


1369

**THE NORTHERN TERRITORY**

**COMMUNICABLE DISEASES BULLETIN**



**DE** NT DEPARTMENT OF HEALTH  
AND COMMUNITY SERVICES

CENTRAL LIBRARY Vol. 1, No. 6, October 1992  
16 MAY 1992

**Surveillance of Sexually Transmitted Diseases in the NT**  
*Frank Bowden, Co-ordinator AIDS/STD Unit, Darwin*

**Introduction:**

This paper outlines the Sexually Transmitted Diseases (STD) surveillance data for the NT for 1991. STDs remain a major public health problem in the NT. The intrinsic morbidities of diseases such as syphilis, gonorrhoea and chlamydia are not trivial; infertility, pelvic inflammatory disease, urethral strictures and congenital abnormalities, in their own right, deserve intensive efforts towards control. Add to this the fact that the control of STD will be one of the major determinants of the rate of spread of the human immunodeficiency virus (HIV) among Aboriginal communities in the

NT and one is compelled to conclude that STD control is a priority for Aboriginal Health.

The epidemiology of STDs in the NT differs dramatically from the rest of Australia. Figures for syphilis, gonorrhoea and chlamydia are very high, with rates of notification that are up to 40 times those of the southern states. To date the rate of new cases of HIV infection has been lower than for the rest of Australia.

It is important to note that the surveillance system in the NT, despite some important shortcomings, is in many ways more efficient than that of other parts of Australia. Some caution must be exercised therefore in national comparisons of data as the NT may be providing a more accurate profile of disease.

**a) Methods of Notification**

The Communicable Disease Centre (CDC) in Darwin receives notifications of communicable diseases from District Medical Officers, Communicable Disease Officers, Resident Medical Officers, General Practitioners and Community Health Centres throughout the NT. In addition, pathology laboratories notify specific diseases to the CDC. *Neisseria*

**CONTENTS:**

Surveillance of Sexually Transmitted Diseases	1
Arbovirus Infections in the NT, 1991-92	5
An outbreak of <i>Campylobacter</i> gastroenteritis	6
A measles case introduced to Alice Springs	8
Viral meningitis at the Royal Darwin Hospital	8
Tetanus - A timely reminder	9
Perinatal transmission of Hepatitis C	10
Vaccinating against meningococcal meningitis in East Arnhemland	11
Updates on: Japanese Encephalitis vaccine	12
Rubella	12
Hand, foot and mouth disease	12

EDITOR	Mahomed Patel	PRODUCTION DESIGN	Jean Smith, Veronica Barrett
		ASSISTANT EDITORS	Vicki Krause, Frank Bowden, Alan Ruben and Bart Currie.
ADDRESS	Disease Control Centre, Block 4, Royal Darwin Hospital PO Box 40596, CASUARINA NT 0811		

*gonorrhoeae*, *Chlamydia trachomatis* and reactive syphilis serology are routinely reported. These are cross-referenced with clinical notifications to avoid duplication. Duplication does occur as one laboratory does not provide unique identifying data in its notification reports.

Laboratory notification reduces the under reporting of disease, but clinical reporting is still important for diseases where laboratory tests are relatively insensitive eg histology for donovanosis, or where a clinical interpretation of a result is essential eg syphilis serology.

### b) Summary of STDs

Table 1 shows a selection of STDs and their rates of notification in the NT.

	NT Notifications of STDs (Rate /100,000 in parentheses)		
	1989	1990	1991
Syphilis	460 (265)	437 (251)	461 (265)
Gonorrhoea	584 (374)	558 (355)	739 (423)
Donovanosis		41 (24)	17 (9.8)
Chlamydia			482 (277)

### c) Specific Diseases

#### 1. Gonorrhoea

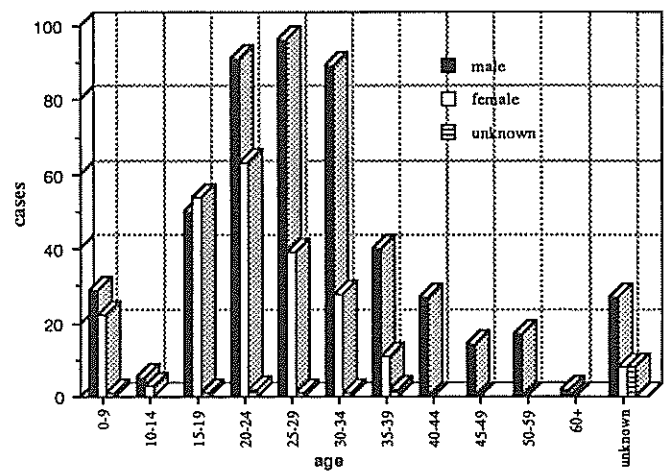
Gonorrhoea in the NT is the most commonly notified communicable disease in Australia (ref CDI July 1992). There were 76 cases notified in 1991 with an overall incidence rate of ~ 434/100,000 (cf. Victoria 9.6/100,000). There were no penicillinase-producing isolates detected.

