Surveillance of pneumococcal disease in Australian States and Territories

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Abstract

Information on pneumococcal disease, including immunisation programs, and optimum future surveillance in each Australian State and Territory were discussed at the Pneumococcal Disease in Australia Workshop on 26-27 March 1999. Workshop participants further expanded on the surveillance aspects of the Workshop in this report. Most participants favoured notification by laboratories of pneumococcal isolates from sterile sites, to provide baseline surveillance data before immunisation programs are fully implemented. It was also thought that trends in antimicrobial resistance should be notified. *Commun Dis Intell* 2000;24:93-95.

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The available data on pneumococcal disease differ widely among jurisdictions in Australia. The situation was outlined by participants from each State and Territory at the Workshop. Workshop discussions about these data and optimum future surveillance for pneumococcal disease in Australia, have been expanded on and summarised below.

Data available in all jurisdictions

Hospital discharge data for ICD codes covering pneumococcal disease are available in all States and Territories. However, the system lacks timeliness, with a 12–18 month lag to the most recent completed data. Mortality data from the Australian Bureau of Statistics have similar limitations. The ICD code for pneumococcal pneumonia in particular is non-specific, but potentially useful for monitoring trends. Neither data source gives information about the serotype or antimicrobial susceptibility of pneumococcal isolates.

Data available in some jurisdictions

Invasive pneumococcal disease is currently notifiable in the Northern Territory (since 1994) and Queensland (since 1996). Some other jurisdictions have specific pneumococcal surveillance through voluntary laboratory networks coordinated locally (Victoria, Western Australia, metropolitan New South Wales). Thus only South Australia, Tasmania and the Australian Capital Territory have no current pneumococcal surveillance beyond hospital discharge and mortality data. The available data sources by State/Territory are shown in Table 1.

Pneumococcal immunisation programs

Indigenous populations

The three jurisdictions with the largest proportions of Aboriginal and Torres Strait Islander residents (Northern Territory, Queensland and Western Australia) all have current or past pneumococcal immunisation programs for some or all of their indigenous population. High rates of invasive pneumococcal disease have been most completely documented for the longest period in Central Australia[1] and subsequently the rest of the Northern Territory. The Northern Territory had an 'adults are at risk' campaign to promote adult immunisation, including pneumococcal immunisation, in 1994–95. Subsequently, project officers were employed (1995–97) to promote and distribute free pneumococcal vaccine to Aboriginal persons over 50 years of age or with risk factors. From vaccine distribution data, it was estimated that 50% of the target population was immunised; this has probably decreased since funding of project officers ceased. In Western Australia a number of regional pneumococcal immunisation programs were conducted in the north of the State from 1986, initially targeting children aged 2–15 years (Pilbara and parts of Kimberly) and more recently adults over 50 years of age. The impact of these initiatives is being evaluated by Dr Donna Mak from Kimberley Public Health Unit, but is hampered by lack of documentation. In Far North Queensland the Tropical Public Health Unit has implemented both pneumococcal surveillance and immunisation (personal communication, Jeffrey Hanna).

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Table 1. Sources of data for surveillance of pneumococcal disease, by jurisdiction

Jurisdiction	Data source			
			Serotyping	
	Notifications	Laboratory network	Data available	Performed locally
ACT	No	No	No	No
NSW	No	Yes[1]	Yes[1]	Yes
NT	Yes	Yes[2]	Yes[2]	No
Qld	Yes	No	Yes[3]	Yes
SA	No	No	Discontinued	No
Tas	No	No	No	No
Vic	No	Yes[4]	Yes[4]	Yes
WA	No	Yes[5]	Yes[5]	Yes

1. Metropolitan NSW Pneumococcal Study Group — voluntary.
2. Public microbiology laboratories refer isolates to Queensland Health Scientific Services.
3. Isolates forwarded by some laboratories only. Complete for Far North Queensland region.
4. Victorian Hospital Pathogen Surveillance Scheme — ongoing.
5. Vaccine Impact Surveillance Network — laboratory network funded by Health Department of Western Australia.

Non-indigenous populations

Victoria is the only jurisdiction to make pneumococcal vaccine available free of charge to non-indigenous adults over 65 years of age. The Victorian program was implemented in 1998, with an estimated increase in coverage in the over-65 year old population of 30%, giving a cumulative coverage of 42% by the end of 1998. The cost of the program, with 199,000 doses distributed, was estimated to be $5.74 million. Several other jurisdictions have estimated (by telephone survey) pneumococcal vaccine coverage in those over 65 years of age to be less than 10%.

Requirements for pneumococcal surveillance

The data required for adequate surveillance of pneumococcal disease relate to two main areas:

1. monitoring of antimicrobial resistance, with the aim of providing feedback to influence antimicrobial prescribing; and

2. monitoring the impact of pneumococcal immunisation programs, both for polysaccharide vaccines in at-risk adults and for conjugate pneumococcal vaccines when these become part of the routine schedule.

Requirements for surveillance were discussed at the Workshop by three groups with broad representation. There was general agreement that surveillance was necessary, and that this should be based on laboratory reporting of sterile site isolates. While recognising the differences between jurisdictions in legal frameworks for notifiable diseases, the majority thought that adequate surveillance would be best achieved by making invasive pneumococcal disease (defined by an isolate from a sterile site) notifiable. The variables required would be similar to those in the enhanced Hib Surveillance Scheme which requires, in addition to basic demographic data, information about Aboriginality, immunisation status and underlying disease/risk factors of notified cases. Laboratory data are required to determine the prevalence of resistance and serotypes. The serotype of the isolate is especially important information from immunised cases. Serotyping is currently being performed in Western Australia (VISN), Northern Territory (Menzies School), Queensland (Queensland Health Scientific Services), New South Wales (New Children's Hospital/ICPMR) and Victoria (MDU).

Recommendations

Notification

The majority of workshop participants and State/Territory representatives were in favour of pneumococcal isolates from sterile sites being notifiable to State/Territory health departments. Notification would be direct from the laboratory and would be facilitated by the development of electronic data transfer, as for other predominantly laboratory-notified conditions. Concern was expressed that introducing compulsory notification might adversely affect existing voluntary laboratory notification schemes. The public health action arising out of notifications would primarily relate to monitoring of immunisation programs, and would provide an important baseline for evaluation before immunisation programs are funded and fully implemented. The public health action could also include promotion of appropriate antibiotic use by monitoring trends in antimicrobial resistance.

Data required for notification

The primary role of monitoring immunisation programs means that Aboriginality, the presence of indications for immunisation as defined by the National Health and Medical Research Council (NHMRC), and immunisation status are important variables for this notification system. This will

need to be determined in line with the current review of data requirements for surveillance of vaccine preventable diseases.

Laboratory support

The Public Health Laboratory Network was seen as the most appropriate group to oversee laboratory data for pneumococcal disease. The high incidence of pneumococcal disease, the different serotype distribution and existing immunisation programs in Aboriginal compared with other populations, necessitates special attention to serotyping of all available isolates from this group. For the non-Aboriginal population, serotyping could be restricted to a sample of isolates to monitor trends.

Reference

1. Torzillo PJ, Hanna JN, Morey F, Gratten M, Dixon J, Erlich J. Invasive pneumococcal disease in Central Australia. *Med J Aust* 1995;162:182-6.