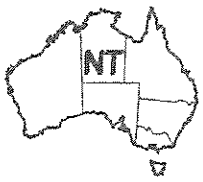
THE NORTHERN TERRITORY
COMMUNICABLE DISEASES BULLETIN



NT DEPARTMENT OF HEALTH AND COMMUNITY SERVICES

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Is Melioidosis Increasing in Tropical Australia?

Bart Currie, Royal Darwin Hospital and Menzies School of Health Research

With the wet season beginning, an increase in cases of melioidosis is anticipated. Melioidosis is caused by the soil saprophyte *Pseudomonas pseudomallei* and for reasons not yet fully elucidated organism numbers on the soil surface increase with the heavy rains. Transmission to humans seems to be predominantly by percutaneous exposure, usually through cuts, but inhalation and possibly ingestion can also occur. Following inoculation, spread can occur via bacteraemia to any organ. Clinical presentation depends very much on the underlying risk factors of the patient. Over half the cases diagnosed in the Top End have a history of excessive alcohol intake and around 40% are diabetic. About 80% are thought to be recent infection (incubation period 3 days to 3 weeks) with 10% re-activation of past or latent disease (analogous to tuberculosis) and 10% presenting as a slowly progressive chronic illness.

The commonest presentation of melioidosis has been pneumonia, with or without septicemia. Genito-urinary foci, such as prostatic abscesses, and localised cutaneous ulcers have also been common. Abdominal CT scan has revealed splenic abscesses and other focal collections in some patients and is now performed on all melioidosis cases at Royal Darwin Hospital.

Because of the other possible organisms involved, empiric therapy in the Top End of moderate or severe pneumonia in patients with underlying risk factors includes both ceftriaxone (which covers *P.pseudomallei)* and gentamicin (see CDC Bulletin No.9 page 7). Once melioidosis is diagnosed, the drug of choice is ceftazidime rather than ceftriaxone and gentamicin can be discontinued. In most cases of melioidosis intravenous rolitetracycline or cotrimoxazole is added as the second drug. After initial IV therapy of usually 7 -14 days, maintenance oral therapy with doxycycline or cotrimoxazole (both in high dose) is usually given for three months. In some cases of mild clinical disease oral therapy is used from the beginning. A number of the fatalities in the Top End have been from relapsed disease, usually associated with poor compliance with the maintenance therapy.

So, is melioidosis increasing in tropical Australia? Melioidosis is now recognised as the commonest cause of fatal community-acquired bacteremic pneumonia in the Top End of the Northern Territory. In the four years since October 1989 there have been 76 cases of melioidosis in the Top End with 20 (26%) deaths. This compares with 37 cases between 1960 and 1979 (19 years) and 33 cases between 1985 and 1989 (4.5 years). There are increasing numbers of patients with risk factors for melioidosis (such as alcoholism and diabe

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tes) in the Top End. In addition there is an increasing recognition of melioidosis due to improved surveillance and diagnostic capabilities. Melioidosis has been diagnosed from remote areas across tropical Australia in addition to the cases in the urban centres. Molecular studies at the Tropical Health Program in Brisbane and at the Menzies School of Health Research show a wide genetic diversity of *P. pseudomallei* within Australia. Therefore, although the number of diagnosed cases is increasing, there is no direct evidence for a recent spread of one clone of *P. pseudomallei* within tropical Australia accounting for the increase.

While much remains to be learned about the epidemiology of this important disease, priority measures for control remain:

1) **targeting prevention and control of the two commonest risk factors for disease and mortality-alcoholism and diabetes**

2) **limiting exposure of skin to wet season soils by encouraging use of protective footwear and gloves where appropriate, such as in gardening and in occupational soil exposure**

3) **avoiding delay in starting appropriate antibiotics in suspected melioidosis**

4) **emphasising compliance and follow-up of maintenance (3 months) antibiotic therapy to prevent disease relapse.**

Australian Encephalitis

The time of year is rapidly approaching when increased illness due to arboviruses is seen. (All arboviruses infections are notifiable.) The most serious of these is Australian encephalitis. The protocol below has been written to rationalise surveillance, diagnosis and follow-up of this illness.

Usually between the months of December and July (exceptionally November and August), a high level of clinical suspicion is warranted in the Top End to enable rapid detection of the early cases. As a result of early notification, the public can be alerted to the presence of the problem and can take extra precautions to prevent mosquito bites.

PROTOCOL FOR AUSTRALIAN ENCEPHALITIS

(Murray Valley Encephalitis virus and Kunjin virus)

SUSPECTED CASES SHOULD BE NOTIFIED *IMMEDIATELY* TO THE NEAREST COMMUNICABLE DISEASE UNIT AND DARWIN MEDICAL ENTOMOLOGY BRANCH

INTRODUCTION

Murray Valley Encephalitis (MVE) virus and Kunjin virus are the two arboviruses which can cause Australian encephalitis. They belong to the flavivirus group. MVE virus is endemic in the top end of Western Australia and the NT. Wet season flooding enables multiplication of the mosquito vector (mainly *Culex annulirostris*) and encourages increased nesting of birds, which are the definitive host for the virus. Kunjin virus appears to be more widespread and encephalitis cases are not as common as with MVE.

