TERRITORY HEALTH SERVICES
Northern Territory Government

THE NORTHERN TERRITORY

# DISEASE CONTROL BULLETIN

NT

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## What's new in immunisation?
## Changes to the Australian and Northern Territory Standard Vaccination Schedules

The National Health and Medical Research Council (NHMRC) has recently finalised the 7th Edition of *The Australian Immunisation Handbook* and a new Australian Standard Vaccination Schedule (both due for release late April 2000). The Centre for Disease Control, Territory Health Services has developed new Northern Territory (NT) Childhood and Adult Vaccination Schedules that will incorporate the NHMRC recommendations. The NT schedules continue to differ slightly from the Australian Standard Vaccination Schedule. This is due to the NT's higher incidence of some vaccine preventable diseases (eg invasive pneumococcal disease in identified at risk populations) and to differences in past vaccination schedules. For example, implementation of the 1998/99 NT School Age Hepatitis B Program which targeted 6-16 year olds, along with a universal NT Infant Hepatitis B Program since 1990 means the NT Schedule does not need to include adolescent hepatitis B vaccination.

### Changes to the Australian Standard Vaccination Schedule

A long awaited change to the schedule comes with the approval of two combination vaccines for use in Australia. These two vaccines are:

1. **Infanrix-hepB™** (SmithKline Beecham). Diphtheria-tetanus-acellular pertussis vaccine (Infanrix™) combined with paediatric hepatitis B vaccine (Engerix™); and
2. **Comvax™** (Merck Sharp Dohme distributed by CSL). Haemophilus influenzae type b vaccine

**Contents**

What's new in immunisation? Changes to the Australian and Northern Territory Standard Vaccination Schedules ..... 1
NT Standard Childhood Vaccination Schedule, 1/5/2000..... 3
NT Adult and Special Groups Vaccination Schedule..... 4
Dengue, public health and interpretation of serology results . 5
Dengue Alert! Increase in Dengue Fever notifications in visitors to East Timor..... 6
Dengue Fever - Information Sheet ..... 8
Dengue Fever notification reminder to clinicians..... 9
Doctor/hospital report of notifiable condition..... 10
Alert from Far North Queensland ..... 11
Gonorrhoea testing and antimicrobial resistance in the NT . 11
Feasibility study for the NT Pneumococcal Vaccine Trial... 12
Addendum..... 12
Enhanced Measles Control Campaign..... 13
Implementing ' Total Recall' at Jabiru Community Health Centre..... 15
Points to note regarding notifications..... 18
NT notifications of diseases by districts 1999 and 1998..... 19
Notified cases of vaccine preventable diseases in the NT by report date 1999 and 1998..... 20
NT wide notifiable diseases 1999 and 1998 ..... 20
NT malaria notifications, October to December 1999 ..... 21
Revised CDC guidelines ..... 21
Staff updates ..... 21
Cumulative index ..... 22

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The 2000 Australian Standard Vaccination Schedule offers 2 "paths" or options for children at 2 months to 12 months and the States/Territories can choose one or the other. Path 1 uses **Infanrix-hepB™** (DTPa and hepatitis B) and Path 2 uses **Comvax™** (Hib and hepatitis B).

For adults, an ADT booster is now recommended only at 50 years of age. This replaces the long standing recommendation of routine 10 yearly ADT boosters.

The start date for the new schedule is 1 May 2000.

## Changes to the NT Vaccination Schedules

The NT Standard Childhood Vaccination schedule (see page 3) will follow Path 1. This option has been chosen because it uses vaccines currently administered in the NT and therefore is more consistent with the current schedule familiar to vaccine providers.

**Only children born on or after 1 May 2000 will follow the new schedule while children born before 1 May 2000 will continue on the current vaccination schedule.**

The current and new schedules (see Table 1) will run concurrently until December 2000.

Dose 2 of hepatitis B vaccine will no longer be given at one month of age. Instead, hepatitis B dose 2 and 3 for infants will be included in the combination vaccine *Infanrix-hepB*™, at 2 and 4 months with an additional fourth dose at 6 months.

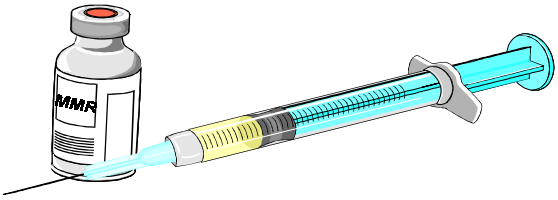
Pneumococcal vaccination (the 23 valent polysaccharide pneumococcal vaccine - Pneumovax 23®) is now recommended by CDC for all Central Australian Aboriginal children, 2-5 years of age. This is based on data showing a rate of invasive pneumococcal disease 4 times higher than non-Aboriginal children of the same age in Central Australia, and 8 times higher than children in the Top End in the 2-14 years age group (with the highest rates occurring in the younger years).

Additionally, it is now recommended by CDC that all Aboriginal people in the NT aged 15 years and over receive Pneumovax 23® every five years. NT Aboriginal people aged 15-49 years have a rate of invasive disease 14 times higher than that of NT non-Aboriginal people in the same age group. Aboriginal people in the NT aged 15-49 years and Aboriginal children aged 2-14 years in Central Australia have rates of invasive pneumococcal disease of about 100 per 100,000.

**Table 1 Changes to the NT Childhood Vaccination Schedule for children from birth to 12 months of age**

| Age | Current schedule | New schedule, 1/5/2000 |
|---|---|---|
| Birth | Hepatitis B (Engerix B™) | Hepatitis B (Engerix B™) |
| 1 month | Hepatitis B | ——— |
| 2 months | DTPa (Infanrix™) | DTPa-hepatitis B (Infanrix-hepB™) |
| 4 months | DTPa (Infanrix™) | DTPa-hepatitis B (Infanrix-hepB™) |
| 6 months | DTPa (Infanrix™)<br>Hepatitis B | DTPa-hepatitis B (Infanrix-hepB™) |
| 12 months | MMR | MMR |

The new NT Standard Childhood Vaccination Schedule for children from birth to 15 years of age and the revised NT Adult and Special Groups Vaccination Schedule are shown on pages 3 and 4 respectively.



# Northern Territory
# Standard Childhood Vaccination Schedule, 1/5/2000

| Age | Vaccine | Product |
|---|---|---|
| Birth | Hepatitis B (hepB)<br>* Hepatitis B Immunoglobulin<br>* Bacille Calmette-Guérin (BCG) | Engerix-B™<br>Hepatitis B Immunoglobulin<br>BCG Vaccine |
| 2 months | Diphtheria-tetanus-acellular pertussis + hepatitis B (DTPa-hepB)<br>Oral polio (OPV)<br>Haemophilus influenzae type b (Hib) | Infanrix-hepB™<br>Polio Sabin™<br>PedvaxHIB™ |
| 4 months | DTPa-hepB<br>OPV<br>Hib | Infanrix-hepB™<br>Polio Sabin™<br>PedvaxHIB™ |
| 6 months | DTPa-hepB<br>OPV | Infanrix-hepB™<br>Polio Sabin™ |
| 12 months | MMR<br>Hib | Priorix™<br>PedvaxHIB™ |
| 18 months | DTPa | Infanrix™ |
| 2-5 years<br>(Aboriginal - Central Australia) | Pneumococcal (then every 5 years) | Pneumovax23® |
| 4 years | DTPa<br>OPV<br>MMR | Infanrix™<br>Polio Sabin™<br>Priorix™ |
| 15 years | Adult diphtheria-tetanus (ADT)<br>OPV | ADT Vaccine™<br>Polio Sabin™ |
| 15 and over<br>(Aboriginal) | Pneumococcal (every 5 years) | Pneumovax23® |

**Specified risk groups only*

**Notes on the NT schedule, which varies from the Australian Standard Vaccination Schedule.**

1. **BCG**: CDC recommends BCG at birth for Aboriginal neonates, neonates who will live in Aboriginal communities and neonates born to mothers who have been treated for leprosy.
2. **Pneumococcal**: CDC recommends introduction of pneumococcal vaccination for **all Central Australian Aboriginal** children 2-5 years of age and progressive introduction of pneumococcal vaccination for **all Northern Territory Aboriginal** people 15 years of age and older.
3. **All children over 2 years** of age with medical risk factors (eg more than one episode of pneumonia, chronic lung, renal or heart disease) should be offered pneumococcal vaccine.

For more information contact the CDC in your district, Community Health/Care Centre or your doctor.

☎ 8922 8044 Darwin
8951 7550 Alice Springs
8973 9049 Katherine
8987 0359 East Arnhem
8962 4259 Barkly

CDC, Darwin, March 2000

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# Northern Territory
# Adult and Special Groups Vaccination Schedule

| Adults* | | |
|---|---|---|
| **Age** | **Vaccine** | **Product** |
| 15 years | Adult diphtheria-tetanus (ADT)<br>OPV | ADT Vaccine™<br>Polio Sabin™ |
| 15 years and over<br>(Aboriginal) | Pneumococcal (every 5 years) | Pneumovax23® |
| 50 years | ADT | ADT Vaccine™ |
| 50 years<br>(Aboriginal) | Pneumococcal (every 5 years)<br>Influenza (every year) | Pneumovax23®<br>Fluvax® |
| 65 years<br>(non-Aboriginal) | Pneumococcal (every 5 years)<br>Influenza (every year) | Pneumovax23®<br>Fluvax® |
| **Special Groups** | | |
| Non-immune women who are of child | MMR | Priorix™ |
| Anatomic or functional asplenia | Meningococcal (every 3 years)<br>Pneumococcal (every 5 years)<br>Influenza (every year)<br>Haemophilus influenza type b (Hib) | Menomune®<br>Pneumovax23®<br>Fluvax®<br>PedvaxHIB™ |
| Diabetes, malignancy & chronic conditions eg alcoholism, lung, cardiac, | Pneumococcal (every 5 years)<br>Influenza (yearly) | Pneumovax23®<br>Fluvax® |
| HIV infection | Meningococcal (every 3 years)<br>Pneumococcal (every 5 years)<br>Influenza (every year)<br>Hib | Menomune®<br>Pneumovax23®<br>Fluvax®<br>PedvaxHIB™ |
| Haemodialysis or transplant recipients | Pneumococcal (every 5 years)<br>Influenza (every year)<br>Hepatitis B<br>Hib | Pneumovax23®<br>Fluvax®<br>Engerix™<br>PedvaxHIB™ |
| Chronic liver disease | Pneumococcal (every 5 years)<br>Influenza (every year)<br>Hepatitis A<br>Hepatitis B | Pneumovax23®<br>Fluvax®<br>Havrix™<br>Engerix™ |
| People who engage in anal sexual practices and injecting drug users | Hepatitis A<br>Hepatitis B | Havrix™<br>Engerix™ |
| Multiple sexual partners and/or STDs | Hepatitis B | Engerix™ |

*All adults born after 1960 should have one MMR

*Travellers and some occupations require specific vaccinations.

