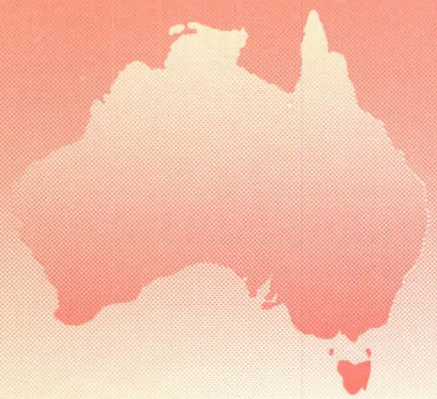

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COMMUNICABLE DISEASES NETWORK-AUSTRALIA
A National Network for Communicable Diseases Surveillance

MULTIPLY-RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) INFECTIONS IN SOUTH AUSTRALIA, 1983 to 1990

(Philip Weinstein[1], Scott Cameron, Adrian Esterman and Carolyn Walker, Epidemiology Branch, South Australian Health Commission, Adelaide, South Australia)

Introduction

Nosocomial infections with multiply-resistant *Staphylococcus aureus* (MRSA) have been regularly recorded in Australia since 1978, and increases in the numbers of cases reported in Victoria and New South Wales prompted a review of relevant infection control policies in these States during 1982[1,2]. A similar review of policies on infection control and the associated use of antibiotics was conducted in South Australia, although MRSA did not appear to be as great a problem in that State as reported for Victoria and New South Wales. These MRSA-related reviews were supplemented by an NHMRC policy statement on infection control late in 1982[3], which was further reviewed in 1984 and 1985[4].

A standard approach to control of nosocomial MRSA infection was adopted by all the major hospitals in South Australia in 1983. As part of this approach, each health care institution had an infection control person or group. To avoid profligate swabbing, screening for MRSA was restricted to categories of susceptible patients, which were defined generally as surgical patients with implants, neonates, and burns, renal dialysis and haematology/oncology patients. Strategies to protect susceptible patients from infection were outlined and the management of infected patients and staff was addressed.

To estimate the impact that MRSA was having on bed occupancy in the hospital system in South Australia, the monitoring of patients infected with MRSA was begun in May 1982. The resulting data are presented now to indicate trends in MRSA infection by hospital size, calendar year and three month quarter.

Materials and methods

Twelve hospitals have participated in the monitoring of MRSA patients in South Australia since 1982. These hospitals are located in the Adelaide metropolitan area and are referred to as hospitals 1 to 12. They included the major teaching hospitals and several large private hospitals. All agreed to provide the Communicable Disease Control Unit, South Australian Health Commission, with the following information on an ongoing basis:

1. the point prevalence of patients known to have MRSA infections per 100 occupied beds for a single predetermined day in each quarter, and
2. the number of admissions associated with a MRSA infection during one predetermined month for each quarter and the type of infection involved. The type of infection was classified into one of four groups: superficial infections (surface colonisation only) or invasive infections (tissue penetration), both of which could be either new infections (MRSA not present at time of admission) or old infections (MRSA present at time of admission). A consistent level of ascertainment is considered to have occurred for invasive infections, whereas the ascertainment of surface colonisation would have been dependent on swabbing practices, which varied with hospital policies.

The point prevalence of patients known to have MRSA infections per 100 occupied beds was used to indicate the extent of the hospital load imposed by these infections. Because the distribution of patients with MRSA infections per 100 occupied beds was highly skewed, with 62% of the quarterly reports showing no infections, the data were transformed by taking natural logarithms, and subsequently back-transformed to provide geometric means. Thus all means in this report should be interpreted as geometric means.

An analysis of variance on the transformed data was used to test for differences in MRSA prevalence by year, quarter and hospital. Infection rates for each of the four groups of infection type were also compared, and the incidence of new invasive infections analysed for differences by year and quarter.

Results

The mean number of MRSA infections per 100 occupied beds over all hospitals and time periods was 0.39 ± 0.03 (mean $\pm$ SE, n = 385). There was some variation between the means for each hospital, with hospitals 1 and 2 having conspicuously high rates (Figure 1). There appears to have been no clear seasonal or time trend present in the distribution of MRSA infections per 100 occupied beds over time for all hospitals combined (Figure 2).

Results of the analysis of variance confirm that only the differences between hospitals were statistically significant (Table 1). In an attempt to explain the differences between hospitals, the prevalence of infection for all years combined was regressed on the number of beds in each hospital. While the regression was significant ($p = 0.019$), indicating that hospital size was a determinant of MRSA prevalence, bed number was found to

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Figure 1. Mean number of MRSA infections per 100 occupied beds for 12 hospitals in Adelaide from 1983 to 1990, by year

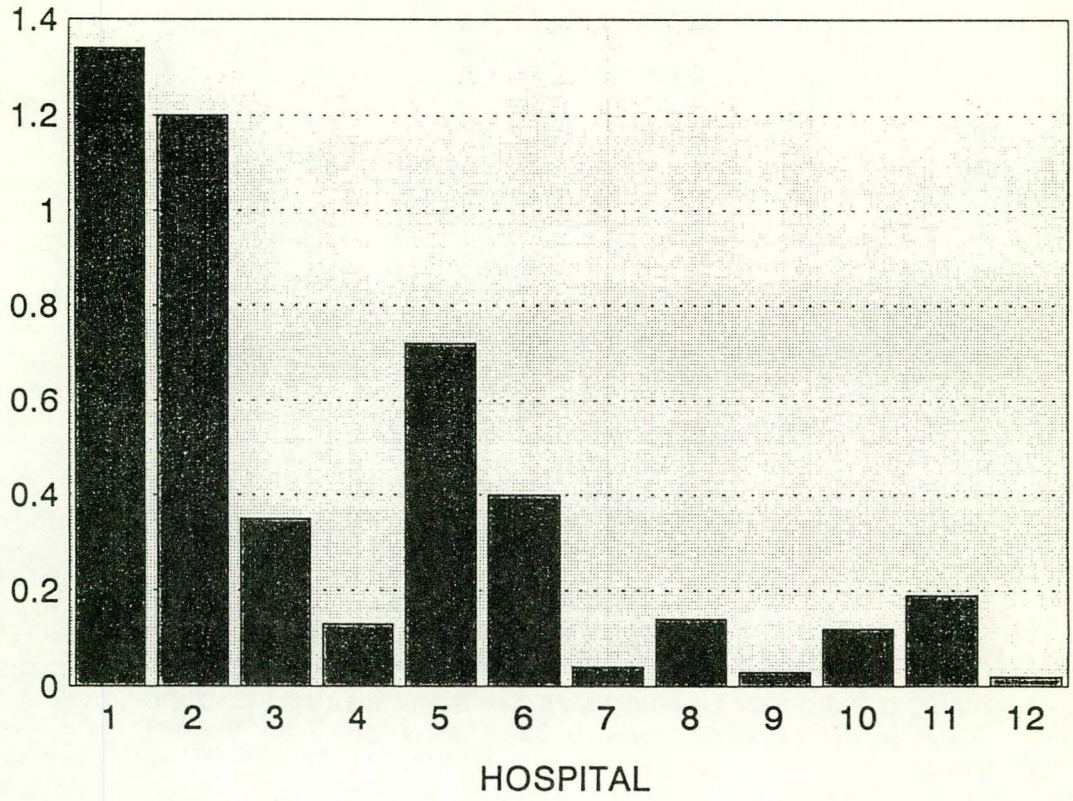


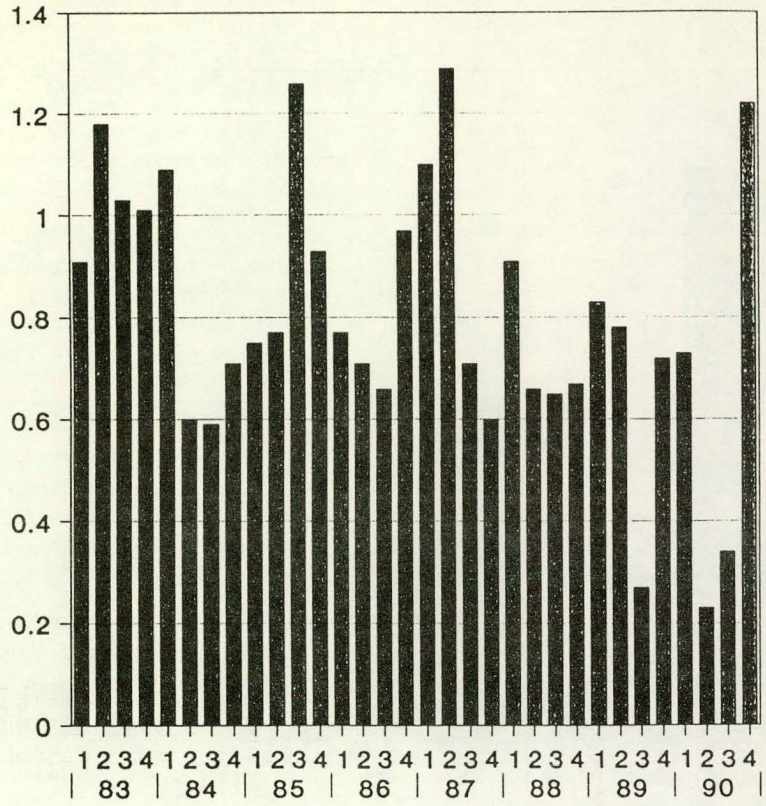
Table 1. ANOVA table for three factor analysis of variance of the influence of hospital, quarter and year on the number of MRSA infections per 100 occupied beds

