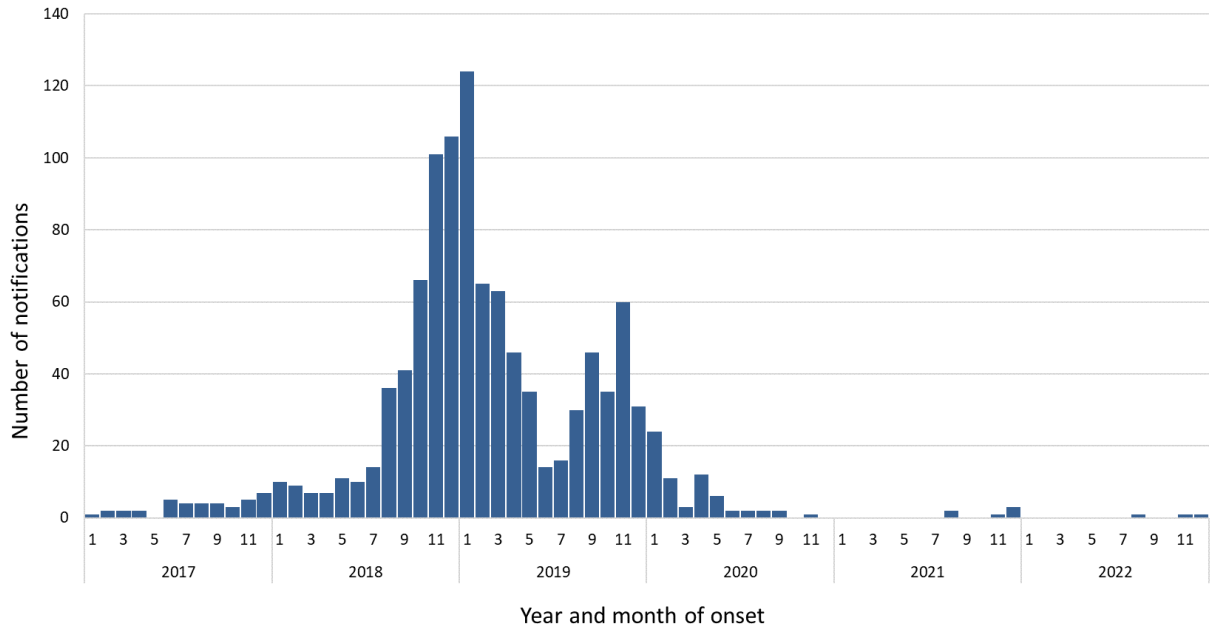
Pertussis (Whooping Cough)

Pertussis, also known as 'whooping cough', is a highly contagious respiratory infection caused by the bacterium *Bordetella pertussis*. Complications include pneumonia, seizures, encephalopathy and death, most often in children under six months old. Cyclical outbreaks tend to occur every three to four years, even in vaccinated populations, due to waning of immunity from vaccination over time. A pertussis-containing vaccine is recommended and funded under the NIP for infants at ages six weeks, four months and six months, with booster doses at 18 months, four years and 12-13 years of age. Pregnant women are also recommended to receive a vaccine in each pregnancy between 20- and 32-weeks gestation to provide protection to their child in their early months while they are too young to be vaccinated.

Pertussis in Tasmania 2022

There were three notifications of pertussis in Tasmanian residents in 2022. This was similar to 2021 (six notifications) but significantly lower than epidemic years of 2018 (n=418) and 2019 (n=565) when there were large community outbreaks (Figure 4). The notification rate of pertussis in Tasmania was 0.5 per 100 000 population, lower than the national notification rate of 1.8 per 100 000.

Figure 3. Notifications of pertussis in Tasmania by year and month, 2017 to 2022



Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

In 2022, all three notifications were in adults, which was consistent with the age distribution of cases in 2021 (Table 3). During epidemic years (2018 and 2019), almost half (49%) were in children aged 5 to 14 years. In 2022, there were no notifications in Aboriginal or Torres Strait Islander people. All cases were sporadic, with no epidemiologically linked cases. No hospitalisations or deaths associated with pertussis were reported.

