

INVASIVE PNEUMOCOCCAL DISEASE SURVEILLANCE AUSTRALIA, 1 APRIL TO 30 JUNE 2015

Rachel de Kluiver and the Enhanced Invasive Pneumococcal Disease Surveillance Working Group, for the Communicable Diseases Network Australia

Summary

The number of notified cases of invasive pneumococcal disease (IPD) in the 2nd quarter of 2015 was more than the previous quarter but less than the number of notified cases in the 2nd quarter of 2014. Overall, the decline in disease due to the serotypes targeted by the 13-valent pneumococcal conjugate vaccine (13vPCV) has been maintained across all age groups since the 13vPCV replaced the 7-valent pneumococcal conjugate vaccine (7vPCV) in the childhood immunisation program from July 2011.

Key points

In the 2nd quarter of 2015, there were 397 cases of IPD reported to the National Notifiable Diseases Surveillance Scheme. This was a 2% reduction on the number of cases reported for the same period in 2014 (n=407) (Table 1). Most common serotypes affect all age groups, with serotype 19A continuing to be the most common cause of IPD overall (Table 2).

In non-Indigenous Australians, the number of notified cases was highest in the under 5 years age

group followed by the over 85 years age group. In Indigenous Australians, notified cases were highest in the under 5 years age group followed by the 50–54 years age group (Table 3). Compared with the [second quarter of 2014](http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-cdi38031.htm) (<http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-cdi38031.htm>), the proportion of cases reported as Indigenous increased from 11% to 15%. Data completeness was comparable at 94% for both periods.

There were 67 cases of IPD reported in children aged under 5 years, of which 42% (n=25) were due to a serotype included in either the 7vPCV or the 13vPCV (Figure 1). Serotype 19A, which is included in the 13vPCV, continued to be the most common serotype affecting this age group (Table 2). The number of cases in this age group was 10% higher than the 2nd quarter of 2014 (n=61) while the serotype distribution remained similar.

There were 21 cases of IPD reported in Indigenous Australians aged 50 years or over. Of those cases with a reported serotype, 57% (n=12) were due to a serotype included in the 23-valent polysaccharide pneumococcal vaccine (23vPPV) (Figure 2). The number of notified cases of IPD in this age group was almost 40% higher than in the 2nd quarter of

Table 1: Notified cases of invasive pneumococcal disease, Australia, 1 April to 30 June 2015, by Indigenous status, serotype completeness and state or territory

	ACT	NSW	NT	Qld	SA	Tas.	Vic.	WA	Total Qtr 2 2015	Total Qtr 1 2015	Total Qtr 2 2014	Year to date 2015
Indigenous status												
Indigenous	0	8	17	13	4	0	2	16	60	33	46	60
Non-Indigenous	5	99	2	50	29	10	65	27	287	129	315	287
Not stated/ unknown	0	26	0	2	0	0	22	0	50	28	46	50
Total	5	133	19	65	33	10	89	43	397	190	407	587
Indigenous status completeness* (%)	100	80	100	97	100	100	75	100	87	–	–	–
Serotype completeness† (%)	100	86	100	94	73	100	97	100	91	–	–	–

* 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 the proportion of all cases of invasive pneumococcal disease that were reported with a serotype or reported as non-typable. Serotype incompleteness may include when no isolate was available as diagnosis was by polymerase chain reaction and no molecular typing was attempted or was not possible due to insufficient genetic material; the isolate was not referred to the reference laboratory or was not viable; typing was pending at the time of reporting, or no serotype was reported by the notifying jurisdiction to the National Notifiable Diseases Surveillance System.

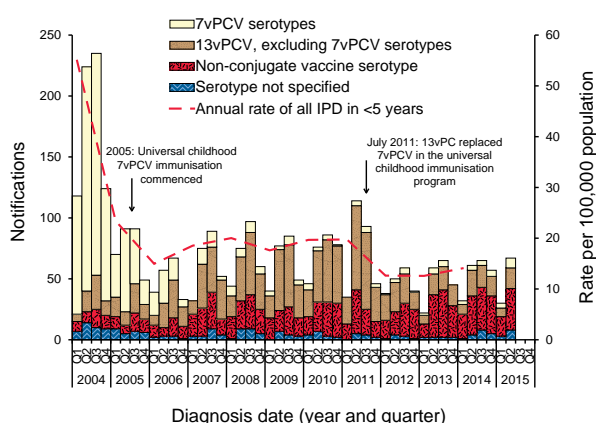
Table 2: Frequently notified serotypes of invasive pneumococcal disease, Australia, 1 April to 30 June 2015, by age group

Serotype	Age group			Serotype total*
	Under 5 years	5 to 64 years	Over 65 years	
19A	11	17	10	38
3	6	12	7	25
9N	4	13	8	25
22F	2	13	7	22
23B	4	11	5	20
7F		13	4	17
8		14	3	17
19F	7	4	4	15
35B	2	8	5	15
11A	2	7	4	13
15A		6	7	13
16F	3	3	7	13
23A	1	1	11	13
12F		6	4	10
33F		9	1	10
38	3	6	1	10
15B	1	4	3	8
15C	3	1	3	7
6C	1	5	1	7
10A	1	2	3	6
4		5		5
Other	6	27	19	52
Serotype unknown†	10	16	10	36
Total	67	203	127	397

* Serotypes that only occur in less than 5 cases per quarter are grouped as 'Other' and include 'non-typable' samples this quarter.