Australian Encephalitis can cause severe illness in all age groups and death especially in children. Clinical findings can vary from severe headache to encephalitis.

CASE DEFINITION

1. Confirmed infection

Clinical diagnosis and at least a fourfold rise (or fall) in antibody titre between an "acute" and a "convalescent" serum sample.

2. Presumptive infection

Clinical diagnosis and detectable MVE or Kunjin IgM antibody (with no other arbovirus IgM antibody present) in either an "acute" or "convalescent" serum sample.

SEROLOGICAL TESTING

- Serum from a clotted blood specimen is required. Following initial testing in the lab, the remaining serum is held to enable the later testing of acute and convalescent serum together. Therefore, as much serum as is possible needs to be obtained at the outset (i.e. 10 ml clotted blood).
- Request tests for MVE/Kunjin antibodies and indicate on the pathology request form that Australian Encephalitis is to be excluded.

• "Acute" serum is to be sent for testing immediately when a case is suspected. "Convalescent" serum should be tested 8 to 14 days later. An even later convalescent serum sample may still be useful in confirming infection.

NOTIFICATION

Clinically suspected cases are to be notified immediately to the nearest CDU
and
Medical Entomology Branch, Darwin - Phone no: (089) 228502 or 228333.

MVE CASES ENCOUNTERED IN THE NORTHERN TERRITORY - 1993

		No. of Cases	Confirmed*	Died
NT Residents	Adults	4	4	0
	Children	2	1	1
Non-NT Residents	Adults	1 SA	0	0
		1 WA	1	0
	Children	4 WA	3	3
Total cases		12	9	4

* By case definition, diagnosis is presumptive on the remaining cases

Scabies: Another Approach to an Endemic Problem

Leigh Woltman - Registered Nurse, Gove Hospital

Scabies is endemic in many Aboriginal communities and is associated with sequelae, including streptococcal skin infections leading to glomerulonephritis. Scabies has been traditionally associated with overcrowding, poor housing and inadequate sanitation. Historically, a relative loss of immunity has been associated with Norwegian scabies which is a hyperinfestation with the scabies mites, however this is poorly understood (1). Recent trends in East Arnhem suggest that the incidence of Norwegian scabies has increased.

Three cases of Norwegian scabies in one East Arnhem community of approximately 600 people have been recorded in 1993 (Gove District Hospital admission records 1993). The three cases were all adults and had received repeated conventional treatment with benzyl benzoate. The cases were hospitalized and treated with 5% permethrin cream as a Special Access Scheme medication. Diagnosis was confirmed by the presence of mites on skin scrapings. A video was made for the future education of patients and families.

All three patients experienced an intense pruritic reaction overnight. In each case there was a marked improvement in the hyperkeratosis. In one case follow-up skin scrapings showed a few mites only; he was re-treated. In the other two cases no mites were identified two to three days post treatment, however re-treatment with 5% permethrin was prescribed one week later for the patients and close contacts at home.

Educational sessions were held with the patients and attempted with the families. Community awareness was heightened by the use of a video and a microscope, discussions with the council and health staff, and a plan to treat the community is underway.

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EDITORIAL COMMENT

Scabies is widespread throughout Aboriginal communities in the Northern Territory and elsewhere in tropical Australia. It has been well documented that intermittent individual therapy for scabies does not eradicate established infection within a community and is not cost effective in the longer term (1). The recent approval for use in Australia of 5% permethrin cream provides an opportunity for coordinated community-based scabies programs to be undertaken with a greater chance of success. 5% permethrin cream is less irritat-

ing than the current standard therapy of benzyl benzoate and is able to be applied to the whole body, including the head and neck (often involved in scabies in the tropics and in particular in Norwegian scabies). In addition 5% permethrin is safe and certainly less toxic than the older therapy with the organochlorine lindane (gamma benzene hexachloride), which was associated with significant neurotoxicity particularly in younger children (2 and 3). 5% permethrin was approved by the Food and Drug Administration for use in the United States in September 1989. The slow process in the product becoming available in Australia is, together with the continuing unavailability of albendazole for worm therapy and the more recent difficulties with availability of the newer drug azithromycin for STD and trachoma, an example of appropriate resources not being available for Aboriginal communities.

While resistance to lindane has been well documented (1), the failure of benzyl benzoate in the cases discussed above may reflect more the extent of the scabies and the difficulties with using benzyl benzoate over the whole body appropriately, rather than actual parasite resistance to benzyl benzoate. However it is certainly possible that with the extensive intermittent use of benzyl benzoate, often in sub optimal situations, resistance of scabies parasites may have emerged. In general benzyl benzoate remains very effective in scabies when used appropriately, but in extensive infestations such as with Norwegian scabies repeated therapy is necessary. This is very likely to also be the case with 5% permethrin.