Table 3. Notifications of pertussis in Tasmania by year and age group, 2017 to 2022

Age Group (years)	Year					
	2017	2018	2019	2020	2021	2022
<1	0	4	12	1	0	0
1–4	1	19	69	12	0	0
5–14	12	245	241	18	0	0
15–24	4	32	66	2	0	0
25–49	7	64	104	23	5	1
50–64	7	39	51	7	0	1
65+	8	15	22	2	1	1
Total	**39**	**418**	**565**	**65**	**6**	**3**

Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

Polio

Notifications of poliovirus infection in Australia include both poliomyelitis (paralytic infection) and non-paralytic poliovirus infection. Infection occurs via the gastrointestinal system, usually transmitted from person to person by the faecal-oral route. The infection may progress to invade the lymph nodes and central nervous system. Ninety per cent of people with polio have no symptoms or a non-specific fever; 10% experience fever, malaise, headache, nausea and vomiting; less than 1% go on to experience severe muscle pain and paralysis. Infants and young children are most at risk.

Poliovirus infection is extremely rare, and Australia was certified free from wild poliovirus transmission by the World Health Organization in 2000. Despite global eradication programs, poliovirus continues to circulate in some countries and outbreaks still occur in non- or under-immunised populations. Poliovirus vaccination is recommended and funded under the NIP for children at six weeks, four months, six months, and four years of age.

Polio in Tasmania 2022

There were no notifications of polio in 2022. There have been no cases of polio reported in Tasmania since it became notifiable in 1991.

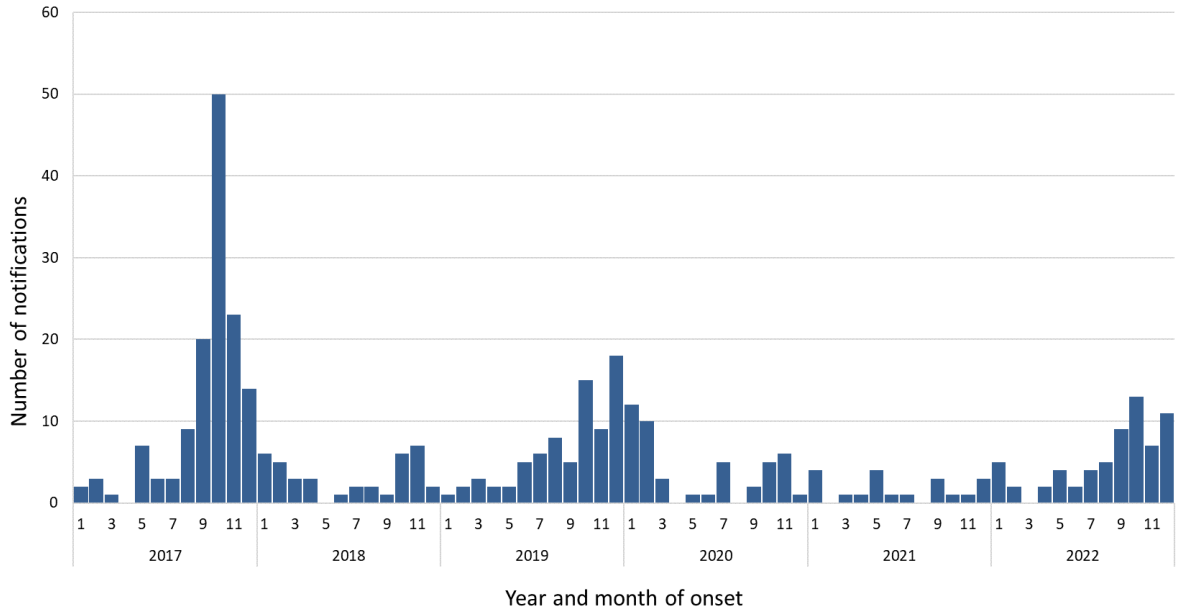
Rotavirus

Rotavirus infection is a viral illness transmitted via the faecal-oral route that can be a significant cause of severe gastroenteritis in infants and young children. Children aged six to 24 months are most at risk of severe disease, particularly Aboriginal and Torres Strait Islander children. Adult infection is most often asymptomatic and may contribute to transmission. Outbreaks can arise in childcare, aged care and hospital settings. Rotavirus vaccination was added to the NIP in July 2007 and became a notifiable disease in Tasmania in 2009. Rotavirus vaccination is recommended and funded under the NIP at 2 and 4 months of age.

Rotavirus in Tasmania 2022

There were 64 notifications of rotavirus in Tasmania in 2022, which was 3.2 times higher than in 2021, but similar to the peak in late 2019. As per previous years, monthly notifications were highest in the fourth quarter (Figure 5). The rotavirus notification rate in Tasmania was 11.2 per 100 000 population, less than half the national notification rate of 24.7 per 100 000 population.