For more information contact the CDC in your district, Community Health/Care Centre or your doctor.

( 8922 8044 Darwin
8951 7550 Alice Springs
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8987 0359 East Arnhem
8962 4259 Barkly

CDC, Darwin, March 2000

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# Dengue, public health and interpretation of serology results

*CDC, Darwin*

The Northern Territory (NT) has mosquitoes and a range of mosquito borne diseases eg Ross River Virus, Barmah Forest Virus and, rarely, Australian Encephalitis caused usually by Murray Valley Encephalitis virus or possibly Kunjin virus. However, we are unique in the tropical world, as we are currently *dengue free*. The mosquito vectors of dengue are no longer present in the NT.

Dengue Fever is a notifiable disease in Australia including the NT, where, as indicated above, all cases are acquired elsewhere ie they are "imported." Surveillance for the disease and active surveillance for the vector are in place in the NT to ensure that this *dengue free* status in the NT continues.

Our near neighbours of Queensland, Indonesia and East Timor all have the mosquitoes that transmit dengue. With recent events in East Timor and increased travel to Dili and other parts of East Timor by people from Darwin and others who come to Darwin for health care, the number of cases of Dengue Fever imported from East Timor has increased dramatically (see next article on page 6).

Additionally there has been a marked increase in transport vessels travelling between Darwin and East Timor. This has been via air with numerous flights per day in recent months, and via sea eg the HMAS Jervis Bay catamaran and other ships making frequent voyages. The recognised potential for importing dengue mosquitoes has led to heightened surveillance and spraying measures in the NT.

## The Case

On 26 January 2000, a young Aboriginal woman attended the Royal Darwin Hospital Accident and Emergency with rigors, fever and flank pain. She had a history of living outdoors and had regular contact with mosquitoes. The resident assessing the patient was new to the NT and having heard a lot of talk about recent Dengue Fever cases in the hospital included serology for dengue in the patient's workup. The woman was admitted to hospital, responded well to treatment for a bacterial urinary tract infection and was discharged on 28 January.

## Public Health Action

The Centre for Disease Control was notified by the laboratory of positive flavivirus screen results on 1 February: Flavivirus (HI) 1:160 with Dengue IgM (FA) detected. Medical Entomology was alerted. An intensive investigation was initiated to locate the woman and determine: travel, area of residence/s for previous six to twelve months; signs/symptoms and length of illness prior to admission; and finally, to obtain a 'convalescent' serology to assess the validity of the dengue serology result.

After one week of searching via the woman's home community and a sister in Darwin, the area she was currently living in was identified. She was located four days later and a 'convalescent' blood sample was obtained. The woman reported that she was born and grew up in a rural community in the NT. She had never travelled outside of the NT to areas known to have dengue (eg Queensland, East Timor) and had been living outdoors in the Darwin area since the middle of the 1999 Dry season.

The 'convalescent' serology was negative (FA) for Dengue IgM but again had a Flavivirus (HI) titre of 1:160. Repeat testing of the initial blood sample from 26 January along with one from 28 January found Dengue IgM (FA) *not detected*. It was

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# Editorial

The initial positive IgM dengue report from this Darwin resident set in motion an appropriate investigation to exclude local transmission of dengue virus in the Northern Territory (NT).

Dengue and its main vector mosquito, *Aedes aegypti*, have invaded north Australia periodically since the 1880s. Initial epidemics spread south as far as northern New South Wales. With malaria, dengue was endemic and an important cause of fevers in both north Queensland and the Top End of the NT in the first half of the 1900s.

*Ae. aegypti* breeds in water receptacles, and the replacement of house rainwater tanks with reticulated water is thought to at least partly

account for the dramatic decline in *Ae. aegypti* that resulted in eradication of dengue from Australia by 1955.

However in the 1980s a resurgence of *Ae. aegypti* and dengue occurred in north Queensland, with seven outbreaks documented between 1990 and 1998.[1]

*Ae. aegypti* remain re-established in coastal north Queensland, allowing continuing outbreaks of dengue from viruses imported in travellers. *Ae. aegypti* and hence dengue currently remain eradicated from the NT and Western Australia. Meticulous surveillance by Territory Health Services Medical Entomology and Australian Quarantine Inspection Services (AQIS) has detected occasional importation of *Ae. aegypti* larvae into the NT which have been rapidly dealt with. With the escalation of activity in East Timor, where *Ae. aegypti* are abundant and dengue is rampant, continuing vigilance and resources for surveillance are critical to maintain the NT's *dengue free* status.

The false positive dengue serology in the Darwin patient described is a timely reminder of the caution required in interpreting the significance and reliability of serology results. In this instance the false result was due to a technical problem in the testing laboratory – repeat testing and testing of another sample from two days later were both negative. More commonly encountered are positive or weakly positive IgM results of uncertain significance reflecting problems of specificity of the IgM assay. This can apply to any IgM assay because of non-specific cross-reaction, but appears to be especially problematic for arbovirus infections including dengue, Ross River Virus, Barmah Forest Virus, Murray Valley Encephalitis and Kunjin. Reasons for false positive IgM results include other IgM cross-reacting with the virus or detection of virus specific IgG (past exposure) or cross-reacting IgG or other non-specific binding in the IgM assay.

There is a impression amongst clinicians in northern Australia that the specificity of some IgM assays in the region may be less than stated by the manufacturers. This is possibly because of increased exposure to cross-reacting arboviruses (and bacteria and parasites for other assays) in the region and increased total levels of IgG and IgM in people in remote Aboriginal communities. This concern has public health and clinical implications and a formal study of regional specificity of various IgM assays would be useful in documenting the situation.

Interpretation of serology results must be made in light of the clinical circumstances. Whatever the specificity of a test, the positive predictive value (ie reality of a positive result) will be lower in areas where the incidence of the specific infection is lower. If there is clinical doubt about a positive or a negative result, paired serology looking for a rising titre remains the gold standard for serology diagnosis.[2] This is also important if there are public health implications of a positive result. However even with paired serology, a rise in titre may occasionally be due to a rise in titre to a cross-reacting unidentified virus. Hence, as with bacteriology and parasitology, the ultimate gold standard is isolation of the organism (virus, bacterium or parasite) from an appropriate blood or tissue sample. Melioidosis and strongyloidiasis are local examples of where emphasis needs to be placed on culture or microscopy, rather than serology, for confirmation of active infection.

**Bart Currie**
Menzies School of Health Research and
NT Clinical School

## References

1. Hanna JN, Ritchie SA, Merriff AD et al. Two continuous outbreaks of dengue type 2 in north Queensland. *Med J Aust* 1998; 168:221-225.

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## DENGUE ALERT!

# Increase in Dengue Fever notifications in visitors to East Timor

*Vicki Krause, CDC, Darwin*

Dengue is the most widespread human mosquito borne disease found in the world. Over the past 10 to 15 years there has been a dramatic increase in the incidence of dengue and its severe manifestation, dengue haemorrhagic fever, which can be fatal.

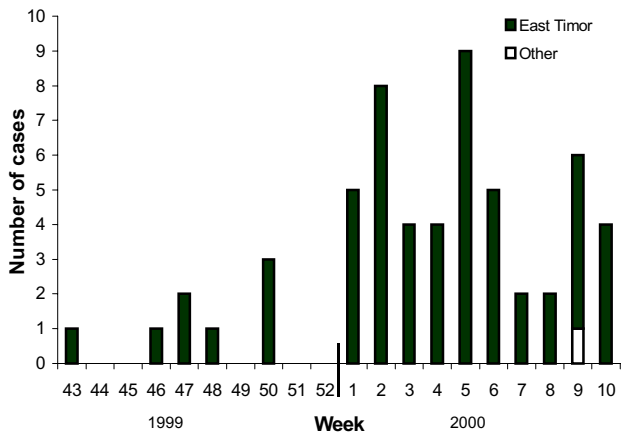
The Northern Territory (NT) is fortunate in the tropical world in being "*dengue free*", as the mosquitoes that transmit dengue are not found here. Territory Health Services' (THS) Medical Entomology and other agencies work hard to keep it that way. Dengue is a notifiable disease in the NT as well as nationwide and public health action is taken to assure all cases reported in the NT are

acquired elsewhere.

Recent events in East Timor have led to increased travel to East Timor by Territorians and by others using Darwin for health care services. A marked increase in recent dengue notifications has highlighted that Dengue Fever is common in East Timor. While in previous years the NT has had 6-8 cases from Indonesia, Thailand and elsewhere, in 1999 there were 15 cases with 8 since September acquired in East Timor. Already since 1 January 2000 there have been 50 reported cases with 49 being acquired in East Timor, including one death from Dengue Haemorrhagic Fever. Nineteen of the 49 cases were in resident Territorians. Figure 1 shows the NT dengue notifications from 20 September 1999 to date and is very similar to that reported from INTERFET forces in East Timor during this time period.[1] People travelling in the tropical world, and specifically those travelling and working in East Timor, should be aware of the disease.

Since September 1999, NT government service workers going to East Timor have been given information regarding health risks. A repeat notice has been issued through the NT Public Service Commissioner to those NT Government Departments involved in work in East Timor, to provide information specifically on Dengue Fever and offer some measures to help prevent the spread of this disease (see information sheet on page 8).

**Figure 1 Dengue cases reported to CDC Darwin October (Week 43) 1999 - March 9 (Week 10) 2000**




As an additional note, to notify dengue it must fit the case definition as follows:

A clinically compatible illness

AND

- Demonstration of a fourfold or greater rise or fall in serum antibody titres between acute and convalescent phase sera obtained at least two weeks apart and preferably tested in parallel at the same laboratory.

OR

- Isolation of virus from blood, CSF or tissue specimens.

OR

- Demonstration of virus specific IgM antibodies in CSF or acute phase serum and other related arboviruses excluded serologically.

Presently there are possibly a further 30 NT dengue cases yet to be notified following preliminary results from laboratories which require further information to confirm the case eg whether the patient had a compatible illness or a 2nd bleed is pending to demonstrate a fourfold rise or to clarify a weakly positive IgM result.

In addition to Dengue Fever awareness, those intending to travel to East Timor should be fully up-to-date with their immunisations. Ideally a vaccination plan should be established well in advance ie at least 4-6 weeks before departure. Measles cases are reported from East Timor frequently[2] and individuals uncertain about their measles immunity should be given an MMR.