In the Top End of the Northern Territory discussions are currently underway regarding coordinated and integrated scabies programs on a community basis to begin after the current wet season. These programs would involve participating communities in mass treatment with 5% permethrin cream together with household cleaning to eradicate potential sources of re-infestation following treatment of individuals. Such programs have been successful overseas (1) and have already been adapted in part in some Territory communities. It is hoped that these programs will involve both Department of Health and Community Services staff and staff from Community Controlled Health Organisations in program development, education messages and protocol implementation. For further information regarding this please contact Dr Steve Guthridge in Rural Services - Darwin, Phone: 228317. In the meantime it is important that people are strongly discouraged from using the permethrin preparations currently available for head lice therapy as whole body scabies treatments. These head lice preparations contain only 0.1% or 1% permethrin and the use of these low concentration preparations may lead to development of resistance to permethrin in the scabies mite.

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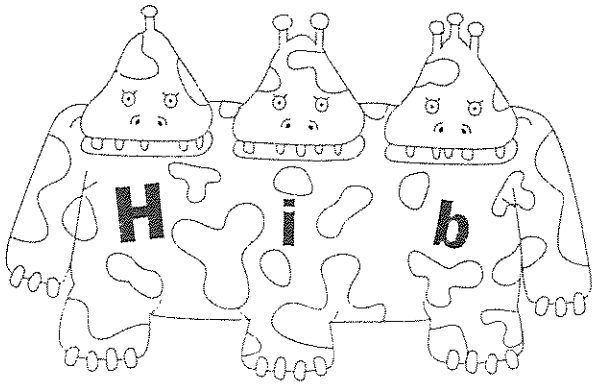
Hib Immunisation Campaign

Darwin CDC Staff

Monitoring of Haemophilus influenza type B (Hib) vaccine distribution in urban Darwin suggested that Hib immunisation uptake was poor. This was in contrast to the 70 to 95% uptake of Hib reported from immunisation coverage databases from rural NT communities.



Results of a survey designed to look at overall immunisation coverage and documentation at two urban Darwin child care centres revealed that of 135 children over one year of age only 82 (61%) could provide immunisation documentation. Of those 82 children only 40 (48.8%) had received their Hib immunisation.

A further telephone survey of urban Darwin in Novem-

ber assessing Hib coverage in children under five years showed the coverage rate for Hib to be 46% (95% CI 34-58%). These results prompted the planning and implementation of a Hib immunization campaign led by "The Horrible Hib Monster" and launched on December 8, 1993 by the NT Minister for Health and Community Services, the Honourable Mike Reed. The campaign has utilized TV and radio commercials, newspaper advertising, an information telephone line, posters, stickers for vaccinated children, a post card drop to all dwellings in Darwin, extended hours in community clinics for immunization and one-off immunization days at designated child care centres.

A full report of the initial telephone survey and a follow-up study to assess the impact of the promotion campaign will be published in the next Bulletin.

Clinical Aspects of Hepatitis C Virus Infection in the Top End

Marc LeMire and Bart Currie, Medical Unit - Royal Darwin Hospital and Menzies School of Health Research

A review was undertaken of patients at Royal Darwin Hospital who were sera positive for hepatitis C antibody between July 1991 and October 1993. Using a second generation ELISA assay approximately 5850 tests (including repeats on individuals) were performed and there were 50 positive patients. Of these, 10 were Aboriginal (20%) and 40 were non-Aboriginal patients. Intravenous drug abuse was recorded in 12 patients (24%) and previous blood transfusions were also recorded in 12 patients (24%). Other risk factors were maternal hepatitis C and transplantation contributing 6%. No risk factors were identified in 18%, with the remaining 28% having inadequate details recorded.

Liver disease was documented in 27 (54%) of the study group, with cirrhosis and/or liver failure in 12 (24%). The presence of more severe liver disease correlated well with excess alcohol consumption; those with low or no alcohol consumption had a low rate of cirrhosis and/or liver failure (2 of 23 patients versus 10 of 17 with excess alcohol intake; $p = 0.0006$).

Of the 10 Aboriginal patients, 3 were from rural communities and 2 of these had concurrent hepatitis B infection (Hep B S Ag positive). The mode of transmission in the Aboriginal group was not clear, with past blood transfusion documented in 2 of the 10 and no recorded intravenous drug abuse.

DISCUSSION

As elsewhere, hepatitis C infection occurs in the Top End and is associated with intravenous drug abuse and past blood transfusion. Although there are biases in the group of patients selected for hepatitis C testing, the suggested association of more severe liver disease with concomitant hepatitis C infection and alcohol excess is documented elsewhere. Uncertainty remains as to the historical duration and extent of hepatitis C infection in rural Aboriginal communities, with regional differences possible. The modes of transmission in Aboriginal communities are as yet unknown (e.g. vertical transmission, infection via breast milk, horizontal transmission in childhood or during traditional cultural practices, or sexual transmission).

