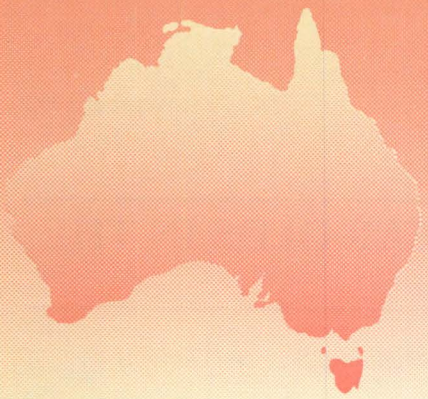

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COMMUNICABLE DISEASES NETWORK-AUSTRALIA
A National Network for Communicable Diseases Surveillance

HIGH IMMUNISATION UPTAKE FOR TWO YEAR OLDS IN THE REMOTE NORTHERN TERRITORY

(Steven Guthridge and Mahomed Patel, Northern Territory Department of Health and Community Services, Darwin)

Introduction

The 'Top End' of the Northern Territory has a scattered population which includes approximately 20,000 people living in remote Aboriginal communities. These communities vary in population from larger communities of 2000 people to outstations with only small family groups. Important considerations in providing effective health services are the isolation of the communities, population mobility and cross cultural understanding.

The Australian Bureau of Statistics has reported that immunisation uptake rates in the Northern Territory are the lowest in the nation with only 46.4% of 0 to 6 year olds having been fully immunised[1]. The paper reported the range of uptake from 57.8% for mumps to 87.5% for diphtheria-tetanus. There is evidence that Aboriginal children in remote communities are doing much better. Hanna and Kass reviewed documented uptake for two year old Aboriginal children in Central Australia and reported rates including BCG, 86.8%; measles, 87.7% and CDT (diphtheria-tetanus), 82.4%[2]. More recently, Kelly reported that in rural Western Australia, 86.5% of children were documented to be fully immunised when entering Grade 1 at school, but for Aboriginal children the rate varied from 44.2% in the urban area to 87.5% in the remote parts of the health region[3].

The 'Top End' has four health districts; one is urban (Darwin Urban) while the remaining three direct a large proportion of their services to remote Aboriginal communities. All major Aboriginal communities have health centres which are staffed by registered Aboriginal Health Workers and in most cases by registered nurses. Both groups administer immunisations. The immunisation of children in these remote communities is a priority and individual registers have been maintained within the health centres, however aggregate information has been scanty. In 1989, a computer based immunisation register was commenced in Darwin Rural district and more recently the register has been established in all four districts. Of the 37 remote communities, 35 have comprehensive computer immunisation records for children aged six years or less.

The immunisation schedule for the Northern Territory differs from other States; the 1990-92 schedule for Aboriginal children included BCG and hepatitis B vaccine (Table 1).

Table 1. Immunisation schedule for Aboriginal children, Northern Territory, 1990-92

Age	Vaccine
Birth	BCG Hepatitis B (first dose)
2 months	DTP[1] (first dose) Oral polio (first dose) Hepatitis B (second dose)
4 months	DTP[1] (second dose) Oral polio (second dose)
6 months	DTP[1] (third dose) Oral polio (third dose) Hepatitis B (third dose)
9 months	Measles-mumps-rubella
18 months	DTP[1] (fourth dose) Oral polio (fourth dose)

1. DTP diphtheria-tetanus-pertussis.

Methods

The computer registers for Darwin Rural, Katherine and East Arnhem districts were established using data from health centre records and are updated from birth registers with the enrolment of newborns. Children are registered for both a prime and any alternative communities. Each month a list of all children who are likely to be in a community or its outstations and due for a vaccine is forwarded to the community health centre. Health staff update the report and then return it to the central register. The name of any child not reported as having received a due vaccine will continue to appear on the monthly health centre report until recorded as either having had the vaccine, having declined the vaccine or having moved to another community. The software package, which was designed by the Department of Health and Community Services' Information Services Branch, generates several types of reports including age appropriate immunisation uptake by community and district.

The population on the register is regularly monitored for completeness by community health staff, and for this study has been validated against hospital admissions and a number of other registers. Overall 90% of children aged from 0 to 6 years who are living in the participating communities were on the registers.

Results

Data for this study were collated from the three districts on 461 Aboriginal children who were born in 1990, live in a remote community and were registered on the database. The data on all vaccinations received by the children until 31 December 1992 were analysed in April 1993 to allow time for vaccinations which had been given to be registered in the database.

Table 2. Immunisation uptake for two year old Aboriginal children in remote communities of Darwin rural, East Arnhem and Katherine health districts, Northern Territory

Number of children	Immunisation uptake						
	BCG	DTP (third dose)	Polio (third dose)	Hep B (third dose)	MMR	DTP (fourth dose)	Polio (fourth dose)
461	96%	97%	97%	96%	97%	91%	91%

Immunisation uptake rates were determined for BCG, three diphtheria-pertussis-tetanus (DTP) vaccine doses, three polio vaccine doses, three hepatitis B vaccine doses, measles-mumps-rubella vaccine (MMR), four diphtheria-pertussis-tetanus vaccine doses and four polio vaccine doses.

Uptake rates were above 95% for all vaccines except the fourth doses of DTP and polio vaccines (Table 2). Of particular note is the 97% uptake for MMR. Uptake rates for all children aged 0 to 6 years are similar to the cohort aged two years and will be published separately.

Conclusion

Remote communities are a priority for Northern Territory health care delivery and their small size and isolation are a positive determinant for some health programs. Aboriginal children in remote communities have excellent immunisation uptake through programs managed by Aboriginal Health Workers and community nurses.

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PUBLIC HEALTH RESPONSE TO A SUSPECTED CASE OF LASSA FEVER

(Mark D Bek[1], Kerrie Chant[2], Betty Rees[3], Tania Sorrell[4], Michael Levy[2], Michael J Fett[1])

Abstract

A man arrived in Sydney from Africa on 21 May this year with symptoms suggestive of Lassa fever. The aims of our response to this suspected case of Lassa fever were to identify persons with high risk exposures to the case, and to institute quarantine surveillance for contacts where necessary. We investigated the exposure histories of persons in the same aircraft as the case and also the hospital staff involved in his care. No persons were found to have had a high risk exposure, defined as percutaneous or mucosal contact with the patient's body fluids. A diagnosis of Lassa fever was not ruled out until week five, when the final diagnosis appeared to be leptospirosis. This incident was a good opportunity to rehearse the New South Wales (NSW) *Contingency Plan for Cases of Suspected Quarantinable Diseases*.

Introduction

On 21 May 1993, a 48 year old male resident of Ghana arrived in Sydney on a flight from Amsterdam. He had collapsed on the plane and was thought by a doctor travelling on the flight to have had a heart attack. He was taken to St George Hospital, Kogarah, directly from Sydney Airport.

On assessment at the hospital he was found to be in acute liver and renal failure, having seizures, mildly febrile and to have a bleeding tendency. Given his presentation and country of origin, the attending clinicians included Lassa fever or another viral haemorrhagic fever (VHF) in the patient's differential diagnosis.

Lassa fever is endemic in rural West Africa and is generally acquired from contact with infected rats or their excreta. The disease may have a high fatality rate and can be transmitted to those in close contact with the patient.

1. Public Health Unit for Central and Southern Sydney, NSW Health.
2. Epidemiology and Health Services Evaluation Branch, NSW Health.
3. St George Hospital, Sydney.
4. Westmead Hospital, Sydney.

The public health response to this case, following the NSW *Contingency Plan for Cases of Suspected Quarantinable Diseases*[2], was organised by the Public Health Unit for Central and Southern Sydney and the Epidemiology Branch, NSW Health Department. The main aims of our response were:

1. to determine whether any airline passengers or crew, or staff at St George Hospital had had percutaneous or mucosal exposure to the patient's body fluids (that is, a needlestick injury or a splash of the patient's body fluid onto the eyes, mouth or broken skin), as such persons would be considered for prophylactic treatment with the anti-viral drug, ribavirin; and
2. to commence quarantine surveillance of contacts (monitoring for fever for 21 days after the last exposure to the patient) and to inform them about the nature of the disease and their degree of risk.

Investigation

Air travel contacts

We obtained details of the patient's flight from the airline. The doctor and the cabin crew who had assisted the patient and two passengers sitting in proximity to him were considered at possible risk. The airline's medical section undertook follow-up of the cabin crew, and the Northern Sydney Public Health Unit and the Victorian Health Department each agreed to conduct surveillance for a passenger residing in their area. The doctor was traced a few days prior to his arranged departure from Australia. He undertook to monitor his temperature for the required period and notify health officials if he became unwell.

St George Hospital staff

The patient had spent time in the Emergency Department, the Radiology Department, the Intensive Care Unit and operating theatres at St George Hospital. In addition, almost all laboratory staff in the hospital had some exposure to the patient's body fluids.