Source	Sum of squares	Degrees of freedom	Mean square	F	p
Hospital	16.03	5	3.21	6.07	< 0.0001
Quarter	2.08	3	0.70	1.32	0.272
Year	5.50	7	0.79	1.49	0.177
Residual	68.63	130	0.53		
Total	92.24	145	0.635		

Table 2. The number and percentage of four different types of MRSA infection recorded between 1983 and 1990 in 12 Adelaide hospitals

Infection type	Number	%
New invasive	177	9.5%
Old invasive	97	5.2%
New colonised	883	47.4%
Old colonised	705	37.9%
Total	1862	100.0%

Figure 2. Mean number of MRSA infections per 100 occupied beds, for all hospitals combined 1983 to 1990, by quarter[1]



1. Each quarter is represented by a number of 1 to 4 (January-March = 1, April-June = 2, July-September = 3 and October-December = 4).

account for less than 4% of the variance in prevalence ($r^2 = 0.038$).

Invasive infections were much less commonly reported than colonising infections (Table 2).

Only the data for new invasive infections were analysed further, because of the variable ascertainment that was thought to have occurred for the other groups. The incidence of new invasive infections by year and by quarter for all hospitals combined (Table 3) was

Table 3. The incidence of new invasive MRSA infections by year and by quarter, for all hospitals combined, 1983 to 1990

Year	Quarter				
	January-March	April-June	July-September	October-December	Total
1983	15	9	22	16	62
1984	15	15	11	8	49
1985	2	5	4	5	16
1986	4	3	4	7	18
1987	4	2	3	1	10
1988	1	2	1	2	6
1989	2	2	2	1	7
1990	2	1	0	6	9
Total	45	39	47	46	177

found to be highly dependent on year (Chi-square for goodness-of-fit = 143.5, df = 6, p = <0.001), but not on quarter (Chi-square for goodness-of-fit = 0.3151, df = 2, p = 0.85). The data are suggestive of a decrease in incidence with time (Cox-Stuart test for trend, p = 0.0625)[5].

Discussion

Because patients with MRSA infections occupied fewer than 0.5% of hospital beds, nosocomial MRSA infection cannot be considered to have had a major impact on South Australian hospital services. The incidence of new invasive MRSA infections was low, and may have been decreasing, indicating that current infection control practices are preventing invasive MRSA from becoming more prevalent in our hospitals[6]. It may therefore be appropriate to limit stringent efforts at containing MRSA to new infections in intensive care and burns units, if and when such infections occur[7].

In this study, the prevalence of MRSA in South Australia was found to increase with hospital size (as measured by bed numbers), but no account was taken of the potential differences in the susceptibility of patients attending hospitals of different size as a function of casemix. For example, it is likely that the large teaching hospitals and repatriation hospitals would have more severely debilitated patients, or patients subject to more invasive procedures or more patients on multiple antibiotic therapy. All these patient groups are recognised to be more at risk from MRSA infection[1,6], and it is therefore likely that casemix may be confounding the effect of hospital size on prevalence of MRSA infection. A further consideration is staff morale, workload and education. Overworked staff with less than optimal facilities and infection control education are more likely to spread MRSA[8], and anecdotal evidence indicates that these factors are not insignificant in leading to the variation in the point prevalence seen in this study.

The results indicate that current infection control practices are preventing invasive MRSA from becoming more prevalent in South Australian hospitals, and that it may be appropriate to restrict more stringent efforts at containing MRSA to new infections in intensive care and burns units.

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NHMRC RECOMMENDATIONS ON MALARIA CHEMOPROPHYLAXIS

The National Health and Medical Research Council issued the following recommendations regarding chemoprophylactic regimens for malaria at the 116th Session in November 1993. These recommendations replace those previously recommended by the Department of Health, Housing, Local Government and Community Services, published in the 1991 edition of *Health Information for International Travel*[1]. They will be used to update the International Travel Health Info-Line (06 269 7815) in the near future.

Practitioners are advised to review the product information before prescribing any of the chemoprophylactic drugs.

Malaria chemoprophylaxis guidelines

There are two lines of defence against malaria:

1. personal protection against mosquitoes, and
2. chemoprophylactic protection against the malaria parasite.

The best approach to malaria prevention is based on the use of both measures. An over-reliance on either measure, particularly chemoprophylactic drugs, can be ill advised. Drug resistance by the malaria parasites continues to change and travellers may not always take the recommended drug/s as directed.

To minimise mosquito biting travellers should avoid mosquito-prone areas, stay overnight in well-screened accommodation and use a knockdown spray and/or electric insecticide vaporiser to kill mosquitoes indoors. Long, loose clothing and an insect repellent applied to exposed skin will provide protection outdoors. Repellents containing DEET (*N,N*-diethyl-*m*-toluamide) are effective against mosquitoes. Mosquito bed nets can provide good protection where premises are not mosquito-proof. Enhanced protection will be provided if the nets are treated with the insecticide permethrin.

There is no drug that is completely safe and completely effective for prophylaxis against malaria. The decision to recommend chemoprophylaxis and the choice of drug(s) must involve an analysis of the risks and benefits based on the following considerations:

1. the prevalence and type of resistance to the available drugs,
2. the level of malaria transmission,
3. the duration and place of stay,
4. the intensity of vector mosquito contact,
5. the availability of adequate health care,
6. the traveller's age,
7. the traveller's current health (including pregnancy) and medical history, and
8. the risk of the traveller is not complying with recommendations.

Travellers should be advised of the symptoms of malaria and warned that they should seek medical attention as soon as possible if they occur.

Pyrimethamine-dapsone (Maloprim) and sulfadoxine-pyrimethamine (Fansidar) combinations are not recommended for malaria chemoprophylaxis owing to adverse reactions including agranulocytosis, haemolytic anaemia and Stevens-Johnson syndrome.

For long term travellers (more than eight weeks) the combination of chloroquine chemoprophylaxis and presumptive self or standby treatment has advantages in regard to simplicity, cost and limiting long term drug exposure to one of the safest anti-malarials (chloroquine). However, it is essential that the traveller be aware of the range of symptoms associated with malaria and the need to seek medical assistance as soon as possible if malaria is suspected.

Recommended chemoprophylaxis regimens for pregnant and lactating females, children, and other patients are detailed in Table 1. Information on malaria risk by country for malarious countries and malaria free countries in the Pacific and Asia are detailed in Table 2 and the Figure. Further details of drug resistance patterns are available in the World Health Organization's *International Travel and Health*[2].

Pregnant and lactating females

Malaria poses a serious threat to pregnant women as it can compromise fetal development or result in premature labour or miscarriage. Pregnant women should be advised to avoid travel to malarious areas. If this is not possible then the traveller should be warned of the possible need for presumptive self treatment if visiting drug resistant areas. In these circumstances mosquito avoidance measures are particularly important.

The choice of drugs for this group of travellers is limited. Chloroquine has been shown to be safe. Mefloquine is not recommended for use in this group and tetracyclines (including doxycycline) are contraindicated.

Children

Malaria presents considerable risks for children, particularly the very young, and the choice of suitable drugs is limited. Again, if the travel cannot be avoided or altered to minimise the risk of malaria the need for mosquito avoidance measures must be strongly emphasised.