There is now Commonwealth financial support for the use of α interferon in strictly defined chronic hepatitis B infection. Recent studies show a beneficial effect of this expensive therapy in a proportion of chronic hepatitis C infections. Protocols for screening, investigation and management of hepatitis C infections are being devised elsewhere and will need adaptation for the Northern Territory situation.

Royal Darwin Hospital Pathology Staff and Infection Control Staff are acknowledged for their assistance with this study.

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EDITORIAL COMMENT

Hepatitis C is now the most commonly reported "notifiable disease" in Australia. It has been notifiable in the NT since 1991 when ten cases were reported. In 1992 there were 92 notifications and to date there have been 190 notifications in 1993. The basis for notification has mainly been via laboratory reporting of positive Hepatitis C antibody tests and has not taken into account clinical disease (or initial sero conversion). Therefore, to date many of the notifications in the NT, and elsewhere, probably represent repeated testing on the same individuals. Indeed, two Hepatitis C antibody tests are part of the recommended criteria for notification and for diagnosis of chronic Hepatitis C disease as well as for ongoing management. It would have been interesting in this study to have known how many positive Hepatitis C antibody tests each of the 50 individuals had undergone. A review of the NT Hepatitis C notification criteria will be undertaken in 1994.

The National Health and Medical Research Council's Task Force on Hepatitis C reports about 75% of the existing pool of past infections are related to injecting drug use with less than 20% having had a blood transfusion prior to mid February 1990. Occupational exposure and unsterile tattooing practices are felt to account for a small amount but sexual and perinatal transmission is considered rare. Further investigation into the mode of transmission in the Aboriginal cases (where injecting drug use is not implicated) is warranted.

Late Presentation of Leprosy

Basedow Unit. Block 4. Royal Darwin Hospital

The diagnosis of two new patients with advanced leprosy this year demonstrates continued transmission within the Northern Territory. Early detection of cases is essential for control and is dependant on health staff vigilance.

CASE 1.

A 17 year old Aboriginal male was diagnosed in March of this year with advanced lepromatous leprosy. On presentation he had marked leonine facies, loss of eyebrows, elongated and thickened earlobes, nasal erosion and inflammation.

His skin showed a mixed picture of nodules and plaques of lepromatous leprosy with the scaling and excoriation of Norwegian scabies.

Peripheral nerves were palpable and moderately enlarged. He had mild clawing of the hands with fixed flexion deformities of the 5th digits. Small plantar ulcers were present on both feet.

All skin smears showed large numbers of acid fast bacilli (AFB's). An IgM ELISA test was elevated at 59% (greater than 20% is regarded as abnormal).

The patient was hospitalised and biopsies were taken for typing of disease and for mouse foot pad testing for drug sensitivity.

He was commenced on multi drug treatment which consisted of dapsone 100mg daily, clofazamine 100 mg daily and rifampicin 600 mg daily. He was also commenced on intensive treatment for his Norwegian scabies which was confirmed by skin scrapings. Following discharge he has been closely monitored by rural health staff. He will continue daily medication for a minimum of two years, and will be reviewed annually for any reactivation of the disease and more frequently by local clinic staff.

An advanced case of lepromatous leprosy is considered to take 10 years to develop following transmission. Nasal swabs confirmed a heavy load of AFB's in the nasal secretions. It is likely that this patient had been infectious for a number of years.

Contact tracing has been performed on family and close contacts. No further cases have been found amongst his contacts although several people with high ELISA results and suspicious skin lesions have been identified. These individuals will require regular review. Review will continue until ELISA results return to normal levels or until active disease is diagnosed.

CASE 2.

A 25 year old Aboriginal male from the Timber Creek region was diagnosed with leprosy, confirmed by biopsy in July of this year. The patient is presently living in South Australia.

In 1992 he was noted by a health worker to have sparse eyebrows and skin lesions. Anti-fungal treatment was prescribed.

When the anti-fungal treatment did not improve the skin lesions, smears were taken. One smear out of four showed very sparse AFB's and the patient was requested to attend the Leprosy Unit of CDC Darwin for review.

The patient initially refused to attend the Darwin clinic and eventually a biopsy was obtained by the District Medical Officer which confirmed the diagnosis of leprosy.
The patient was seen in Darwin after much persuasion. He had marked infiltration of the face and earlobes, loss of eyebrows and multiple raised infiltrated lesions on the trunk and face. He had enlargement of the following nerves: left great auricular, left radial cutaneous, right ulnar, left sural, left superficial peroneal and both lateral popliteal nerves. He had leg ulcers and anaesthesia to both knees and an ulcer under the great left toe.

His diagnosis was determined to be borderline lepromatous leprosy and following a normal chest X-ray and blood tests he was commenced on triple therapy consisting of clofazamine 50mg daily with a single dose of 300 mg per month, rifampicin 600 mg daily for 3 months and then 600mg monthly for 2 years, and acedapsone 225 mg intramuscularly every 8 weeks. Acedapsone (HANSOLAR) is a depot injectable preparation of dapsone and can be used for treatment of fully sensitive organisms in patients who may be non compliant with daily therapy.