Other vaccinations such as polio and tetanus/ diphtheria boosters may also be required and depending on the duration of stay and intended frequency of visits, hepatitis A, hepatitis B, typhoid and Japanese Encephalitis vaccines may be appropriate. All vaccination requirements can be discussed with your General Practitioner or Health Services Australia (International Vaccination Clinic).

Malaria is another common and serious mosquito borne disease found in East Timor. Protecting oneself from mosquito bites is important and anti malarial medication should be taken as prescribed with unfailing regularity.

With increased travel to East Timor it is important to know the potential health risks and to take measures to decrease the incidence of these diseases.

## References

1. Weekly Epidemiological Bulletin, Week 7/2000 (13/02/2000-19/02/2000) 1 March 2000 World Health Organization - Dili Office, East Timor.

# Dengue Fever – Information Sheet

## WHAT IS DENGUE?

Dengue is a serious viral illness most often transmitted by the bite of the mosquito, *Aedes aegypti. Aedes aegypti* is well adapted to life in tropical urban environments and although not currently found in the Northern Territory, it is common in Queensland and many parts of South East Asia (including East Timor), Latin America and the Pacific.

Dengue occurs in two forms: **Dengue Fever** and **Dengue Haemorrhagic Fever**.

Dengue Fever is a severe, flu-like illness that affects older children and adults but rarely causes death.

## CHARACTERISTICS OF DENGUE FEVER

- Abrupt onset of high fever, lasting 3-7 days
- Severe frontal headaches
- Pain behind the eyes which worsens with eye movement
- Muscle and joint pains
- Loss of appetite, nausea and vomiting, diarrhoea
- Measles-like rash over chest and upper limbs
- Sometimes minor bleeding (eg from nose and gums)

There are four types of dengue. If a particular type infects a person, they will have a long-term (not always lifetime) immunity to that type. However, infection with one type of virus does not provide immunity to the other three types. If a person gets Dengue Fever more than once (from another virus type), they may develop the more severe form of the illness known as Dengue Haemorrhagic Fever (DHF). DHF is particularly dangerous in young children and can be fatal if not diagnosed and treated quickly.

## CHARACTERISTICS OF DENGUE HAEMORRHAGIC FEVER

- Severe and continuous stomach pains
- Pale, cold or clammy skin
- Rapid weak pulse, fainting
- Bleeding from the nose, mouth and gums and skin bruising
- Frequent vomiting with or without blood
- Sleepiness and restlessness
- Constant crying
- Excessive thirst (dry mouth)
- Difficulty in breathing
- Severe cases include shock and coma

## SOME FACTS ABOUT THE DENGUE MOSQUITO

### When do dengue mosquitoes bite?

Dengue mosquitoes mainly bite humans during the day (particularly early morning and late afternoon, but also into early evening), whereas malaria mosquitoes bite mainly between dusk and dawn.

### Where does the dengue mosquito live?

The mosquito rests **indoors**, in closets, behind curtains and other dark places. **Outside**, they rest where it is cool and shaded. The female mosquito lays her eggs in water containers in and around homes, schools and other areas in towns and villages. The larvae, known as wrigglers, hatch from the mosquito eggs, and live in the water for about a week; they then change into a round pupal stage for two days, after which the adult female mosquito emerges, ready to bite.

### Where does the dengue mosquito breed?

Dengue mosquitoes will breed in any water-catching or storage containers in and around urban dwellings. Favoured breeding places include: barrels, drums, concrete tanks, jars, plant saucers, bottles, tins, tyres, pans, roof gutters, tree cavities, bamboo stumps and in the mandi.

### How is dengue spread?

Dengue is spread by the bite of an infected female, *Aedes aegypti* mosquito, which has got the dengue virus by taking a blood meal on a person who is ill with dengue. The mosquito becomes infective two or three days later and then transmits the disease through its bite to other people who in turn become ill.

There is no way to tell if a mosquito is carrying the

dengue virus, therefore people must protect themselves from all mosquito bites, which will also protect against malaria and other mosquito-borne diseases.

**HOW CAN DENGUE BE PREVENTED?**

As there is no drug to cure dengue or vaccine to prevent it, **two key measures** can be applied to help prevent the spread of dengue.

1. **Elimination of mosquito breeding places around the home**

- Cover and seal septic tanks, rainwater tanks, or other large water storage containers to prevent dengue mosquitoes breeding there.
- Regularly empty any containers that collect water (eg tyres, plant saucers). Better still, store under cover in an area where water will not collect.
- Properly dispose of rubbish around the house that can collect rainwater.
- Ensure that roof gutters drain freely, so that pools of water are not left at any low points.

- For difficult to reach places that do not affect the water supply, a small amount of kerosene with 1% castor oil will suffocate any wrigglers (mosquito larvae) present.

2. **Protection against mosquito bites**

- **Repellents**. Apply diethyl-*n*-toluamide (DEET) containing mosquito repellents to exposed skin (taking particular care with ankles and feet) during daylight hours.* Repeated applications may be required every 2-3 hours in hot, humid climates. Gels and creams are longer lasting than aerosol repellents. Care should be taken when using repellents on small children and the elderly.
- **Protective clothing**. Wear light coloured, loose fitting clothing (eg long sleeved shirts and trousers) with socks and shoes. Clothing can be impregnated with a pyrethroid insecticide (eg permethrin).
- **Mosquito coils and electric vapour mats**. Slow burning mosquito coils or electric vapour mats offer some protection in the rainy season, just after sunrise and/or in the afternoon hours before sunset, when dengue mosquitoes bite. Spray inside of house daily with a knockdown aerosol insecticide.
- **Mosquito nets**. Place permethrin impregnated nets over sleeping places to protect small children and others who may rest during the day. Curtains can also be treated with insecticide and hung at windows or doorways, to repel or kill mosquitoes.
- **Screens**. Screen windows and doorways to prevent mosquitoes entering homes.
- **Protection of people sick with dengue**. Mosquitoes become infected when they bite people who are sick with dengue. Mosquito nets and coils will effectively prevent mosquitoes from biting sick people and help stop the spread of dengue.

***The malaria mosquito bites mainly between dusk and dawn so ensure protective measures are applied during these periods also.***

TERRITORY HEALTH SERVICES
Northern Territory Government

## Dengue Fever notification reminder to clinicians

Dengue Fever is one of several conditions under the *Northern Territory Notifiable Diseases Act* 1985, where both the diagnosing clinician and testing laboratory are required to notify the disease. The reason for this is that the case definition includes that the patient have a clinically compatible illness as well as confirmatory laboratory results (see page 7). Hence, it is the duty of the clinician to fill in a notification form and tick the clinical box under method of diagnosis to confirm the case.

Presently most clinicians have not been filling out these notification forms (see page 10) which would clinically confirm the Dengue Fever cases for CDC. The result is time consuming 'chasing of clinical information' which, due to the very large number of suggested cases of Dengue Fever has become a huge task. *This is therefore a reminder that it is the responsibility of the clinician to report cases of Dengue Fever to CDC.* This can be done by either faxing a notification form or phoning to confirm clinical information. Thank you for this attention.

CDC fax: 8922 8310, CDC phone 8922 8044.

# DOCTOR/HOSPITAL REPORT OF

**Please urgently notify all conditions marked ( to your nearest CDC by telephone or fax.**

## 1. PATIENT DETAILS

*Family Name (or first 2 letters only for HIV/AIDS)* *Given Names (or first 2 letters only for HIV/AIDS)* *Date of birth* / / *Age* O Male O Female

*Address or Community (not for AIDS)* *Telephone (if contact tracing required)* O O O O

*Postcode*

*Occupation or School/Child Care Centre attended (not for AIDS)* Country of Birth O Australia O Other (specify)_____

**Aboriginal / Torres Strait Islander**

O Yes O No

/ / **Date of onset** / / **Date of death**

## 2. CONDITION (please tick one or more)

| | | | |
|---|---|---|---|
| O AIDS | O ( Acute post-streptococcal glomerulonephritis | O Adverse reaction following immunisation | O ( Australian encephalitis<br>o MVE o Kunjin |
| O ( Botulism | O ( Chancroid | O Congenital Rubella | O ( Diphtheria |
| O Donovanosis | O Dengue fever<br>o Infected interstate<br>o Infected overseas<br>o ( Infected in NT | O ( Gastroenteritis<br>o In 2 or more related cases<br>o In an institution<br>o In a foodhandler | O ( Gonococcal conjunctivitis |
| O ( Haemolytic uraemic syndrome (HUS) | O ( *Haemophilus influenzae* (invasive)<br>o Epiglottis<br>o Meningitis<br>o Septicaemia | O ( Hepatitis (acute viral)<br>Type if known: | O HTLV1<br>o Adult T cell leukaemia/ lymphoma<br>o Tropical spastic paraparesis |
| O Leprosy | O Lymphogranuloma venereum (LGV) | O ( Malaria | O ( Measles |
| O Mumps | O Ornithosis (psitttacosis) | O ( Pertussis | O ( Plague |
| O ( Poliomyelitis | O Rheumatic fever (ARF)<br>o First episode<br>o Recurrence | O Rubella | O Syphilis<br>o Primary<br>o Secondary<br>o Early latent<br>o Late latent<br>o Tertiary<br>o Congenital<br>o Unknown |
| O Tetanus | O ( Tuberculosis | O Typhus | O ( Viral haemorrhagic fever |
| O ( Yellow fever | | | |

## 3. METHOD OF DIAGNOSIS (please tick one or more)

O Clinical O Bacteriology O Biopsy O Serology O PCR O Other (specify)

## 4. LABORATORY

O Westerns O QML O RDH O GDH O KDH O ASH O TCH O IMVS O Other

## 5. DOCTOR/CLINIC/HOSPITAL

*Name (or surgery/clinic stamp)* *Telephone* / / ***Date of notification*** / / *Date received (CDC use only)*

O O O O

CONFIDENTIAL

**CENTRE FOR DISEASE CONTROL**

**Alice Springs** ( 8951 7550 (Fax) 8951 7900
**East Arnhem** ( 8987 0359 (Fax) 8987 0355
**Darwin** ( 8922 8044 (Fax) 8922 8310
**Barkly** ( 8962 4259 (Fax) 8962 4420
**Katherine** ( 8973 9049 (Fax) 8973 9048

TERRITORY HEALTH SERVICES
**Northern Territory Government**

## ALERT FROM FAR NORTH QUEENSLAND

Since the beginning of the year, there have been 12 cases of penicillin resistant gonorrhoea notified in Far North Queensland (FNQ). They do not appear to be localised and no index case has been identified. Most of these cases are in Indigenous people. As there is considerable travel between FNQ and the NT, health providers should be aware that there is the potential for a similar situation to develop in the NT. Please send specimens to your laboratory in transport medium

# Gonorrhoea testing and antimicrobial resistance in the Northern Territory

*Jan Savage, CDC, Darwin, and Gary Lum, Department of Pathology, Royal Darwin Hospital, Darwin*

Gonorrhoea is sexually transmitted infection (STI) caused by a delicate and fastidious gram negative bacterium, *Neisseria gonorrhoea*. It is the most commonly notified condition in the Northern Territory (NT)[1] and is a cause of considerable morbidity including pelvic infections and infertility.[2] Tests for gonorrhoea are offered to those who present acutely with symptoms. They are also a part of screening tests, such as Well Persons' checks, sexual health checks or specific STI screens. PCR testing is the most frequently used diagnostic method for genital gonorrhoea and has many advantages over the traditional method of culturing the organism. These advantages include increased diagnostic sensitivity and relative resistance to "harsh" physical conditions. As yet, PCR techniques cannot provide information about antibiotic susceptibility. This can only be determined when the gonococcus has been cultured and tested against a range of antimicrobials to assess its susceptibility. Concern about false positive PCR results also means PCR can not yet fully replace culture methods.