† 'Serotype unknown' includes those serotypes reported as 'no isolate', 'not referred', 'not viable', 'typing pending' and 'untyped'.

Figure 1: Notifications (2004 to 30 June 2015) and annual rates (2004 to 2014) of invasive pneumococcal disease in children aged less than 5 years, Australia, by vaccine serotype group



2014 (n=13) and double that of the previous quarter (n=10). Compared with the previous quarter, the proportion of 23vPPV serotypes increased from 44% to 57% of cases with a reported serotype.

There were 124 cases of IPD reported in non-Indigenous Australians aged 65 years or over. Of those cases with a reported serotype, 50% (n=62) were due to a serotype included in the 23vPPV (Figure 3). The number of notified cases of IPD in this age group was 7% higher than in the 2nd quarter of 2014 (n=115) and more than double that of the previous quarter (n=56). Compared with the previous quarter, the proportion of IPD due to 23vPPV serotypes increased from 41% to 55% of cases with a reported serotype.

In this quarter, there were 22 deaths attributed to 13 different IPD serotypes, which was similar

Figure 2: Notifications (2004 to 30 June 2015) and annual rates of all invasive pneumococcal disease (2004 to 2014) in Indigenous Australians aged 50 years or over, Australia, by vaccine serotype group

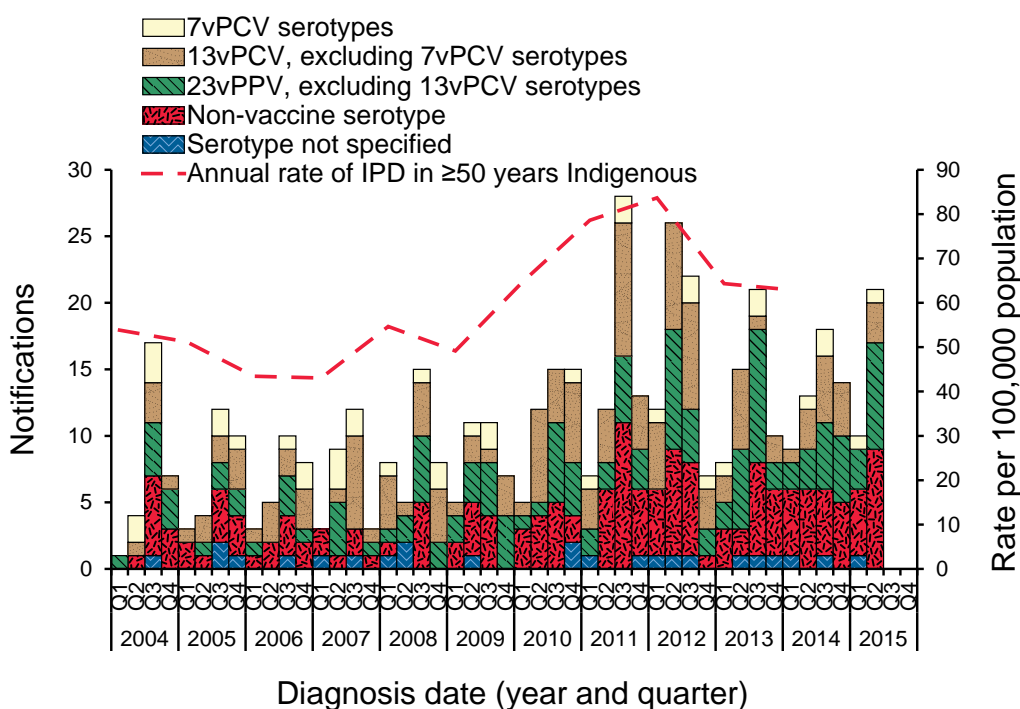


Table 3: Notified cases of invasive pneumococcal disease, Australia, 1 April to 30 June 2015, by Indigenous status and age group

Age group	Indigenous status			Total
	Indigenous	Non-Indigenous	Not reported	
0-4	12	51	4	67
5-9	3	7	4	14
10-14	2	1	2	5
15-19	2	1	2	5
20-24	3	1	1	5
25-29	3	2	3	8
30-34	4	2	4	10
35-39	1	11	6	18
40-44	6	6	9	21
45-49	3	7	7	17
50-54	9	22	3	34
55-59	5	26	2	33
60-64	4	27	2	33
65-69	1	20		21
70-74		27		27
75-79	1	19		20
80-84	1	23		24
85+		34	1	35
Total	60 (15%)	287 (72%)	50 (12%)	397

to the same quarter in 2014 (n=21). There was 1 death reported in a child aged under 5 years, which was associated with serotype 6C.

