

Quarterly reports

ENHANCED INVASIVE PNEUMOCOCCAL DISEASE SURVEILLANCE WORKING GROUP – QUARTERLY SURVEILLANCE REPORT

Christina Bareja and the Enhanced Invasive Pneumococcal Disease Surveillance Working Group

Invasive pneumococcal disease (IPD) is caused by the bacterium *Streptococcus pneumoniae* and results in illnesses such as pneumonia, bacteraemia and meningitis. There are currently 92 serotypes recognised worldwide and it has been a nationally notifiable disease in Australia since 2001. The Communicable Diseases Network Australia (CDNA) established the Enhanced Invasive Pneumococcal Disease Surveillance Working Group (EIPDSWG) in 2000 to assist in developing and implementing a nationally standardised approach to the enhanced surveillance of IPD in Australia. This quarterly report documents trends in notifications of IPD occurring in Australia in the first quarter of 2013 (1 January to 31 March 2013).

Notification data are collected by all Australian states and territories under jurisdictional public health legislation and are forwarded to the Commonwealth under the *National Health Security Act 2007*. Notifications are collated nationally in the National Notifiable Diseases

Surveillance System (NNDSS). The data in this report are provisional and subject to change as laboratory results and additional case information become available. The data are analysed by diagnosis date and were extracted on 16 May 2013. Consideration of vaccination status of cases is outside the scope of this report. More detailed analyses will be available in national surveillance reports on vaccine preventable diseases published by the National Centre for Immunisation Research and Surveillance (NCIRS).

In Australia, pneumococcal vaccination is recommended as part of routine immunisation for children, the medically at risk and older Australians. The 7-valent pneumococcal conjugate vaccine (7vPCV) was added to the National Immunisation Program (NIP) schedule for Indigenous and medically at-risk children in 2001 and for all children up to 2 years of age in 2005. The 13-valent pneumococcal conjugate vaccine (13vPCV) replaced the 7vPCV in the childhood immunisation program from July 2011. The 23-valent

Table 1: Notified cases of IPD, Australia, 1 January to 31 March 2013, by Indigenous status, serotype and state or territory

	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Total QTR 1 2013	Total QTR 4 2012	Total QTR 1 2012	Year to date 2013
Indigenous status												
Indigenous	0	3	12	5	2	0	2	9	33	-	-	-
Non-Indigenous	2	47	3	31	14	5	34	12	148	-	-	-
Not stated/ Unknown	0	15	0	2	0	1	15	0	33	-	-	-
Total	2	65	15	38	16	6	51	21	214	360	235	214
Indigenous status completeness* (%)	100	77	100	95	100	83	71	100	85	-	-	-
Serotype completeness† (%)	100	77	93	100	69	100	100	100	90	-	-	-

* Indigenous status completeness is defined as the reporting of a known Indigenous status, excluding the reporting of not stated or unknown Indigenous status.

† Serotype completeness is defined as the reporting of a valid *S. pneumoniae* serotype or reporting that no isolate was available as diagnosis was by PCR, that the isolate was not referred to the reference laboratory, was non-typable or not viable.

pneumococcal polysaccharide vaccine (23vPPV) was added to the NIP schedule for Aboriginal and Torres Strait Islander peoples aged 50 years or older in 1999 and for non-Indigenous Australians aged 65 years or older from January 2005.

Reporting period 1 January to 31 March 2013

There were 214 cases of IPD reported to the NNDSS in the first quarter of 2013 (Table 1), similar to the number of cases reported in the same period in 2012 (235 cases).

Overall, Aboriginal and Torres Strait Islander status was reported for 85% (n=181) of cases, ranging from 71% of cases reported by Victoria to 100% of cases reported by the Australian Capital Territory, the Northern Territory, South Australia and Western Australia. Of cases with reported Indigenous status, Aboriginal and Torres Strait peoples accounted for 18% (n=33) of all cases notified in the quarter (Table 1).

Serotype information was available for 90% (n=193) of all cases reported in the quarter, ranging from 69% of cases reported by South Australia to 100% of cases reported by the Australian Capital Territory, Queensland, Tasmania, Victoria and Western Australia. The organism from one case of IPD could not be typed as the isolate was deemed

not viable by the reference laboratory. This case is categorised together with cases with unknown serotypes in this report.