Table 1. Chemoprophylaxis regimens recommended for malaria, by resistance pattern area and patient type

Area	Length of stay	Chemoprophylaxis regimen
Adults without contraindications		
Areas with chloroquine sensitive malaria	Short and long[1] stay	Chloroquine (300mg/week)[2]
Areas with chloroquine resistant malaria	Short stay (less than 8 weeks)	Doxycycline (100mg/day)[3,4] OR Mefloquine (250mg/week)[3,5]
	Short stay (less than 12 weeks)	Mefloquine (250mg/week)[5]
	Long[1] stay (more than 8 weeks)	Chloroquine (300mg/week)[2,6] + doxycycline (50mg/day)[4] OR Chloroquine (300 mg/week)[2,6,7], with mefloquine carried for presumptive self treatment[8,9]
Areas with multidrug-resistant malaria (including resistance to mefloquine)	Short stay (less than 8 weeks)	Doxycycline (100mg/day)[3]
	Long[1] stay (more than 8 weeks)	Chloroquine (300mg/week)[2] + doxycycline (50mg/day)[4] OR Chloroquine[2,6,7] (300mg/week), with mefloquine carried for presumptive self treatment[8,10]
Pregnant and lactating females		
Areas with chloroquine sensitive malaria	Short and long[1] stay	Chloroquine (300mg/week)[2]
Areas with drug resistant malaria (including resistance to chloroquine and mefloquine)	Short and long[1] stay	Chloroquine (300mg/week)[2,6], with quinine carried for presumptive self treatment[8]
Children		
Areas with chloroquine sensitive malaria	Short and long[1] stay	Chloroquine (5mg/kg/week up to the maximum adult dose)[2]
Areas with drug resistant malaria (including resistance to chloroquine and mefloquine)	Short and long[1] stay	Chloroquine (5mg/kg/week up to the maximum adult dose)[2,6] with quinine carried for presumptive self treatment[8]

1. Long stay travellers to malarious areas should seek authoritative medical advice on malaria chemoprophylaxis on arrival.
2. Chloroquine chemoprophylaxis should be commenced one week prior to entering a malarious area and continued for 4 weeks after leaving a malarious area.
3. Both drugs are considered to offer similar benefits. Selection of which drug to use should be based on clinical assessment of the patient including consideration of tolerance and compliance.
4. Doxycycline at 100mg/day is approved for a period of up to 8 weeks only. Doxycycline chemoprophylaxis should be commenced 2 days prior to entering a malarious area and continued for 2 weeks after leaving a malarious area. Doxycycline should always be taken with a meal. It should not be taken on an empty stomach or just before retiring
5. Mefloquine is approved for malaria chemoprophylaxis for up to 3 months in persons >45kg bodyweight. Mefloquine chemoprophylaxis should be commenced one week prior to entering a malarious area and continued for 2 weeks after leaving a malarious area.
6. Chloroquine should be taken to protect against *Plasmodium vivax, P. malariae* and *P. ovale* and any chloroquine sensitive strains of *P. falciparum.*
7. Rare instances of *P. vivax* partially resistant to chloroquine (reported from some countries in the western Pacific region) are not considered sufficiently important to warrant revision of the recommendations.
8. Presumptive self treatment is a treatment dose of a drug with instructions on how to use it in the event of occurrence of symptoms suggesting a malaria attack. Both of the presumptive self treatments may be associated with side effects. Children, pregnant and lactating women and other travellers using a regimen which includes presumptive self-treatment should place a particularly strong emphasis on personal protection from mosquito bites. Because of these possible side effects presumptive self treatment should only be used in the event of a significant illness indicative of malaria and preferably with medical supervision. It is essential that the traveller be aware of the range of symptoms associated with malaria infection. Where medical assistance is not readily available it should be sought as soon as possible after the treatment is begun as in some instances a recrudescence of malaria may occur.

Table 1. Chemoprophylaxis regimens recommended for malaria, by resistance pattern area and patient type, continued

Mefloquine presumptive self treatment

The recommended dose for presumptive self-treatment with mefloquine (for persons of >45kg bodyweight) is 15mg/kg. For a person of about 70kg the dose is 1000mg (4 tablets). This regimen is a balance between the need to minimise side effects (the self-treatment dose is less than the recommended supervised dose in order to reduce this risk) and the need to provide sufficient therapeutic response to enable the traveller to seek medical assistance. The recommended supervised dose for persons under medical supervision is 1250mg total (see *Antibiotic Guidelines*[3]). Mefloquine is not approved for persons (including children) weighing less than 45kg and is contraindicated in pregnancy.

For information on the possible adverse effects of mefloquine presumptive self-treatment consult the approved product information.

Quinine presumptive self treatment

Quinine is recommended for presumptive self treatment for pregnant and lactating women and children. It is more difficult to administer than mefloquine.

Full details of the quinine treatment regimens are given in *Antibiotic Guidelines*[3].

For information of the possible adverse effects associated with quinine treatment consult the approved product information.

9. For areas where *P. vivax* predominates, such as India and south Asia, consideration may be given to the less expensive options of:
   1. chloroquine (300mg/week) + sulfadoxine-pyrimethamine (Fansidar) for presumptive self treatment (where no Fansidar resistance occurs)

      OR

   2. chloroquine (300mg/week) + quinine or mefloquine for presumptive self treatment (where Fansidar resistance occurs).

   Information on Fansidar resistance should be sought from professional travel health services or possibly, on arrival, from authoritative local health workers in the malarious country. Fansidar should not be used for malaria chemoprophylaxis.

   Presumptive self-treatment with Fansidar for adults consists of a single dose of 3 tablets (1500mg/75mg sulfadoxine/pyrimethamine in total). For details of the paediatric dose see *Antibiotic Guidelines*[3].

   Presumptive self-treatment with Fansidar may be associated with side effects. For information on these possible adverse effects consult the approved product information.

10. Complete resistance (type R3) to mefloquine is rare. Mefloquine is therefore recommended for presumptive self treatment as the alternate drug (quinine) is more likely to be associated with adverse side effects and is more difficult to administer.

As with pregnant and lactating women the choice of drugs for children is limited. Chloroquine has been shown to be safe. The safety of mefloquine in persons less than 45kg (including children) has not yet been established. Doxycycline is contraindicated in children younger than eight years.

Figure. Geographical distribution of malaria, by drug resistance patterns

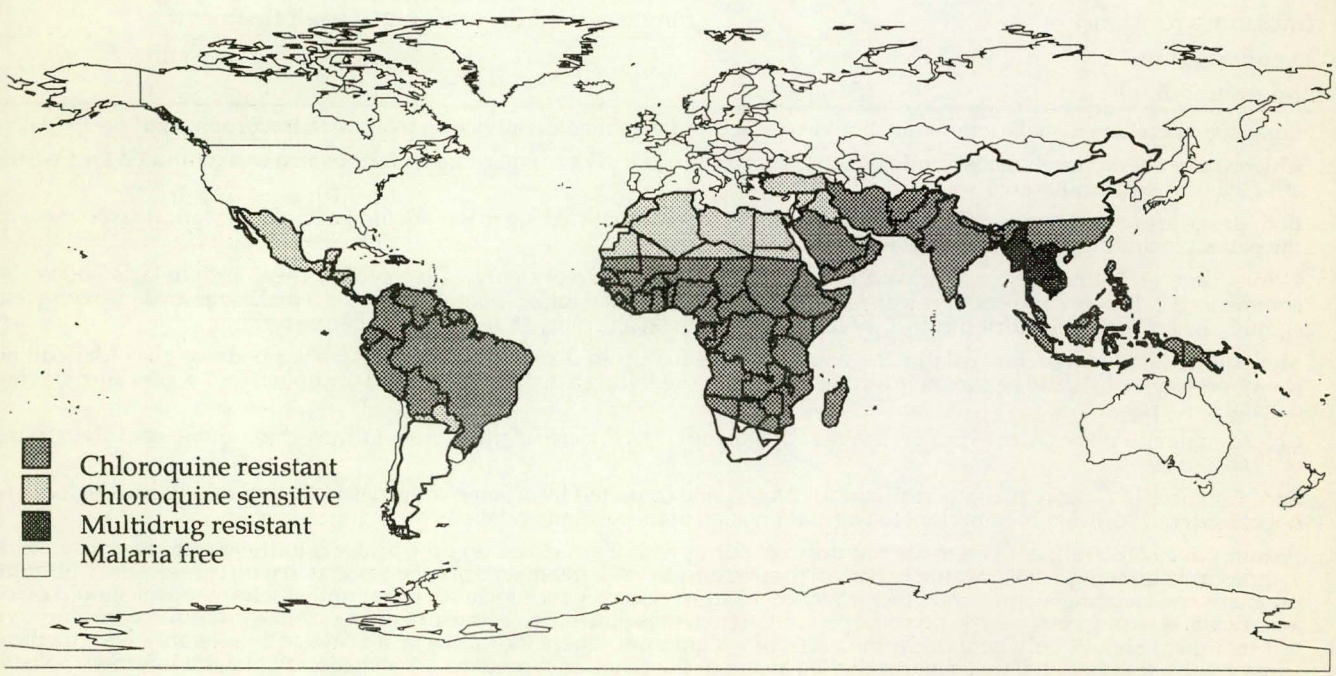

Table 2. Country by country guide to malaria risk[1]