We prepared a questionnaire to determine the exposure risk of staff in these areas to the patient and/or his body fluids. Any staff with definite percutaneous or mucosal exposure to the patient's body substances were defined as being at high risk, staff with possible insensible percutaneous/mucosal exposure (for example, body fluid exposure on apparently intact skin) were defined as medium risk and staff with potential aerosol exposure only were defined as low risk. A team assembled from the NSW Public Health Network assisted us with interviews.

In accordance with contact surveillance guidelines[3], staff who had been in contact with the patient were requested to monitor their temperature for a period of 21 days from their last exposure and report to the Staff Health Clinic or Emergency Department if febrile (>38.3°C) or acutely ill. Brief guidelines were also prepared to assist these units in the assessment of any staff who reported.

Memos were distributed reminding staff who were in continued contact with the patient to practice full infection control procedures and to report any infection control accidents immediately. Staff contacts were also requested not to donate blood until further notice.

Results

The patient

Diagnosis of the patient was complicated by the early and multiple antibiotic treatment and repeated blood transfusions. Acute phase sera testing showed no positive results for a range of infectious diseases including Lassa, Marburg and Ebola haemorrhagic fevers, leptospirosis, rickettsial diseases, hepatitis A, B and C and human immunodefiency virus and cytomegalovirus infections. Repeated malaria blood films were negative. Toxoplasmosis and yellow fever test results were consistent with past infection and past vaccination respectively. Blood, cerebrospinal fluid (CSF), urine and stool culture and CSF, urine and stool microscopic examination were all negative. History from the patient's relatives revealed no definite contact with rats, although the patient had travelled to a rural region of Ghana a few days before departing for Sydney.

A VHF diagnosis was excluded after a negative convalescent phase test carried out by the Centers for Disease Control and Prevention (CDC), United States, in week five of the illness. The final diagnosis appeared to be leptospirosis.

St George Hospital staff

We obtained exposure information on 211 staff, of whom 173 (82%) were interviewed in person. Of the 211, 193 had some kind of contact with the patient or his body fluids. No staff at the hospital reported a definite high risk exposure, 124 staff had been in situations of medium risk, and 53 staff were at low risk. A further 24 were determined to be at no risk.

Monitoring continued over five weeks. A total of four staff reported sick, one with a probable viral illness, two with upper respiratory tract infections and one with tonsillitis. When the patient's negative diagnosis for a VHF was known, all staff were advised that monitoring was no longer required.

Discussion

There are at least 12 different types of viral haemorrhagic fever. Of these, Lassa fever, Rift Valley fever and Crimean-Congo, Marburg and Ebola haemorrhagic fevers occur only in Africa. Dengue and yellow fever can also be acquired in Africa and be haemorrhagic[4].

Experience with Lassa fever after it was first identified in 1969 suggested that the potential for aerosol transmission to health care workers or other contacts was great. CDC therefore recommended extremely high-level infection control facilities[5]. However, further research has shown that the likelihood of aerosol transmission is low, and this, in conjunction with the availability of ribavirin for treatment and prophylaxis,

led CDC to revise its infection control guidelines for these diseases[6,7]. The newer guidelines primarily require universal precautions similar to those used against AIDS and hepatitis, and 21 day surveillance for known contacts of the patients[1].

The possibility of a VHF case occurring in NSW or elsewhere in Australia is thought to be extremely low, although direct flights from Africa and South America to Sydney, and increasing international travel, make this risk real. There has been only one reported VHF in NSW: a convalescent case of Lassa fever diagnosed in a rural hospital in 1985. The occurrence of 'false positives', that is, suspected cases which turn out not to be a VHF, is more likely[2]. Malaria would be a more common 'true' diagnosis in these patients[1].

Although each State should have one designated VHF treatment centre, suspected cases will most likely be identified in another hospital, and may be too ill by the time the diagnosis is suspected to be transferred. Therefore, all hospitals and public health services should be prepared for the occurrence of a VHF case.

If a hospitalised patient is reasonably suspected of having a VHF, the patient should be isolated and barrier nursed, universal precautions fully implemented (for both clinical staff managing the patient and laboratory staff handling the patient's specimens), and public health authorities immediately informed.

The *Contingency Plan for Cases of Suspected Quarantinable Diseases*, developed by the NSW Health Department's Epidemiology Branch, provides guidelines on both preparations for, and management of, a suspected case of VHF in NSW. This investigation was a good opportunity to observe the *Contingency Plan* in operation, and it generally worked well in guiding our response. A working party is now reviewing the *Plan*'s recommendations in light of our experience.

Acknowledgment

We would like to thank Jennifer Chipps, Wendy Manning, Rob Menzies, and Bernie Towler who conducted interviews, the staff of St George Hospital, particularly those in the Intensive Care Unit, for their assistance with this investigation, and Alison Kesson for comments on the paper.

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GONOCOCCAL SURVEILLANCE - AUSTRALIA, 1 APRIL TO 30 JUNE 1993

(Derived from the Australian Gonococcal Surveillance Programme - AGSP, Co-ordinator, J W Tapsall, The Prince of Wales Hospital, Sydney)

The antibiotic sensitivity of 468 strains of *Neisseria gonorrhoeae* was examined by participating laboratories in the April-June quarter of 1993. All of these isolates were examined for their sensitivity to penicillin and 403 for their sensitivity to spectinomycin, ceftriaxone and ciprofloxacin and for high level tetracycline resistance.

The Table shows the penicillin sensitivity of the isolates as aggregated data for Australia and also the regional variation in sensitivity patterns which occurred in five of the centres. Both PPNG and CMRNG were found in these centres, with the greatest rates of both types of resistance (plasmid mediated and chromosomally mediated respectively) being seen in isolates in Melbourne. In this centre penicillin resistance due to one or other mechanism is seen in excess of 40% of isolates but ranges from 9% to 14% in the other centres. The high proportion of fully sensitive isolates seen in Melbourne and Sydney in recent times was again a feature in this period and once more they were found particularly in male patients in these two centres. There were 43 isolates of PPNG in this quarter and in 30 of these information on acquisition was available. Twenty patients acquired their disease overseas or else as the result of contact with a returning traveller. South-East Asia was the source of these strains in all but one instance. Local acquisition (10 strains) of PPNG was recorded in Sydney, Melbourne and Brisbane.

All 403 strains tested were found to be sensitive to spectinomycin and ceftriaxone. Eleven strains (2.7%)

Table 1. Penicillin sensitivity of *Neisseria gonorrhoeae* isolated in Australia 1 April to 30 June 1993, per cent (n tested = 468)[1]

Centre	Sensitive[2]	Less sensitive[3]	Relatively resistant[4]	PPNG[5]
Brisbane	15.3 (20.3)	72.4 (64.3)	3.1 (1.4)	9.2 (14.5)
Sydney	30 (30)	56 (41)	2 (11)	12 (18)
Melbourne	36.6 (45.4)	20.7 (32.3)	29.2 (11.9)	13.4 (18)
Adelaide	12	76	8	4
Darwin	0	91	3	6
Australia	22.4	61.1	7.1	9.2

1. Figures in parentheses represent data from the corresponding period in 1992.
2. Sensitive, MIC ≤ 0.03 mg/L.
3. Less sensitive, MIC 0.06 - 0.5 mg/L.
4. Relatively resistant, MIC ≥ 1 mg/L.
5. PPNG = penicillinase producing *N. gonorrhoeae*.

showed decreased sensitivity to quinolone antibiotics and these were detected in Sydney, Brisbane and Melbourne. A single isolate in Brisbane showed higher levels of resistance to ciprofloxacin (MIC 1.0mg/L). High level tetracycline resistance (TRNG) was detected in 16 strains (4%) and these were found in Sydney, Brisbane, Melbourne, Adelaide and Darwin.

The total number of strains examined (468) is less than the 533 isolates examined in the January-March quarter this year and the 507 strains examined in the corresponding period in 1992.

This report completes the twelfth year of surveillance of gonococcal susceptibility by the AGSP during which time in excess of 40,000 isolates have been examined. A comprehensive review of the first ten years of AGSP data will appear in a forthcoming issue of *Genito Urinary Medicine*.

SCRUB TYPHUS IN WESTERN AUSTRALIA

(Michael L Quinlan, Timothy Chappell, Medical Teaching Unit, St John of God Medical Centre, Wembley, Western Australia; Clayton L Golledge, Department of Clinical Microbiology, Sir Charles Gairdner Hospital, Nedlands, Western Australia)

A case of scrub typhus (*Rickettsia tsutsugamushi*) has been confirmed in a 19 year old visitor to the Kimberley region of Western Australia.

The youth is an engineering student at the University of Western Australia who returned to his parents' station at Beverley Springs in the West Kimberley (Figure) in July of this year. He travelled with some friends north of the property to both the Synnot and Edkins Ranges collecting botanical specimens. While in these regions he swam in a number of spots, visited isolated pockets of rainforest and travelled through more sparsely vegetated country. All members of the group thought they had been bitten by mites.