Both patients have travelled widely within the Territory and it seems inevitable that further cases will arise amongst their contacts, although clinical disease may take many years to develop. Control of leprosy relies on early diagnosis and treatment to prevent further transmission of the disease. The awareness and vigilance of all health staff is essential for continued identification of cases.

The Role of Environmental Health Officers in Communicable Disease Control

Sally-Anne Lamplugh, Policy Officer - Environmental Health

It having been further represented to his Excellency (Governor Lachlan Macquarie) that certain persons have been heretofore in the habit of throwing ashes, filth and dirt of every description into the streets, on the footpaths, and onto the drains leading along the same, to the great annoyance of the persons passing along them, to the injury of the said streets, and also to the great prejudice of the tanks and streams to which those nuisances are carried down by the rains; all persons are therefore strictly enjoined not to throw or lay down in future any filth or dirt upon the said streets or footpaths, or into the drains of said streets, under pain of being proceeded against and being punished as the law directs in such cases.
(Government and General Order of Governor Macquarie, Sydney, 15 September 1810)

Many years before developments in medical science had revealed the true cause of infectious diseases, government intervention was aimed at eliminating many of their sources. Indeed some of the most significant improvements in public health since the early nineteenth century can be attributed to environmental measures. Actions such as ensuring clean water, adequate sanitation as well as immunisations are recognized as having made the greatest contribution to the health of the greatest number of people over the last 150 years.

Although the growth of medical technology has redirected the emphasis in public health from prevention to acute care in the twentieth century, there is a re-emerging prominence being placed on proactive health care. Much of this changing focus can be attributed to the call by the World Health Assembly for "Health for all by the Year 2000" in 1980 and the World Health Organisation's Ottawa Charter (1986). Both "Health for All" and the Ottawa Charter reinforced the holistic approach to health and encouraged a proactive and collaborative style of promoting health.

The Environmental Health Officer has a vital role to play in preventative care, none the least of which includes the control of communicable disease. This role has developed considerably since the time of Governor Macquarie, and is now performed by University qualified professionals with expertise in areas such as microbiology, chemistry, environmental engineering and health promotion.

The Environmental Health Program of the Northern Territory Department of Health and Community Services is staffed by 21 Environmental Health Officers and funds 12 Aboriginal Environmental Health Worker positions in remote communities. The main components of the program include Aboriginal environmental health, statutory surveillance (food premises, accommodation premises, hairdressers etc), general environmental health (such as solid and liquid waste disposal, monitoring of water supplies, land use developments and pollution control) and nuisance controls. Each of these areas has implications for the control of communicable diseases.

The Environmental Health Program works alongside the Department's Disease Control Program in the control of communicable diseases. Many of its activities are of a preventative nature and involve the monitoring of potential sources including food premises, swimming pools, tatoo parlours and potential pest breeding sites. To assist in this process guidelines are currently being developed for the operation and maintenance, for instance, of swimming pools, spas, hydrotherapy pools and solid waste landfill sites.

Environmental Health Officers are also involved in the investigations of diseases associated with food, water, pests and other vectors. Any complaints or referrals indicating potential disease outbreaks are investigated immediately. Situations that have involved the Environmental Health program include food poisoning incidents, contaminated potable water supplies, inadequately disinfected swimming pools, unhygienic practices in child care centres, the control of mosquito vectors of Ross River Virus and other diseases and environmental investigation of the source(s) of the causative organism of melioidosis.

The considerable training and experience of Environmental Health Officers provides them with the expertise necessary to locate the sources of outbreaks and to remedy the situation through either education or judicial measures. These actions, however, remain dependent upon referral from patients or medical personnel. It is by working together with other professionals that appropriate levels of public health and individual well-being can be maintained.

Further information relating to Environmental Health can be obtained from the Program Directorate on 892 939 or from any of the District Environmental Health Officers on the numbers below.

Alice Springs Town Council	**500 500**
Alice Springs Rural District	**517 808**
Tennant Creek/Barkly District	**624 302**
Katherine	**738 655**
Darwin Urban District	**227 377**
Darwin Rural District	**228 292**
East Arnhem District	**873 144**

Screening for Sexually Transmitted Diseases (STD):

Frank Bowden, Coordinator STD/AIDS Darwin

Screening for disease can be a complex and problematic area but it is timely to consider a few general principles . Recommendations for the screening of specific STDs will be published in the Bulletin in 1994.

Screening is crucial in the control of STD epidemics as most of the organisms have the ability to remain silent (or asymptomatic) and the detection of disease is dependent upon the practice of identifying individuals who are at risk but who would not otherwise present for medical attention.

The success of a screening program is dependent upon several factors which include: i) the prevalence of disease in the community, ii) the sensitivity* and specificity** of the tests available to detect the disease, iii) the ease with which screening can be undertaken (e.g. does the screening require an invasive investigation) and iv) the availablity of appropriate treatments or interventions for the condition in question.