In the NT, the number of cases of penicillin resistant *Neisseria gonorrhoea* has remained stable in the last four years (7-12 cases/year, mean of 9 cases annually), although the proportion has been increasing because fewer specimens are being cultured (see Table below).

This is in contrast to the rest of Australia, which has much higher levels of penicillin resistance (27.5%).[3] Therefore, outside the NT, penicillin is no longer recommended to treat gonorrhoea.[4] Similar patterns of resistance are reported overseas, and the problem is particularly marked in many countries in SE Asia where resistance to fluoroquinolones (such as ciprofloxacin) is increasing.[3]

The NT guidelines for the treatment of uncomplicated genital gonorrhoea – that is cervicitis, urethritis or infection detected in an asymptomatic person by screening - acquired in the NT, have recommended a single dose each of amoxycillin 3g and probenecid 1g. Gonorrhoea acquired outside the NT should be treated with single doses of ciprofloxacin 500mg or ceftriaxone 250mg IM. This regimen is also suitable for rectal or pharyngeal gonorrhoea. Deeper infections, such as PID, require treatment for considerably longer. Any person diagnosed with chlamydia or gonorrhoea should be re-tested in 3 months to check that re-infection, or treatment failure has not occurred.[5]

Testing specimens for antibiotic susceptibility

**Table Cases of gonorrhoea diagnosed annually in the NT**

| Year | PPNG | non-PPNG (cultured) | PPNG/total | PCR +ve only | Total |
|---|---|---|---|---|---|
| 1996 | 7 | 414* | 1.7 | 364 | 785 |
| 1997 | 8 | 164 | 4.7 | 859 | 1031 |
| 1998 | 12 | 144 | 7.7 | 1028 | 1184 |
| 1999 | 9 | 95 | 8.7 | 1035 | 1139 |

* There were classification problems in late 1996 leading to overestimation of this figure.

provides important information to determine susceptibility patterns, monitor their changes and to revise treatment protocols. Antimicrobial resistance remains one of the most significant barriers to the control of gonorrhoea, particularly in areas of high prevalence. It is common practice to change treatment guidelines once the prevalence of penicillin resistance rises above 5%.[6,7,8] Although this is currently the situation overall in the NT, it will be important to determine if the resistant cases are clustered or acquired from outside the NT and not established in remote communities.

> The NT AIDS/STD Program is reviewing its treatment protocols for all gonococcal infections, including PID since examining local patterns of gonococcal antimicrobial resistance (see Table previous page) and the information from FNQ. In the interim, continue to follow the current guidelines, but please take a travel history from all patients and treat any cases which may have originated outside the NT or specifically SE Asia

Your assistance in collecting genital specimens which are optimal for culture (swab in Stuart's or Amies transport media) and which arrive at the laboratory as soon as possible would be greatly appreciated.

If you have any questions please contact your local laboratory or AIDS/STD unit, CDC.

### References


1. NT AIDS/STD Program, Darwin.
2. Sexually Transmitted Disease. 1999 ed K King Holmes et al. 3rd edition, McGraw-Hill, New York.
3. The WHO Western Pacific Gonococcal Antimicrobial Surveillance Program. Surveillance of antibiotic resistance in *Neisseria gonorrhoea* in the WHO Western Pacific Region, 1998. *Comm Dis Intell* 24:1 1-20.
4. National Management Guidelines for Sexually Transmitted Diseases and Genital Infections. 1997 ed Denham I et al. Venereology Society of Victoria.
5. NT AIDS/STD guidelines.
6. McCormack WM. Penicillinase producing *Neisseria gonorrhoea* – a retrospective. 1982 317:438-39.
7. McCutchan JA, Adler MW, Berrie JR. Penicillinase producing *Neisseria gonorrhoea* in Great Britain, 1977-81: alarming increase in incidence and recent development of endemic transmission *BMJ* 1982; 285:337-40.


## Feasibility study for the NT Pneumococcal Vaccine Trial

The Co-operative Research Centre for Aboriginal and Tropical Health recently commenced a feasibility study to determine if a trial of a newly developed conjugate pneumococcal vaccine will proceed. This vaccine will be aimed at NT children under 2 yrs of age, with the primary outcome of interest being the incidence of invasive pneumococcal disease. The feasibility study will be looking at:

- whether there is sufficient interest and support for the trial;
- potential health benefits for the children in the NT;
- how the trial would be conducted and what it would cost; and
- whether communities and parents can be adequately informed about consenting to the vaccine.

In order to meet the outcomes of the feasibility study, wide reaching consultation has begun. For further information please contact via e mail either:

john.condon@menzies.edu.au or
megan.counahan@menzies.edu.au or phone 8922 8692.

## Addendum

In the article by O'Grady et al, 'Usefulness of a self-reported history of chickenpox in adult women in the Top End' (Vol 6, No. 4 December 1999), under results on page 2, the word specificity was missing from the second paragraph. It should have read as:

Only 19% of indigenous women (n=98) gave a definite history of chickenpox, the sensitivity, specificity and PPV of which were 21%, 5% and 95% respectively.

# Enhanced Measles Control Campaign

*Brad Palmer, CDC, Darwin*

Many countries around the world have embarked on Enhanced Measles Control Campaigns and Australia did so in 1998. The World Health Organization, Pan American Health Organisations and Centers for Disease Control (USA) met in 1996 and recommended a global strategy to eradicate the disease before 2010. Prior to Australia's effort, other countries had implemented such campaigns including USA, many South American countries, UK, some South East Asian countries and New Zealand. Most of these campaigns were considered a success.

**The problem with measles**

- 1 in 25 children with measles develop pneumonia.
- 1 in 2000 develop encephalitis (inflammation of the brain).
- For every 10 children who develop measles encephalitis, 1 will die, 4 will suffer permanent brain damage.
- 1 in 25,000 will develop subacute sclerosing panencephalitis (brain degeneration) which is fatal.
- One million victims worldwide die each year.
- Epidemics occur in 3-4 year cycles.
- Last Australian epidemic was in 1993-1994.
- We have the potential for an epidemic.

Source: Department of Health and Family Services (DHFS) Campaign promotional material. 1998.

The Australian campaign was funded by the Commonwealth DHFS and consisted of four elements:

- Changing timing of the second dose of measles-mumps-rubella (MMR) vaccine to 4-5 years of age (concurrently with the DTPa and OPV) rather than at the previously recommended age of 10-16 years;
- Ensuring that all primary school children (5 to less than 12 years of age) were provided with a second dose of MMR vaccine, through a school based program ("mop up");
- Following all 2-5 year olds to ensure that they had received their first dose of MMR vaccine, in cooperation with general practitioners (GPs) and other vaccination providers ("catch up"); and
- Recommending that all secondary students who have not received a second dose of MMR vaccine should be vaccinated.

## Planning the Campaign

In the Northern Territory (NT), the Campaign was coordinated by the Centre for Disease Control (CDC). A coordinator was employed for Operations North (Darwin, Katherine and East Arnhem districts) and Operations Central (Alice Springs and Barkly districts) as well as 17 nurse vaccinators. Each vaccinator was given specific training using relevant sections of the NT '*About Giving Vaccines*' course material. A data entry officer was also employed.

An extensive consultative process involved meetings with representatives from the Department of Education, Catholic Schools Association, Independent Schools Association and relevant parent bodies, Territory Health Services (THS) Community Care and district pharmacists, Aboriginal Medical Services, and the Division of General Practice to discuss the Campaign components and process. While this was a school-based Campaign, it was essential that existing vaccinators were fully informed and that mechanisms existed to share information about the vaccination of children at school and also in clinics and GP surgeries.

A national advertising campaign using TV and print media was implemented to inform the community. Coordinators contacted schools and health centres to organise visiting schedules in each district. It was originally planned to share resources to assist in the School Age Hepatitis B Program, which was running concurrently in the NT. This would allow the MMR and Hepatitis B vaccines to be given at the same visit when parental consent was given. (This did not occur and will be clarified in the implementation section on page 14).

Consent forms were sent to each school directly, with the aim that enough time would be given for parents to read and hear about the Campaign and

Mechanisms were set in place to collate vaccination data from the vaccination teams, transmit data to Canberra, and report on adverse events.

Liaison occurred between the Commonwealth public relations team, THS Media Liaison and the Campaign Coordinator to handle local NT issues related to publicity and media comment.

## Implementation

Vaccine was distributed to the five district hospitals and then on to communities and schools as authorised by the Campaign coordinators. The integrity of the cold chain during this process was of paramount importance and in fact was extremely well maintained. Consumable packs were used which contained all the necessary items to supply 200 vaccines per pack. This included pre-filled syringes of diluent in an effort to speed the drawing up of vaccine.

When vaccination teams attended schools, they met the Principal or a delegate, sorted consent forms for each class group, organised suitable rooms in which to vaccinate and hold the children for observation post-injection (this was done prior to the visit where possible), and then vaccinated children class by class. Some rural staff preferred to organise the session within the health centre. After the session, a datasheet was completed and faxed to the coordinator. The data was entered in an Access database and the National Coordinator was updated weekly.

As mentioned earlier, it was hoped that MMR and Hepatitis B vaccines could be given together where possible but it was found to be confusing for parents, schools and possibly the vaccinators. It was decided that the two Campaigns should continue to run concurrently but not simultaneously.

## Results

The Campaign ran from August through to the end of October 1998 but vaccination continued beyond that in the Community Care Centres and GP surgeries. The seventeen nurses, as well as some local vaccinators, visited 91 schools and communities. The number of doses given are presented in the

**Table 1 Number of doses given**

| | Number of doses | % of total doses |
|---|---|---|
| MMRs given in schools | 13340 | 67% |
| MMRs given elsewhere | 6488 | 33% |
| **Total** | 19828 | 100% |

Table 1.