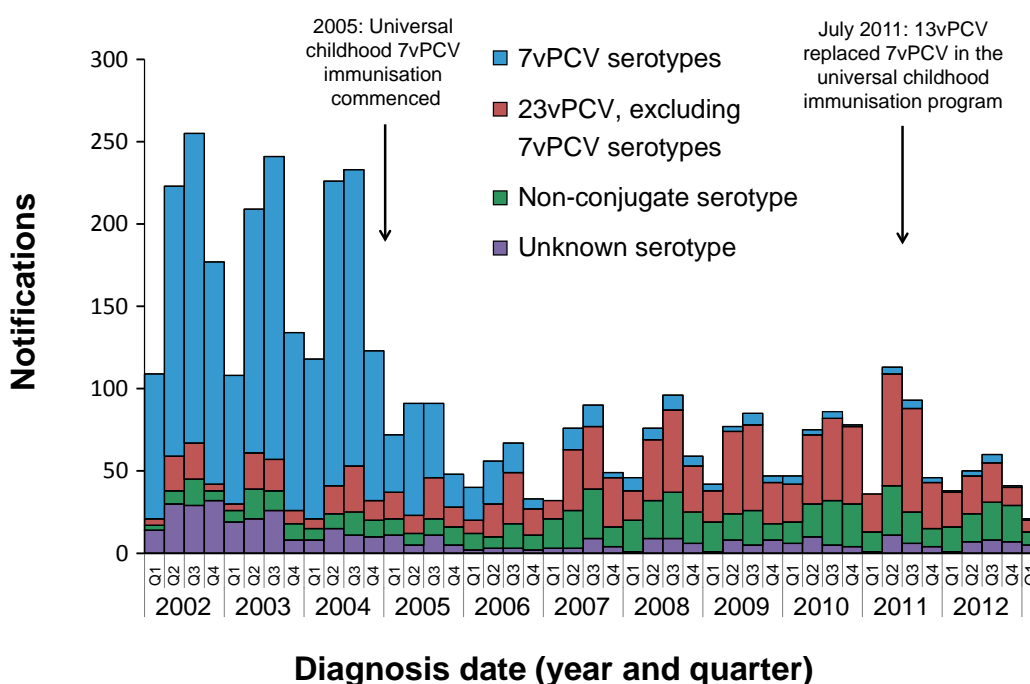
IPD in children aged less than 5 years

In the first quarter of 2013, 10% (n=21) of notified cases were aged less than 5 years. This was almost half the number reported during the same period of 2012 (n=38) and the smallest number of cases reported in any quarter since national reporting began (Figure 1: Notified cases of IPD aged less than 5 years, Australia, 2002 to the first quarter of 2013, by serotypes*).

The majority (76%, 16/21) of cases aged less than 5 years reported in the first quarter of 2013 had serotype information. Of these, half (50%, 8/16) were reported with a serotype included in the 7vPCV or the 13vPCV.

Notification of cases aged less than 5 years with disease caused by the 6 additional serotypes targeted by the 13vPCV increased steadily over the period 2007 to 2011; particularly those caused by serotype 19A (Figure 2: Notified cases of IPD caused by serotypes targeted by the 13-valent pneumococcal conjugate vaccine (excluding those targeted by 7-valent pneumococcal conjugate vaccine), aged less than 5 years, Australia, 2002 to the first quarter of 2013). However, notifications of this type have decreased since the

Figure 1: Notified cases of IPD aged less than 5 years, Australia, 2002 to the first quarter of 2013, by serotypes*



* Serotypes grouped according to targeted vaccines

Figure 2: Notified cases of IPD caused by serotypes targeted by the 13-valent pneumococcal conjugate vaccine (excluding those targeted by 7-valent pneumococcal conjugate vaccine), aged less than 5 years, Australia, 2002 to the first quarter of 2013