Shortly after returning home he began to feel unwell and lethargic with diffuse myalgias, rigors and sweats associated with severe abdominal pain and moderate headache. By the time he presented to hospital a rash was evident. On examination he was found to be very unwell with a high fever and a tender, tight abdomen. Despite his abdominal rigidity his spleen was palpable. Cervical lymphadenopathy was present along with a generalised fine maculopapular rash and infected conjuntivae. A small lesion was present in the left axilla which later evolved into a typical eschar.

Rickettsial infection was suspected and an urgent immunofluorescence test showed a titre of 1/320 to *Rickettsia tsutsugamushi* with a negative Weil-Felix reaction (Table). Intravenous ceftriaxone and rolitetracycline were administered and over the next few days he made a slow recovery with initially swinging fever, increasing peripheral oedema, persistent rash and radiological signs of interstitial pulmonary

Figure. Map of the northern region of Western Australia

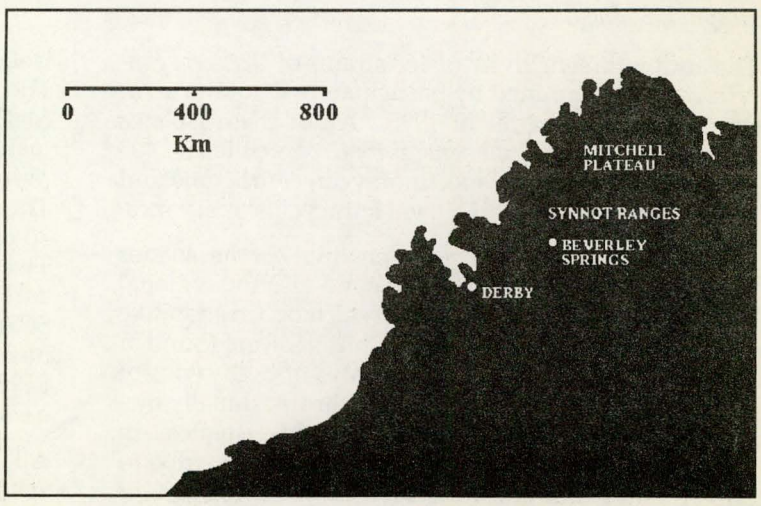

Table. Results of indirect fluorescent antibody (IFAT) and Weil-Felix tests

Date of Sample	IFAT			WEIL-FELIX		
	R. mooseri	*R. conorii*	*R. tsutsugamushi*	OX19	OX2	OXK
24.7.93	<40	<40	320	Neg	Neg	Neg
5.8.93	<40	<40	10,240	Neg	Neg	640

oedema. Mild thrombocytopenia and mildly abnormal liver function tests. After four days he was changed to oral tetracycline and slowly improved. Repeat serology showed a good antibody rise to *R. tsutsugamushi* with seroconversion in the Weil-Felix test. Other members of his group were screened and were seronegative.

Recently a new focus of scrub typhus was described in Litchfield Park in the Northern Territory[1] and the vector of scrub typhus, *Leptotrombidium deliense* was found after a trapping expedition in the Park. A previous study[2] has shown the presence of *L. deliense* in the Mitchell Plateau in the northern Kimberley region but sampling has not been done in the south or the west Kimberley.

It is interesting to speculate whether the patient acquired his infection in the rainforest or in the more open regions. Trapping experiments will be carried out to try and further delineate the habitat of the vector in the Kimberley region. In the meantime medical practitioners should be aware that scrub typhus has definitely extended westwards and may present as a serious multi-system disease.

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TUNGIASIS IN AN OVERSEAS TRAVELLER - CASE REPORT

(Philip Spradbery, CSIRO Division of Entomology, Canberra, ACT; Jennifer Bromley, Manuka, ACT; Robert Dixon and Leon Tetlow, Barratt and Smith Pathologists, Queanbeyan, NSW)

An Australian woman aid worker who had been travelling through South Africa Uganda and Zambia during March and early April 1993 presented to a medical practitioner on 14 April with a sore right third toe. Two days after returning to Australia the patient had noticed a yellow lesion on the planter surface of the toe which after a further two weeks became painful and she sought medical advice. The single lesion was raised and very firm to touch with a pale white to yellow centre of 5mm diameter and a red rim. After lancing the pustule-like lesion a mass of eggs was extruded. These were collected for pathological examination and subsequently identified as eggs of the sand flea *Tunga penetrans*. The lesion was subsequently debrided under local anaesthesia revealing the abdominal cavity of the flea; the head and thorax could not be identified. Very few eggs remained within the abdominal cavity at the time of removal from the toe of the patient. The pain eased within two weeks and no further problems were experienced by the patient.

The patient probably became infested after removing her shoes while travelling in a four wheel-drive vehicle with sand in the floor well. At all other times she wore shoes which would have protected the site where the sand flea penetrated the foot.

This is only the second case of an infestation by *T. penetrans* known to have been imported into Australia and the first case in the eastern States. The first case involved a male returning to Perth from a visit to Africa in 1980.

The condition caused by *T. penetrans* is known as tungiasis, tungosis or chiggerosis and the sand flea is sometimes referred to as the 'human chigoe' or 'jigger flea'. After insemination by the male which subsequently dies, the 1.0 mm female *T. penetrans*, which can jump up to 35 cm above ground level, attaches itself to a host and penetrates the skin of the foot, or less often the hand. The female flea then grows to about 1 cm diameter as it sucks blood from its host. The ovaries develop until the abdominal cavity is filled with up to 200 eggs. The surrounding tissue becomes inflamed and swollen with the flea lying in a slight depression in the middle. The terminal segments of the abdomen protrude from the host to facilitate respiration and ejection of eggs. After oviposition, the female flea shrivels and dies. The eggs hatch and pass through two larval instars before becoming adult. The life cycle from egg to adult occupies three to four weeks.

The lesions created by the burrowing and growing female become itchy, inflamed and very painful with secondary infections and ulceration a common sequel to tungiasis. Deaths due to secondary tetanus and gas gangrene have been reported.

T. penetrans flourishes in sand and sandy soils, dust and animal pens. It occurs primarily in domestic animals such as pigs but can also infest humans.

Although originally endemic in tropical South America, *T. penetrans* was accidentally introduced to Africa in the 1870s and more recently to India, Madagascar and California, United States. There are many case reports in the medical literature of *T. penetrans* infested persons returning to their countries of origin after travelling to tropical areas where this parasitic flea occurs. These include travellers from the United States, Italy and Israel. The first human cases were reported on crewmen who sailed to Haiti with Christopher Columbus in 1492.

Should the sand flea *T. penetrans* become established in tropical Australia its rate of spread and its prevalence could be likely to be high, and its introduction would mar our traditional Australian beach culture.

OVERSEAS BRIEFS

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

Influenza in the Northern Hemisphere

Influenza activity is being reported from several countries in the Northern Hemisphere. In Europe, influenza-like illness is beginning to increase, but is still low except in the United Kingdom. Only influenza A H_3N_2 has been repeatedly isolated, with isolates resembling A/Beijing/32/92, the strain recommended for the northern 1993-94 winter vaccine, and for the 1994 winter in Australia. One isolate of influenza B has been reported, from Switzerland.

In the United States, activity has been reported from five States - California, Colorado, Louisiana, North Carolina and Texas. Influenza A H_3N_2 has been isolated in different States.

Cholera Update

Tulcea District in Romania has recently been declared cholera infected.

Cases of cholera have been reported for September and October from Afghanistan, Belize, Brazil, Cambodia, Djibouti, Ecuador, El Salvador, Ghana, Malaysia, Pakistan, Romania and Tajikistan.

CDI NOTICES TO READERS

Monovalent pertussis vaccine

(Margaret Burgess, Royal Alexandra Hospital for Children, Camperdown, New South Wales)

Australia is presently experiencing a very large outbreak of pertussis[1]. In view of the number of children who have been inadequately immunised for pertussis[2], Commonwealth Serum Laboratories Ltd has produced a separate pertussis vaccine (Adsorbed pertussis vaccine, CSL). This vaccine contains the same dose of killed pertussis organisms as is found in DTP (diphtheria-tetanus-pertussis) vaccine and is suitable for use in children who have had the recommended doses of diphtheria and tetanus vaccines but require 'catch up' doses for pertussis. Many children have been deprived of doses of pertussis vaccine for false or inadequate contraindications.

The new monovalent vaccine should be available at the end of November. As the current pertussis outbreak is likely to continue at least until Christmas and possibly into 1994, all young children who have not received four doses of pertussis vaccine should have a catch up program as soon as possible. This could help contain the outbreak. Currently the NHMRC recommends the use of pertussis vaccine in children up to the age of four years[3]; this upper age limit is presently under review. In the United States the vaccine is recommended up the age of seven years[4]; in the United Kingdom there is no upper age limit[5].

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National *Neisseria* Network

The Australian Gonococcal Surveillance Programme (AGSP) has been operating and publishing quarterly data in *CDI* for well over a decade. This Programme has not only monitored the emergence of various forms of antibiotic resistance in the gonococcus but has also provided a reliable indication of changes in gonococcal epidemiology in Australia over this period.

