SURVEILLANCE DATA IN *CDI*

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Communicable Diseases Intelligence publishes reports from several national communicable diseases surveillance schemes on a regular basis. These surveillance schemes are conducted to monitor the occurrence of communicable diseases in Australia, to detect trends and to highlight needs for further investigation or for the implementation or modification of control measures.

Surveillance has been defined by the World Health Organization as the 'continuing scrutiny of all aspects of the occurrence and spread of disease that are pertinent to effective control'; it is characterised by 'methods distinguished by their practicability, uniformity, and frequently by their rapidity, rather than complete accuracy' [1]. Although some surveillance schemes aim for complete case ascertainment, some include only a sample of all cases of the conditions under surveillance, and these samples are subject to systematic and other biases. Results generated from surveillance schemes must therefore be interpreted with caution, particularly when comparing results between schemes, between different geographical areas or jurisdictions and over time. Surveillance data may therefore also differ from data on communicable diseases which may be gathered in other settings.

The major features of the surveillance schemes for which *CDI* publishes regular reports in the *Communicable Diseases Surveillance* section are described below. Other surveillance schemes for which *CDI* publishes occasional reports include the National Mycobacterial Surveillance System (conducted under the auspices of the Communicable Diseases Network of Australia and New Zealand and described in *CDI* 1995; **19**: 334-343), the Australian Tuberculosis Laboratory Reporting Scheme (described in *CDI* 1995; **19**: 343-345), the Hib Case Surveillance Scheme (described in *CDI* 1995; **19**: 86-90), the Australian Gonococcal Surveillance Programme (see for example *CDI* 1995; **19**: 668-670) and the National *Neisseria* Network (*CDI* 1995; **19**: 286-289). Quarterly and annual reports of human isolates of enteric pathogens reported to the National *Salmonella* Surveillance Scheme are also reproduced (see for example *CDI* 1995; **19**: 618-626).

National Notifiable Diseases Surveillance System

The National Notifiable Diseases Surveillance System (NNDSS) was established in 1990 under the auspices of the Communicable Diseases Network Australia New Zealand (CDNANZ). National compilations of notifiable diseases have been published intermittently in a number of publications since 1917 (see *CDI* 1993; **17**: 226-236).

The System coordinates the national surveillance of 41 communicable diseases or disease groups endorsed by the National Health and Medical Research Council (NHMRC)[2]. Under this scheme, notifications are made to State and Territory health authorities under the provisions of the public health legislation operative in their separate jurisdictions. Computerised, de-identified unit records of notifications are supplied to the Network secretariat at the Department of Human Services and Health for collation, analysis and publication in *CDI*.

Data provided for each notification include a unique record reference number, State or Territory code, disease code, date of onset, date of notification to the relevant health authority, sex, age, Aboriginality, postcode of residence, and the confirmation status of the report (as defined by each State or Territory). Date of onset, sex, age, Aboriginality, postcode of residence and confirmation status are nonmandatory data items, but are supplied if known.

Each fortnight, State and Territory health authorities submit a file of notifications received for the entire calendar year to date; the data files therefore include notifications for both the current reporting period and updated notifications for all previous reporting periods in the current year.

The data are presented, currently each fortnight, in tabular form. Cases reported to State and Territory health authorities in the current reporting period are listed by State or Territory, and totals for Australia are presented for the current period, the current year to date, and for the corresponding periods of the previous year.

One table includes data on the diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation. Another table includes diseases that are only rarely notified (fewer than 50 cases notified throughout Australia in each of the previous five years). Notifications of the remaining diseases are presented in the final table, except for HIV infection and AIDS notifications, which are not tabulated in this section of *CDI*. Surveillance for these conditions is conducted separately and is reported in the *HIV and AIDS Surveillance* reports (see below).

A commentary on the notifications received accompanies the tables in each issue; graphs are used to illustrate time trends and other features of the data. Currently included in each issue is a graph of the notifications received for eight selected diseases during the reporting period along with comparative historical data (averages of the number of notifications received in related reporting periods of the last three years).

The interval from the end of a reporting period to the date of publication of collated data in *CDI* is currently 16 days.

The quality and completeness of data compiled in the National Notifiable Diseases Surveillance System are influenced by various factors. Tables, graphs and commentary must be interpreted with caution, particularly when comparisons are made between States and Territories and with data from previous years. The NHMRC has recommended that data be routinely collected on all 41 national notifiable diseases, and has issued uniform case definitions for all of these [2]. Each State or Territory health authority, however, determines which diseases will be notifiable within their jurisdiction, and which notifications are accepted as satisfying criteria which in some cases differ from the NHMRC case definitions. Moreover, the mechanisms of notification differ between States and Territories; notifications may be required from any or all of treating clinicians, diagnostic laboratories and hospitals; and in some cases, different diseases are notifiable by different mechanisms. The proportion of cases seen by health care providers which are the subject of notification to health authorities is not known with certainty for any disease, and may vary among diseases, beween jurisdictions and over time.