In line with current National Health and Medical Research Council recommendations children are required to have two doses of MMR vaccine. Therefore, those children who had not previously been vaccinated with MMR vaccine (including those who had had only one Measles, Mumps vaccine in the past), were advised to have another MMR vaccination at a clinic, in addition to their dose administered at school.

The number of children who received at least one dose of MMR vaccine during the Campaign is shown in Table 2. Coverage achieved during the Campaign was estimated to be 72.4%. The denominator used for this coverage rate is the total number of children on the NT Education Department school lists plus the number of children who appeared on clinic vaccination records but who were not matched to a child on the school lists (in some rural/remote communities vaccinations were done at the health clinic and school lists were not supplied).

Nationally, 96% of primary school aged children were vaccinated during the Campaign. This amounted to 1.33 million children in 8,738 schools. A serosurvey, completed as part of the Campaign evaluation, showed that 94% of Australian children

**Table 2 Number of NT children vaccinated**

| Total NT school enrolments | Number of children vaccinated on school | Number of children vaccinated on clinic | Total number of NT children vaccinated | Total overall coverage |
|---|---|---|---|---|
| 21,344 | 15,362 | 644 | 16,006 | 72.4% |

# Implementing 'Total Recall' at Jabiru Community Health Centre

*Prepared by Carole Maddison, Former Remote Area Nurse, for the Jabiru Health Services Team*

At the end of 1998, Jabiru Community Health Centre began the process of implementing the 'Total Recall' system as a means of reducing the burden of chronic disease, primarily within the Aboriginal population of the Kakadu area. Total Recall is a paper based prompt system for health centres to ensure recall and review of clients with chronic disease. The frequency of clinical review and the nature of that review is informed by the Guidelines Standards and Audit Team (GSAT) guidelines, produced as part of the Coordinated Care Trials and now approved for use in rural and remote health centres throughout the Top End.

## A community picture

Jabiru Community Health Centre services a diverse client group comprised of resident indigenous, non-indigenous and tourist populations. The non-indigenous population numbers approximately 1400 and is comprised of employees of Energy Resources of Australia (ERA) and their families, town service personnel and those employed as contractors or in the tourism industry. The indigenous population of approximately 450 is comprised of 3 main groups, Gundjeihmi, Kunwinjku and Jawoyn, with 10-12 clans. This population is spread over 12 communities or outstations scattered throughout the park area up to 65 kilometres away, with a few living within the town of Jabiru itself. The tourist population visiting Kakadu National Park averages 220,000 people per year, and arrives mainly during the dry season.

The health centre provides ambulance cover in a triangular region from Bark Hut on the Arnhem Highway, to Mary River on the Kakadu Highway and to the East Alligator River, attending motor vehicle accidents, bush retrievals and medical emergencies.

There are 5 full time equivalent remote area nurses employed by Territory Health Services working from the health centre. Also working from the centre is the Kakadu Health Team (overseen by the Djabulukgu Association) comprising a full time Medical Officer, 2 full time Aboriginal health workers, a full time aged care coordinator and two full time equivalent aged care assistants. A General Practitioner operates a private practice from within the health centre; primarily servicing the non-indigenous population, but sharing on call responsibilities with the Kakadu Health Team medical officer. Frequently the full complement of staff is not achieved.

## Introducing the recall system - the Jabiru approach

Introducing the recall system was undertaken in a series of stages

- Preparation
- Initiation
- Implementation
- Maintenance
- Evaluation

### *Preparation*

Health centre management recognised the burden of chronic disease and the potential importance of the Preventable Chronic Disease Strategy (PCDS) in reducing the escalation of ill health in the future. There was great interest in the Barker hypothesis (one of the underpinning concepts of the PCDS), linking low birth weight in infants to chronic adult ill health. Discussion about the PCDS was combined with a will to change. It was recognised that work practice would need to change significantly for all staff, but particularly for the remote area nurses.

Nursing staff identified strengths and interest areas: maternal and infant health, women's health, infant Growth Assessment and Action, immunisation, school aged screening and adult chronic disease. Educational needs were identified and where possible appropriate courses or conferences were attended.

It was decided that one nurse was to become the resource person or coordinator for chronic disease work in general and Total Recall in particular. However, it was clearly understood that one nurse cannot do it all, and the actual work of reviewing clients with chronic disease would continue to be a team approach.

The concept of Total Recall was then introduced to medical officers and Aboriginal Health Workers (AHWs).

### *Initiation*

During the quieter months over Christmas and New

Year a computer based population list was developed using Medical Director software. All files in the health centre were reviewed. Health workers assessed if these people were part of the community on a fairly regular basis. A population list was then printed giving a hard copy with names, residence, hospital record number, date of birth, and gender. Several other lists were then generated based on age, gender, or community and outstation.

Chronic disease lists were begun by using old lists collated by previous medical officers and then auditing these patients' files and checking the diagnosis. The writing of the recall cards occurred simultaneously with the development of the disease-based lists. This provided the working tools for the Total Recall system.

***Implementation***

A conscious decision was made to implement the system gradually, at the same time as we were establishing the lists and auditing files. It seemed easier to begin in a small way rather than try and audit all notes before we began. This allowed health workers, nurses and medical officers to become familiar with the card system and with working from monthly lists, and for the coordinating nurse to establish a system for reviewing results and updating cards. We learned as we went and mistakes were ironed out when they were relatively small!

Using the GSAT guidelines, we established the need for clinical review and laboratory work-up for each individual as they were identified through the chronic disease lists. If the system had been implemented for the whole community at the same time, this would have created an enormous initial amount of work. By implementing as we developed the system we staggered the workload and had a much less daunting task. Starting small was manageable.

***Maintenance***

Fortnightly or at least monthly, the coordinating nurse checks the files of those clients awaiting pathology results and on the basis of the returned results and the GSAT guidelines, schedules the next recall. People not attending a scheduled recall are moved to the next monthly work list, unless they specifically request not to be followed up. If Aboriginal Health Workers determine that a client is no longer in the community they are rescheduled for a later period. This process can be left for a while but certainly no longer than 2 months as it requires considerable work to catch up and check if recalls have been done but not documented on the card and monthly work list system.

For those clients needing recall in the following month, a bright cardboard strip is inserted into the patient file in a plastic pocket, and a pathology request written out. This alerts staff to the need to check this patient's recall card, review their notes and assess any particular aspect of care according to GSAT guidelines.

The introduction of flow charts identifying checks required (each visit/monthly) have also assisted health workers to know what to do, as use of the complete guidelines has proven difficult.

Each month files are checked to ensure the flow charts are in place. Problem lists at the front of patient files are also checked and updated.

Population lists are updated at least six monthly, adding and deleting as required.

Clinical case meetings are held to review complex care or to plan clinical management. Only six or so patients are reviewed at any one meeting. Opportunistic planning of clinical management for individual patients also occurs between the chronic disease resource nurse, Aboriginal health workers (AHW), medical officer and other staff.

Lists of patients needing to see the visiting specialists are compiled (for visiting physician, ophthalmologist and optometrist) and the medical officer arranges any investigations required (eg. electrocardiogram, X-ray or echocardiogram) prior to specialist review.

***Evaluation***

Ideally, the evaluation of the Total Recall system is and should be an ongoing process. However, I believe there is also a need to set aside a few days for a structured assessment of the strengths and weaknesses of the program, and ways to improve it.

Our recent evaluation of Total Recall highlighted the following points:

* From the chronic disease lists we noticed a proportionally larger number of females than males. We decided there were many reasons for this and the Kakadu medical officer and male AHW are planning a men's clinic to improve access to health services for men.

* Staff have enjoyed having a focus and an area of work for which they take primary responsibility. It develops skills, which can be shared with others and has the effect of breaking down the huge workload into manageable pieces.
* All staff need to develop a culture of using the GSAT guidelines, though AHW literacy issues means AHW often have difficulties with using them. Developing flow charts from the guidelines has helped. GSAT guidelines need to sit on the shelf alongside the CARPA manual and be used just as frequently!
* We have completed an audit of the files of clients on the existing chronic disease lists. We have yet to undertake an audit of all patient files. When we do this, we could also place well men/ well women's checklists in the front of the file to prompt these to be done on an opportunistic basis.
* There needs to be encouragement to get staff to cross names off the monthly work list and ink over the card when recall has occurred. This saves considerable time for the coordinating nurse.
* In times of staff shortage or busy periods, maintenance of recall may be expected to slip for a short period without irreparable consequences.
* Whilst medical officers need to be involved and supportive (the more they are the easier it is), a lot of the work can be done by registered nurses and AHWs.
* Starting small created a solid foundation upon which the system was built.
* There have been some good clinical outcomes, which are measurable and provide encouragement for patients and staff alike.

### Summary

Overall, the response to the implementation of 'Total Recall' has been positive.

Every community health centre and all clinic staff have different strengths. These need to be developed and nurtured to meet the identified priority areas. But there are also similarities between health centres and Total Recall is designed to exploit those similarities, whilst allowing for local adaptation and implementation processes.

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## Editorial

In this issue, Carole Maddison writes about her experience with implementing the Total Recall System at Jabiru Health Centre. Some readers may like a little more background on some of the key initiatives referred to in her article.

First, the GSAT (Guidelines Standards and Audit Team) protocols: these detailed protocols for the screening and management of the common chronic diseases were developed in 1997 and 1998 by a specific team (medical practitioner, nurse practitioner and Aboriginal health worker) working in consultation with local health professionals. The team was employed as part of the NT Coordinated Care Trials (CCT) and the protocols were immediately taken up in the CCT sites and dovetailed with the computerised information system. In 1999, the GSAT protocols were approved for use in all Top End health centres. They will be reviewed and updated in 2001.

Second, the Preventable Chronic Disease Strategy (PCDS): this is the overarching framework in THS for the prevention, early detection and best practice management of the common chronic diseases (diabetes, hypertension, renal disease, ischaemic heart disease and chronic airways disease). The strategy emphasises an integrated and whole of life approach to prevention, but includes specific disease protocols for the management of each disease (see GSAT protocols), which are integrated into a single care plan for each individual. Formal documents outlining the Framework and supportive Evidence Base were published in 1999. The PCDS was formally supported by a major Ministerial Statement in late 1999. All these documents are available on the Public Health Bulletin Board for those in THS, or by contacting Steve Morton at the Chronic Diseases Network office on 89228280.