Recently, concerns have been expressed about the emergence of antibiotic resistance in *Neisseria meningitidis*, notably against those antibiotics used for both treatment and prophylaxis of meningococcal disease. It has therefore been decided that the AGSP will be expanded to include meningococcal surveillance and thus become a National *Neisseria* Network.

Reference centres around Australia have agreed to pool data from analysis of strains, in practice mainly CSF and blood culture isolates, and approaches to laboratory testing will be unified as far as possible. The laboratory surveillance will include both antibiotic susceptibility testing, and serotyping and sub-serotyping to enable epidemiological analysis of meningococcal disease in Australia.

In addition, the network of laboratories could also be very useful in the event of an outbreak requiring investigation. Data will be presented regularly in *CDI*, to a timetable yet to be determined.

Laboratories are encouraged to refer meningococcal isolates to the Meningococcal Reference Laboratory in their State or Territory for analysis. The Reference Laboratories are:

Western Australia

Chris Richardson (or in his absence Christina Farrer)
Department of Microbiology
Princess Margaret Hospital for Children
1 Thomas Street
SUBIACO WA 6008
phone (09) 340 8273; fax (09) 340 8117

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Northern Territory

Strains are referred from Alice Springs and Royal Darwin Hospitals.

COMMUNICABLE DISEASES SURVEILLANCE

Virology and Serology Reporting Scheme

There were 1532 reports received in the *CDI* Virology and Serology Reporting Scheme this fortnight (Tables 8, 9 and 10).

- There were 63 reports of **measles,** bringing the total for the year to 396 (Figure 1), more than ever previously recorded by the Scheme. Most reports this year have been of skin disease, but there have been reports of 2 cases of SSPE, one of meningitis, one of encephalitis, 10 of lower respiratory tract disease, 2 of eye disease and one of muscle/joint disease. Seventy-four of the patients have been aged less than 5 years, 135 were in the age group 5 to 14 years and there have been 137 in the 15 to 24 years age group. Measles reports from New South Wales, Queensland and Victoria have increased over the last few months.
- **Rubella** was reported for 46 patients this fortnight. Included were 10 females in the 15 to 44 year age group, bringing the total for the year for women of child bearing age to 117 (Figure 2). There have recently been increases in rubella laboratory reports from New South Wales, the Australian Capital Territory, Queensland, South Australia and Western Australia.
- **Ross River virus** was reported for 19 patients this fortnight, 16 from Queensland, 2 from New South Wales and one patient was reported from Victoria after a 'trip up north'. All were presumptive and had specimen collection dates in October (14) or November (5).
- **Barmah Forest virus** was reported for 2 patients, one from Queensland and one from Western Australia. Both diagnoses were presumptive. The specimen collection date for both reports was in October.
- There was one presumptive report of **untyped flavivirus**. The patient was a 61 year old female reported by a Victorian laboratory. The specimen collection date was in October.
- Reports of **adenovirus type 3** were received for 4 patients this fortnight. This virus has been reported at a higher rate than usual since the middle of 1992 (Figure 3). There has been a total of 187 reports for the year so far, more than for any year since 1989. One hundred and forty of the reports have been for children under the age of 15 years, in which respiratory tract and gastrointestinal disease have been the most common reports. Eye disease has been reported for 26 adults and for 21 children, including a 5 year old male with pharyngoconjunctival fever, reported this fortnight.

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

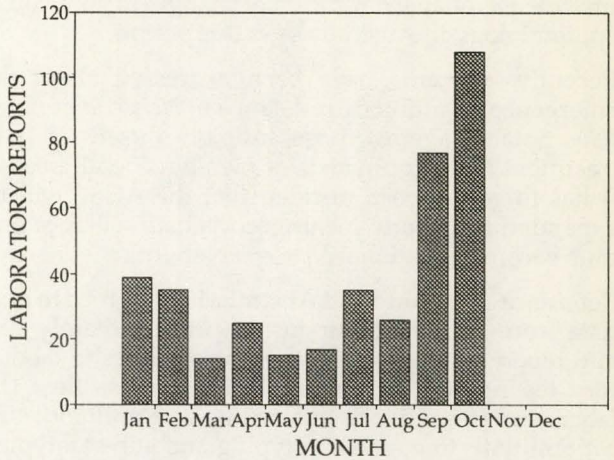


Figure 2. Rubella laboratory reports, 1992 -93, by month of specimen collection and patient type

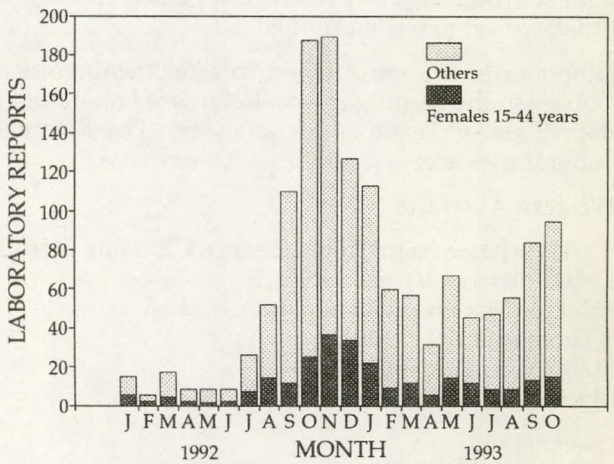


Figure 3. Adenovirus type 3 laboratory reports, 1992-93, by month of specimen collection

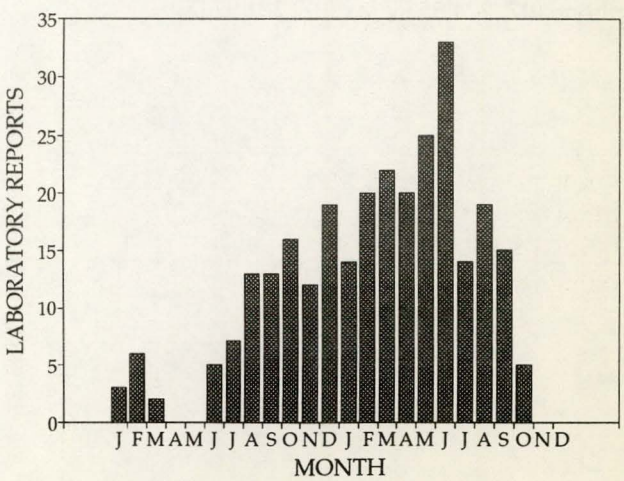


Figure 4. Echovirus type 11 laboratory reports, 1993, by month of specimen collection

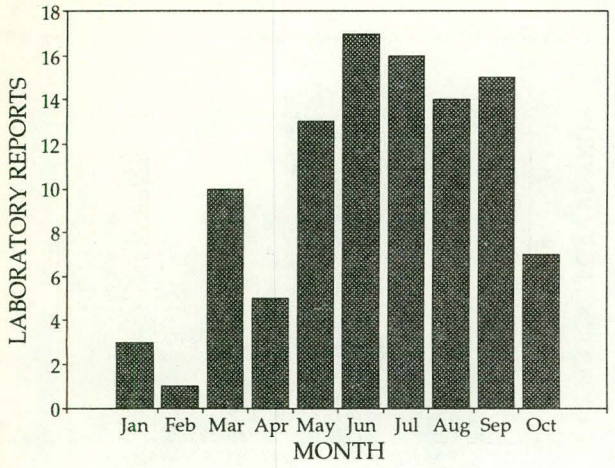
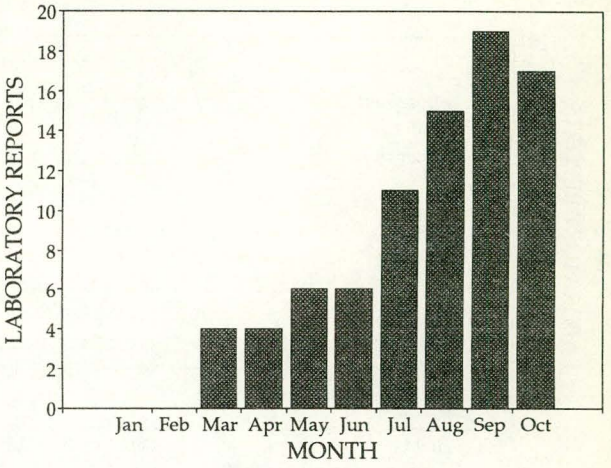


Figure 5. Echovirus type 30 laboratory reports, 1993, by month of specimen collection