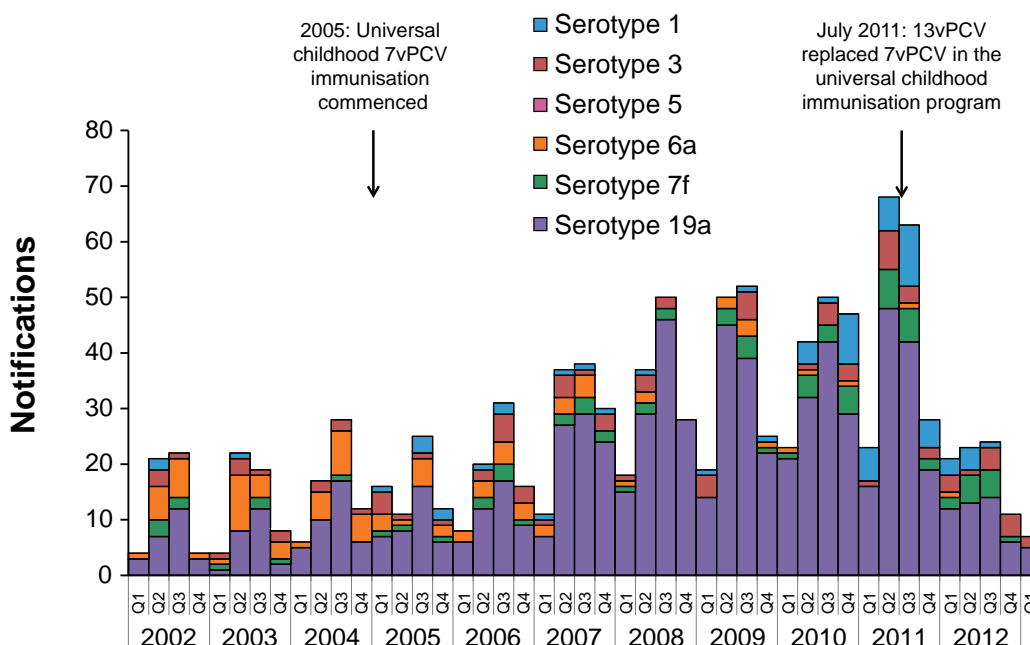
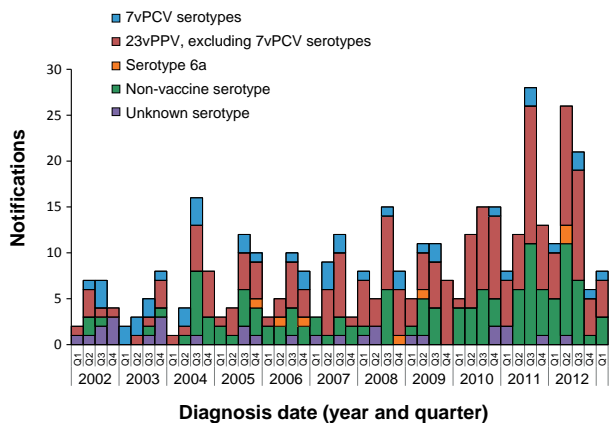
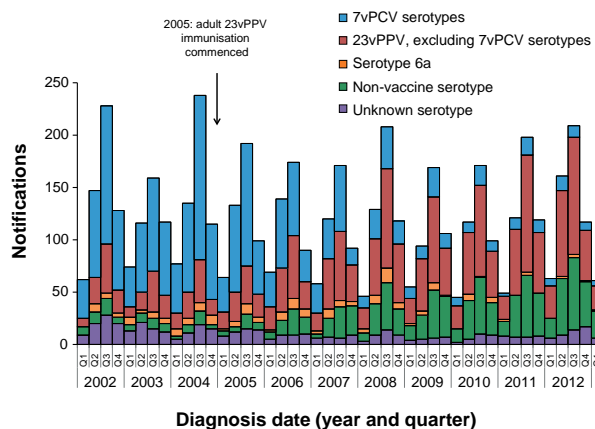


Figure 3: Notified cases of IPD in Indigenous Australians aged 50 years or older, Australia, 2002 to the first quarter of 2013, by serotype*



* Serotypes grouped according to targeted vaccines
 Note: In 1999 23vPPV immunisation commenced for Indigenous Australians aged 50 years and over

Figure 4: Notified cases of IPD in non-Indigenous Australians aged 65 years or older, Australia, 2002 to the first quarter of 2013, by serotype*



* Serotypes grouped according to targeted vaccines

IPD in Indigenous Australians aged 50 years or older

fourth quarter of 2011, reflecting the introduction of the 13vPCV on the universal childhood immunisation program in mid-2011. In the first quarter of 2013, there were five cases aged less than 5 years with disease due to serotype 19A and two cases due to serotype 3. No cases in this age group were reported with disease caused by serotypes 1, 5, 6A or 7F.

In the first quarter of 2013, 4% (n=8) of notified cases were reported in Indigenous Australians aged 50 years or older. The number of cases notified in this group in the reporting period was similar to the number of cases notified in the previous quarter (n=6) (Figure 3: Notified cases of IPD in Indigenous Australians aged 50 years or older, Australia, 2002 to the first quarter of 2013,

by serotype*). There were fewer notifications in the reporting period compared with the same quarter in the previous year (n=11).

All cases reported in this quarter were reported with serotype information. More than half (n=5) of the cases were reported with disease due to serotypes targeted by the 23vPCV, with the remaining reported with disease due to a non-vaccine serotype.

IPD in non-Indigenous Australians aged 65 years or older

In the first quarter of 2013, 29% (n=61) of notified cases were reported as non-Indigenous Australians aged 65 years or older. The number of cases notified was about one quarter of the number of cases notified at the seasonal peak in the third quarter of 2012 (n=209) (Figure 4: Notified cases of IPD in non-Indigenous Australians aged 65 years or older, Australia, 2002 to the first quarter of 2013 by serotype grouped according to targeted vaccines). Slightly fewer notifications were reported in the quarter compared with the same quarter in the previous year (n=63).

The majority (90%, 55/61) of cases reported in this quarter were reported with serotype information. Of these cases, more than one half (51%, 28/55) were reported with a serotype targeted by the 23vPPV. While the burden of disease in this age group has remained relatively stable, the profile of serotypes causing disease has changed over time. Disease due to serotypes targeted by the 7vPCV has reduced substantially in this age group likely due to herd immunity impacts from the childhood immunisation program.

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