Third, the Total Recall Project: this was initiated by Operations North in THS in October 1998, as part of their implementation plan for the PCDS. Its aim is to introduce and support a standardised paper based recall system in those health centres not covered by the computerised Coordinated Care Trial Information System. The project officer audited every patient file in each health centre, compiled accurate population lists which were verified by senior Aboriginal health workers and set

up the recall system. By December 1999, 24 of 27 eligible Top End community health centres had implemented the system. Two extra staff have been employed until June 2000 to support health staff with maintenance of the system and to feed back relevant health data to health centres and district management. The major focus for the project officers now is to orientate new staff to the system and to help staff utilise the GSAT protocols.

There are certain key components to any effective, high quality, chronic disease management system:

- use of explicit plans and protocols;
- practice reorganisation;
- attention to information and behavioural change needs of patients;
- ready access to necessary multidisciplinary expertise; and
- supportive information systems.

But, the essential message is to introduce changes that are sustainable in the long term, and not dependent on any one individual for their maintenance. The Jabiru Health team have shown that collective planning, a clear sense of priorities and careful attention to detail are central to any reorganisation of health work.

**Tarun Weeramanthri**

## Points to note regarding notifications (page 19)

- Amoebiasis, Australian encephalitis (MVE), botulism, brucellosis, chancroid, cholera, congenital rubella syndrome, diphtheria, hepatitis C (incidence), hepatitis D & E, hydatid disease, leprosy, listeriosis, lymphogranuloma venereum, poliomyelitis, typhus, and viral haemorrhagic fever are all notifiable but had "0" notifications in this period.
- The decrease in donovanosis notifications for 1998 to 1999 may in part be due to loss of a dedicated donovanosis Project Officer in Alice Springs, a move to clinical diagnosis being made and treatment given without formal notification, and decreasing awareness and clinical suspicion of the disease.
- The increase in 1999 Dengue Fever cases reflects the increase in travellers to East Timor and workers from there receiving health care in Darwin since September 1999. Eight of 15 cases were acquired in East Timor in 1999.
- The increase in cryptosporidiosis in 1999 reflects the outbreak which occurred in Nhulunbuy in late October/early November 1999.
- The increase in malaria in 1999 reflects the increase in travel to and health care provision for workers in East Timor in Darwin since September 1999. Five of Darwin's 59 malaria cases were acquired in East Timor with an additional 16 cases diagnosed in the East Timorese evacuees who came to Darwin in September for Safe Haven.
- All 17 measles cases in 1999 occurred in Darwin. The cases included: 4 unvaccinated Darwin children from one family associated with international travel; 10 East Timorese evacuee children transit in Darwin awaiting transfer to Safe Havens down south; one adult Darwin resident who worked with the East Timorese evacuees and another, a contact of that worker; and a registered nurse working in East Timor seeking health care in Darwin.
- The large increase in tuberculosis (TB) notifications in 1999 includes the East Timorese evacuees who came to Darwin for Safe Haven in September. Sixty one cases were diagnosed during the evacuee initial health screening which included chest x-rays for all those 12 years and older and those of any age with symptoms of TB. After removing these 61 cases there was still an increase in cases in 1999 of 40 vs 28 in 1998, again mainly from Darwin. An increased number of unauthorised visitors arriving on boats screened for TB before being imprisoned accounted for 5 of the 1999 cases.
- The increase in notifications of campylobacter is due to an approximately 50% increase in the Darwin Region in 1999 which could not be attributed to any specific factors.
- All cases of gastroenteritis as potential

# NT NOTIFICATIONS OF DISEASES BY DISTRICTS 1999 AND 1998

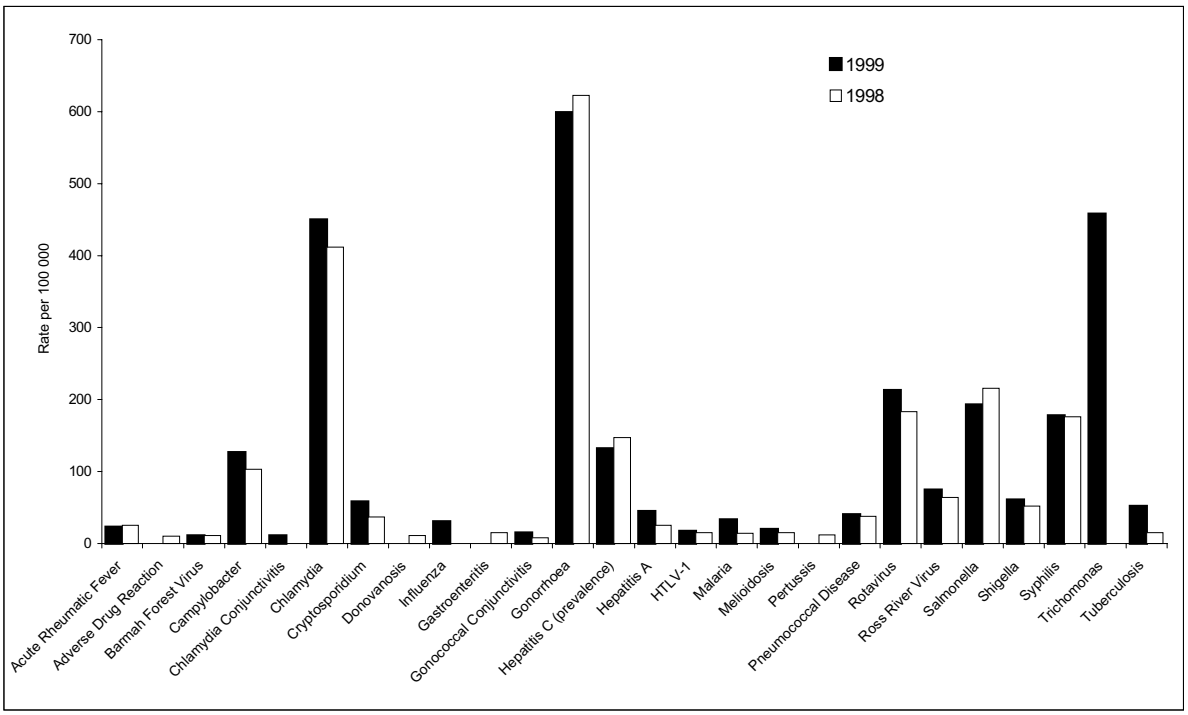
| DISEASES | ALICE | | BARKLY | | DARWIN | | EAST | | KATHERINE | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | '99 | '98 | '99 | '98 | '99 | '98 | '99 | '98 | '99 | '98 | '99 | '98 |
| Acute Rheumatic Fever | 3 | 6 | 4 | 1 | 10 | 15 | 11 | 12 | 16 | 11 | 44 | 45 |
| Adverse Vaccine React. | 0 | 6 | 1 | 1 | 3 | 9 | 1 | 3 | 6 | 0 | 11 | 19 |
| Arbovirus infections | | | | | | | | | | | | |
| Barmah Forest Virus | 0 | 1 | 1 | 0 | 13 | 12 | 5 | 4 | 2 | 4 | 21 | 21 |
| Dengue | 0 | 0 | 0 | 0 | 14 | 8 | 0 | 0 | 1 | 0 | 15 | 8 |
| Kokobera | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Kunjin | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Ross River Virus | 0 | 3 | 6 | 2 | 114 | 80 | 8 | 16 | 14 | 20 | 142 | 121 |
| Atypical Mycobacteria | 0 | - | 0 | - | 0 | - | 1 | - | 1 | - | 2 | - |
| Campylobacter | 66 | 73 | 0 | 0 | 155 | 87 | 8 | 14 | 13 | 22 | 242 | 196 |
| Chlamydia | 329 | 258 | 20 | 26 | 337 | 323 | 65 | 74 | 104 | 102 | 855 | 783 |
| Chlamydia Conjunct. | 6 | - | 0 | - | 12 | - | 0 | - | 3 | - | 21 | - |
| Congenital Syphilis | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Cryptosporidiosis | 33 | 34 | 0 | 3 | 26 | 27 | 35 | 0 | 16 | 6 | 110 | 70 |
| Donovanosis | 4 | 17 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 1 | 6 | 21 |
| Gastroenteritis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 29 |
| Glomerulonephritis | 0 | 12 | 1 | 0 | 2 | 1 | 0 | 4 | 3 | 0 | 6 | 17 |
| Gonococcal Disease | 498 | 354 | 42 | 45 | 322 | 417 | 97 | 158 | 179 | 210 | 1138 | 1184 |
| Gonococcal Conjunct. | 2 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 23 | 12 | 28 | 15 |
| Haemolytic Uraemic Syn | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 1 | - |
| Haemophilus Inf type b | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Hepatitis A | 11 | 1 | 5 | 1 | 60 | 26 | 1 | 8 | 8 | 11 | 85 | 47 |
| Hepatitis B | 0 | 0 | 5 | 7 | 6 | 0 | 1 | 1 | 4 | 10 | 16 | 18 |
| Hepatitis C (prevalence) | 23 | 21 | 0 | 2 | 216 | 239 | 3 | 4 | 9 | 14 | 251 | 280 |
| HIV infections | 0 | 0 | 0 | 0 | 7 | 11 | 0 | 0 | 1 | 0 | 8 | 11 |
| HTLV-1 | 23 | 26 | 4 | 1 | 3 | 0 | 0 | 0 | 3 | 2 | 33 | 29 |
| Influenza | 28 | - | 1 | - | 19 | - | 4 | - | 7 | - | 59 | - |
| Legionnaires Disease | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 2 | 0 | 4 | 3 |
| Leptospirosis | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 3 |
| Malaria | 1 | 4 | 0 | 1 | 59 | 22 | 1 | 0 | 1 | 0 | 62 | 27 |
| Measles | 0 | 0 | 0 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 17 | 1 |
| Melioidosis | 0 | 0 | 0 | 0 | 31 | 17 | 2 | 2 | 5 | 9 | 38 | 28 |
| Meningococcal Infection | 4 | 13 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 8 | 13 |
| Mumps | 0 | 2 | 0 | 0 | 2 | 1 | 1 | 1 | 0 | 1 | 3 | 5 |
| Pertussis | 0 | 4 | 0 | 0 | 2 | 15 | 0 | 0 | 0 | 4 | 2 | 23 |
| Pneumococcal Disease | 4 5 | 47 | 0 | 0 | 23 | 20 | 1 | 2 | 7 | 3 | 76 | 72 |
| Rotavirus | 125 | 66 | 43 | 29 | 131 | 68 | 53 | 10 | 53 | 10 | 405 | 183 |
| Rubella | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 1 | 3 | 4 |
| Salmonella | 58 | 75 | 12 | 11 | 213 | 219 | 23 | 36 | 61 | 69 | 367 | 410 |
| Shigella | 50 | 29 | 3 | 14 | 39 | 30 | 15 | 22 | 9 | 3 | 116 | 98 |
| Syphilis | 77 | 146 | 55 | 63 | 101 | 49 | 59 | 55 | 47 | 22 | 339 | 335 |
| Trichomonas | 114 | - | 14 | - | 304 | - | 250 | - | 188 | - | 870 | - |
| Tuberculosis | 5 | 3 | 1 | 0 | 85 | 17 | 1 | 0 | 7 | 8 | 99 | 28 |
| Typhoid | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Vibrio Food Poisoning | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 1 | - |
| Yersiniosis | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 |
| **Total** | **1507** | **1207** | **219** | **207** | **2337** | **1731** | **648** | **455** | **798** | **557** | **5509** | **4157** |