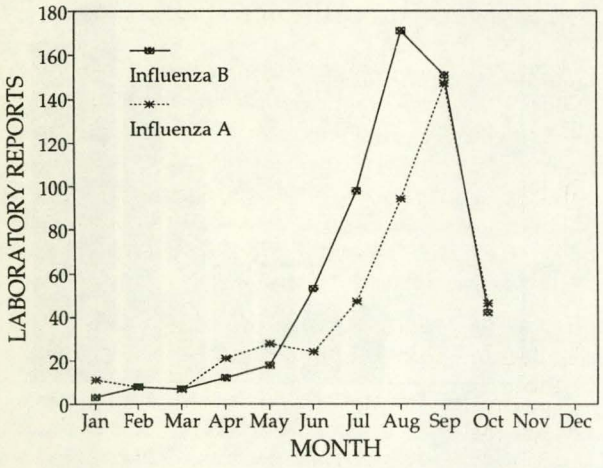
- **Cytomegalovirus** was reported for 51 patients this fortnight. Included were one transplant patient, 4 HIV positive patients, a 4 month old female for whom cardiac symptoms were reported, a one day old congenitally infected male with microcephaly and a postmortem report for a one day old congenitally infected female (kidney, pancreas and salivary gland isolates).
- There were 5 reports of **echovirus type 11** this fortnight. Included were 2 isolates from postmortem small and large bowel samples from Western Australia; the patients were males aged 11 months and 2 months. A total of 101 reports of this virus have been received this year (Figure 4), 6 from the Australian Capital Territory, 54 from New South Wales, one from Queensland, 2 from South Australia, 30 from Victoria and 8 from Western Australia. Twenty-eight patients have been under the age of one year, 22 have been in the 1 to 11 months age group, 17 in the 1 to 4 years age group and 10 in the 35 to 44 years age group. Sixty-two have been males and 38 females. Meningitis was the reported syndrome for 37.
- **Echovirus type 30** was reported for 13 patients, bringing the total for the year to 82 (Figure 5), 72 from Victoria. Forty-three patients this year have been females and 39 males. Twenty-three have been aged under 5 years and there have been 31 in the 25 to 44 year age group. Meningitis was the reported syndrome for 71.
- There were 21 reports of **influenza** this fortnight, 11 of **untyped influenza A** (3 isolations, 1 antigen detection, 2 fourfold changes, 4 single high titres), 3 of influenza A H_3N_2 (all described as A/Shanghai/24/90-like) and 7 reports of **influenza B** (2 isolations, 1 antigen detection, 1 fourfold change, 1 IgM and 2 single high titres). One influenza B report was for a patient aged over 65 years.

  There have been 1008 influenza laboratory reports for 1993 so far. They have included 39 untyped influenza A isolations, 29 isolations of influenza A H_3N_2 and 146 isolations of influenza B (Table 1). Influenza B reports peaked earlier than the influenza A reports (Figure 6).

Table 1. Influenza laboratory reports, 1993, by type and method of detection

	Isolations	Antigen detection	Fourfold change	IgM	Other serological	Total
Influenza A untyped	39	73	37	26	233	408
Influenza A H_3N_2	29	1	0	0	0	30
Influenza B	146	78	30	42	270	566
Influenza not typed	4	0	0	0	0	4

Figure 6. Influenza A and influenza B laboratory reports, 1993, by type and month of specimen collection



- A total of 36 reports of **respiratory syncytial virus** was received this fortnight. Reports of this virus peaked in July this year (Figure 7), as has been usual for recent years.
- ***Mycoplasma pneumoniae*** reports continue to be received at a high rate. A total of 1534 has now been received for the year (Figure 8), 5 from the Australian Capital Territory, 231 from New South Wales, 693 from Queensland, 85 from South Australia, 22 from Tasmania, 450 from Victoria and 48 from Western Australia.

Figure 7. Respiratory syncytial virus laboratory reports, 1993 and 1988-92 average, by month of specimen collection

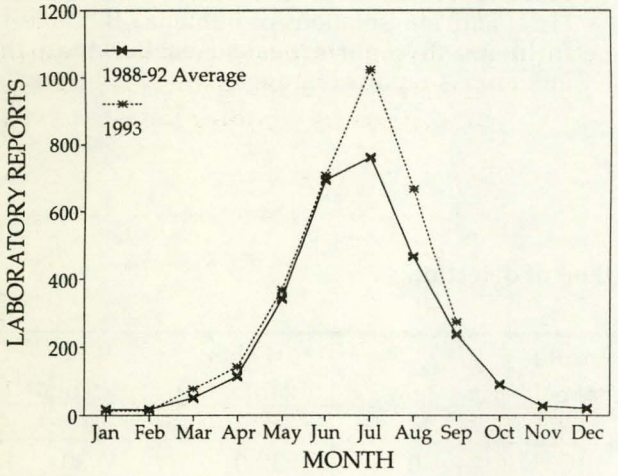
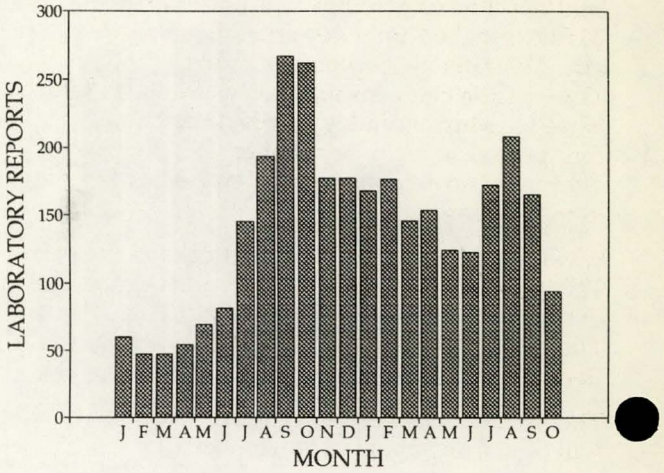


Figure 8. *Mycoplasma pneumoniae* laboratory reports, 1992-93, by month of specimen collection



- There were 9 cases of **Q fever** reported this fortnight, bringing the total for the year to 444. Eight patients were males, in the age range 16 to 46 years, and the other was a 40 year old female. One patient was described as a meat worker and 2 as abattoir workers.

Australian Sentinel Practice Research Network

Data are available for one week only (Week 46) for this issue of *CDI*. A total of 5115 patient encounters were recorded. The rate of reporting of influenza increased over the rates reported for the previous 2 weeks, but remains low (Table 2).

Table 2. Australian Sentinel Practice Research Network, Week 46, 1993

Condition	Week 46, to 14 November 1993	
	Reports	Rate per 1000 encounters
Influenza	32	6.3
Measles	2	0.4
Rubella	2	0.4
Pertussis	1	0.2
Genital herpes	4	0.8
Gastroenteritis	71	13.9

Australian Encephalitis Sentinel Chicken Surveillance Programme: serological results - September and October 1993

Sentinel chicken serology was undertaken for 19 of the 24 flocks in the Kimberley and Pilbara regions of Western Australia in September and October this year. Three of the chickens in the Wyndham flock seroconverted to Murray Valley Encephalitis virus (MVE) over this period, one in September and two in October. There was no evidence of flavivirus activity elsewhere in the north-west.

Seven out of the eight sentinel flocks in the Northern Territory were bled in September and October 1993 and the sera were tested for antibodies to flaviviruses. There were two new seroconversions to MVE in the flock at Katherine.

The sentinel chicken programs in NSW and Victoria will be starting again in November.

(AK Broom, JS Mackenzie, Department of Microbiology, The University of Western Australia)

Victorian Influenza Surveillance System

Included in this issue of *CDI* are results for the last fortnight for 1993 for the Victorian Influenza Surveillance System (Table 3). this system is conducted by the Infectious Diseases Unit of Health and Community Services, Victoria, and includes surveillance data supplied by sentinel general practitioners, diagnostic laboratories, hospitals, schools and industry. Total deaths (which usually increase during influenza epidemics) have also been monitored.

Cases seen in sentinel general practices, laboratory cases and hospital admissions for influenza and/or pneumonia all peaked in Fortnight 10 (Figure 9), later than for 1992 (*CDI* 1992;**16**:430). Both influenza A and influenza B have been isolated this year.

(Raina MacIntyre, Health and Community Services, Victoria)

Sterile Sites Surveillance (LabDOSS)

Data for this fortnight have been provided by 7 laboratories. A total of 138 reports was received this fortnight: Sir Charles Gairdner Hospital, Western Australia 40, Liverpool Hospital, New South Wales 9, Sullivan Nicolaides, Queensland 9, IMVS Adelaide 46, Central Queensland Pathology Laboratory, Mackay 7, Nambour General Hospital 9, Northern Tasmanian Pathology Service 18.

Organisms reported 5 or more times from blood are detailed in Table 4. Other blood isolates not included in Table 4 were:

Gram positive: 1 *Bacillus* species,1 *Corynebacterium jeikeium*, 1 *Corynebacterium* species, 2 *Enterococcus* species (1 *E. faecalis*), 4 *Streptococcus* group B (3 adult females, 2 of whom died, 1 male aged 2 months), 1 *Streptococcus* group A, 1 *Streptococcus* group G, 1 *Streptococcus* group D nonenterococci, 1 *Streptococcus equinus*, 3 *Streptococcus sanguis*, 1 *Streptococcus* 'milleri', 2 *Streptococcus pneumoniae*, 1 *Streptococcus salivarius*, 2 *Streptococcus mitis*, 2 *Streptococcus* 'viridans' , 2 *Streptococcus* species.

