Surveillance systems reported in *CDI*, 2002

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, others 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 be interpreted with caution, particularly when comparing results between schemes, between different geographical areas or jurisdictions and over time. Surveillance data may also differ from data on communicable diseases gathered in other settings.

In Australia, communicable diseases surveillance systems exist at national, state and local levels. State and local surveillance systems are crucial to the timely and effective detection and management of outbreaks and in assisting in the effective implementation of national policies. The national surveillance system combines some of the data collected from State and Territory-based systems to provide an overview at a national level. Specific functions of the national surveillance system include: detection and management of outbreaks affecting more than one jurisdiction; monitoring of the need for and impact of national control programs; guidance of national policy development; and resource allocation and description of the epidemiology of rare diseases for which there are only a few notifications in each jurisdiction. National surveillance also assists in quarantine activities and facilitates agreed international collaborations such as reporting to the World Health Organization.

This article describes the surveillance schemes that are routinely reported on in *Communicable Diseases Intelligence (CDI)*.

The major features of the surveillance schemes for which *CDI* publishes regular reports are described below. Other surveillance schemes for which *CDI* publishes occasional reports include the National Mycobacterial Surveillance System (*Commun Dis Intell* 2001;25:254-260), the Australian Mycobacterium Reference Laboratory Network (*Commun Dis Intell* 2001;25:261-265), and the National Neisseria Network (*Commun Dis Intell* 2001;25:54-58).

National Notifiable Diseases Surveillance System

National compilations of notifiable diseases have been published intermittently in a number of publications since 1917.[2] The National Notifiable Diseases Surveillance System (NNDSS) was established in 1990 under the auspices of the Communicable Diseases Network Australia (CDNA).

The system coordinates the national surveillance of more than 50 communicable diseases or disease groups endorsed by the CDNA. Under this scheme, notifications are made to the State or Territory health authority under the provisions of the public health legislation in their jurisdiction. Computerised, de-identified unit records of notifications are supplied to the Department of Health and Ageing for collation, analysis and publication in *CDI*.

Data provided for each notification include a unique record reference number, State or Territory, 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).

From 2002 additional data are being collected on the infecting organism and subtype, the diagnosis method, full details of vaccination where appropriate, resident location as defined in the National Localities Index, dates of onset, specimen collection, notification and date when notification was received by health authorities, indigenous status defined as per the ABS format, outbreak reference number, how the case was found, whether the case was confirmed, and whether the case was imported from overseas.

The data are presented on the *Communicable Diseases - Australia* Internet site each fortnight. They are also published in *CDI* every quarter. Cases reported to State and Territory health authorities for the current reporting period are listed by State or Territory, and totals for Australia are presented for the current period, the year to date, and for the corresponding periods of the previous year. HIV infection and AIDS notifications are not included in this section of *CDI*. Surveillance for these conditions is conducted separately by the National Centre for HIV Epidemiology and Clinical Research and is reported in the HIV and AIDS surveillance reports (see below).

A commentary on the notification data is included with the tables in each issue and graphs are used to illustrate important aspects of the data.

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 (ASPREN). ASPREN is a national network of general practitioners who report presentations of defined medical conditions each week. The aim of ASPREN is to provide an indicator of the burden of disease in the primary health care setting and to detect trends in consultation rates.

There are currently about 66 general practitioners participating in the network from All States and Territories. Seventy-five per cent of these are in metropolitan areas and the remainder are rural based. Between 4,000 and 6,000 consultations are recorded each week.

The list of conditions is reviewed annually by the ASPREN management committee and an annual report is published.

In 2002, 10 conditions are being monitored, six of are related to communicable diseases issues. These include influenza, gastroenteritis, acute cough in four sub-categories: with chest and systemic signs; with chest signs; with systemic signs; without signs. The other recordable conditions are treated hypertension at target levels; treated hypertension above target levels; treated hyperlipidaemia at target levels and treated hyperlipidaemia at above target levels.

Data for communicable diseases are published in CDI every quarter. Data are presented in tabular form together with the rate of reporting per 1,000 consultations. The conditions are defined as follows:

Influenza

(a) Viral culture or serological evidence of influenza virus infection; or

(b) influenza epidemic, plus four of the criteria in (c); or

(c) six of the following:

1. sudden onset (within 12 hours);
2. cough;
3. rigour or chills;
4. fever;
5. prostration and weakness;
6. myalgia, widespread aches and pains;
7. no significant respiratory physical signs other than redness of nasal mucous membrane and throat;
8. influenza in close contacts.