In areas of low prevalence of disease the positive predictive value*** of a test may be such that the majority of patients who return positive tests do ***not*** have the disease (i.e. they are false-positives). In the 1970s and 1980s the inappropriate use of screening (e.g. screening for chlamydia in very low risk populations) meant that the practice fell into some disrepute. However in populations that have high prevalence of disease the positive predictive value of a test is usually high and there is a definite benefit in screening. This is clearly true for most communicable diseases in remote Aboriginal communities. There, the majority of individuals with positive tests for, say, chlamydia will actually have the disease and screening is appropriate.

It must be remembered that screening is not an end in itself. Screening only *identifies* individuals with disease - interventions **must** follow and, ideally, should be instituted concurrently with the screening. In addition, screening must target those at highest risk of disease. Resources, both human and financial, are limited and screening programs must target those who are the most important to find, rather than those who are the easiest to find.

Experience in STD epidemics has shown that a small number of individuals are often responsible for the persistence of localised epidemics. These people have been referred to as "core-transmitters" or "super-spreaders" and are the group who deserve the most intensive attention and resource allocation. If the "core-transmitters" can be treated and counselled successfully regarding sexual behaviour (e.g. universal condom use), then there is a chance of significantly altering the course of the epidemic. This is easy to say but hard to do: locating and educating these individuals is difficult and is dependent on local knowledge and intelligence gathered from many sources. However, there are some important pointers: repeat attenders at STD clinics are likely to be "core-transmitters" and these individuals warrant extra time and energy. Screening of young people involved in substance abuse in communities is likely to be an efficient way of detecting high risk individuals.

Successful modification of behaviour, especially when drugs and alcohol are involved, is one of the major challenges in health promotion. Nevertheless, successful treatment of the individual will, at least temporarily, reduce their duration of infectiousness and will have an impact upon the epidemic.

Summary

- Decisions to screen rely upon a detailed knowledge of the affected population.
- Screening *per se* does not affect an epidemic - interventions (medical and behavioural) must accompany screening.
- "Core-transmitters" are largely responsible for the persistence of STDs in communities. Repeat attenders for STD treatment may be "core-transmitters". Extra effort should be directed towards screening for disease in this group.

Notes:

* Sensitivity: the ability of a test to detect the disease when it is present. A test which is 100% sensitive will identify all the patients who have the disease i.e. there will be no "false-negatives".

** Specificity: the ability of a test to distinguish between those who truly have disease and those who do not. A test which is 100% specific will not identify any patients who do not have the disease i.e. there are no "false-positives".

*** Positive predictive valuc(or PPV): the probability that a person who returns a positive test does, in fact, have the disease in question; usually expressed as a percentage. e.g. a PPV of 80% means that 80% of those with a positive test have the disease (and, importantly, that 20% don't have the disease).

Communicable Diseases and Me

Eileen Jones

I guess I first became aware of communicable diseases when I was hospitalised for some years as a young child for osteomyelitis at the Children's Hospital, Camperdown, N.S.W. Quite frequently the "Tracky Bell" would ring out the alarm across the complex and every available doctor would drop whatever they were doing and run..... We long-term kids in cots on the ward balconies would cheer on our favourites as they raced down the grassed terraces to the isolation block at the bottom of the hospital grounds. We knew the first doctor to arrive would perform the tracheotomy but I doubt we gave much thought to the child choking with diphtheria. Indeed diphtheria and poliomyelitis are about the only "common", as they were termed, infectious diseases I dodged during those years when along with other inmates I had chickenpox, measles, rubella, mumps, whooping cough from cross infection from some new admission. Even so my sister was never allowed in the ward to visit me as she was under 14 years of age. I have never understood how one becomes "safe" as soon as they reach the magic age of 14.

During 1946 dengue fever was rife in Sydney with all the troops returning from the tropics and not many people escaped an attack. Many of the troops were also very ill with malaria but the anopheles mosquitoes were not present there and this did not spread.

I evaded scarlet fever until my training days at the Sydney General but was not badly affected. I had my first nursing experiences then with tuberculosis as great numbers of these people had lung surgery at the hospital.

Poliomyelitis arrived in Darwin in 1954/55 and there were quite a number of cases. Two RAAF men died and several people were nursed in the "iron lungs". Also at this time an outbreak of Murray Valley Encephalitis occurred and there were several Aboriginal children in the hospital with severe brain damage.

The battle of 1957 was against trachoma especially in the drier areas of the Territory. Everybody was treated with sulphonamide tablets daily. It was a tremendous effort and I hope it saved the sight of some. Unfortunately, a couple of people were allergic to the drug and died of exfoliative dermatitis. I saw another lady die of this following anti-typhoid immunisation. At that time it was compulsory for all hospital staff to be immunised as typhoid outbreaks were not uncommon. I nursed at Elcho Island during a big outbreak in 1968 and although there were a number of deaths it could not compare to the numbers that occurred during influenza and measle epidemics.