Gram negative: 1 *Neisseria meningitidis* (19 year old male, Tasmania, awaiting serogroup identification), 3 *Acinetobacter* species, 3 *Klebsiella pneumoniae*, 2 *Klebsiella oxytoca*, 3 *Pseudomonas aeruginosa*, 1 *Proteus mirabilis*, 1 *Xanthomonas maltophilia*, 2 *Serratia marcescens*, 1 *Serratia* species, 1 *Citrobacter freundii*.

Anaerobes: 3 *Bacteroides fragilis*, 2 *Clostridium perfringens*, 1 *Peptostreptococcus* species, 1 *Propionibacterium* species.

Table 3. Victorian Influenza Surveillance System, fortnight 13, 1993

	Fortnight 13 18 to 29 October
General practices (34)	
Influenza cases (per 100 patients)	6 (0.3)
Laboratories (2)	
Influenza cases (per 100 specimens)	4[1] (0.5)
Hospitals (3)	
Influenza and/or pneumonia admissions (per 100 admissions)	4 (0.4)
Schools (30)	
Total abseenteeism, Tuesday (per cent)	893 (12)
Deaths, total from all causes (per 10,000 population)	1223 (2.9)

1. Two influenza A, 2 influenza B.

Figure 9. Victorian Influenza Surveillance System, laboratory cases and sentinel GP cases per 100 patients, by reporting fortnight, 1993

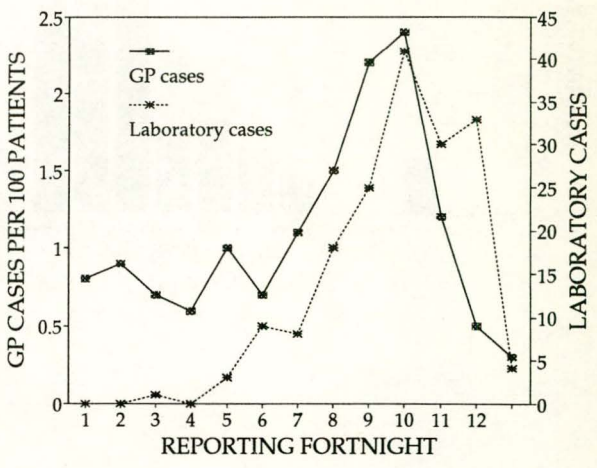


Table 4. LabDOSS reports of blood isolates, by organism and clinical information

Organism	Clinical Information						Risk Factors					Total[1]	Total reported this year
	Bone/Joint	Lower respiratory	Endocarditis	Gastrointestinal	Urinary Tract	Skin	Surgery	Immunosuppressed	IV line	Hospital acquired	Neonatal		
Staphylococcus aureus	3	3	1		2	2	4	3	2	1		23[2]	785[3]
Staphylococcus epidermidis		1				1						15	206
Staphylococcus coagulase negative								1	2	1		6	256
Escherichia coli				2	11		1	5		1		24	707

1. Only organisms with 5 or more reports are included in this table.
2. 2 MRSA.
3. 175 MRSA.

Fungi: 6 *Candida* species (3 *C. albicans*, 1 *C. glabrata*).

Most patients were over the age of 55 years (Figure 10).

CSF isolates and meningitis reports

There were two reports of meningitis, *Haemophilus influenzae* type b in a 2 year old male, and *Staphylococcus aureus* in a 74 year old male.

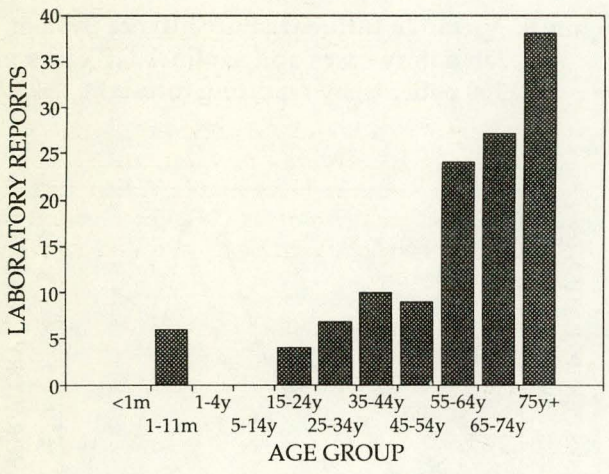
Isolates from sites other than blood or CSF

Peritoneal dialysate: 1 *Bacillus* species, 1 *Pseudomonas aeruginosa*, 1 *Enterobacter cloacae*, 1 *Enterococcus faecalis*.

Joint fluid: 4 *Staphylococcus aureus*, 1 *Klebsiella* species.

Other: 1 *Escherichia coli*, 1 *Streptomyces griseus*.

Figure 10. LabDOSS blood isolates, by age group



National Notifiable Diseases Surveillance System, 31 October to 3 November 1993

There were 2,556 reports received this period (Tables 5, 6 and 7, and Figure 15). Reports of sexually transmissible diseases were not received from South Australia.

- **Ross River virus infection** was notified for 63 cases this period. There were 32 males and 31 females. Recorded ages ranged from the 5-9 to the 85-89 years age groups. Onset dates were recorded as August (one), October (40) and November (22).
- A single case of **cholera** was notified for a male in the 25-29 years age group.
- There was a single case of **dengue** notified, in a female in the 20-24 years age group. The onset date recorded was in October.
- **Gonococcal infection** was notified for 71 cases. Sexes recorded were 42 males, 28 females and sex was not reported in one case. They were aged between the 0-4 years and the 85-89 years age groups. A single case was aged less than one year old.
- There were notifications of 10 cases of ***Haemophilus influenzae* type b infection** (Figure 11). There were 6 males and 4 females. Three cases were aged less than one year, 9 were less than 5 years and the other case was in the 5-9 years age group. Recorded onset dates for cases aged less than 5 years were January (2), October (6) and November (1). There was one apparent cluster of 2 cases with onset on the same day in the same postcode area.
- **There were 86 notifications of hepatitis A** this period. They were for 47 males, 37 females and sex was not recorded for 2 cases. Ages ranged from the 0-4 to the 85-89 years age groups. Peak ages were in the 20-24 (11 cases) and the 30-34 (15 cases) age groups.
- Three notifications of **hydatid infection** were received. Two were for males (both in the 60-64 years

Figure 11. *Haemophilus influenzae* type b infection notifications, January 1992 to November 1993, by month of onset and age group

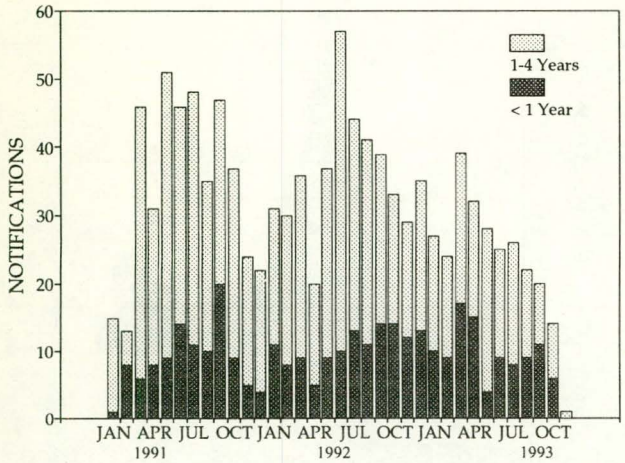


Figure 12. Measles notifications by month of onset, January 1992 to November 1993

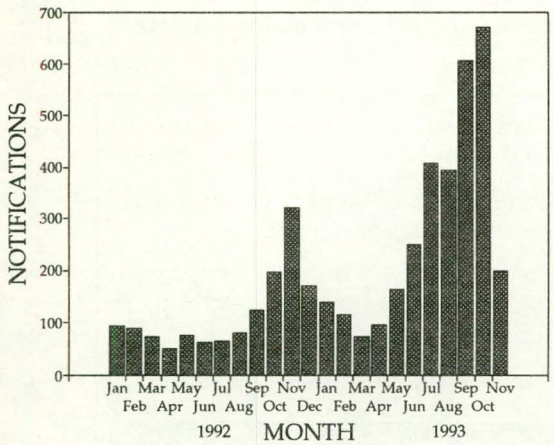
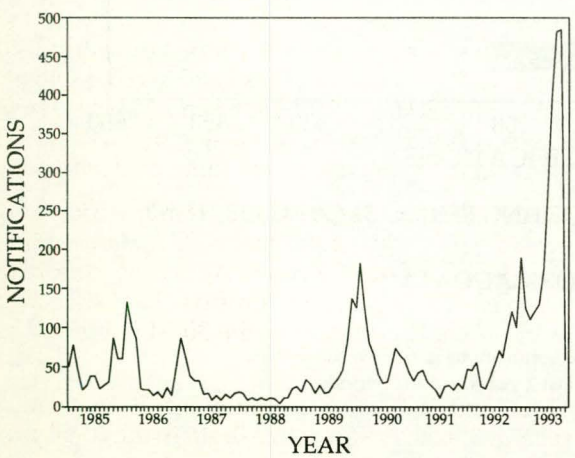


Figure 13. Pertussis notifications by month of onset, January 1985 to November 1993



age group) and one for a female (in the 50-54 years age group). Two reports were for residents of rural Victoria the other was a resident of the Sydney statistical division.