Gastroenteritis

Intestinal disease presumed or proven to be infective in origin. A stool sample is not carried out and one episode only is recorded per patient.

Acute cough

Reports of acute cough defined below, are classified into 4 sub-categories according to whether chest or systemic signs are present or absent.

Includes any patient 2 years or older, who presents with acute cough of less than 14 days duration and at least one other symptom of a respiratory infection, such as symptoms of URTI, sore throat, sputum production, dyspnoa, wheeze or chest pain for which there is no other explanation.

Excludes patients that have a history of chronic respiratory illness that requires ongoing treatment, such as COPD, bronchiectasis or asthma.

Chest signs are focal or generalised signs such as crepitations, crackles, coarse breath sounds or wheezes in non-asthmatics. Excludes patients with signs of consolidation (pneumonia).

Systemic signs are:

Adult or child >12 years	**Child 2-12 years**
Temperature >38˚C	Temperature >38˚C
Respiratory rate >20	Respiratory rate >30; or
Pulse rate >100, or	Pulse rate >110
Being confined to bed	

Acute cough with chest and systemic signs

Acute cough defined as above with one or more chest signs and one or more systemic signs. Each episode is recorded.

Acute cough with chest signs

Acute cough as defined above with one or more chest signs but no systemic signs. Each episode is recorded.

Acute cough with systemic signs

Acute cough as defined above with one or more systemic signs but no chest signs. Each episode is recorded.

Acute cough without signs

Acute cough as defined above but without any chest or systemic signs.

HIV and AIDS surveillance

National surveillance for HIV and AIDS is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR) 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 and Victoria) or by a combination of laboratory and doctor sources (Northern Territory, Queensland, South Australia and 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 presenting HIV infection diagnoses, AIDS diagnoses and AIDS deaths are published in each issue of *CDI* when available.

Tabulations of diagnoses of HIV infection and AIDS are based on data available 3 months after the end of the reporting period, to allow for reporting delay and to incorporate newly available information.

Each year from 1997, the NCHECR has published *HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia annual surveillance report.* The annual surveillance report, available through www.med.unsw.edu.au/nchecr, provides a comprehensive analysis and interpretation of surveillance data on HIV/AIDS, viral hepatitis and sexually transmissible infection in Australia.

National Influenza Surveillance Scheme

Influenza surveillance in Australia is based on several schemes collecting a range of data that can be used to measure influenza activity. In 2001, four sentinel general practitioner schemes contributed reports of influenza-like illness: the Australian Sentinel Practice Research Network, Tropical Influenza Surveillance from the Northern Territory, the New South Wales Sentinel General Practice Scheme and the Victorian Sentinel General Practice Scheme. The Virology and Serology Laboratory Reporting Scheme (LabVISE) contributes laboratory reports of influenza diagnoses including virus type. From autumn to spring, the results of each of the schemes are

published together fortnightly on the Communicable Disease Australia Website as the National Influenza Surveillance Scheme.

Annual reports on influenza in Australia are published in CDI each year (Commun Dis Intell 25:107-112). These reports include the above data as well as absenteeism data from a major national employer and influenza typing data from the WHO Collaborating Centre for Influenza Reference and Research.

Sentinel Chicken Surveillance Programme

The Sentinel Chicken Surveillance Programme is used to provide an early warning of increased flavivirus activity in Australia. The main viruses of concern are Murray Valley encephalitis (MVE) and Kunjin. MVE virus causes the disease Murray Valley encephalitis (formerly known as Australian encephalitis), a potentially fatal disease in humans. Encephalitis is less frequent in cases of Kunjin virus infection and these encephalitis cases have a lower rate of severe sequelae.

These viruses are enzootic in parts of the north-east Kimberley region of Western Australia and the Top End of the Northern Territory but are epizootic in other areas of the Kimberley, Pilbara, Gascoyne and Mid-west regions of Western Australia, in north Queensland and in Central Australia. MVE virus is also responsible for occasional severe epidemics of encephalitis in eastern Australia. The most recent was in 1974 when there were 13 fatalities and cases were reported from all mainland States. Since then, 68 cases of MVE have been reported, 61 from the north of Australia and seven from central Australia. In addition, one case of encephalitis caused by MVE and/or Kunjin virus(es) was reported from the north of South Australia in 2000.

Since 1974, a number of sentinel chicken flocks have been established in Australia to provide an early warning of increased MVE virus activity. These programs are supported by individual State health departments. Each State has a contingency plan which will be implemented if one or more chickens in a flock seroconverts to MVE virus.