Figure 4. Notifications of rotavirus in Tasmania by year and month, 2017 to 2022



Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

Notifications were highest in children less than one year of age, which made up over a quarter of notifications (n=19, 30%); 14 (74%) of these were probable cases and were likely due to recent vaccination. The overall incidence of disease was similar between males and females, but female cases were more common in older age groups (Table 4). Of the cases with Aboriginal or Torres Strait Islander status recorded (n=23, 36%), only one (4%) identified as Aboriginal.

Among the 35 cases aged 15 years and under, 29 (83%) were fully vaccinated for their age, two were partially vaccinated (6%) and four (11%) were not vaccinated or vaccine status was unknown. There were no outbreaks due to rotavirus identified in 2022.

Table 4. Notifications of rotavirus in Tasmania by sex and age group, 2022

Age Group (years)	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<1	12	39	7	21	19	30
1–4	4	13	3	9	7	11
5–14	4	13	2	6	6	9
15–24	4	13	5	15	9	14
25–49	1	3	8	24	9	14
50–64	1	3	2	6	3	5
65+	5	16	6	18	11	17
Total	**31**	**100**	**33**	**100**	**64**	**100**

Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

Rubella

Rubella, also known as 'German measles', is a viral respiratory infection. Rubella infection of the mother during pregnancy can be transmitted vertically to the foetus and can cause congenital rubella syndrome. Congenital abnormalities occur in up to 90% of infants born to women who had rubella during the first trimester of pregnancy and infection can also result in miscarriage and stillbirth.

Similar to measles, rubella is now rare in Australia, and both were certified to be eliminated in the country by the World Health Organisation in 2018. Rubella vaccination is recommended and funded under the NIP schedule at 12 and 18 months of age.

Rubella in Tasmania 2022

There were no notifications of rubella in 2022. The last case of rubella notified in Tasmania was in 2016.

Tetanus

Tetanus is a potentially life-threatening disease caused by a toxin produced by *Clostridium tetani*, a bacterium commonly found in the environment. Disease occurs when the organism enters the body through a break in the skin and may occur after injury to the skin that is contaminated with soil, dust or animal manure. Toxin produced by the bacteria attack the central nervous system causing muscle rigidity with painful spasms.

Tetanus is rare in Australia but can still occur in non-immunised people or adults vaccinated more than 10 years ago as immunity declines. Tetanus vaccination is recommended and funded on the NIP at six weeks, four months, six months, 18 months, 4 years and 12-13 years of age.

Tetanus in Tasmania 2022

There were no notifications of tetanus in 2022. The last case of tetanus notified in Tasmania was in 2007.

Varicella (chickenpox and shingles)

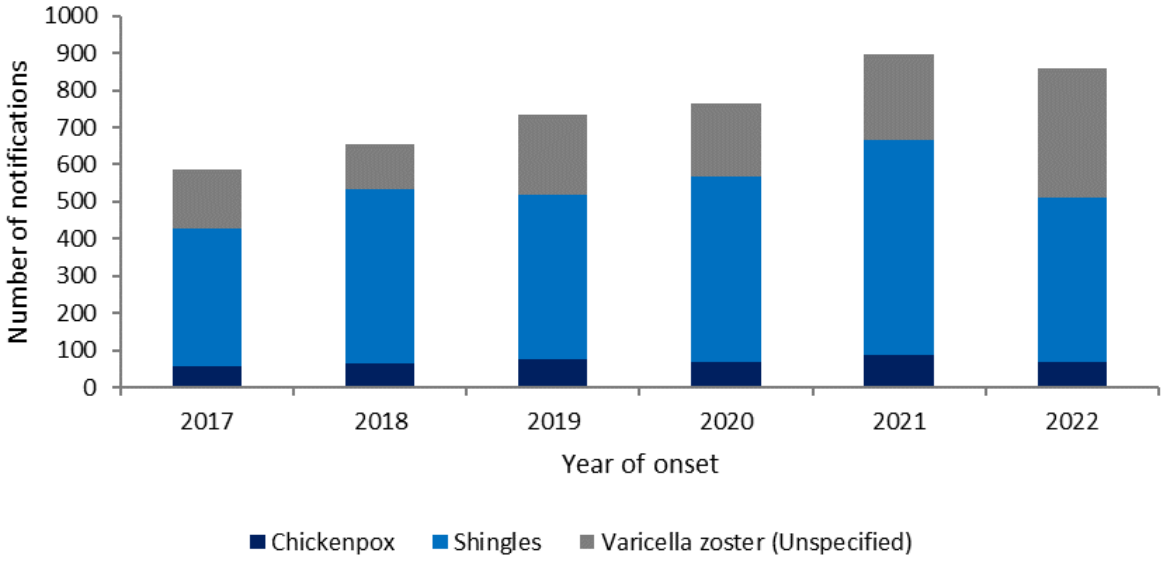
Varicella zoster virus (VZV) infections are chickenpox (primary varicella infection), and herpes zoster (shingles), following reactivation of latent virus. Chickenpox is a highly contagious infection with a characteristic rash and may be complicated by secondary bacterial skin infections, haemorrhagic complications, cerebellitis, encephalitis, and pneumonia.