- There was a single notification of **legionellosis** received, for a female in the 60-64 years age group.
- Seven cases of **leptospirosis** were reported this period. Six were for males and one for a female. The cases with recorded ages were in the 20-24 to 70-74 years age groups. They were for residents of rural statistical divisions in Queensland, Tasmania, Victoria and Western Australia.
- A total of 40 cases of **malaria** was notified. Twenty-eight were for males, 10 were for females and sex was not recorded in 2 cases. Ages ranged between the 0-4 and the 90-94 years age groups. Ten were for residents of the 'malaria receptive zone'.
- The **measles** epidemic is continuing, with 394 cases notified this period. The total for the year is now 3,148, compared with 1,024 for the equivalent period last year (Figure 12). Of these cases, 199 were males, 190 were females and sex was not recorded in 5. Twenty-four of the cases were aged less than one year, and the mean age was 11.7 years. There were 55 apparent clusters with recorded onset in this and the previous period with up to 50 cases each in separate postcode areas. Apparent clusters were in New South Wales and the Australian Capital Territory (33), Queensland (19), Victoria (2) and Tasmania (one).
- There were 15 notifications of **meningococcal infection**, for 5 males and 10 females. Five cases had recorded ages in the 0-4 years age group and the oldest case was in the 90-94 years age group. There were no apparent clusters of cases.
- The **pertussis** epidemic is continuing. There were 332 cases notified bringing the total for the year to 2,168, compared with 524 for the equivalent period last year (Figure 13). Twenty-three of these cases were aged less than one year, 56 were aged less than 5 years and ages ranged up to the 90-94 years age group. There were 33 apparent clusters (with recorded onset in this and the previous period) with 2 to 7 cases each in separate postcode areas. Apparent clusters were in New South Wales and the Australian Capital Territory (12), Queensland (4), South Australia (12), Victoria (3) and Western Australia (2).
- There were 19 notifications of **Q fever**, 16 for males and 3 for females. Ages ranged from the 15-19 to the 45-49 years age groups.

- The rate of **rubella** notifications continues to rise. There were 213 notified cases this period, to bring the total for the year to 2,731, more than the 2,476 cases in the equivalent period in 1992 which was an epidemic year. There were 139 males, 73 females and sex was not recorded for one case (Figure 14).

  The mean age of cases was 32.5 years and there were 28 reports for females in the 15-44 years age group. There were 41 apparent clusters (with recorded onset in this and the previous period) with 2 to 5 cases each in separate postcode areas. Apparent clusters were in New South Wales and the Australian Capital Territory (9), Queensland (15), South Australia (4) and Western Australia (12).

- There were 48 notifications of **syphilis** received this period. Of these, 21 were males and 27 were females.

- There were 64 notifications of **tuberculosis**, 32 males, 31 females and sex was not recorded for one case. Ages ranged from the 0-4 to the 90-94 years age groups. Recorded onset dates were February (3), May (one), June (2), July (2), August (4), September (6), October (32) and November (11).

Figure 14. Rubella notifications by month of onset, January 1992 to November 1993

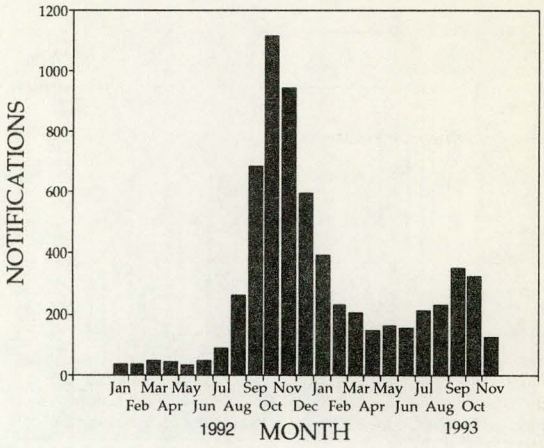
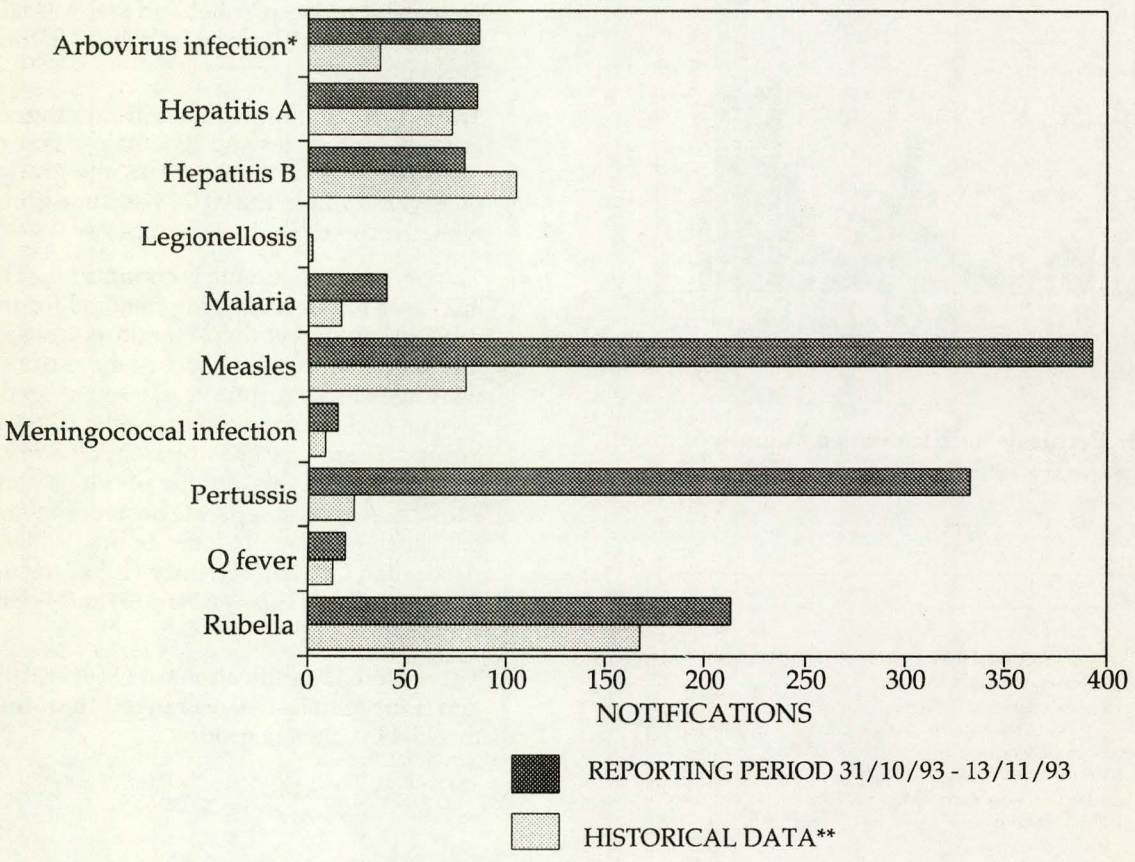


Figure 15. Selected National Notifiable Diseases Surveillance System reports, and historical data **



* 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 5. Notifiable Diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation for the reporting period 31 October to 13 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	55	13
Haemophilus influenzae b infection[2]	0	1	1	1	2	0	5	0	10	18	365	441
Measles	7	251	2	108	3	6	15	2	394	142	3148	1024
Mumps	0	1	NN	NN	0	NN	0	1	2	2	17	22
Pertussis	9	131	0	34	123	5	18	12	332	46	2618	524
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0
Rubella[3]	7	44	1	82	26	0	6	47	213	480	2731	2476
Tetanus	0	0	0	NN	0	0	0	0	0	0	7	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 6. Other Notifiable Diseases[1], for the reporting period 31 October to 13 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	1	NN	17	0	0	5	0	23	15	523	263
Ross River virus infection	0	7	1	51	1	NN	3	0	63	67	5188	5382
Dengue	0	-	0	1	-	NN	0	NN	1	4	684	348
Campylobacteriosis[4]	6	-	3	114	85	17	90	34	349	461	6951	7607
Chlamydial infection (NEC)[5]	2	NN	5	94	1	8	59	16	185	215	5680	5578
Donovanosis	0	NN	0	0	NN	NN	0	0	0	3	60	65
Gonococcal infection[6]	0	15	3	21	0	0	1	31	71	106	2462	2552
Hepatitis A	1	22	2	47	2	0	9	3	86	82	1726	1806
Hepatitis B	5	2	1	51	3	0	1	16	79	197	2021	4612
Hepatitis C	15	1	11	110	0	9	102	47	295	361	6428	7663
Hepatitis (NEC)	0	0	0	2	0	0	0	NN	2	2	65	54
Legionellosis	0	1	0	0	0	0	0	0	1	1	137	164
Leptospirosis	0	0	0	2	0	1	3	1	7	12	146	116
Listeriosis	0	0	NN	0	1	0	0	0	1	1	46	37
Malaria	1	2	3	29	0	1	3	1	40	30	568	655
Meningococcal infection	0	6	0	2	0	0	3	4	15	19	318	261
Ornithosis	0	NN	0	0	3	0	11	0	14	1	89	83
Q fever	0	6	0	12	0	0	1	0	19	29	764	463
Salmonellosis (NEC)	0	20	12	54	26	18	38	22	190	151	4018	4152
Shigellosis[4]	0	-	5	2	2	0	4	4	17	37	637	582
Syphilis	0	17	13	17	0	0	0	1	48	91	1960	2398
Tuberculosis	3	20	0	6	4	1	29	1	64	37	864	813
Typhoid[7]	0	0	0	0	0	0	0	0	0	0	29	43
Yersiniosis (NEC)[4]	0	-	0	8	1	0	1	1	11	13	394	504