Country	Area and/or season	Malaria status
Pacific		
American Samoa		Malaria free
Australia		Malaria free
Federated States of Micronesia		Malaria free
Fiji		Malaria free
French Polynesia		Malaria free
Guam		Malaria free
Johnston Island		Malaria free
Kiribati		Malaria free
Marshall Islands		Malaria free
Midway Island		Malaria free
Nauru		Malaria free
New Caledonia		Malaria free
New Zealand		Malaria free
Niue		Malaria free
Norfolk Island		Malaria free
North Korea		Malaria free
Papua New Guinea		Chloroquine resistant
Pitcairn		Malaria free
Solomon Islands		Chloroquine resistant
South Korea		Malaria free
Tahiti		Malaria free
Tokelau		Malaria free
Tonga		Malaria free
Tuvalu		Malaria free
Vanuatu		Chloroquine resistant
Wake Island		Malaria free
Wallis and Futuna Islands		Malaria free
Western Samoa		Malaria free
Asia		
Afghanistan	May to November	Malaria free
Bangladesh	Dhaka city	Malaria free
	Other areas	Chloroquine resistant
Bhutan	Southern areas	Chloroquine resistant
Brunei-Darussalam		Malaria free
Cambodia	Phnom Penh	Malaria free
	Forests and rural areas	Multidrug resistant (including mefloquine resistance)
China	Areas below 1500m: Between 33°N and 35°N, July to November Between 25°N and 33°N, May to December South of 25°N, all year	Chloroquine resistant
Christmas Is (Indian Ocean)		Malaria free
Cocos Island		Malaria free
Democratic Yemen		Chloroquine resistant
Hong Kong		Malaria free
India		Chloroquine resistant

Table 2. Country by county guide to malaria risk[1], continued

Country	Area and/or season	Malaria status
Indonesia	Jakarta municipalitiy, big cities and the main tourist resorts of Java and Bali	Malaria free
	Irian Jaya, Borneo and the main islands, including Timor, Flores and Lombok	Chloroquine resistant
Iran	March to November	Chloroquine resistant
Iraq	May to November, below 1500m, in Erbil and Ninawa provinces along the border with Iran	Chloroquine sensitive
Japan		Malaria free
Laos	City of Vientiane	Malaria free
	Forest and rural areas	Multidrug resistant (including mefloquine resistance)
Malaysia	Urban and coastal areas of both the peninsula and Sarawak	Malaria free
	All of Sabah, central rural areas of both the peninsula and Sarawak	Chloroquine resistant
Maldive Islands		Malaria free
	Forests and rural areas	Multidrug resistant (including mefloquine resistance)
Nepal	Kathmandu and northern high altitude areas	Malaria free
	Other areas	Chloroquine resistant
Oman		Chloroquine resistant
Philippines	Urban areas and the Provinces of Cebu, Catanduanes, Bohol and Leyte	Malaria free
	Other areas	Chloroquine resistant
Pakistan	Below 2000m	Chloroquine resistant
Saudi Arabia	Urban areas of Jeddah, Mecca, Medina and Taif and eastern, northern and central provinces	Malaria free
	Other areas	Chloroquine resistant
Seychelles Islands		Malaria free
Singapore		Malaria free
Sri Lanka	Colombo, Kalutara and Nuwara Eliya districts	Malaria free
	Other areas	Chloroquine resistant
Syrian Arab Republic	Urban areas	Malaria free
	Other areas	Chloroquine sensitive
Thailand	Cities and main resort areas (for example Bangkok, Chiangmai, Pattaya and Phuket)	Malaria free
	Forests and rural areas	Multidrug resistant (including mefloquine resistance)
Turkey	March to November in south-east Anatolia and the Cukurova/Amikova areas	Chloroquine sensitive
United Arab Emirates	Northern border areas only	Chloroquine sensitive
Vietnam	Urban areas	Malaria free
	Forests and rural areas	Multidrug resistant (including mefloquine resistance)

Table 2. Country by country guide to malaria risk[1], continued

Country	Area and/or season	Malaria status
Yemen	Aden and airport perimeter	Malaria free
	September to February, other areas	Chloroquine resistant
Africa		
Algeria	March to October in south-east areas of the Sahara only	Chloroquine sensitive
Angola		Chloroquine resistant
Benin		Chloroquine resistant
Botswana	November to June in northern areas	Chloroquine resistant
Burkina Faso		Chloroquine resistant
Burundi		Chloroquine resistant
Cameroon		Chloroquine resistant
Central African Republic		Chloroquine resistant
Chad		Chloroquine resistant
Comoros		Chloroquine resistant
Congo		Chloroquine resistant
Cote d'Ivoire		Chloroquine resistant
Djibouti		Chloroquine resistant
Egypt	June to October in the oases and rural areas of the Nile valley only	Chloroquine sensitive
Equatorial Guinea		Chloroquine resistant
Ethiopia	Addis Ababa and the highlands (>2000m)	Malaria free
	Other areas	Chloroquine resistant
Gabon		Chloroquine resistant
Gambia		Chloroquine resistant
Ghana		Chloroquine resistant
Guinea		Chloroquine resistant
Guinea-Bissau		Chloroquine resistant
Kenya	Nairobi centre and highland areas (>2500m)	Malaria free
	Other areas	Chloroquine resistant
Liberia		Chloroquine resistant
Libyan Arab Jamahiriya	February to August in south-west (Fezzan) region only	Chloroquine sensitive
Madagascar		Chloroquine resistant
Malawi		Chloroquine resistant
Mali		Chloroquine resistant
Mauritania	Some northern areas	Malaria free
	Other areas	Chloroquine resistant
Mauritius	Rural areas in the north only	Chloroquine sensitive
Morocco	May to October in some central and northern rural areas only	Chloroquine sensitive
Mozambique		Chloroquine resistant
Namibia	November to June in northern rural areas	Chloroquine resistant
Niger		Chloroquine resistant
Nigeria		Chloroquine resistant
Rwanda		Chloroquine resistant
Sao Tome and Principe		Chloroquine resistant
Senegal		Chloroquine resistant

Table 2. Country by country guide to malaria risk[1], continued

Country	Area and/or season	Malaria status
Sierra Leone		Chloroquine resistant
Somalia		Chloroquine resistant
South Africa	North and eastern Transvaal, including Kruger National Park, and coastal Natal north of the Tugela River	Chloroquine resistant
Sudan		Chloroquine resistant
Swaziland	North and eastern plains	Chloroquine resistant
Tanzania (United Republic of)	Highland areas (>1800m)	Malaria free
	Other areas	Chloroquine resistant
Togo		Chloroquine resistant
Uganda		Chloroquine resistant
Zaire		Chloroquine resistant
Zambia	All year in the Zambezi valley, November to June in the rest of the country	Chloroquine resistant
Zimbabwe	All year in the Zambezi valley, November to June in the rest of the country below 1200m	Chloroquine resistant
Central and South America		
Argentina	Northern border areas	Chloroquine sensitive
Belize	Belize district and urban areas	Malaria free
	Other areas	Chloroquine sensitive
Bolivia	La Paz highlands and the south-west Provinces of Oruro and Potosi	Malaria free
	Other areas	Chloroquine resistant
Brazil	Northern half and the Amazon Basin	Chloroquine resistant
Costa Rica	Some rural areas	Chloroquine sensitive
Colombia		Chloroquine resistant
Dominican Republic		Chloroquine sensitive
El Salvador		Chloroquine sensitive
Ecuador	Highland areas (>1500m) and Galapagos Islands	Malaria free
	East of the Andes	Chloroquine resistant
French Guiana		Chloroquine resistant
Guatemala		Chloroquine sensitive
Guyana		Chloroquine resistant
Haiti		Chloroquine sensitive
Honduras		Chloroquine sensitive
Mexico	Some rural areas	Chloroquine sensitive
Nicaragua	June to December	Chloroquine sensitive
Panama		Chloroquine resistant
Paraguay	October to May in rural areas	Chloroquine sensitive
Peru	East of the Andes	Chloroquine resistant
Suriname	Coastal areas north of 5°N	Malaria free
	Other areas	Chloroquine resistant
Venezuela	Cities and sea resorts in the north	Malaria free
	Other areas	Chloroquine resistant

1. 'Malaria free' means malaria free or areas where the risk of malaria is minimal and chemoprophylaxis is not recommended.

