Editorial: Towards improving influenza surveillance in Australia

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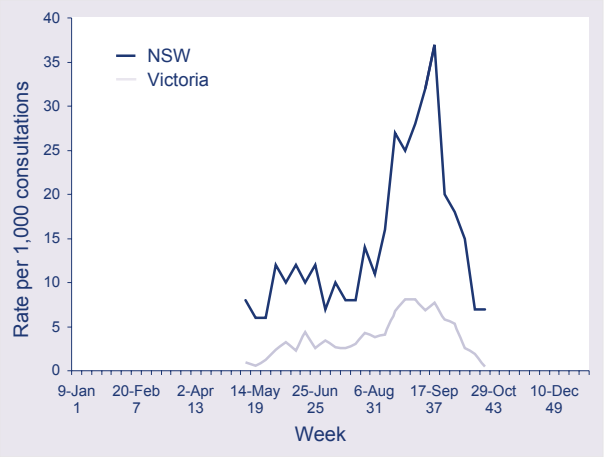
As winter and the influenza season approaches, the article by Watts and Kelly[1] is timely in highlighting significant deficiencies in the surveillance of influenza in Australia. Watts and Kelly conducted a telephone survey of sentinel practice schemes in August 2001 and found that sentinel influenza surveillance schemes vary in their definition of influenza-like illness (ILI) and in their access to laboratory support. The impact of this is illustrated in a comparison between data from New South Wales and Victorian sentinel practice schemes for 2000 (Figure). In Victoria the rates per 1,000 consultations were almost an order of magnitude lower than in New South Wales, although the number of laboratory reports of influenza in the two States during the same period were very similar.[2]

Figure: Rates of influenza-like illness in sentinal practice schemes, NSW and Victoria, 2001



While State-based influenza surveillance does provide timely relevant local information for public health action, national influenza surveillance is needed to provide a broader perspective on circulating viral strains and the impact of the disease on the community. Measuring rates of influenza-like illness in sentinel practices is important to establish the size of the annual epidemic but consistent case definitions need to be used. National collating and reporting on circulating influenza virus strains, based on sampling from a wide geographic area is essential to detect emergence and migration of new viral strains in Australia.

The Influenza Pandemic Planning Committee of the Communicable Diseases Network Australia (CDNA) made recommendations on national influenza surveillance in the report A framework for an Australian influenza pandemic plan (June 1999).[3]

"A national surveillance system should be established using a nationally agreed definition of influenza-like illness (ILI), consistent surveillance methods and national coordination of data collection, analysis and dissemination. The system should comprise community based surveillance of influenza based on sentinel practices during the intra-pandemic period, complemented by institutional surveillance with enhanced measures during a pandemic."

To date there has been no truly national influenza surveillance system but a conglomeration of data from laboratories, sentinel practice schemes and absenteeism data from a major national employer. Data from these systems have been analysed and published in *Communicable Diseases Intelligence* during the winter months since 1994. These data have also been used to produce an influenza surveillance annual report.

While there are obvious needs for improvements, it is important to note recent changes to national influenza surveillance, which will begin to bring surveillance to the standards set in the Pandemic Plan.

The agreement by the CDNA to make laboratory-confirmed influenza a nationally notifiable disease from January 2001, gives Australia a national influenza surveillance system for the first time. There will be a legal obligation to report laboratory-confirmed cases from all Australian medical practices, hospitals and laboratories to the National Notifiable Diseases Surveillance System (NNDSS). Up to now laboratory-confirmed influenza cases have only been reported through the Virology and Serology Reporting Scheme (LabVISE), however, the number of participating laboratories in LabVISE has been declining. From now, all Australian laboratories will be under legal

obligation to notify all influenza diagnoses and the resulting data will be more representative although cases undergoing laboratory testing are often those with more severe illness. CDNA is developing national case definitions and the Public Health Laboratory Network is developing detailed laboratory definitions and testing guidelines, both of which will improve the consistency of data reported to NNDSS.

In addition, NNDSS has been undergoing extensive revisions and from this year a larger set of data will be reported for each notifiable disease. For all cases of influenza it will be possible to record the virus type and strain, the vaccination status of the case and to identify cases linked in an outbreak.

The need for timely and national reporting of influenza data noted by Watts and Kelly is also being addressed. The new NNDSS data acquisition system will allow near real time data transfer from the States and Territories to the Commonwealth. This system provides flexibility to allow rapid revision of data records to include new information. The result should be a national data set for all diseases which is more accurate and up-to-date than ever before.