CDI Laboratory Reporting Schemes

There are two *CDI* Laboratory Reporting Schemes: the Virology and Serology Reporting Scheme (LabVISE) and the Laboratory Database of Organisms from Sterile Sites (LabDOSS). The *CDI* Laboratory Reporting Schemes rely on the voluntary participation of laboratories and we gratefully acknowledge their contributions.

Virology and Serology Reporting Scheme (LabVISE)

The Virology and Serology Laboratory Reporting Scheme began operating in 1977. At present the scheme comprises 21 sentinel laboratories from all States and the Australian Capital Territory which contribute data on the laboratory identification of viruses and other organisms. Laboratories elect to submit data either on computer disk using LabVISE software (written in Epi Info), or on paper forms in the same format. Each record includes mandatory data fields (laboratory, specimen collection date, a patient identifier code, specimen source, the agent detected and the method of diagnosis), and optional fields (specimen code number, sex, date of birth or age, postcode of residence, clinical diagnosis, risk factors and comments).

Reports are collated, analysed and published currently each fortnight. Each report includes three summary tables. The first table lists the agents by group (measles-mumps-rubella, hepatitis viruses, arboviruses, and others) and State or Territory. Also included are the national totals for the reporting period, an historical national average of the reports in six previous reporting periods (the corresponding periods of the last two years and the periods immediately preceding and following those), and the totals of reports received in the current year. The second table lists the organisms grouped by clinical information as supplied in the laboratory reports, and the total for the reporting period. The third table shows total reports for the period by contributing laboratory. The delay between date of specimen collection and date of publication ranges from two weeks to several months. A commentary on the laboratory reports includes the observation of recent trends (with accompanying graphical presentation) and further details of interesting cases.

Data derived from this scheme must be interpreted with caution as the number and type of reports received is subject to a number of biases, including the location of participating laboratories, the availability of diagnostic services and diagnostic practices.

Sterile Sites Surveillance (LabDOSS)

The Laboratory Database of Organisms from Sterile Sites (LabDOSS) was introduced in January 1992 and monitors significant isolates from normally sterile sites. It is used on a national basis to compile more detailed information than is available to the National Notifiable Diseases Surveillance System on infections such as those caused by *Haemophilus influenzae* type b. Information is also collected on diseases which are not included in the list of national notifiable diseases, such as meningitis caused by *Streptococcus pneumoniae* and by *Cryptococcus neoformans.*

Twenty laboratories from around Australia currently contribute reports to this scheme. As for LabVISE, each report includes a laboratory identifier, the date of specimen collection, the organism identification, data on the source of the specimen and identification methods. The reports usually contain the residential postcode of the patient, data on the patient's age and sex, and information on the clinical diagnosis and risk factors; relevant comments may also be included. Coded specimen and patient identifiers are also included to enable further follow-up with laboratories, as required, and the deletion or amalgamation of duplicate reports.

LabDOSS is currently published in alternate issues of *CDI.*

Organisms reported as isolated from blood specimens five or more times during the current reporting period are presented in a table which details the total number of reports for the fortnight, together with selected clinical and risk factor information. Organisms reported fewer than five times from blood specimens are listed in the text. Cerebrospinal fluid isolates and meningitis reports are tabulated by organism and age group, or listed as text. Isolates from other sites, such as peritoneal dialysate and joint fluid are also listed. Commentary and other information, such as outbreaks, is included as appropriate.

As for LabVISE, the number of reports of isolates made to LabDOSS is influenced by various factors, including the number, type and location of participating labora-

tories, and current diagnostic techniques and habits, as well as the actual occurrence of infections. These factors must be taken into account and the data interpreted with appropriate caution. The delay between the date of specimen collection and the date of publication ranges from two weeks to two months.

Hepatitis C surveillance

In 1995 the CDNANZ undertook a 12 month pilot study to enhance the NNDSS surveillance of hepatitis C by improving the identification of incident cases of hepatitis C infection and compiling information on associated risk factors. Notifications of hepatitis C are followed up with notifying practitioners to determine whether cases are incident or prevalent. Risk factor information is sought on those cases identified as being incident. Reports are collated, analysed and reported quarterly (*CDI* 1995;**19**:615-617).

Australian Sentinel Practice Research Network

The Research and Health Promotion Unit of the Royal Australian College of General Practitioners operates the Australian Sentinel Practice Research Network, a national network of general practices which report on a number of conditions each week. Each fortnight, the communicable diseases under surveillance in this scheme (defined in *CDI* 1995; **19**: 46) are reported. For each of the two reporting weeks reviewed, the number of cases of each listed disease encountered is tabulated, together with the rate of reporting per 1000 consultations. Brief comments on the reports accompany the table. Currently about 60 general practitioners from all States and Territories report on about 8000 consultations each week.