References

1. Commonwealth Department of Health, Housing and Community Services. *Health information for international travel*, 3rd edition. Canberra: Australian Government Publishing Service, 1991.
2. World Health Organization. *International travel and health: vaccination requirements and health advice: situation as on 1 January 1993*. Geneva: World Health Organization, 1993.
3. Antibiotic Guidelines Sub-Committee, Victorian Drug Usage Advisory Committee. *Antibiotic guidelines*. 7th edition. Melbourne: Victorian Medical Postgraduate Foundation Inc, 1992.

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CDI NOTICE TO READERS

Publication of *CDI*

This is the last issue of *CDI* for 1993. As is our custom, there will be no issue published between Christmas and New Year. The first issue for 1994 will be published on 10 January.

OVERSEAS BRIEFS

In the last two weeks, the following information has been supplied by the World Health Organization.

Cholera Update

Sistan and Buluchistan Province and West Azarbaijan Province in Iran have been declared cholera infected. Tulcea District in Romania and Sussandundenga District in Manica Province, Mozambique have been removed from the list of cholera infected areas.

Cases of cholera have been reported for September, October and November from Afghanistan, Belize, Bolivia, Brazil, Cambodia, Cote d'Ivoire, Djibouti, Ecuador, El Salvador, Ghana, Guatemala, Hong Kong, Malaysia, Mexico, Mozambique, Nicaragua, Pakistan, Peru, Romania and Tajikistan.

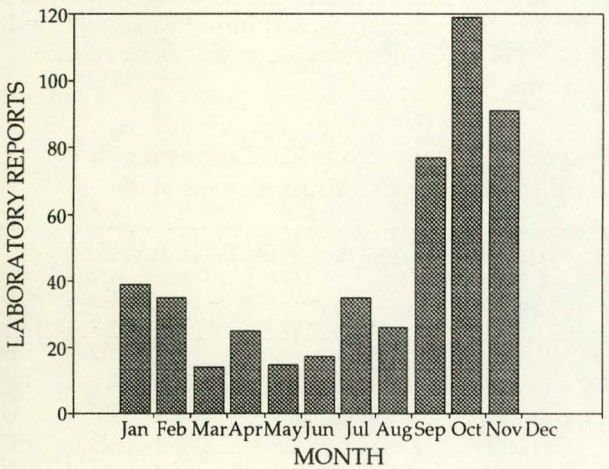
COMMUNICABLE DISEASES SURVEILLANCE

Virology and Serology Reporting Scheme

There were 1345 reports received in the *CDI* Virology and Serology Reporting Scheme this fortnight (Tables 7, 8 and 9).

- There were 97 reports of **measles** (89 from Queensland), bringing the total for the year to 544 (Figure 1), more than ever previously recorded by the Scheme. Measles reports from New South Wales, Queensland and Victoria have increased over the last few months.

Figure 1. Measles laboratory reports, 1993, by month of specimen collection



- **Rubella** was reported for 63 patients this fortnight, including 14 females in the 15 to 44 year age group. The total for 1993 is now 730, similar to the total for 1992.
- **Ross River virus** was reported for 17 patients this fortnight (16 males, one female), 14 from Queensland, and one each from New South Wales, Victoria and South Australia. All but one (from Queensland) were presumptive diagnoses.
- A single case of **dengue (untyped)** in a 25 year old male following overseas travel was reported from Western Australia.
- There were 40 reports of **cytomegalovirus** (CMV) this fortnight. Included was an isolation from a fetus following primary maternal CMV infection. Another report was of CMV nucleic acid detection in an aqueous humour sample from a 52 year old male with retinal necrosis. This is the first CMV diagnosis by nucleic acid detection reported to the Scheme.
- There were 7 reports of **echovirus type 11** this fortnight, 5 of which were from patients with meningitis. There have been 108 reports so far this year, higher than any year since 1987.
- There has been a slight spring peak in the number of reported **rhinoviruses**. This fortnight the reports included isolations from a set of two month old twins.
- There were 36 reports of **influenza** this fortnight, 23 of **untyped influenza A** (1 isolation, 2 antigen detections, 3 fourfold changes,13 single high titres and 4 IgM detections), 1 of **influenza A H_3N_2** (described as A/Shanghai/24/90-like) and 12 reports of **influenza B** (3 isolations, 1 fourfold change, 2 IgM and 6 single high titres).

  One case (single high titre) of influenza B was reported in a 31 year old female with encephalitis.
- **Parainfluenza virus type 3** was reported for 13 patients this fortnight. Included was a post mortem specimen from a male child who had died of SIDS.
- ***Mycoplasma pneumoniae*** was reported for 35 patients this fortnight. A total of 1569 has now been received for the year, similar to the total for 1992 (1579 reports).
- There were 49 ***Bordetella*** reports this reporting period (29 ***Bordetella pertussis*** and 20 ***Bordetella*** species), including a three week old female. Reports of these organisms remain at elevated levels, 470 cases being reported for 1993.

Australian Sentinel Practice Research Network

Data for three weeks are presented in this issue of *CDI* (Table 1). There were a total of 5963 patient encounters in Week 47 and 6270 and 4844 in Weeks 48 and 49 respectively. A higher rate of measles was reported than during any other previous period from this Network. This coincides with the recent increases in measles notifications and laboratory reports.

HIV and AIDS Surveillance

Methodological note

National surveillance for HIV disease is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR), 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, by either the diagnosing laboratory (ACT, 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

Table 1. Australian Sentinel Practice Research Network, Weeks 47, 48 and 49 1993

Condition	Week 47, to 21 November 1993		Week 48, to 28 November 1993		Week 49, to 5 December 1993	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	23	3.9	19	3.0	8	1.7
Measles	3	0.5	6	1.0	4	0.8
Rubella	4	0.7	2	0.3	4	0.8
Pertussis	1	0.2	2	0.3	2	0.4
Genital herpes	3	0.5	3	0.5	2	0.4
Gastroenteritis	93	15.6	78	12.4	61	12.6

are notified with the person's date of birth and name code, to minimise duplicate notifications while maintaining confidentiality.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting interval indicated, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infection and AIDS is published in the quarterly *Australian HIV Surveillance Report*, available from the National Centre in HIV Epidemiology and Clinical Research, 376 Victoria Street, Darlinghurst NSW 2010. Telephone: (02) 332 4648 Facsimile: (02) 332 1837.

HIV and AIDS diagnoses and AIDS deaths reported for July 1993 and cumulative to 31 July 1993, as reported to 31 October 1993, are included in this issue of *CDI* (Tables 2 and 3).

Table 2. New diagnoses of HIV infection, new diagnoses of AIDS and deaths from AIDS occurring in the period 1 July to 31 July 1993, by sex and State or Territory in which the diagnosis was made

										TOTALS FOR AUSTRALIA			
		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1993	This period 1992	Year to date 1993	Year to date 1992
HIV diagnoses	Female	0	5	0	1	0	0	0	0	6	11	52	59
	Male	0	64	2	11	8	2	19	1	107	115	627	742
	Sex not reported	0	1	0	3	0	0	0	0	4	1	10	14
	Total[1]	0	70	2	15	8	2	19	1	117	127	692	817
AIDS diagnoses	Female	0	1	0	0	0	0	1	0	2	0	13	7
	Male	1	9	0	1	2	0	2	0	15	23	234	208
	Total[1]	1	10	0	1	2	0	3	0	17	23	248	215
AIDS deaths	Female	0	0	0	0	1	0	0	0	1	0	9	9
	Male	0	17	0	0	3	2	6	1	29	30	253	289
	Total[1]	0	17	0	0	4	2	6	1	30	30	263	300

1. Persons whose sex was reported as transsexual are included in the totals.

Table 3. Cumulative diagnoses of HIV infection, AIDS and deaths from AIDS since the introduction of HIV antibody testing to 31 July 1993, by sex and State or Territory

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	AUSTRALIA
HIV diagnoses	Female	10	490	6	72	37	3	129	42	789
	Male	138	9192	69	1221	518	67	2866	620	14691
	Sex not reported	0	2029	0	3	0	0	65	0	2097
	Total[1]	148	11719	75	1299	555	70	3067	663	17596
AIDS diagnoses	Female	2	88	0	17	11	2	21	9	150
	Male	52	2421	17	368	165	24	897	183	4127
	Total[1]	54	2514	17	387	176	26	921	192	4287
AIDS deaths	Female	2	49	0	11	5	1	10	3	81
	Male	36	1551	9	253	104	17	635	122	2727
	Total[1]	38	1603	9	265	109	18	647	125	2814

1. Persons whose sex was reported as transsexual are included in the totals.

Sterile Sites Surveillance (LabDOSS)

Data for this fortnight have been provided by 3 laboratories. A total of 27 reports has been included: Sir Charles Gairdner Hospital, Western Australia 13, Sullivan Nicolaides Partners, Queensland 9, Woden Valley Hospital, ACT 5.