While the Commonwealth Department of Health and Ageing has been collating reports from sentinel schemes (ASPREN, New South Wales, Victoria, Northern Territory and Western Australia) and LabVISE and publishing these in *CDI* and on the Web, the regularity of reports changed with changes to publication of *CDI*. Since June 2001 these reports have included data from the NNDSS and were published on the Communicable Diseases Australia Website at: http://www.health.gov.au/pubhlth/cdi/ozflu/flucurr.htm; weekly during the winter months and fortnightly during the non-influenza season. These postings will continue throughout the year to monitor influenza activity in the tropical regions of Australia as well as baseline levels of influenza activity during non-epidemic periods in temperate regions. However, these influenza data are as limited in representativeness, comparability and timeliness as the systems from which the information is drawn and the data must be interpreted with care. A commentary on the data and comparison of current year's data with the preceding year go some way to providing meaningful interpretations of emerging trends.

The WHO Collaborating Centre for Reference and Research on Influenza is publishing reports on circulating influenza strains in Australia and outbreaks in the region on its Website http://www.influenzacentre.org/. This provides essential, timely information on changes in the frequency of influenza strains circulating in Australia.

However, there is still room for much improvement to influenza surveillance in Australia. Areas for further work include harmonising surveillance methods used and improving the representativeness of the sentinel schemes; improving surveillance of influenza vaccination and utilising other surveillance such as morbidity and mortality data.

The differences in case definitions of influenza-like illness (ILI), surveillance practices and reporting formats between different sentinel practice schemes need to be resolved. The clinical signs and symptoms of influenza may vary between different age groups. Infants and children may present with symptoms that are indistinguishable from that caused by other respiratory diseases and influenza may cause non-respiratory symptoms.[4] There is a need for laboratory support of influenza sentinel surveillance systems to allow an estimate of the proportion of influenza-like illness that are actually caused by influenza, which varied in one study in Victoria from 49 to 54 per cent.[5] There is a need for CDNA to develop a consensus clinical case definition of influenza-like illness which is simple but specific and an agreement between the sentinel practice schemes to use this case definition in their surveillance.

Sentinel practice surveillance schemes find it difficult to maintain a consistent number of practices reporting to their schemes. In 2000, the number of practices reporting influenza-like illness to ASPREN varied from 52 to 77, from 8 to 41 in the New South Wales scheme, from 25 to 47 in the Victorian scheme and from 9 to 14 in the Northern Territory scheme.[2] Improvements in reporting may require offering inducements to participating practices. A recent report from Hawaii has shown that offering rapid testing kits for influenza to physicians ordering viral cultures resulted in an increase in samples sent for culture from 396 to 2,169 in consecutive influenza seasons.[6] Clearly physicians found the availability of rapid influenza diagnostic tests in the consultation room useful, and the feasibility of influenza diagnostic tests in Australian practices should be investigated. Finally, the representativeness of sentinel schemes in Australia needs to be improved by recruitment of practices in rural and regional towns and in areas outside the south east of the country.

As influenza vaccination becomes more widespread, there is a need to incorporate accurate measures of vaccine coverage into our

surveillance systems. A recent study shows that 74 per cent of over 65-year-olds in Australia were vaccinated against influenza in 2000.[7] The impact of influenza vaccination on the size and severity of the influenza season in Australia should be assessed. As noted above, vaccination data on all influenza cases can now be recorded in the NNDSS. Better data collection will enable more informative modelling of cases prevented by vaccination and other interventions.

There is also a need to have a timely access to hospitalisation and mortality data to measure the annual impact of influenza epidemics. The United States has used measurements of excess mortality due to influenza to develop a severity index,[8,9] which can be used to measure the impact of annual influenza epidemics on hospitalisation.[10] In a recent study of excess winter mortality in the United Kingdom, the proportion due to influenza was observed to be falling in recent years, probably due to increasing vaccination and decreasing variation in the circulating virus.[11] Australian hospitalisation and mortality data, if available in a timely manner, for example from sentinel hospitals, would be useful to give warning of severe epidemics due to major antigenic shifts in the influenza virus and to measure the disease burden due to influenza.

The latest draft (March 2001) of the Australian Action Plan for Pandemic Influenza[12] comments on surveillance.

"An effective national surveillance system is an essential component of a program for the control of influenza to ensure the provision of timely information to public health departments, health care providers and the general public about levels of influenza activity and circulating strains."

Highlighting deficiencies in sentinel systems and working toward consistent national reporting of influenza through the NNDSS are important steps toward achieving an effective influenza surveillance system in Australia.

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