Currently, 29 flocks are maintained in the north of Western Australia, 9 in the Northern Territory, 10 in New South Wales and 10 in Victoria (Figures 1,2, 3 and 4). Two additional flocks will be set up in northern Queensland (at Mt Isa and Normanton) early in 2002. The flocks in Western Australia and the Northern Territory are tested all year round but those in New South Wales, Victoria and Queensland are tested only in the summer months, during the main MVE risk season. Results are coordinated by the Arbovirus Laboratory in Perth and reported bimonthly.

Figure 1. Sentinel chicken flocks in Western Australia

Figure 2. Sentinel chicken flocks in the Northern Territory

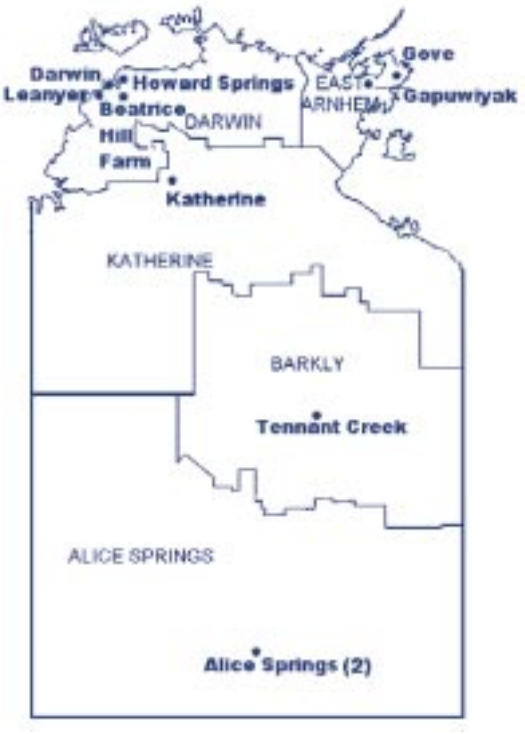

Figure 3. Sentinel chicken flocks in New South Wales

Figure 4. Sentinel chicken flocks in Victoria

Australian Gonococcal Surveillance Programme

The Australian Gonococcal Surveillance Programme (AGSP) includes 10 reference laboratories in all States and Territories and in New Zealand. These laboratories report data on sensitivity to an agreed core group of antimicrobial agents on a quarterly basis. The antibiotics which are currently routinely surveyed are the penicillins, ceftriaxone, ciprofloxacin and spectinomycin, all of which are administered as single dose regimens. When *in vitro* resistance to a recommended agent is demonstrated in 5 per cent or more of isolates, it is usual to reconsider the inclusion of that agent in current treatment schedules. Additional data are also provided on other antibiotics from time to time. At present all laboratories also intermittently test isolates for the presence of high level resistance to the tetracyclines and azithromycin. Comparability of data is achieved by means of a standardised system of testing and a program-specific quality assurance process. Expanded annual reports are published in *CDI (Commun Dis Intell* 2001;25:59).

Virology and Serology Laboratory Reporting Scheme (LabVISE)

The Virology and Serology Laboratory Reporting Scheme began operating in 1977. The scheme comprises 18 laboratories from all States and the Australian Capital Territory. Contributors submit data on the laboratory identification of viruses and other organisms. Each record includes mandatory data fields (laboratory, specimen collection date, a patient identifier code, and organism), and optional fields (patient's sex, date of birth or age, postcode of residence, specimen source, clinical diagnosis, and the method of diagnosis).

Reports are collated, analysed and published quarterly. Each report includes 2 summary tables. The delay between date of specimen collection and date of publication ranges from 2 weeks to several months. A commentary on the laboratory reports includes the observation of recent trends with accompanying graphical presentation.

Data derived from this scheme must be interpreted with caution. The number and type of reports received is subject to a number of biases. These include the number of participating laboratories, which has varied over time. The locations of participating laboratories also create bias, as some jurisdictions are better represented than others. Also changes in diagnostic practices, particularly the introduction of new testing methodologies, may affect laboratory reports. The ability of laboratory tests to distinguish acute from chronic or past infection must also be considered in interpretation of the data. Although changes in incidence cannot be determined from this data, general trends can be observed, for example with respect to seasonality and the age-sex distribution of patients.

References

1. Last JM. A dictionary of epidemiology. New York: Oxford University Press, 1988.
2. Hall R, Notifiable diseases surveillance, 1917 to 1991. Commun Dis Intell 1993;226-236.