Other blood isolates not included in Table 3 were:

Gram positive: 3 *Staphylococcus aureus*,1 *Staphylococcus haemolyticus*, 2 *Staphylococcus epidermidis*, 2 coagulase negative Staphylococci, 2 *Streptococcus* group G, 1 *Streptococcus* 'milleri', 1 *Streptococcus pneumoniae* 1, *Streptococcus mitis* (endocarditis), 1 *Streptococcus mutans* (endocarditis), 1 *Streptococcus* species (endocarditis), 1 *Enterococcus faecalis* (endocarditis), 1 *Listeria monocytogenes* (neutropaenic 75 year old female).

Gram negative: 3 *Pseudomonoas aeruginosa.*

Anaerobes: *Bacteroides fragilis.*

CSF isolates and meningitis reports

1 *Haemophilus influenzae* type b (2 year old male), 1 *Neisseria meningitidis* group B (32 year old male).

Isolates from sites other than blood or CSF

Joint fluid: 1 *Staphylococcus aureus.*

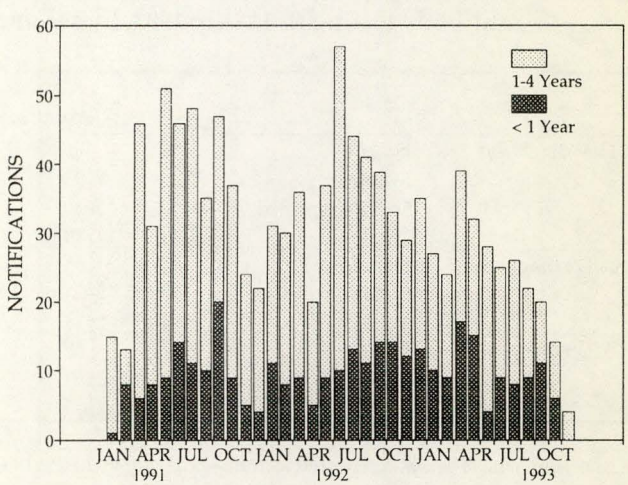
Other : 1 *Serratia marcescens*, 1 group F *Streptococcus*, 1 *Enterococcus* species.

National Notifiable Diseases Surveillance System, 14 to 27 November 1993

There were 3,059 reports received this period (Tables 4, 5 and 6, and Figure 5).

- There were 65 notifications of **Ross River virus infection** period. These were for 29 males and 36 females. Recorded ages ranged from the 10-14 to the 85-89 years age groups. Onset dates were recorded as August (one), September (one), October (29) and November (34).
- A total of 7 cases of **dengue** were notified, for 3 males and 4 females. Ages ranged from the 10-14 to the 70-74 years age groups. All cases were in residents of Townsville and onset dates recorded were in May (one), June (6) and July (one).
- A single case of **brucellosis** was reported, for a male in the 15-19 years age group who was a resident of rural Queensland.
- Ninety-four notifications of **gonococcal infection** were received this period. Sexes recorded were 60 males and 34 females. They were aged between the 0-4 years and the 85-89 years age groups.
- Six notifications of ***Haemophilus influenzae* type b infection** were reported, to bring the total for the year to 375, compared with 457 in the equivalent period last year (Figure 2). Half were males and half females. There were no cases aged less than one year and 3 were less than 5 years (2 aged one year, one aged 4 years). The other cases were in the 5-9 years (one case), 35-39 years (one case) and 70-74 years (one case) age groups. There were no apparent clusters of cases.
- One case of **listeriosis** was reported, for a male in the 75-79 years age group.
- **Hepatitis A** was notified for 76 cases this period. There were 41 males and 35 females. Recorded ages ranged from the 0-4 to the 65-69 years age groups. Peak ages were in the 5-9, 10-14 years (12 cases each) and the 20-24 years (11 cases) age groups.
- **Hepatitis B** was notified for 86 cases. New South Wales, South Australia and Victoria report only incident cases (representing new infections) to the National Notifiable Diseases Surveillance System. A total of 4 incident cases was reported from these States. Of these cases, reports were for 3 males (in the 15-19, 25-29 and 55-59 years age groups) and one female (in the 35-39 years age group).
- There were 4 notifications of **hydatid infection**. Two were for males (in the 15-19 and 40-44 years age groups) and 2 for females (in the 20-24 and 60-64 years age groups). They were for residents of rural Queensland, Victoria or Western Australia, and the other was a resident of the Brisbane statistical division.
- There were 3 notifications of **legionellosis** received this period. They were for one male (in the 70-74 years age group) and 2 females (in the 60-64 and 75-79 years age groups). There were no apparent clusters of cases.
- A single case of **leprosy** was notified, for a female resident of the Sydney statistical division in the 55-59 years age group.

Figure 2. *Haemophilus influenzae* type b infection notifications, January 1992 to November 1993, by month of onset and age group



- Eleven cases of **leptospirosis** were reported this period. All except one were for males. The cases with recorded ages were in the 15-19 to the 65-69 years age groups. They were for residents of rural Queensland, Tasmania and Victoria.
- There were 63 cases of **malaria** notified Forty-three were for males, 18 were for females and sex was not recorded in 2 cases. Recorded ages ranged between the 0-4 and the 70-74 years age groups. One case was for a resident of the 'malaria receptive zone'. Onset dates were recorded as January (7), February (8), March (6), April (3), May (5), June (13), July (6), August (2), September (3), October (3), and November (7).
- The **measles** epidemic is continuing, with 440 cases notified this period, compared with 171 in the same period last year. The total reported for the year is now 3,635, compared with 1,195 for the equivalent period last year (Figure 3 and Figure 5). For the cases reported this period, 215 were males, 224 were females and sex was not recorded in one case. Twenty-eight of the cases were aged less than one year, and the mean age was 13.1 years. There were 40 apparent clusters with recorded onset in this period) with up to 9 cases each in separate postcode areas. Apparent clusters were in New South Wales and the Australian Capital Territory (27) and Queensland (13).
- Sixteen notifications of **meningococcal infection** were received this period. Nine were for males and 7 for females. Eight cases had recorded ages in the 0-4 years age group and the oldest case was in the 60-64 years age group. There was one apparent cluster of 2 cases in the same postcode area with recorded onset dates separated by an interval of 3 days.
- The **pertussis** epidemic is continuing with 448 cases notified this period, compared with 171 in the same period last year. The total reported for the year is now 3,085, compared with 590 for the equivalent period last year (Figure 4 and Figure 5). Eighteen of the cases reported this period were aged less than one year, 60 were aged less than 5 years and ages ranged up to the 90-94 years age group. There were 56 apparent clusters (with recorded onset in this and the previous period) with 2 to 9 cases each in separate postcode areas. Apparent clusters were in New South Wales and the Australian Capital Territory (11), Queensland (10), South Australia (28), Victoria (2) and Western Australia (5).
- There were 34 notifications of **Q fever**, 28 were for males and 6 for females. Ages ranged from the 5-9 to the 80-84 years age groups.
- The **rubella** epidemic is continuing with 222 cases notified this period, compared with 476 in the same period last year, an epidemic year. The total reported for the year is now 3,008, compared with 2,952 cases for the equivalent period last year (Figure 5). For the cases reported this period, there were 159 males and 63 females. The mean age of cases was 41.9 years and there were 23 reports for females in the 15-44 years age group. There were 22 apparent clusters (with recorded onset in this period) with 2 to 5 cases each in separate postcode areas. Apparent clusters were in New South Wales and the Australian Capital Territory (2) and Western Australia (20).
- There were 88 notifications of **syphilis** received this period. Of these, 42 were for males, 33 for females and sex was not recorded in 13 cases.
- A single case of **tetanus** was notified this period, for a female in the 60-64 years age group, resident in rural Victoria.
- There were 35 notifications of **tuberculosis**, for 18 males and 17 females. Ages ranged from the 0-4 to the 80-84 years age groups. Recorded onset dates were July (one), August (5), September (5), October (5) and November (19).

