

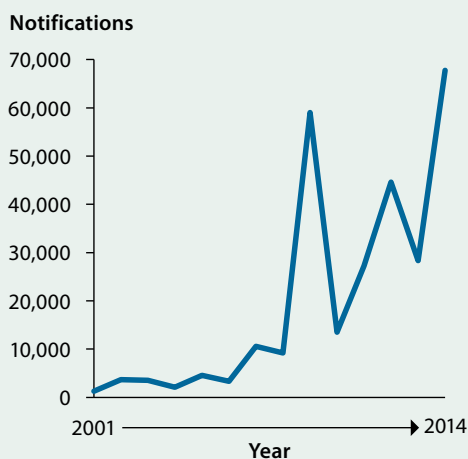


3.17 Vaccine preventable disease

Vaccination is one of the most successful and cost-effective population health interventions. It can protect individuals from life-threatening diseases, and also reduces transmission in the community.

This snapshot looks at the most common notifiable vaccine preventable diseases (VPDs) in Australia. Notifiable diseases are medical conditions that are required to be reported by health practitioners or pathology laboratories to state or territory health authorities. Notifications data are presented for 2013 and 2014, and underlying causes of death data for 2013. Information on childhood vaccination is in 'Chapter 6.1 Prevention and health promotion'.

Figure 3.17.1: Influenza notifications, Australia, 2001–2014



Source: National Notifiable Diseases Surveillance System.

Note: Influenza was first added to the list of notifiable diseases in 2001 and data for that year is incomplete.

In 2014, about 275,600 notifications of more than 60 communicable conditions and diseases were made to the National Notifiable Diseases Surveillance System (NNDSS)—23% more than in 2013 (about 224,400) (NNDSS Annual Report Writing Group 2015b, forthcoming 2016) (Table 3.17.1).

More than one-third (about 101,400, or 37%) of the notifications in 2014 were for VPDs—a 70% increase on the 59,600 VPD cases notified in 2013 (27% of total notifications) (NNDSS Annual Report Writing Group 2015b, forthcoming 2016). Much of this was due to a rise in influenza notifications (see Figure 3.17.1).

It should be noted that influenza notifications can vary substantially from

year to year due to the variation in true disease incidence as well as the propensity to notify. Factors that influence variation in true disease incidence include the similarity of circulating strains to vaccine strains, and a person's age, level of immunity and any other chronic medical conditions they may have.

Notifications represent cases where a person has sought medical care, had a test performed, been given a diagnosis, and a notification has been made to health authorities. For all notifiable diseases, the number of notifications is influenced by a range of factors, including public awareness, individual behaviours of patients, and the testing and notification practices of medical practitioners. Changes to testing policies; preferential testing of high-risk populations; the use of less invasive and more sensitive diagnostic tests; periodic awareness campaigns and media coverage may all influence the number of notifications received. These factors are likely to vary by region and over time, and are difficult to quantify.



For most diseases, the cases notified to the NNDSS represent only a proportion of total cases that occur in the community.

Impact of vaccine preventable diseases

- Several previously common VPDs have been eliminated or are now rare, including diphtheria (2 cases in 2014) and poliomyelitis (0 cases) (Table 3.17.1).
- Influenza was the most commonly notified VPD in 2014 (about 67,700 cases).
- In 2014, the varicella zoster virus, which causes chickenpox and shingles, was the next most commonly notified VPD (about 19,600 cases) after influenza.
- In 2013, there were 80 deaths recorded due to influenza, 32 due to the varicella zoster virus (29 of which were associated with cases of shingles), and 12 due to pneumococcal disease. This compares with 152 influenza deaths in 2012 (about 44,600 notifications), 26 shingles deaths (about 4,500 notifications) and 24 pneumococcal deaths (about 1,800 notifications) (ABS 2015; NNDSS Annual Report Writing Group 2015a). However, deaths and hospitalisations recorded as due to influenza are widely acknowledged to substantially underestimate the true number attributable to influenza, because the illness can exacerbate a range of other medical conditions, leading to hospitalisation or death (NCIRS 2010).

Table 3.17.1: Most commonly notified vaccine preventable diseases, notifications 2013 and 2014, deaths 2013

Disease	Notifications 2014	Notifications 2013	Deaths 2013
Influenza	67,742	28,329	80
Varicella zoster (total)	19,658	16,986	32
Pertussis	11,863	12,341	2
Pneumococcal (invasive)	1,564	1,546	12 ^(a)
Measles	340	158	1
Mumps	190	217	0
Haemophilus influenzae type b (invasive)	21	20	n.p.
Rubella	17	25	0
Tetanus	3	4	1
Diphtheria	2	2	0
Congenital rubella	0	2	0
Poliomyelitis infection	0	0	0
Total	101,400	59,630	128

n.p. not published.

(a) Deaths data is only for pneumonia due to *Streptococcus pneumoniae*.

Sources: ABS 2015; NNDSS Annual Report Writing Group 2015b, forthcoming 2016.



Hospitalisations for vaccine preventable diseases

In 2013–14, there were nearly 12,000 hospitalisations due to vaccine preventable pneumonia (pneumonia due to *Streptococcus pneumoniae* and *Haemophilus influenzae*) and to influenza, and another 19,400 due to other VPDs. Hospitalisations are included in this analysis regardless of whether these diseases are the principal diagnosis or an additional diagnosis.

Some population groups had higher rates of hospitalisation per 1,000 population for vaccine preventable diseases than other Australians (AIHW 2015). For example rates were:



6.3 per 1,000
for Indigenous
Australians
compared with
0.9 per 1,000 for
non-Indigenous
Australians.



7.2 per 1,000
in *Very remote*
areas compared
with 1.3 per 1,000
in *Major cities*.



2.0 per 1,000
in lowest
socioeconomic areas
compared with
0.8 per 1,000
in highest
socioeconomic areas.

What is missing from the picture?

Notifications of VPDs to the NNDSS represent only a portion of all the cases occurring in the community, as not all individuals with VPDs present for medical care, and of those who do, not all are tested and/or notified. The proportion of under-reporting may vary between diseases, over time, and across jurisdictions. The number of notifications may be influenced over time by changes in testing practices, for example, by an increased propensity to test and/or to use more sensitive diagnostic tests, and these changes may be influenced by both clinician practice and patient expectations.

Where do I go for more information?

More information on VPDs is available at the [Department of Health](#) website. Information on immunisation is available from the [National Centre for Immunisation Research and Surveillance](#) website and the [Immunise Australia Program](#). Information on national notification data is available from the NNDSS pages of the [Department of Health](#) website. Information on deaths in Australia is available at the [AIHW](#) and [Australian Bureau of Statistics](#) websites.

To overcome the limitations of the notification data in describing the epidemiology of influenza, notification data are complemented by a number of systems within the National Influenza Surveillance Scheme. More information is available at: www.health.gov.au/flureport.



References

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