## NOTIFIED CASES OF VACCINE PREVENTABLE DISEASES IN THE NT BY REPORT DATE 1999 AND 1998

| DISEASES | TOTAL | | No. cases among children | |
|---|---|---|---|---|
| | '99 | '98 | '99 | '98 |
| Congenital rubella syndrome | 0 | 0 | 0 | 0 |
| Diphtheria | 0 | 0 | 0 | 0 |
| *Haemophilus influenzae* type b | 3 | 0 | 2 | 0 |
| Hepatitis B | 16 | 18 | 0 | 0 |
| Measles | 17 | 1 | 10 | 0 |
| Mumps | 3 | 5 | 1 | 2 |
| Pertussis | 2 | 23 | 1 | 3 |
| Poliomyelitis, paralytic | 0 | 0 | 0 | 0 |
| Rubella | 2 | 4 | 0 | 1 |
| Tetanus | 0 | 0 | 0 | 0 |

- Mumps is largely under-notified

## NT WIDE NOTIFIABLE DISEASES 1999 AND 1998




Rates <10/100 000 not listed
NT est. resid. pop - 189 987 supplied by Epidemiology & Statistical Branch, THS

## NT malaria notifications, October to December 1999

Fifteen notifications of malaria were received for the fourth quarter of 1999. The following table provides details about where the infection was thought to be acquired, the infecting agent and whether chemopro-

| Origin of infection | Reason exposed | Agent | Chemoprophylaxis | Diagnosed |
|---|---|---|---|---|
| PNG | Visit | *P. vivax* | No | RDH |
| PNG | Visit | *P. vivax* | Yes | RDH |
| PNG | Work | *P. vivax* | Yes | RDH |
| PNG | Work | *P. vivax* | Yes | RDH |
| Indonesia | Resident | *P. vivax* | No | RDH |
| Indonesia | Resident | *P. vivax* | No | RDH |
| Indonesia | Holiday | *P. vivax* | Yes | RDH |
| East Timor | Evacuee | *P. vivax* | No | RDH |
| East Timor | Work | *P. falciparum* | No | RDH |
| East Timor | Work | *P. vivax* | No | Western Diagnostic Pathology |
| East Timor | Work | *P. falciparum* | Yes | Defence |
| East Timor | Work | *P. falciparum* | Yes | RDH |
| East Timor | Work | *P. vivax* | No | RDH |
| Africa/E Timor | Holiday/Work | *P. vivax* | Yes | RDH |
| Africa | Work | *P. falciparum* | Yes | RDH |

## Revised CDC guidelines

The following guidelines have recently been revised and will soon be distributed to all NT health care providers:

- Communicable disease surveillance in the Northern Territory - guidelines for the reporting of notifiable conditions.
- Northern Territory Hepatitis A Vaccination Policy and Public Health Management Guidelines.

An index of all CDC guidelines is posted on the THS Disease Control Bulletin board. Individual guidelines can also be accessed from this bulletin board as well as on the THS intranet site under *Public Health/Disease Control/Guidelines and Protocols.* Hard copies can be requested by contacting Sue Reid, CDC, Darwin on 8922 8089 or via e mail: sue.reid@health.nt.gov.au).

## Staff updates

### Darwin

The rural sexual health team in the Darwin AIDS/ STD Unit now have a full complement of staff. **Adeline Drogemuller** (former health worker at Bagot Community) filled the Aboriginal Health Worker position in February while **David McDowal** (former health worker at Danila Dilba) commenced as the male educator.

### Tennant Creek

**Sharon Doyle** from Disease Control in Tennant Creek has recently gone on maternity leave. **Elizabeth Carey** (formerly the Clinical Nurse Consultant of the Accident and Emergency Department at Tennant Creek Hospital) has taken

# CUMULATIVE INDEX
## Volume 1 Nos.(1-10) to Volume 7 No. 1 (November 1991 - March 2000)


Acellular pertussis
- Ongoing NT funding 4(4)

Acute rheumatic fever 2(5)
- [brief report] 5(4)

Arbovirus infection
- Reporting 3(1)
- Update 2(7)
- Potential in the Top End 3(1)
- Australian Encephalitis 1(8,10); 2(4)
- Barmah Forest 1(4)
- Summary 1991-1992 1(6)
- Summary 1991-1994 2(2)
- Ross River Virus 1(1,2,4,7,8); 2(1), 4(1)
  - Case reports 2(6)
- Dengue Virus 1(7)
  - Case reports 2(5)

Ashdown's medium [letter] 5(2)

Azithromycin therapy
- NT 2(7)
- North West Queensland 3(2)
- Pilbara region WA 2(7)
- Restricting use in the NT 3(4)
- Reclassification to B1 drug in pregnancy 3(4)
- Trachoma 2(7), 4(1)

Australian Sentinel Practice Research Network 1(3)

Australasian Society for Infectious Diseases [Conference report]
- Annual Scientific Meeting: Broome, April 27-30 1996 3(2)

Bacterial antigen detection kits 5(1)

Barcoo rot 2(5)

Bats
- East Arnhem 3(4)

Beetle-induced blistering dermatitis 2(7)

Benzathine Penicillin G (BPC) 2(6)

Bicillin AP 2(3)

Bicillin LA 6(3)

Box-jellyfish 1(3); 2(7); 5(3)

Blood culture collection [memorandum] 4(1)

'Branded '- drama production 2(7)

Breast cancer
- Incidence following round one mammography screening (Dec 1994-1997) 6(4)

Campylobacter 1(6)

Cardiovascular disease
- Treating lipids 4(1)
- Cardiovascular risk and cholesterol reduction 4(3)
- Aspirin 5(2)

Central line infection 1(9)

Chickenpox
- Hospital separations in the NT for varicella-zoster virus related illnesses, 1993-1997 6(4)
- Usefulness of self-reported history in adult women in the Top End 6(4)
- Varicella-zoster virus in pregnant women and babies 6(4)
- Varicella vaccine workshop, Melbourne, Dec 1999 6(4)

Child care
- Ear project 4(4)
- Exclusions 1(3); 2(4)
- Immunisation records 2(4)
- Potential for disease outbreaks 2(6)

Chlamydia
- Treatment 2(2)
- Urine screening 3(3)

Chronic Diseases Network 4(2); 5(2)

Ciguatera 1(1); 5(4)

COAD
- Clinical management and continuity of care COAD project 4(4)

Cockroach control in the NT 6(1)

Cold chain 1(1); 2(7)

Congenital syphilis
- Revised guidelines for the investigation and treatment in the Top End of the NT 5(4)

Coxsackievirus B 2(1)

Cryptosporidium
- Alice Springs 2(6)
- East Arnhem 6(4)

Dengue Fever 1(7)
- Case reports 2(5)
- Dengue 3 in Cairns 4(4)
- Public health and interpretation of serology results 7(1)
- Increase in Dengue Fever notifications in visitors to East Timor 7(1)
- Information sheet 7(1)
- Notification reminder to clinicians 7(1)

Diabetes
- Control and Complications Trial 3(2)

Diphtheria 1(4,5); 2(5)
- Guidelines for the control of diphtheria in the NT 5(2)

Donovanosis
- Azithromycin trial 2(2)
- Azithromycin in NW Queensland 3(2)

Disaster management 5(1)

East Timor
- Evacuees in Darwin, September 1999 6(3)

Echovirus type 30 meningitis 2(1)

Enteric disease
- Campylobacter 1(60
- Case investigation 1(9); 2(7)
- Summary 1991 1(5)
- Rotavirus 2(2)

Environmental Health Officers, role of 1(10)

Eulogy to Ellen Kettle (1922-1999) 6(3)

Flavivirus serology 5(2)

Firework-related injuries 5(3)

Gastroenteritis [brief report] 6(2)

Glomerulonephritis, post-streptococcal 2(3); 2(6); 4(2)

Gonococcal conjunctivitis 1(5); 4(3)
- Guidelines for the control of gonococcal conjunctivitis 4(3)

Gonorrhoea 1(9,10 [letter])
- Urine screening 3(3)
- Gonorrhoea testing and antimicrobial resistance in the NT 7(1)

Guidelines
- Control of acute post-streptococcal glomerulonephritis 4(2)
- Control of diphtheria in the NT 5(2)
- Control of gonococcal conjunctivitis 4(3)
- Community control of scabies and skin sores 4(3)
- Hepatitis A public health management 5(2)
- Hepatitis B vaccination policy in the NT 4(4)
- Hepatitis B public health management 5(2)
- Meningococcal meningitis/septicaemia chemoprophylaxis 4(4)
- Investigation and treatment of congenital syphilis in the Top End of the NT 5(4)
- Revised CDC guidelines 7(1)

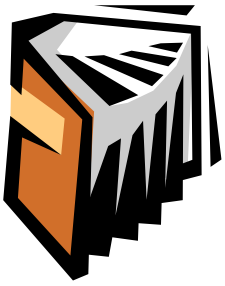
*Haemophilus influenzae* type b
- Carriage in Aboriginal infants 3(4) [letter]
- Case reports 1(2); 6(2)
- Epidemiology 1(9)
- Evaluation of vaccine campaign 1(10); 2(4)
- Incidence of invasive Hib disease in the NT 5(1)
- Vaccination program 1(4,7,9)

Hand, foot and mouth disease 1(6)

Head lice 3(2)

Hepatitis A
- Outbreaks 1(7); 3(4); [brief report] 5(4); 6(2)
- Phone notification 1(7)
- Public health management guidelines 5(2)
- Vaccination program 2(1,3,4); 3(2); 6(1)
- Vaccination policy 6(4)
- Reminder 4(1)