During this reporting period, the Northern Territory notified a case of IPD in a 43-year-old female due to serotype 32F. This is the first time this globally rare serotype has been identified in Australia.¹

Notes

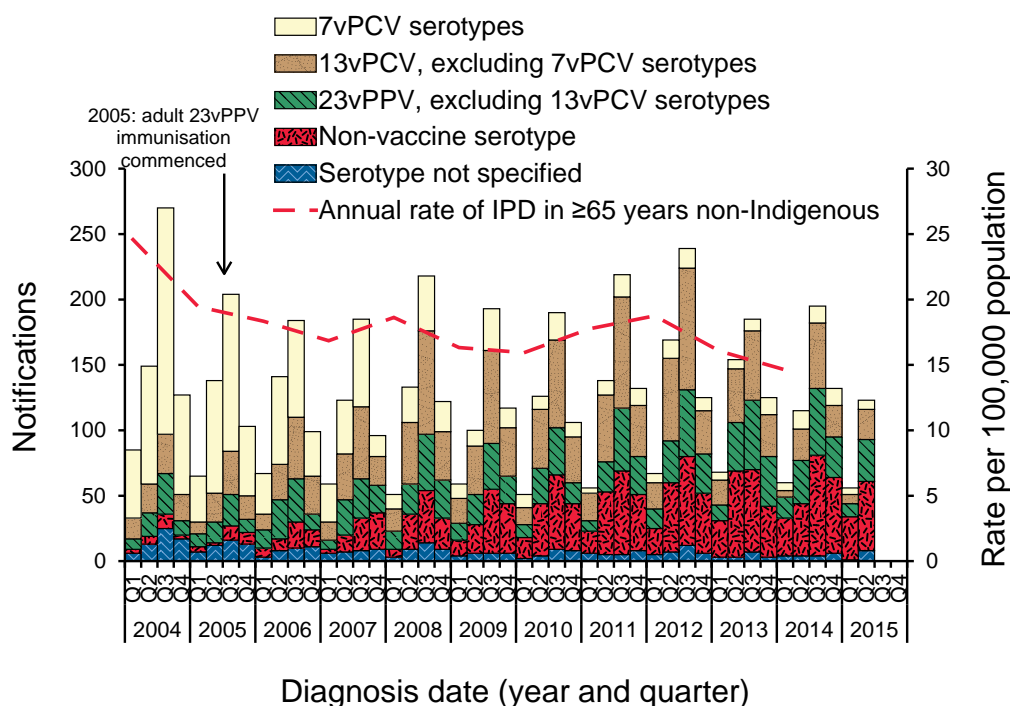
The data in this report are provisional and subject to change as laboratory results and additional case information become available. More detailed data analysis of IPD in Australia and surveillance methodology are described in the IPD annual report series published in *Communicable Diseases Intelligence*.

In Australia, pneumococcal vaccination is recommended as part of routine immunisation for children, the medically at risk and older Australians. More information on the scheduling of the pneumococcal vaccination can be found on the Immunise Australia Program website (www.immunise.health.gov.au).

Follow-up of all notified cases of IPD is undertaken in all states and territories except New South Wales and Victoria who conduct targeted follow-up of notified cases aged under 5 years, and 50 years or over for enhanced data.

Table 4: *Streptococcus pneumoniae* serotypes targeted by pneumococcal vaccines

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

Figure 3: Notifications (2004 to 30 June 2015) and annual rates of all invasive pneumococcal disease (2004 to 2014) in non-Indigenous Australians aged 65 years or over, Australia, by vaccine serotype group

Acknowledgements

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Enhanced Invasive Pneumococcal Disease Surveillance Working Group contributors to this report include (in alphabetical order): David Coleman (Tas.), Heather Cook (NT), Rachel de Kluver (Health), Carolien Giele (WA), Robin Gilmour (NSW), Vicki Krause (NT), Rob Menzies (NCIRS), Shahin Oftadeh (Centre for Infectious Diseases and Microbiology– Public Health, Westmead Hospital), Sue Reid (ACT), Stacey Rowe (Vic.), Vitali Sintchenko (Centre for Infectious Diseases and Microbiology– Public Health, Westmead Hospital), Helen Smith (Queensland Health Forensic and Scientific Services), Janet Strachan (Microbiological

Diagnostic Unit, University of Melbourne), Cindy Toms (Health), Hannah Vogt (SA), Angela Wakefield (Qld).

Author details

Corresponding author: Dr Rachel de Kluver, Vaccine Preventable Diseases Surveillance Section, Office of Health Protection, Australian Government Department of Health, GPO Box 9484, MDP 14, Canberra, ACT 2601. Telephone: +61 2 6289 1463. Facsimile: +61 2 6289 1070. Email: Rachel.de.kluver@health.gov.au

Reference

1. Johnson HL, Deloria-Knoll M, Levine OS, Stoszek SK, Freimanis Hance L, Reithinger R, et al. Systematic evaluation of serotypes causing invasive pneumococcal disease among children under five: the pneumococcal global serotype project. *PLoS Med* 2010;7(10):e1000348.