A total of 52 cases were reported in children under the age of 9 years which raises the question of modes of transmission. Non-venereal spread is possible and investigation for possible sexual

abuse is undertaken at the discretion of the treating medical officer.

The data show that gonorrhoea occurs predominantly in Aborigines but there are significant numbers occurring in non-Aborigines. The attack rate where race is specified as non-Aboriginal is 58/100,000 which is still the highest in Australia.

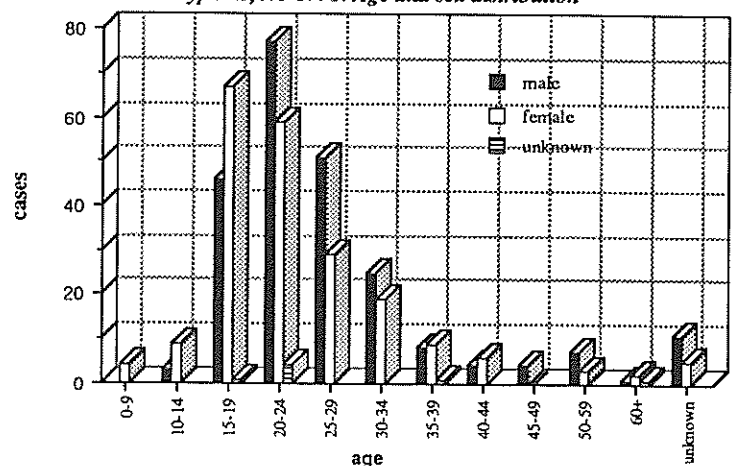
Gonorrhoea, NT 1991. Age and sex distribution



#### 2. Syphilis

Syphilis is a distinctly uncommon disease outside the Northern Territory. Notifications of syphilis are based on the interpretation of positive serology in the context of clinical presentation and history of previous treatment. Interpretation is often difficult and a proportion of notifications are likely to reflect previously detected rather than incident disease.

Syphilis, NT 1991. Age and sex distribution



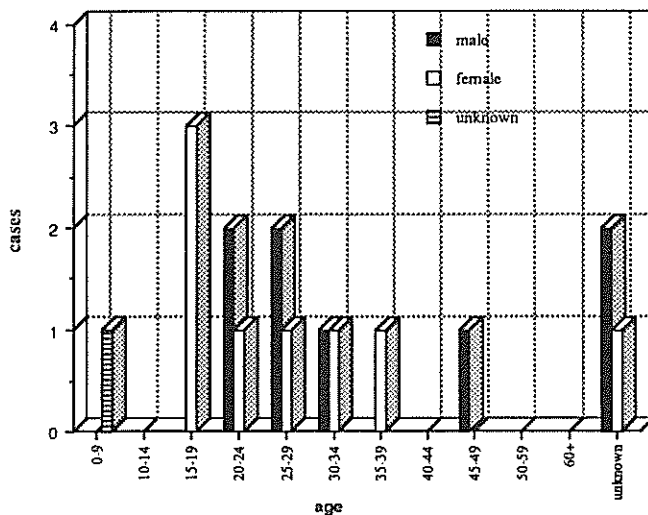
Syphilis is almost entirely confined to the Aboriginal population (409/461 cases), unlike gonorrhoea where there are significant numbers of non-Aboriginals affected.

### 3. Donovanosis

The surveillance figures grossly underestimate the actual incidence of this disease. A major reason for this is that the diagnosis of donovanosis (caused by *Calymmatobacterium granulomatis*) is problematic. Punch biopsy with Giemsa staining of the crushed tissue sample will provide a definite diagnosis but is not highly sensitive. The diagnosis is usually made by experienced clinicians on clinical grounds alone and we therefore encourage notification in the absence of histological confirmation if the clinician has commenced treatment on an empirical basis.