Varicella infections are known to be underreported in Australia as many cases do not seek medical care or do not have laboratory tests done, so their illness is not reported. Furthermore, notified cases are unable to be classified as either chickenpox or shingles due to a lack of clinical information and are reported as ‘varicella zoster – unspecified’. Varicella vaccination is recommended and funded under the NIP at 18 months of age.

Varicella in Tasmania 2022

There were 860 notifications of varicella infection in Tasmania in 2022. Of these, 443 (52%) were shingles, 348 (40%) were ‘varicella zoster – unspecified’ infections and 69 (8%) were chickenpox (Figure 6). The number of notifications of varicella infection increased by 53% over five years, from 587 in 2017 to 897 in 2021, before decreasing by 4% in 2022 (n=860). Both chickenpox and shingles notifications decreased. However, ‘varicella zoster - unspecified’ notifications increased to comprise 40% of total varicella notifications, compared to 19% to 27% of notifications between 2017 to 2021. The notification rate of varicella in Tasmania was 150.3 per 100 000 population, less than the national notification rate of 170.3 per 100 000.

Figure 5. Notifications of varicella infection in Tasmania, by infection type and year, 2017 to 2022



Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

In 2022, there were 37 cases of chickenpox in children aged 14 years and under; 54% of all chickenpox notifications (Table 5). The majority of these cases had received a dose of vaccine (n=28, 76%) or were not yet eligible for the vaccine based on their age (n=6,16%). The remaining cases (n=3, 8%) were not vaccinated or vaccination status was unknown. Most shingles notifications (70%) were in adults aged 50 years or older (Table 5).

Table 5. Notifications of varicella in Tasmania by case classification and age group, 2022

Age Group (years)	Chickenpox	Shingles	Varicella zoster - unspecified	Total
<1	3	0	4	7
1–4	9	0	4	13
5–14	25	7	18	50
15–24	7	22	19	48
25–49	21	102	91	214
50–64	3	120	86	209
65+	1	192	126	319
Total	**69**	**443**	**348**	**860**

Source: Tasmanian Notifiable Disease Surveillance System (TNDSS).

Appendix 1: Notification counts and rates of vaccine-preventable diseases in Tasmania and Australia

Table A1. Notifications and rates of notifiable vaccine preventable diseases in Tasmania and Australia, 2022

Disease	Tasmania - 2022		Australia - 2022	
	Number of Notifications	Rate*	Number of Notifications	Rate*
Diphtheria	0	-	31	0.1
Invasive *Haemophilus influenzae* type B	0	-	13	0.0
Measles	0	-	7	0.0
Invasive meningococcal disease	3	0.5	125	0.5
Mumps	0	-	46	0.0
Pertussis	3	0.5	479	1.8
Invasive pneumococcal disease	26	4.5	1 865	7.2
Poliovirus	0	-	0	-
Rotavirus	64	11.2	6 451	24.7
Rubella	0	-	3	0.0
Tetanus	0	-	1	0.0*
Varicella	860	150.3	30 544	170.3^

* Notification rate per 100,000 population. ^Varicella is not notifiable in NSW. To calculate the national notification rate, the NSW population was excluded from the Australian population. Sources: Tasmanian Notifiable Disease Surveillance System (TNDSS), National Notifiable Diseases Surveillance System (NNDSS), Australian Bureau of Statistics estimated resident population (Jun 2022).

Appendix 2: Pneumococcal serotypes targeted by vaccines included on the National Immunisation Program in 2022

Table A2. Pneumococcal serotypes targeted by vaccines included on the National Immunisation Program in 2022

Vaccine type	Serotypes targeted by the vaccine
13vPCV (13-valent pneumococcal conjugate vaccine)	1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F and 23F
23vPPV (23-valent pneumococcal polysaccharide vaccine)	1, 2, 3, 4, 5, 6B, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15B, 17F, 18C, 19A, 19F, 20, 22F, 23F and 33F

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