In 1958 I was posted to Maningrida which was just being established and the fight was really on. There were great numbers of indigenous people in the surrounding area who did not accept the restrictions of the missions on the islands and at Oenpelli, and who were also in hiding because members of the family had leprosy and the practice of police or welfare patrols was to take these people away, usually never to be seen again. So they kept them hidden. Great numbers also had yaws. We started to treat the people with yaws with one injection of penicillin which cured the condition in a few days. The people thought this was magic and soon we were flooded with leprosy patients as well. Everyone expected the injection to cure everything and no doubt many were disappointed. But they did have their ulcers dressed and were given food and medication and had time to get to know Dr. Hargrave and myself. There was no mention of them being moved to the leprosarium for a long time. In fact we had no airstrip for the first year. Everything was taken by sea on board a lugger then transferred to dugout canoes and paddled ashore. Some stores did not make it! Immunisation programs were instigated, including Mantoux testing and BCG vaccination.

Of course many of the people were in excellent health, they had the most perfect teeth I have ever seen and before they started wearing clothes did not have the fungal infections now so prevalent.

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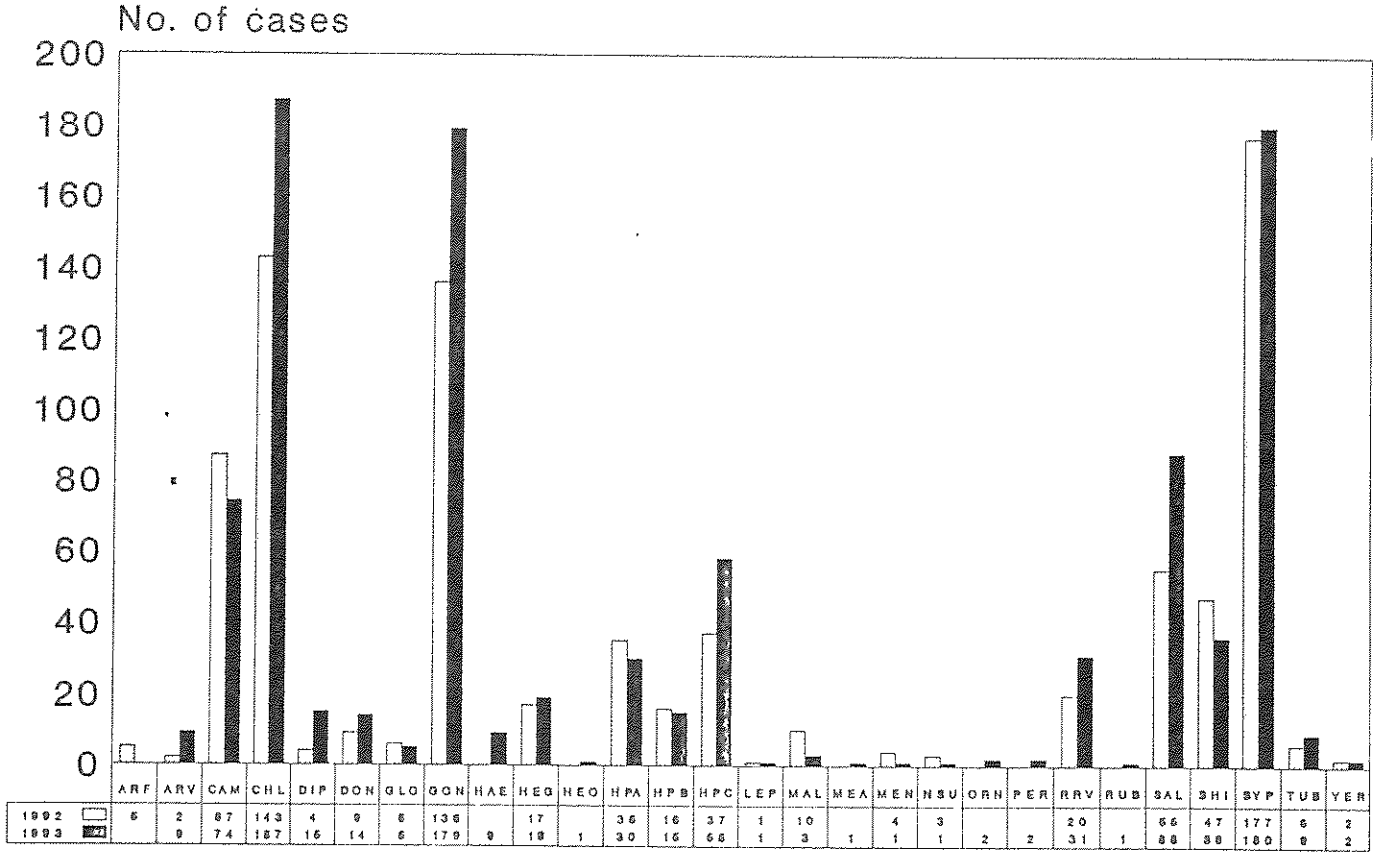
EDITORIAL COMMENT

Eileen Jones is a nursing sister presently working in Leprosy Control in the Basedow Unit of Disease Control in Darwin. She is soon to retire, closing a chapter of nearly 40 years with the NT Department of Health and Community Services. She is the model of a multi-skilled nurse - working through the years in midwifery, hospital nursing and rural community nursing which led her to the nursing role for which she is best known throughout the Territory - that of an expert leprosy control nursing sister. Her knowledge, experience, and dedication are treasured and she will be missed by all her colleagues. Many thanks go to Eileen from patients and staff in the NT who have benefited through the years over the past four decades from her work and caring.