In the N.T. Donovanosis has only been notified in Aboriginal people.

Donovanosis, NT 1991. Age and sex distribution

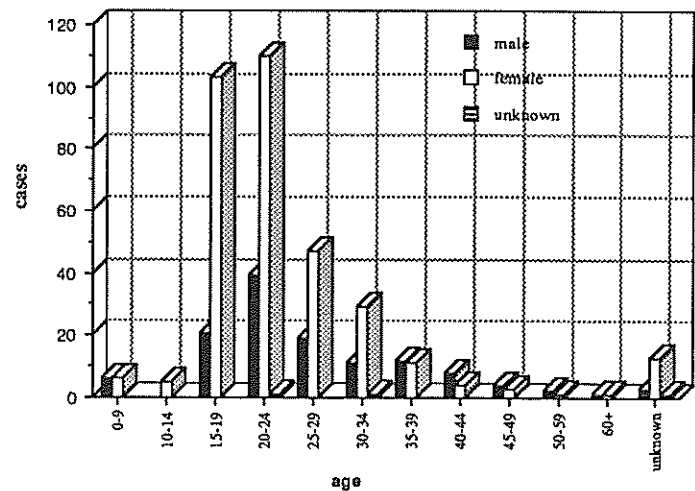


### 4. Chlamydia

The disease included in these statistics are urethritis, vaginitis and pelvic inflammatory disease. This is the only notifiable STD where female notifications outnumber male notifications.

*Chlamydia trachomatis* is commonly asymptomatic (especially in females) and these figures almost certainly under represent the true rate of disease. "Well-woman" and antenatal screening for chlamydia is performed at different rates throughout the NT and detection of disease is therefore influenced by local practice.

Chlamydia, NT 1991. Age and sex distribution



### 5. Human Immunodeficiency Virus (HIV)

New cases of HIV infection are routinely reported to the CDC by the pathology laboratories. Clinicians are also asked to notify the CDC if they commence treating HIV positive patients who may have already been notified in other States or Territories.

It is recommended that individuals who are at risk of HIV infection should be offered HIV testing; in particular, this refers to patients presenting with other STDs, individuals with multiple sexual partners and injecting drug users. To date there have been no notifications of newly diagnosed HIV infection in Aboriginal people in the NT.

**Table 2.1 Notification of persons newly diagnosed as HIV antibody positive by transmission category in NT (cumulative to 30 June 1992).**

Category	1985-1992	
	Cumulative to Aug 1992 Cases	(%)
Homo/bisexual males	47	70.1
Injecting Drug Users	5	7.5
Heterosexual	7	10.4
Haemophilia	1	1.5
Blood transfusion	0	0
Congenital	1	1.5
Other/unknown	6	9.0
<b>Total</b>	<b>67</b>	<b>100</b>

**Table 2.2 AIDS cases by District  
Cumulative to September 1992**

	Male	Female	Deaths
<b>Darwin</b>	10	0	6
<b>Alice Springs/Barkly</b>	2	0	0
<b>Katherine</b>	1	0	0
<b>East Arnhem</b>	0	0	0
<b>Total</b>	<b>13</b>	<b>0</b>	<b>6</b>

### Summary

Sexually transmitted diseases in the Northern Territory are notified at higher rates than anywhere in Australia. The problem is not entirely confined to the Aboriginal population but it is difficult not to conclude that STDs are a major concern for Aboriginal health. A co-ordinated strategy that addresses the Northern Territory's unique problems of surveillance, community education, treatment protocols and delivery continues to evolve. There is a need for innovative approaches to the treatment of STDs, especially in remote communities. In the shadow of an approaching HIV epidemic the need becomes urgent.

### Arbovirus infections in the NT, 1991-92

The wet season is upon us, and an update on arbovirus infections is timely. The risk of people contracting Ross River virus (RRV) and Barmah Forest virus (BFV) infections is expected to increase throughout the Top End of the NT from October onwards, with a peak in January or February.

Large numbers of the salt marsh mosquito and the common banded mosquito known to be associated with RRV, are likely to start breeding following the high tides of the late dry season or the start of the wet season rains. The salt marsh mosquito will bite at any time of day, but both bite primarily at dawn and dusk.

We urge colleagues to ensure that completed patient questionnaires on all new cases with arbovirus infections are urgently submitted. It is this response that would allow the Medical Entomologists to identify high risk areas in the NT for mosquito control measures promptly.