Figure 3. Measles notifications, January 1992 to November 1993, by month of onset

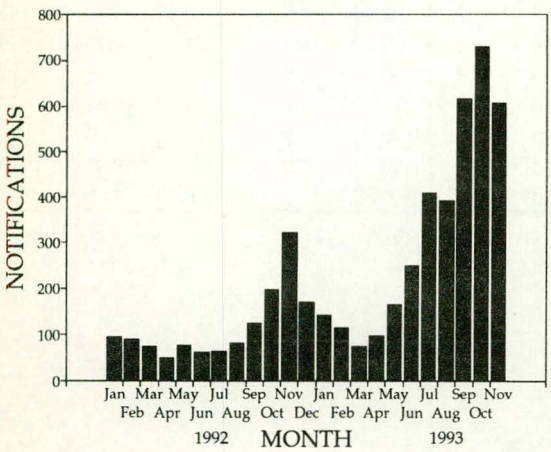


Figure 4. Pertussis notifications, January 1985 to November 1993, by reporting period

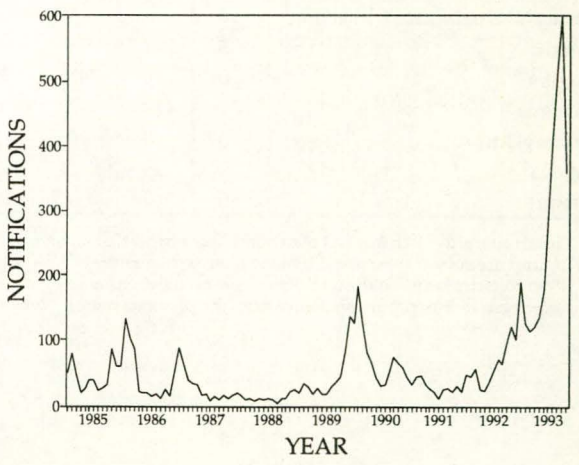
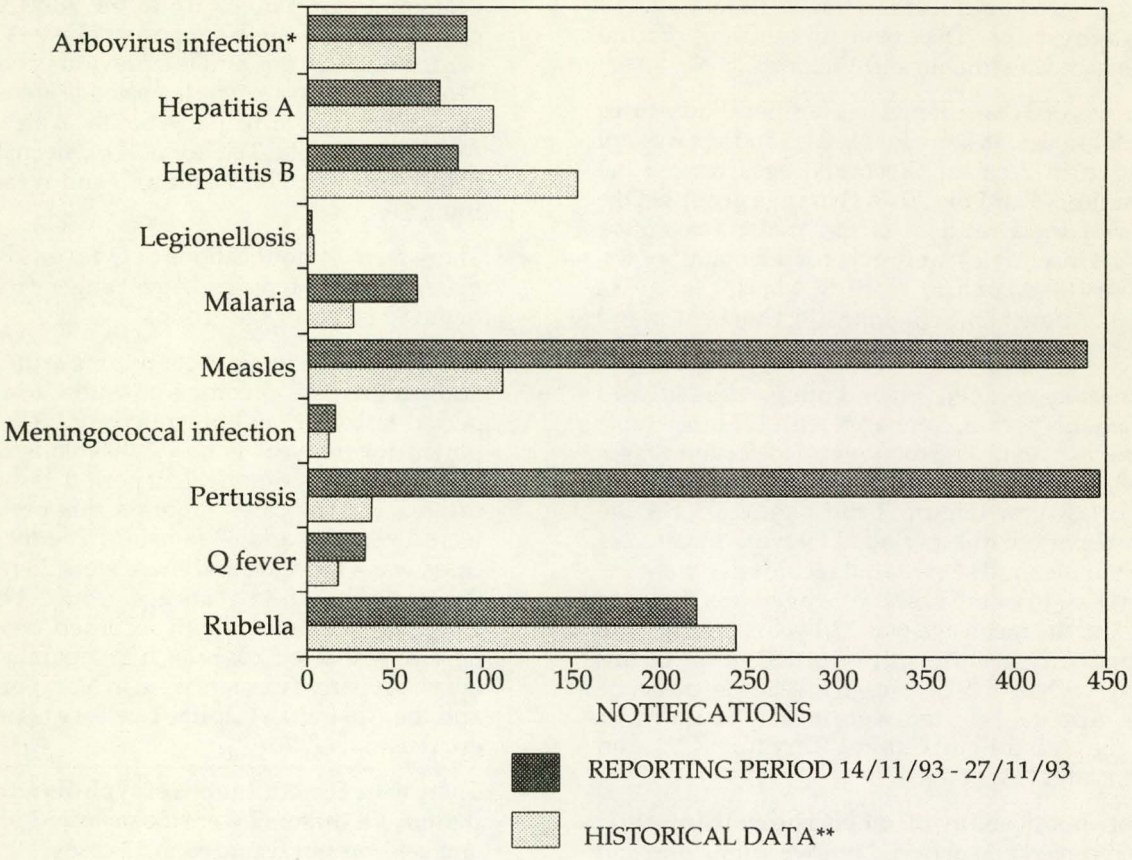


Figure 5. Selected National Notifiable Diseases Surveillance System reports, and historical data **



* Includes Ross River virus and Dengue

** The historical data are the averages of the number of notifications in 6 previous 2-week reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.

Table 4. Notifiable Diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation for the reporting period 14 to 27 November 1993

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[1] This Period 1993	This Period 1992	Year to Date 1993	Year to Date 1992
Diphtheria	0	0	0	0	0	0	0	0	0	1	38	14
Haemophilus influenzae b infection[2]	0	1	1	0	1	0	3	0	6	16	375	457
Measles	5	247	1	165	1	6	12	3	440	171	3635	1195
Mumps	0	0	NN	NN	0	NN	0	0	0	0	18	22
Pertussis	1	127	0	70	174	0	51	25	448	66	3085	590
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0
Rubella[3]	9	25	2	63	14	0	20	89	222	476	3008	2952
Tetanus	0	0	0	NN	0	0	1	0	1	0	8	14

1. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision, so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.

2. NT, Tas: CRS only.

NN Not Notifiable.

Table 5. Other Notifiable Diseases[1], for the reporting period 14 to 27 November 1993

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[2] This Period 1993	This Period 1992	Year to Date 1993	Year to Date 1992
Arbovirus infection (NEC)[3]	0	0	NN	17	0	0	1	0	18	10	541	273
Ross River virus infection	0	1	3	57	2	NN	2	NN	65	70	5241	5452
Dengue	0	-	0	7	-	NN	0	NN	7	7	691	355
Campylobacteriosis[4]	13	-	5	117	60	32	132	27	386	468	7249	8075
Chlamydial infection (NEC)[5]	2	NN	47	68	0	5	56	29	207	220	5853	5798
Donovanosis	0	NN	1	0	NN	NN	0	0	1	5	58	70
Gonococcal infection[6]	0	12	29	27	0	0	2	24	94	121	2501	2673
Hepatitis A	0	16	3	39	3	1	14	0	76	99	1797	1905
Hepatitis B	6	2	2	59	2	0	0	15	86	201	2110	4813
Hepatitis C	16	0	19	213	0	9	157	50	464	391	6890	8054
Hepatitis (NEC)	0	0	0	0	0	0	0	NN	0	4	65	58
Legionellosis	0	1	0	1	1	0	0	0	3	6	141	170
Leptospirosis	0	0	0	6	0	2	3	0	11	20	157	136
Listeriosis	0	1	NN	0	0	0	0	0	1	0	47	37
Malaria	1	53	0	1	0	1	6	1	63	12	632	667
Meningococcal infection	0	5	1	5	0	1	3	1	16	8	340	269
Ornithosis	0	NN	0	0	0	0	3	0	3	4	92	87
Q fever	0	7	0	24	2	0	1	0	34	28	801	491
Salmonellosis (NEC)	2	46	18	28	25	9	40	17	185	146	4193	4298
Shigellosis[4]	0	-	5	7	5	0	5	10	32	29	662	611
Syphilis	0	36	24	22	0	0	1	5	88	101	2022	2499
Tuberculosis	0	20	0	1	0	0	14	0	35	52	901	865
Typhoid[7]	0	0	0	0	0	0	0	0	0	2	30	45
Yersiniosis (NEC)[4]	0	-	0	22	3	0	1	0	26	19	420	523

1. For HIV and AIDS, see Tables 2 and 3. For rarely notified diseases, see Table 7.
2. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
3. SA, Tas: includes Ross River virus and dengue.
   WA: includes dengue.
4. NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
5. WA: genital only.
6. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
7. NSW and Vic: includes paratyphoid.