1. For HIV and AIDS, see Tables 2 and 3, *CDI* 1993;17:553. 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 7. Rarely Notified Diseases[1] for the reporting period 31 October to 13 November 1993

DISEASES	Total This Period	Reporting States or Territories	Year to Date 1993
Botulism	0		0
Brucellosis	0		17
Chancroid	0		1
Cholera	1	Qld	4
Hydatid infection	3	NSW 1, Vic 2	25
Leprosy	0		10
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 8. Laboratory reports by State or Territory[1] for the reporting period 4 to 17 November 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				55		2	5	1	63	9.5	447
Mumps virus				2				1	3	1.3	69
Rubella virus		7		19	15		1	4	46	52.5	909
HEPATITIS VIRUSES											
Hepatitis A virus		2		8	1		1	1	13	17.5	475
Hepatitis B virus	2	10		22	20		12	25	91	92.7	2,273
Hepatitis C virus	2	11		37	63		14	87	214	99.5	3,970
Hepatitis D virus				1					1	1.2	44
Hepatitis E virus			1						1	.2	9
ARBOVIRUSES											
Ross River virus		2		16			1		19	10.5	1,744
Barmah Forest virus				1				1	2	3.3	184
Flavivirus (unspecified)							1		1	1.2	115
ADENOVIRUSES											
Adenovirus type 1							3		3	6.5	82
Adenovirus type 2					1		3		4	8.3	111
Adenovirus type 3		2					2		4	6.3	215
Adenovirus type 5					2				2	2.2	31
Adenovirus type 8							7		7	3.5	32
Adenovirus not typed/pending		5		16	7		11	10	49	50.3	1,184
HERPES VIRUSES											
Herpes simplex virus type 1		4		75	34	3	42	27	185	156.8	3,774
Herpes simplex virus type 2		8		89	21		35	51	204	167.5	4,602
Herpes simplex not typed/pending	4	5					1		10	31.7	624
Cytomegalovirus				27			17	7	51	74.7	1,508
Varicella-zoster virus		1		10	2		3	8	24	26.3	883
Epstein-Barr virus		5		4	12		12	13	46	56.0	1,563

Table 8. Laboratory reports by State or Territory[1] for the reporting period 4 to 17 November 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			
OTHER DNA VIRUSES											
Parvovirus				2			2		4	5.7	111
PICORNA VIRUS FAMILY											
Coxsackievirus A9		1					1		2	1.2	64
Echovirus type 11		2					1	2	5	.5	105
Echovirus type 22		1							1	.2	13
Echovirus type 30		1					12		13	.2	84
Echovirus not typed/pending							1		1	.3	1
Poliovirus type 1 (uncharacterised)		1							1	2.7	48
Rhinovirus (all types)				9			21	4	34	33.8	753
Enterovirus not typed/pending		4		61			5	10	80	26.2	816
ORTHO/PARAMYXOVIRUSES											
Influenza A virus		1	1		4		3	2	11	12.3	428
Influenza A virus H_3N_2							3		3	.0	30
Influenza B virus					1		6		7	15.3	571
Parainfluenza virus type 1							1	1	2	1.2	29
Parainfluenza virus type 2				1				1	2	2.2	124
Parainfluenza virus type 3		3		8	8		5	5	29	32.2	543
Respiratory syncytial virus				7	2		15	12	36	35.0	3,429
OTHER RNA VIRUSES											
HIV-1				2					2	1.5	68
HTLV-1								2	2	.2	13
Rotavirus	6	14			13	2	9	12	56	124.2	1,971
Small virus (like) particle		1							1	2.5	38
OTHER											
Chlamydia trachomatis not typed	6	21		19	6	1	1	29	83	112.2	2,631
Chlamydia species		1		3					4	.3	19
Mycoplasma pneumoniae	2	3		30	2	3	7		47	63.7	1,803
Coxiella burnetii (Q fever)		5		4					9	7.2	496
Streptococcus group A		3		18			2		23	1.0	281
Bordetella pertussis						2	11		13	.8	265
Bordetella species		1		4					5	3.0	209
Leptospira species						1			1	.0	17
Treponema pallidum		7					3		10	6.2	563
Toxoplasma gondii		1					1		2	1.0	52
TOTAL	22	133	2	550	214	14	281	316	1,532	1,372.3	40,424

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 9. Laboratory reports by clinical information for the reporting period 4 to 17 November 1993

	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
MEASLES, MUMPS, RUBELLA												
Measles virus							35		1		27	63
Mumps virus											3	3
Rubella virus				1			15		1		29	46
HEPATITIS VIRUSES												
Hepatitis A virus						4					9	13
Hepatitis B virus						22	1				68	91
Hepatitis C virus						14					200	214
Hepatitis D virus											1	1
Hepatitis E virus						1						1
ARBOVIRUSES												
Ross River virus							1		6		12	19
Barmah Forest virus									1		1	2
Flavivirus (unspecified)											1	1
ADENOVIRUSES												
Adenovirus type 1				3								3
Adenovirus type 2				4								4
Adenovirus type 3								4				4
Adenovirus type 5				1							1	2
Adenovirus type 8								7				7
Adenovirus not typed/pending				27	7			5			10	49
HERPES VIRUSES												
Herpes simplex virus type 1				4			89	10		55	27	185
Herpes simplex virus type 2			1	2	1		46	2		118	34	204
Herpes simplex not typed/pending							5			3	2	10
Cytomegalovirus			3	18		1	2		1		26	51
Varicella-zoster virus							20				4	24
Epstein-Barr virus				1		2	1				42	46
OTHER DNA VIRUSES												
Parvovirus							1		1		2	4
PICORNA VIRUS FAMILY												
Coxsackievirus A9	1			1								2
Echovirus type 11				1							4	5
Echovirus type 22					1							1
Echovirus type 30	13											13
Echovirus not typed/pending				1								1
Poliovirus type 1 (uncharacterised)				1								1
Rhinovirus (all types)		1		32							1	34
Enterovirus not typed/pending	1	3		42	3		4	8			19	80

Table 9. Laboratory reports by clinical information for the reporting period 4 to 17 November 1993, continued

	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
ORTHO/PARAMYXOVIRUSES												
Influenza A virus				6							5	11
Influenza A virus H_3N_2				3								3
Influenza B virus				5							2	7
Parainfluenza virus type 1				2								2
Parainfluenza virus type 2				2								2
Parainfluenza virus type 3				26							3	29
Respiratory syncytial virus				36								36
OTHER RNA VIRUSES												
HIV-1											2	2
HTLV-1											2	2
Rotavirus					56							56
Small virus (like) particle					1							1
OTHER												
Chlamydia trachomatis not typed								1		65	17	83
Chlamydia species										1	3	4
Mycoplasma pneumoniae				28							19	47
Coxiella burnetii (Q fever)				1							8	9
Streptococcus group A				2	2		3		1		15	23
Bordetella pertussis				13								13
Bordetella species				4							1	5
Leptospira species											1	1
Treponema pallidum		1									9	10
Toxoplasma gondii		1									1	2
TOTAL	15	6	4	267	71	44	223	37	12	242	611	1532

Table 10. Laboratory reports by contributing laboratories for the reporting period 4 to 17 November 1993

State or Territory	Laboratory	Reports
Australian Capital Territory	Woden Valley Hospital, Canberra	23
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	8
	Prince Henry/Prince of Wales Hospitals, Sydney	19
	Royal Alexandra Hospital for Children, Camperdown	16
	South West Area Pathology Service, Liverpool	47
Queensland	Queensland Medical Laboratory, West End	424
	State Health Laboratory, Brisbane	170
South Australia	Institute of Medical & Veterinary Science, Adelaide	215
Tasmania	Northern Tasmanian Pathology Service, Launceston	13
Victoria	Monash Medical Centre, Melbourne	51
	Royal Children's Hospital, Melbourne	71
	Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital	159
Western Australia	Princess Margaret Hospital, Perth	38
	State Health Laboratory Services, Perth	278
TOTAL		1532