The figures show the epidemic curve and age-sex distribution of the 207 cases reported with Ross River virus (RRV) infections in the NT between July 1991 and September 1992. Of these, 86 cases were reported from urban Darwin, 44 from rural Darwin and Jabiru, 51 from East Arnhem, 17 from Katherine, 6 from the Barkly Region and 3 from Alice Springs.

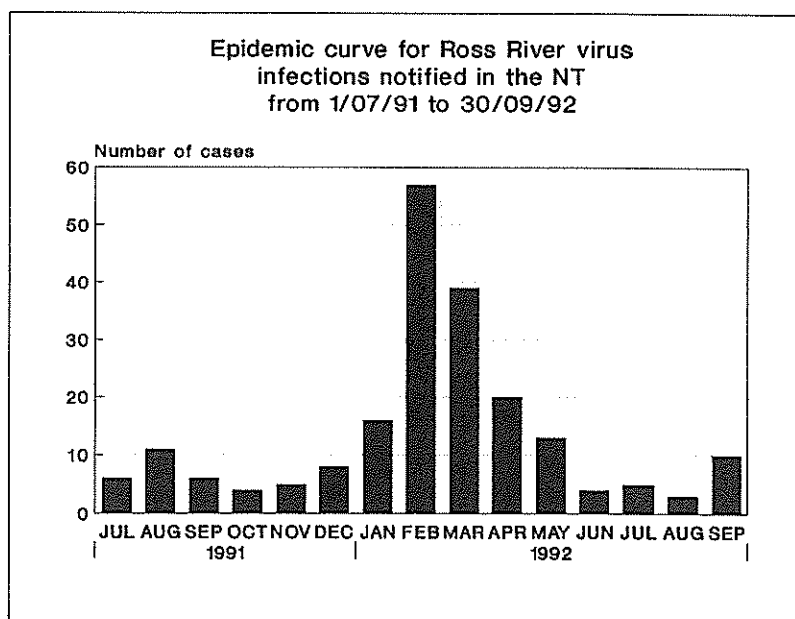
The seasonal pattern and age distribution for RRV infection are similar to those for the previous year when 499 cases were notified between July 1990 and June 1991.

In the Nhulunbuy outbreak between December 1991 and May 1992, 33 cases were serologically confirmed with RRV infections, 11 with combined RRV and BFV infections, and 41 with BFV infections.

After the detection of BFV in Nhulunbuy, general practitioners in the Top End agreed for patient's sera to be tested for this infection whenever an RRV infection was clinically suspected; eight cases had evidence of acute BFV infection on serology, and one had combined RRV and BFV infection.

As seen through the recent multimedia releases, our Medical Entomologists are gearing up once again for an intensive mosquito control program this wet season. We urge colleagues in the NT to ensure that the questionnaire forwarded to them by the laboratory with every positive result is promptly completed and returned. The most critical aspects of the notification are those details which help identify the locality where the patient was likely to have been bitten by mosquitoes.

Since January 1992, 170 cases with RRV infection have been directly notified to CDC by laboratories. However, only 118 completed

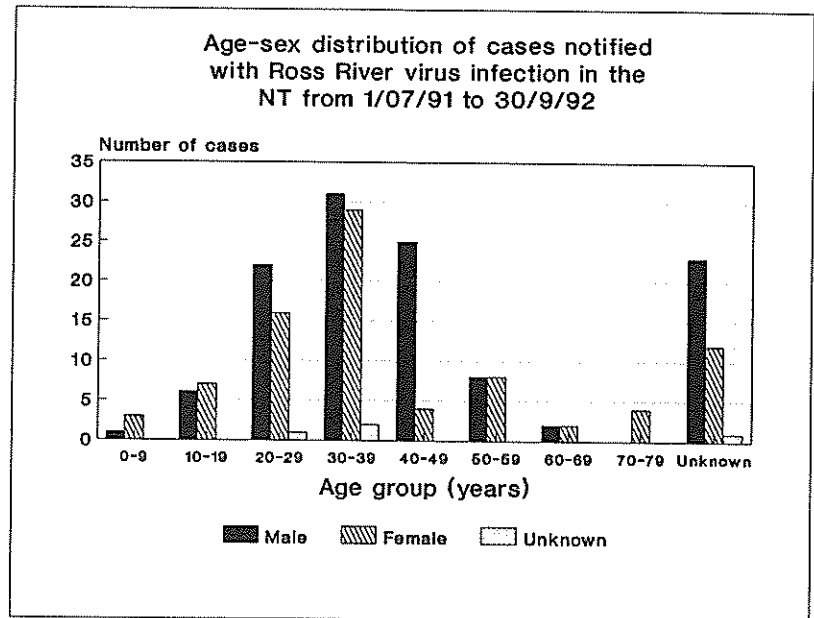


patient questionnaires have been returned. Such a limited response greatly hampers efforts to identify at risk localities that deserve action for mosquito control.