NN Not Notifiable.
NEC Not Elsewhere Classified.
- Elsewhere Classified.

Table 6. Rarely Notified Diseases[1] for the reporting period 14 to 27 November 1993

DISEASES	Total This Period	Reporting States or Territories	Year to Date 1993
Botulism	0		0
Brucellosis	1	Qld	18
Chancroid	0		1
Cholera	0		4
Hydatid infection	4	Qld 2, Vic 1, WA 2	29
Leprosy	1	NSW	12
Lymphogranuloma venereum	0		1
Plague	0		0
Rabies	0		0
Yellow fever	0		0
Other viral haemorrhagic fevers	0		0

1. Fewer than 50 cases of each of these diseases were notified each year during the period 1987 to 1992.

Table 7. Laboratory reports by State or Territory[1] for the reporting period 18 November to 1 December 1993, historical data[2], and total reports for the year

	State or Territory[1]								Total this fortnight	Historical data[2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA			
MEASLES, MUMPS, RUBELLA											
Measles virus		5		89			3		97	12.7	544
Mumps virus				2			1		3	1.3	72
Rubella virus	2	5		29	6			21	63	69.7	972
HEPATITIS VIRUSES											
Hepatitis A virus		2		2	1		1		6	21.8	481
Hepatitis B virus	1	13		9	6		10	15	54	108.3	2,327
Hepatitis C virus	3	8		29	36		15	66	157	124.0	4,127
ARBOVIRUSES											
Ross River virus		1		14	1		1		17	18.7	1,761
Dengue not typed								1	1	1.7	106
ADENOVIRUSES											
Adenovirus type 1		1					2		3	6.3	85
Adenovirus type 2		3				1	1		5	9.3	116
Adenovirus type 3		3							3	6.3	218
Adenovirus type 8		1					4		5	2.2	37
Adenovirus not typed/pending		4		4	18		8	1	35	59.3	1,217
HERPES VIRUSES											
Herpes simplex virus type 1		9		44	19		40	25	137	173.8	3,910
Herpes simplex virus type 2		20		50	13		31	28	142	213.2	4,740
Herpes simplex not typed/pending	8	10		2			2	1	23	32.8	647
Cytomegalovirus		3		12	1	2	19	3	40	91.0	1,546
Varicella-zoster virus				18	2		7	2	29	34.0	912
Epstein-Barr virus		2		13	16		8	8	47	90.3	1,610
Herpes virus group - not typed							2		2	3.7	25
OTHER DNA VIRUSES											
Parvovirus				2			1		3	7.7	114
PICORNA VIRUS FAMILY											
Coxsackievirus A9		1					2		3	1.5	67
Coxsackievirus A16							2		2	.5	13
Coxsackievirus B4		1							1	.3	9
Coxsackievirus B5	1								1	4.7	47
Echovirus type 9		1							1	3.0	51
Echovirus type 11	1	4					1	1	7	.7	112
Echovirus type 22		1							1	.3	14
Echovirus type 30							12		12	.0	96
Poliovirus type 2 (uncharacterised)		2							2	2.5	33
Rhinovirus (all types)		4		1			17	14	36	44.7	789
Enterovirus not typed/pending		2		5			16	7	30	38.7	846
ORTHO/PARAMYXOVIRUSES											
Influenza A virus			1		6		4	12	23	12.7	451
Influenza A virus H_3N_2						1			1	.0	31
Influenza B virus					5		4	3	12	10.7	583
Parainfluenza virus type 3		2		2	2		7		13	37.7	556
Respiratory syncytial virus							2	4	6	32.2	3,435
OTHER RNA VIRUSES											
HIV-1								2	2	2.3	70

Table 7. Laboratory reports by State or Territory[1] for the reporting period 18 November to 1 December 1993, historical data[2], and total reports for the year, continued

	State or Territory [1]								Total this fortnight	Historical data [2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA			
Rotavirus	6	20			18	11	7		62	138.2	2,033
Calici virus		1							1	1.0	11
Norwalk agent							1		1	1.2	21
Coronavirus		1							1	1.7	14
OTHER											
Chlamydia trachomatis not typed	3	22		52	14	2	6	46	145	148.5	2,776
Chlamydia psittaci							3		3	6.7	84
Chlamydia spp typing pending					1				1	.0	9
Mycoplasma pneumoniae		2		22	5		6		35	74.2	1,838
Coxiella burnetii (Q fever)		1		1					2	9.8	498
Streptococcus group A		3		13					16	3.2	297
Bordetella pertussis				6			23		29	1.0	294
Bordetella species				20					20	5.7	229
Treponema pallidum		1		1			2		4	7.7	567
TOTAL	25	159	1	442	170	17	271	260	1,345	1,679.2	41,441

1. State or Territory of postcode, if reported, otherwise State or Territory of reporting laboratory.

2. The historical data are the averages of the numbers of reports in 6 previous 2 week reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.

Table 8. Laboratory reports by clinical information for the reporting period 18 November to 1 December 1993

	Encephalitis	Meningitis	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
MEASLES, MUMPS, RUBELLA											
Measles virus			3			30				64	97
Mumps virus										3	3
Rubella virus						20				43	63
HEPATITIS VIRUSES											
Hepatitis A virus					3					3	6
Hepatitis B virus					9					45	54
Hepatitis C virus				2	35					120	157
ARBOVIRUSES											
Ross River virus						2		4		11	17
Dengue not typed										1	1
ADENOVIRUSES											
Adenovirus type 1		1	1	1							3
Adenovirus type 2			2	1						2	5
Adenovirus type 3			1							2	3
Adenovirus type 8							5				5
Adenovirus not typed/pending			8	15		1	3			8	35
HERPES VIRUSES											
Herpes simplex virus type 1			5	1		43	6		44	38	137
Herpes simplex virus type 2						23			78	41	142

Table 8. Laboratory reports by clinical information for the reporting period 18 November to 1 December 1993, continued

	Encephalitis	Meningitis	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
Herpes simplex not typed/pending						12			3	8	23
Cytomegalovirus			7		2		2			29	40
Varicella-zoster virus			1			19			1	8	29
Epstein-Barr virus			2			1				44	47
Herpes virus group - not typed			1			1					2
OTHER DNA VIRUSES											
Parvovirus						1				2	3
PICORNA VIRUS FAMILY											
Coxsackievirus A9		3									3
Coxsackievirus A16						2					2
Coxsackievirus B4										1	1
Coxsackievirus B5										1	1
Echovirus type 9										1	1
Echovirus type 11		5								2	7
Echovirus type 22										1	1
Echovirus type 30		12									12
Poliovirus type 2 (uncharacterised)										2	2
Rhinovirus (all types)			33							3	36
Enterovirus not typed/pending		13	6	2						9	30
ORTHO/PARAMYXOVIRUSES											
Influenza A virus			6							17	23
Influenza A virus H3N2			1								1
Influenza B virus	1		5							6	12
Parainfluenza virus type 3			11			1				1	13
Respiratory syncytial virus			4							2	6
OTHER RNA VIRUSES											
HIV-1										2	2
Rotavirus				62							62
Calici virus				1							1
Norwalk agent				1							1
Coronavirus				1							1
OTHER											
Chlamydia trachomatis not typed							2		118	25	145
Chlamydia psittaci			2							1	3
Chlamydia spp typing pending									1		1
Mycoplasma pneumoniae			18							17	35
Coxiella burnetii (Q fever)										2	2
Streptococcus group A			2			2				12	16
Bordetella pertussis			29								29
Bordetella species			16							4	20
Treponema pallidum									1	3	4
TOTAL	1	34	164	87	49	158	18	4	246	584	1345

Table 9. Laboratory reports by contributing laboratories for the reporting period 18 November to 1 December 1993

STATE OR TERRITORY	LABORATORY	REPORTS
Australian Capital Territory	Woden Valley Hospital, Canberra	24
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	73
	Royal Alexandra Hospital for Children, Camperdown	13
	South West Area Pathology Service, Liverpool	36
Queensland	Queensland Medical Laboratory, West End	440
	State Health Laboratory, Brisbane	39
South Australia	Institute of Medical & Veterinary Science, Adelaide	170
Tasmania	Northern Tasmanian Pathology Service, Launceston	13
Victoria	Microbiological Diagnostic Unit, University of Melbourne	6
	Monash Medical Centre, Melbourne	16
	Royal Children's Hospital, Melbourne	101
	Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital	153
Western Australia	State Health Laboratory Services, Perth	261
TOTAL		1345