Hepatitis B

Notifications 2(4)
Provision of free paediatric hepatitis B vaccine to GPs 4(1)
Public health management guidelines 5(2)
School Age Program, NT 6(2,3)
School Age Program, Operations North 5(2)
Vaccination and health care providers 5(2)
Vaccination policy in the NT 4(4)
Vaccination program at Clinic 34, Darwin 6(1)
Vaccination schedule change 1(7)
Hepatitis C
Case register 2(1)
Clinical aspects 1(10)
Community awareness campaign 4(3)
Interferon 2(4)
Management 2(2)
Notification 1(5); 2(2)
NT prison population 6(1)
Perinatal transmission 1(6)
Support group 2(6,7)
Hepatitis E
Case report 2(1)
Human immunodeficiency virus (HIV)
Aboriginal population 1(9)
Antenatal screening 1(8); 2(7)
HIV/AIDS guide for Kimberley health professionals [letter] 5(2)
Indications for testing 3(1)
Update on HIV and hepatitis C virus in the NT 5(1)
Intestinal parasites
Pilot screening program 4(1)
Deworming protocols [editorial] 4(1)
Immunisation
Adult [review of article] 2(5)
Adult immunisation campaign 3(1)
Impact of 1996 campaign 4(1)
New initiatives for 1999 5(4)
BCG complications - Alice Springs 2(5)
BCG complications - a review 5(3)
Bush trip with a 'snag' 6(3)
Changes to the NT Childhood Vaccination Schedule 5(3)
Changes to the Australian and NT Vaccination Schedules 7(1)
NT Standard Childhood Vaccination Schedule, 1/5/2000 7(1)
NT Adult and Special Groups Vaccination Schedule 7(1)
Childhood immunisation uptake: Part 1 - Top End 4(1)
Childhood immunisation uptake: Part 2 - Central Australia 4(2)
Cold chain 1(1)
"Commendation for excellence" - Jenner award 4(1)
Coverage rates 1994 2(5)
Coverage of children 12-14 months in real time 4(4)
Coverage in Darwin Urban area 3(1)
Coverage - third quarter assessment to 30 Sept 1997 5(2)
Declaration of status 2(8)
Flu shots for health staff 4(2); 5(4)
General practice 2(4)
Hepatitis A 2(1,3,4); 3(2); 6(1,4)
Hepatitis B 1(7)
Provision of free paediatric hepatitis B vaccine to GPs 4(1)
School Age Program, NT 6(2,3)
School Age Program, Operations North 5(2)
Vaccination and health care providers 5(2)
Vaccination policy in the NT 4(4)
Vaccination program at Clinic 34, Darwin 6(1)
Vaccination schedule change 1(7)
*Haemophilus influenzae* type b 1(4,7,9,10); 2(4)
Evaluation of vaccine campaign 2(4)
Effect of conjugate Hib vaccines on the incidence of invasive Hib disease in the NT 5(1)
How to apply for free acellular pertussis vaccine 4(1)
Influenza 1(4); 2(3,6); 5(1)
Immunise Australia 4(3)
Immunoglobulin 1(1)
Immunisation 'database' 3(1)
Immunisation tidbits 6(3)
Immunisation update 6(4)
Japanese Encephalitis 1(6)
Measles 1(2,4); 2(4); 5(2); 7(1)
News 4(2)
Ongoing NT funding for DTPa 4(4)
Pertussis 1(7); 2(4): 4(4)
Pneumococcal 2(2,8)
Feasibility study for the NT Pneumococcal Vaccine Trial 7(1)
Promotion activities in Alice Springs 4(1)
Polio 2(8)
School entry records 2(4)
Small quality project report - "About Giving Vaccines" 6(1)
Status of children 0-6 years in Alice Springs 5(2)
Tetanus 1(6); 6(3)
Vaccination issues 6(1)
Varicella vaccine workshop, Melbourne, Dec 1999 6(4)
Voluntary documentation 3(1)
Influenza
Enhanced surveillance in the Top End 5(1); 5(2)
Flu shots for health staff 4(2); 5(4)
Hong Kong 'bird flu' 4(4)
Outbreaks 2(3,6); 3(4)
Options for Control of Influenza III: Carins 4-9 May 1996 [Conference report] 3(2)
Tropical Influenza Surveillance 2(6); 2(8); 3(2)
Injury Prevention and control; Brisbane, May 1999 [Conference report] 6(2)
Interferon
Hepatitis C 2(4)
Jellyfish 1(3); 2(7); 5(3)
Lyssavirus
Bat chat from East Arnhem 3(4)
NT retrospective search for lyssavirus in humans 4(2)
Update 4(4)
Post exposure prophylaxis flowchart 6(3)
Prevention strategy update 4(4); 6(2)
Leprosy
Case reports 1(10); 3(1); 3(2)
ELISA test 3(1)
Elimination 6(2)
Indonesia 2(1)
Update on control in the NT 6(2)
Leptospirosis 1(7)
Malaria
Public health response to an imported case 6(3)
Case reports 1(4); 6(3)
Epidemiological data 5(3)
Revision and review of NT protocol 6(3)
Student (overseas) screening protocol 2(1)
Surveillance 1(8); 2(1,3)
Travelling 2(8)
Receptive area in NT 2(8)
Mammography screening 6(4)
Measles
Association with Crohn's disease and autism 5(1)
Case reports 1(4,5,6,8)
Control measures for contacts 2(7)
Differential diagnosis 1(2)
Enhanced measles control campaign 5(2); 7(1)
Outbreaks 1(2,4); 2(3,4); 3(4); [brief report] 6(2)
Protocol for hospitals 2(2)
Management in central Australia 3(3)
Medical Entomology
Mosquito investigations 1(4)
Role of 1(8)
Melioidosis 1(7); 5(4)
Case reports 1(3)
El Nino effect 4(3)
Kava drinking 3(4)
Summary 1990-91 wet season 1(1)
Summary 1993-94 wet season 2(1)
Summary 1994-95 wet season 2(6)
Treatment and control 1(10); 2(8)
Meningococcal disease
A case of meningococcal eye disease 5(1)
Surveillance in the NT 5(1)

Central Australia 1998 5(2)
Meningitis
Coxsackievirus B 2(1)
Echovirus type 30 2(1)
Guidelines for meningococcal meningitis/septicaemia chemoprophylaxis 4(4)
Meningococcal 1(4,5,6); 2(7); 4(3); 5(1)
Viral 1(6)
Men's health
Report on Men's Health Week at Community X, Dec 1998 6(1)
Report on Men's Health Screening at Community W, May 1999 6(3)
Report on Men's Health Screening at Community Z, June 1999 6(3)
Program at Gapuwijak 6(3)
Mosquito borne virus warning 5(2)
MRSA trends 2(8)
Narcotic use and abuse in the NT [Conference report] 2(8)
Non-communicable diseases
Clinical management and continuity of care COAD project 4(4)
Update No. 1 Control and Complications Trial 3(2)
Update No. 2 Cardiovascular disease and treating lipids 4(1)
Update No. 3 Cardiovascular risk and cholesterol reduction 4 (3)
Update No. 4 Hypertension control 5(1)
Update No.5 Aspirin and cardiovascular disease 5(2)
Update No.6 Prescribe moderate physical activity 6(2)
Notifiable Diseases
Changes to the NT Notifiable Diseases Act 1999 6(1)
Comments from 1 Jan to 31 March 1996 3(2)
Diseases newly added to NT list 6(4)
Notification form 7(1)
Neonatal group B streptococcal disease 2(4)
Nutrition and infection in Aboriginal children 4(2)
Oysters 6(4)
PAP smear Register 3(1)
Paratyphoid 3(3)
Pediculosus humanus capitus 3(2)
Pelvic inflammatory disease (PID): Cessation of trial 6(4)
Penicillin resistant *Neisseria gonorrhoea*
Alert from far north Queensland 7(1)
Gonorrhoea testing and antimicrobial resistance in the NT 7(1)
Pericarditis
TB 3(3)
Pertussis 1(7,8)
Case report 1(9)
Outbreak 2(4)
Pneumococcal disease 2(5)
Awareness campaign 2(8)
Feasibility study for the NT Pneumococcal Vaccine Trial 7(1)
Vaccine 2(2)
Pneumonia (community-acquired)
Treatment 1(9); 5(4)
Psittacosis 3(3)
Respiratory illness in 2 Darwin schools 4(3)
Rheumatic fever
Menzies School of Health Research - projects 3(2)
Rheumatic heart disease 2(5)
Program 4(4)
Standards of care in Aboriginal communities 2(5)
Ross River Virus 1(1,2,4,7,8); 2(1), 4(1)
Case reports 2(6)
Rotavirus 2(2)
Rubella 1(6)
Encephalitis 2(1)
Salmonella
The 1996 national outbreak of *Salmonella mbandaka* 4(2)
Outbreak linked to a marine turtle 5(4)
*Salmonella kinondoni* [brief report] 5(4)
Scabies 1(10)
Community control of scabies and skin sores 4(3)
Endemic scabies in dogs and people are different 5(3)
Management of patients in hospital with crusted scabies 4(2)
Treatment 2(3)
Screw worm fly 3(4) [letter]
Scrub typhus 1(3); 3(3)
Sexually transmitted disease 1(6); 5(4)
Azithromycin trial 2(2)
Contact tracing 2(3)
Federal Budget initiatives 1998/99 5(2)
Highlights of the 1995 NT AIDS/STD Program Report 3(1)
Peer education 2(3)
Pelvic inflammatory disease (PID): Cessation of trial 6(4)
Protocol for STD testing 4(1)
Protocol for treatment of uncomplicated genital chlamydia infection 2(2)
Screening 1(10)
Standard treatment protocol for STDs 4(1)
Tampon study 2(8); 3(3)
Trichomoniasis 2(6)
Shigellosis
Outbreak in a tour group in Central Australia 6(3)
Smoking
Community education 3(4)
Staphylococcal disease
A cluster of invasive *S. aureus* disease in the Top End 4(2)
Streptococcal disease
Acute post-streptococcal glomerulonephritis 2(3)
Control of acute post-streptococcal glomerulonephritis 4(2)
Outbreaks 2(6)
Neonatal group B protocol 2(4)
Surveillance
Changes to NT Communicable Disease Surveillance System 2(1,4)
Surveillance of meningococcal disease in the NT 5(1)
Tampon Study 2(8); 3(3); 5(1); 5(2)
Tetanus
Vaccination 6(3)
'Total Recall'
Implementing at Jabiru Health Centre 7(1)
Trachoma
Azithromycin therapy 2(7)
Treatment program in the Katherine region 3(4)
Control and treatment of active trachoma in the NT 4(1)
Tuberculosis
BCG complications - Alice Springs 2(5)
BCG complications - a review 5(3)
Migrant cases 1990-93 2(8)
Preventive treatment and follow-up of contacts 2(5)
Mini outbreak in Central Australia 3(3)
Pericarditis 3(3)
Typhoid 3(3)
Videos
Keeping Track of Good Health 6(2)
Varicella
Hospital separations in the NT for varicella-zoster virus related