Mosquito control activity could be prioritised if patient questionnaires are completed and returned within 5 days of the laboratory report.

Alternatively, CDC staff would be willing to obtain information directly from patients if a contact address and preferably telephone number is provided.

Information and brochures on RRV and the mosquitoes which transmit it are available from the Medical Entomology Branch of the Department of Health & Community Services, telephone 228502.



### **An outbreak of *Campylobacter coli* gastroenteritis**

*Marisa Gillies, Rural Health, and Lindsay Mollison, Alice Springs Hospital.*

On July 9th, a 15 year old girl was admitted to Alice Springs Hospital with a 60 hour history of malaise, chills, fever, rigors, nausea and diarrhoea which had become bloody that day. The clinical diagnosis was campylobacteriosis. Blood and stool samples were sent for microbiological examination and the Communicable Diseases Centre (CDC) was notified.

The girl was one of a busload of 36 children and 10 adult staff on a camping trip to central Australia from a New South Wales high school.

#### **Methods**

We ascertained the names of all members of the

party. The clinical case definition included anyone who since July 4th had any of the following symptoms: nausea, vomiting, diarrhoea, fever, myalgia or abdominal pain. All cases were interviewed and asked to provide a stool sample.

A history of the trip was obtained which included the itinerary, descriptions of food preparation and sanitation practices and facilities.

#### **Results**

Of the 13 cases, only one had bloody diarrhoea. Ten stool samples were provided, and 6 of them yielded *Campylobacter coli* on culture.

The trip commenced on July 4th. Washing and sanitation facilities available at many of the stops were inadequate. Food was cooked from on board supplies by a tour company chef.

At a remote town in New South Wales, on July

5th, the toilet used by the group had faeces on the floor. On the same evening there was only one shower and one toilet in the hotel.

The meals had been:

July 4th - salad and vegetables for lunch, and chicken and pork kebabs for dinner July 5th - breakfast - bacon and eggs; lunch - salad; dinner - soup, steak and vegetables. July 6th - breakfast - cereal and milk; lunch - left over steak; dinner - chicken patties.

Several children developed nausea, cramps, fever and diarrhoea on July 6th. Two of them were taken to Mt Isa Hospital on July 7th, where one received Amoxyl for tonsillitis. By July 8th, 9 children had cramps and diarrhoea.

On July 9th the group arrived in Alice Springs, when 3 children were taken to the hospital, one of whom was admitted. This girl required intravenous rehydration and received oral norfloxacin. Five others later required medical assessment, and one was admitted for overnight observation.

Prior to microbiological confirmation of the diagnosis, there was concern about the possibility of the outbreak being due to shigellosis, and therefore all the bus occupants were offered a course of cotrimoxazole.

The party was relocated from a caravan park to a local boarding school, and a planned trip to Kings Canyon was postponed.

### Discussion

Campylobacter is the most common bacterial cause of gastroenteritis in the developed world. The usual incubation period is 2-6 days and the typical illness is as described in the girl who was admitted to hospital, although bloody stools are not always present. The disease is usually self-limiting, but because the girl was toxic and needed to travel again, she was given empirical antibiotic therapy. Erythromycin and norfloxacin are suitable agents to use.

A variety of contaminated foods and fluids have been implicated in other outbreaks. The descriptions of re-use of food on this trip raises questions about the adequacy of storage and preparation of food. It was not possible to identify the source of contamination in this outbreak. However, it was possibly the chicken kebabs or patties as the first children to become ill reported symptoms on the second day after ingestion, consistent with the known incubation period.

The public health implications for the outbreak were significant. At some campsites, the children had been defaecating in the bush without digging holes. Ablution facilities on the road had been of low standard and inadequate for the size of the group. Kings Canyon campground was to be the next stop after Alice Springs. At the time it was peak tourist season and facilities were already stretched. Prompt action averted further morbidity.