Sentinel Chicken Surveillance Programme

The Sentinel Chicken Surveillance Programme is coordinated by Annette Broom of the Arbovirus Research Laboratory in the Department of Microbiology at the University of Western Australia. The Programme provides an early warning of increased flavivirus activity, by monitoring flavivirus seroconversions in chickens in sentinel flocks in Western Australia, the Northern Territory, Victoria, Queensland and New South Wales. Information on seroconversions from this scheme is published every two months. Details of the locations of the chicken flocks and other information on the scheme were published in *CDI* 1992;**16**:55, *CDI* 1992;**16**:169 and *CDI* 1993;**17**:123.

HIV and AIDS Surveillance

National surveillance for HIV and AIDS is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR) located at Darlinghurst within the University of New South Wales, in collaboration with State and Territory health authorities and the Commonwealth of Australia.

Cases of HIV infection are notified to the National HIV Database on the first occasion of diagnosis in Australia, either by the diagnosing laboratory (Australian Capital Territory, New South Wales, Tasmania, Victoria) or by a combination of laboratory and doctor sources (Northern Territory, Queensland, South Australia, Western Australia). Cases of AIDS are notified through the State and Territory health authorities to the National AIDS Registry. Diagnoses of both HIV infection and AIDS are notified with the person's date of birth and name code, to minimise duplicate notifications while maintaining confidentiality.

Currently, two tables on HIV infection diagnoses, AIDS diagnoses and AIDS deaths are published in alternate issues of *CDI*. The first table summarises data on new diagnoses of HIV infection and AIDS and on deaths from AIDS occurring during the stated reporting month, by sex and by State or Territory of diagnosis, and lists national totals for the month, the corresponding month of the previous year, and the current and previous year to date. The second is a tabulation of cumulative data on HIV diagnoses, AIDS diagnoses and on deaths from AIDS, by sex and by State or Territory, from the inception of HIV antibody testing in 1984 up to the end of the reporting period.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting period, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infections and AIDS is published quarterly in the *Australian HIV Surveillance Report*, available from the NCHECR.

Surveillance of Serious Adverse Events Following Vaccination

The Serious Adverse Events Following Vaccination Surveillance Scheme is a national surveillance scheme initiated through the National Childhood Immunisation Committee. The scheme aims to identify and report in a timely fashion all serious adverse events which follow childhood vaccination. This permits (i) the identification of illnesses of infrequent occurrence that may be associated with vaccination, (ii) the estimation of rates of occurrence of events temporally associated with vaccination, (iii) monitoring for unusually high rates of adverse events, (iv) the provision of information to inform the debate on the risks and benefits of vaccines and (v) the identification of areas that require further research. The definition used for a case of a serious adverse event following vaccination was published in *CDI* 1995; **19**: 273-274.

Reports on serious adverse events are collected by State and Territory health authorities and forwarded to the Department of Human Services and Health every fortnight. Information collected on each case includes the vaccine(s) temporally associated with the event, possible risk factors in the child's medical history and details about the nature, timing and outcome of the event. Methods of collecting reports vary between States and Territories. Telephone reporting is accepted to mini-

mise health care provider paperwork. States and Territories also report on follow up at 60 days.

Reports of the surveillance scheme are published in alternate issues of *CDI*. Acceptance of a report does not imply a causal relationship between the administration of the vaccine and the medical outcome, or that the report has been verified as to its accuracy.

National Influenza Surveillance

Influenza surveillance in Australia is based on several schemes collecting a range of data which can be used to measure influenza activity. From autumn to spring, the results of each of the schemes are published together as *National Influenza Surveillance* to facilitate a national view of influenza activity. Fortnightly reports include all data received in the two weeks preceding publication, so information from individual surveillance schemes does not always refer to the same time period.

In 1995, four sentinel general practitioner schemes contributed reports of influenza-like illness: the Australian Sentinel Practice Research Network, the Australian Capital Territory Sentinel General Practice Scheme, the New South Wales Sentinel General Practice Scheme and the Victorian Sentinel General Practice Scheme. The number of cases of influenza and the total consultations for each week are reported, and a graph depicts the data for the season to date.

Absenteeism surveillance encompasses reports for a selected day each week of the proportion of the 37,000 employees of Australia Post absent on sick leave, and of the proportion of students absent from selected schools in the Australian Capital Territory and in New South Wales, also on one chosen day each week. A graph of all absenteeism data reported for the year is also published.

The *CDI* Virology and Serology Reporting Scheme contributes laboratory reports of influenza diagnoses, by week of specimen collection, virus type and method of diagnosis (reported in the tables) and graphs of the data for the year to date.

The WHO Collaborating Centre for Influenza Reference and Research at the Commonwealth Serum Laboratories, Melbourne provides information on antigenic analysis of isolates received from Australia and also from New Zealand, other countries of the region and South Africa.

The Victorian Department of Health and Community Services contributes data on hospital admissions for influenza and / or pneumonia, the total deaths and death rate recorded in Victoria each fortnight. The South Australian Health Commission reports total weekly death rates.

References

1. Last JM. *A dictionary of epidemiology*. New York: Oxford University Press, 1988.
2. National Health and Medical Research Council. *Surveillance Case Definitions*. Canberra: NHMRC, 1994.