### Editorial comment:

The authors have postulated that the chicken kebabs or patties were the likely contaminated food. This is because campylobacter is ubiquitous in many chicken flocks. The addition of antibiotics to chicken feed over the past year in Tasmania has reduced the notified cases of campylobacter enteritis by 60%.

There was justified concern that this outbreak may have been due to shigella; this organism and its high infectivity with a small inoculum could have led to a major outbreak in the crowded camp-sites seen at the peak of the tourist season. This was illustrated 2 years ago in Darwin, when a major outbreak of shigellosis occurred in young children from a contaminated wading pool.



---

---

## A measles case introduced to Alice Springs

*Sue Reid, Di Brookes CDC, Greg Winterflood, A&E, Alice Springs Hospital*

A 10 year old boy travelled overnight on the Ghan from Port Augusta to Alice Springs on September 28th. He presented to the Alice Springs Hospital almost immediately after disembarkation on September 29th, a clinical diagnosis of measles was made, and CDC was notified.

The boy and his mother took the Ghan from Alice Springs to Port Augusta on September 11th. They spent 3 days with family members in Port Germein and 2 weeks in Whyalla.

On September 25th he developed a cough, fever, conjunctivitis, anorexia and a sore throat. The next day he was prescribed Bactrim for his pharyngitis, and a day later he had conjunctivitis and a rash which was attributed to the Bactrim.

He was treated in Alice Springs Hospital for pneumonia. Measles serology was confirmed positive on September 30th. He improved rapidly and was discharged three days later.

### Public health measures

The South Australian Health Commission was notified of his contacts in Whyalla and Port Germein, and one of them was thought to have had measles.

Siblings of the index case, a girl aged 19 and a boy aged 14 both accepted MMR on September 29th. Neither had previously been immunised.

A 10 year old girl cousin who accompanied the index case over the past two weeks was advised to remain isolated until her immunisation status could be established.

Immunisation records of the few children who had been in the Accident and Emergency Unit of the Hospital when the index case was seen there, were checked and updated.

A press release was made to alert passengers on the Ghan to ensure children and teenagers were immunised. CDC received several calls, mostly from adults who were not considered to be at risk of infection. Two girls aged 8 and 11 years who had the measles mumps vaccine as infants accepted MMR as an added precaution.

---

---

### Viral meningitis at the Royal Darwin Hospital

*D Fisher B Currie A Ruben D Smith. Royal Darwin Hospital, CDC and Perth State Laboratories.*

Between March 28 and May 30 1992, 12 patients were admitted to the Royal Darwin Hospital with viral meningitis. Over the two preceding years only 6 patients were diagnosed. All the patients identified during this outbreak had clinical features consistent with viral meningitis and a C.S.F. leukocytosis ranging from 10 to 495 cells mm<sup>-3</sup>. Some had a polymorph predominance. The age range was 1 month to 35 years with a mean of 17 years.

The likely agent of greatest significance was echovirus type 9. In 3 patients the virus was cultured from C.S.F. and at least one other site (throat swab or faeces). In one other patient it was cultured from faeces but not C.S.F.

Since this outbreak was notified in the Communicable Diseases Intelligence (CDI) (24 August 1992), CSF from one patient who was previously culture negative has grown coxsackie B3, thus introducing some heterogeneity into our findings.



Unlike the current outbreak in Perth (CDI 1992;16:325), our epidemic was brief and there have been no cases since May 30. All our patients were apparently epidemiologically unrelated and no connection with other interstate outbreaks was found.

### Editorial Comment

Nine cases with an echovirus type 6 infection were reported from Western Australia from July 1 to 14, 1992. All but one of the cases had meningitis, and the age range of the patients was 2 months to 38 years.

Coxsackie and Echo enteroviruses are the viruses most commonly isolated from patients with aseptic meningitis. Transmission of enteroviruses is by faecal-oral, oral-oral and respiratory routes. The viruses infect all age groups, but meningitis occurs most commonly in children.

Mumps meningitis in the presence of parotitis is not difficult to diagnose but occasionally meningitis is the only manifestation of mumps infection.

---



---

## Tetanus - A timely reminder

*Karen Piper, Disease Control, Darwin.*

On September 17th, 1992 a 79 year old grandmother from NSW was admitted to the Intensive Care Unit of RDH with tetanus which was diagnosed by her general practitioner. The previous case in the Northern Territory was in an elderly woman in December 1990.

Tetanus is preventable, yet an average of 6 cases are reported every year in Australia; 9 cases have been reported for 1992.

The greatest risk factor for tetanus is the lack of appropriate immunisation. In the USA, approximately 96% of cases reported between 1975

and 1984 occurred in persons who had received fewer than 3 doses of tetanus toxoid. Of the remaining 4%, many had either received the third dose as part of wound management or had not had a booster dose within 10 years.

Vaccination against tetanus was introduced in 1940. Persons over the age of 60 are at risk of disease, reflecting poorer immunisation levels in this age group compared to younger age groups. Darwin Central Community Health Nursing staff have been addressing this issue. They organised a bus, with the cooperation of the Council of the Ageing, for an information coffee morning and then offered immunisation. They have distributed pamphlets to the elderly clients they serve and have conducted mobile immunisation campaigns at the Coffee Buses where the long grass population congregates.

Questions that are frequently asked by health staff include:

*How often is a booster of tetanus/diphtheria toxoid recommended?*

A booster of ADT (adult dose of diphtheria/tetanus toxoid) is recommended every 10 years. *What if an adult has never received the tetanus or diphtheria vaccine previously?*

A primary course is needed and consists of three doses of ADT given at 0 and 2 months, and the third injection 6-12 months later.

*If a person had only one injection of ADT or tetanus vaccine, will a full course be needed?*

No. The person needs another 2 doses given at least 2 months apart. It is the total number of doses rather than the interval between them which is important. Three doses over a 10 year period is equivalent to a full course.

*If a person is unsure of the last dose of tetanus or ADT vaccine, but thinks it was given at least 20 years ago, how many doses are recommended?*

Two doses at least 2 months apart. If the person reports a severe local reaction, it suggests that the person probably has adequate antibody levels, and a further dose is not needed.

In June 1992, the NH&MRC updated its recommendations for tetanus prophylaxis in patients sustaining trauma. A copy is available from CDC.

## Perinatal transmission of Hepatitis C

*Alan Ruben, Epidemiology Registrar, Darwin*

We are often asked for information on hepatitis C by both health professionals and lay people. The advice we give, and the best source of information and guidelines for management, comes from publications put out by the Australian Gastroenterology Institute, and a paper titled "Hepatitis C infection in Australia" by Dr. Katrina Watson, which was published in *Modern Medicine* in July 1991. Copies of these publications are available from C.D.C.

One topic not adequately addressed in these documents is the risk of perinatal transmission. We have conducted a literature review, and consulted with relevant interstate specialists in preparing this paper.

### Terms:

1. HCV - Hepatitis C Virus
2. Anti-HCV antibody - IgG antibody to hepatitis C, indicating past or present infection.
3. PCR - Polymerase chain reaction, a test for detecting the virus.
4. HCV RNA - Hepatitis C RNA, detected by polymerase chain reaction.

The presence of antibodies to HCV in the blood signifies that the person:

1. Has active HCV hepatitis (in the presence of abnormal liver function tests), or
2. Is a chronic carrier without hepatitis, or
3. Had past exposure (with or without disease), and cleared the infection.

At present, there is no generally available reliable test to distinguish which of these possibilities may pertain to a particular patient, as the PCR is only performed in research institutions.

In a woman, liver function tests may be abnormal as a result of pregnancy; this complicates an attempt to categorise the disease status if she has antibodies to HCV.

### **A baby born to a mother who has anti-HCV antibodies.**

The rate of perinatal transmission has not been established. The generally accepted figure in Australia is around 1%, but an increasing number of papers suggest it may be far higher.

There are two difficulties with interpreting anti-HCV antibody results in the very young age group.

1. Passively acquired maternal antibodies can be detected for over 12 months.

2. Recent work from several centres suggest that children shown to have HCV RNA on PCR do not always produce antibodies. Using PCR, the perinatal transmission has been found to possibly exceed 33%, in some cases without the presence of anti-HCV antibodies. Spontaneous clearing of HCV RNA has also been reported.

### Breast Feeding.

The issue of transmission in breast milk is unresolved. Although there have been no published reports of HCV RNA being found in breast milk, it will take considerably more work before the possibility of transmission through breast milk can be excluded with confidence.

The advice being given in major Australian institutions is that breast feeding probably doesn't constitute a risk. The issue is whether the benefits of breast feeding in terms of nutrition and safety outweigh the small unproven potential risks. These have to be discussed and considered on an individual basis.

### Other children of a mother who has anti-HCV antibodies.

The children should be tested, and if positive for anti-HCV antibodies, they should be discussed with a paediatrician.

### Conclusions.

The risk of perinatal transmission is unclear. It may be as low as 1%, or may exceed 30%.

The issue of the safety of breast feeding is not resolved, and should be considered in conjunction with the parents on an individual basis.

At present, the major interstate centres who have formed an opinion are advising that the benefits of breast feeding usually outweigh the potential risks.

We recommend the following measures for babies born to mothers who have anti-HCV antibodies:

1. Liver function tests and anti-HCV antibody measured in the neonatal period, and at ages 6, 12 and 18 months, or if clinically indicated.
2. Referral for a specialist opinion if the liver function tests are abnormal, or if the antibody

status remains positive at age 18 months.

3. The benefit and risk of breast feeding should be discussed with the parents.

4. Keep up-to-date with more information, as the state of knowledge on HCV is continually evolving.

References are available from the author.




---

### Vaccinating against meningococcal meningitis in East Arnhemland

*Hartley Dentith and Jane Donaldson*

*Communicable Disease Centre, Nhulunbuy*

Six cases with meningococcal meningitis were reported from East Arnhemland between September 1991 and July 1992. Following the last two cases which were caused by serogroup C infections, the meningococcal vaccine (Mencevax AC) was offered to children aged 1-15 years in the two affected communities near Nhulunbuy (NT Communicable Diseases Bulletin, July 1992).

More recently, in September 1992, a child in Yirrkala developed meningitis caused by serogroup C *N. meningitidis*. Direct contact with the previous cases could not be established.

Because of the regular movement of people between Yirrkala, its homelands and other parts of the region, Mencevax AC is being offered to all children aged 1 to 15 years in East Arnhemland. It is estimated that the program will cover between 500 and 600 children.

---

## Update on Japanese Encephalitis vaccine

Japanese Encephalitis (JE) is an acute viral encephalitis transmitted by mosquitoes, mainly of the *Culex* group. JE occurs throughout the year and has been reported in several Asian countries.

With increasing numbers of Australians travelling to these countries, there have been a number of enquiries about the vaccine.

The Commonwealth Department of Health, Housing and Community Services has suspended authorisation for the use of the vaccine as major adverse effects have been reported.

The standard advice to travellers, particularly those planning to visit rural areas, should emphasize protection against mosquito bites:

- . Avoid outdoor exposure between dusk and dawn, particularly in rural areas /urban fringes
- . Wear long loose clothing at and after dusk; light coloured clothing is preferable to dark clothing.
- . Do not use perfumes, colognes and after-shave lotions as they attract mosquitoes.
- . Use effective insect repellents. They should not contain more than 20% DEET active ingredient. RID is recommended.
- . Use "Knock-down" sprays and other repellents such as coils. Use mosquito nets especially if sleeping in non air-conditioned accommodation or in unscreened living quarters.

---

### Hand, foot and mouth disease

The outbreak of hand, foot and mouth disease has caused some parental concern and media interest because of the similarity in name of the unrelated disease of cattle, 'foot-and-mouth disease'. In the United States, the disease of cattle is called 'hoof and mouth disease' which probably helps allay anxiety.

Exact numbers of affected children are not known, although several child-care centres and doctors have reported seeing cases.

### Is there rabies in Bali?

In September 1992, a child on holiday in Bali was bitten by a monkey. The family sought advice directly from CDC.

In 1991, the NH&MRC rescinded an earlier recommendation and advised that Bali had been maintained rabies free. It is therefore not necessary to offer post-exposure vaccination against rabies following monkey bites sustained in Bali.

Routine immunisation against rabies for tourists to S.E. Asia is not recommended. The vaccine should be considered for people at high risk such as veterinarians, agricultural advisers and laboratory workers.

---

### Rubella

There has been a major outbreak of rubella in New South Wales, the ACT and Victoria over the past 2 months. It is principally affecting teenage boys who are usually not vaccinated; in one school in Geelong, 170 boys contracted rubella.

Six cases have been reported in the Darwin area, with two cases confirmed on serology. In addition, several children in Tennant Creek are suspected of having rubella, and laboratory results are pending.

The major outbreak in the south-eastern states does not appear to have significantly affected the Northern Territory. Although rubella is not a notifiable disease, we urge health professionals to notify CDC of the age and sex of any cases, and if a woman, whether she is pregnant.