NT Notifiable Diseases

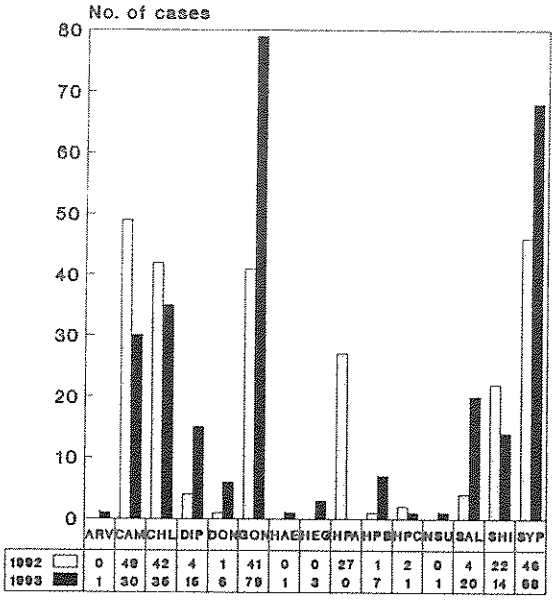
A regular feature of the Bulletin will now include a quarterly report of the NT Notifiable Diseases with a comparison to the previous year's report for the same quarter.

NT wide
1 July to 30 September
1992 and 1993

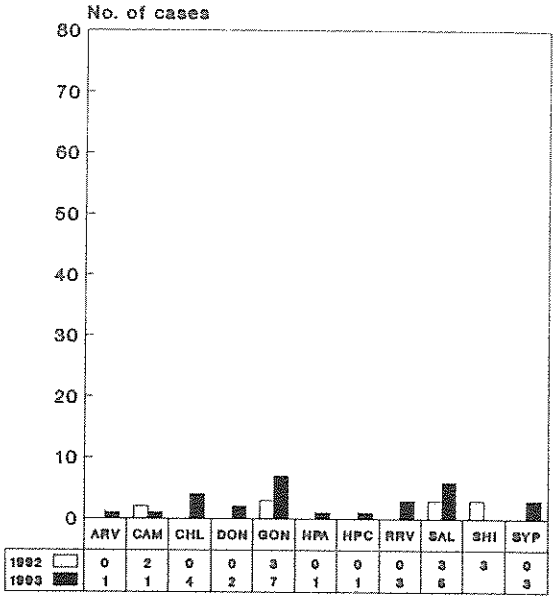


ARF - Acute Rheumatic Fever
ARV - Arbovirus (not RRV)
CAM - Campylobacter
CHL - Chlamydia
DIP - Diphtheria
DON - Donovanosis
GLO - Glomerulonephritis
GON - Gonorrhoea
HAE - Haemophilus Influenza type b
HEG - Herpes genital
HEO - Herpes other
HPA - Hepatitis A
HPB - Hepatitis B
HPC - Hepatitis C
LEP - Leprosy
MAL - Malaria
MEA - Measles
MEN - Meningitis
NSU - Non specific urethritis
ORN - Ornithosis
PER - Pertussis
RRV - Ross River Virus
RUB - Rubella
SAL - Salmonella
SHI - Shigella
SYP - Syphilis
TUB - Tuberculosis
YER - Yersiniosis

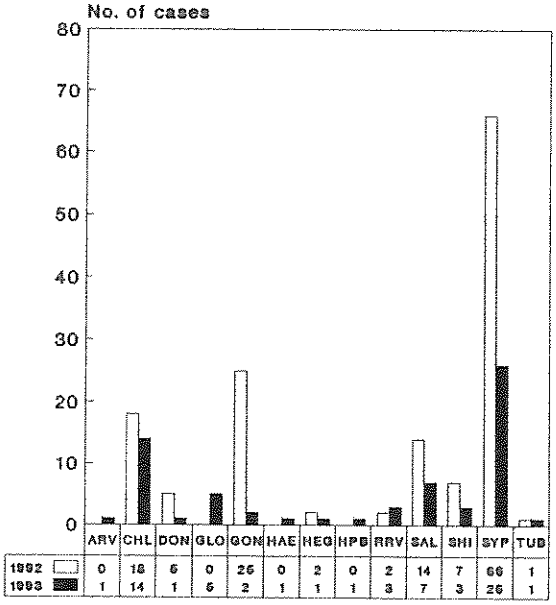
Alice Springs Region
1 Jul - 30 Sept 1992 & 1993



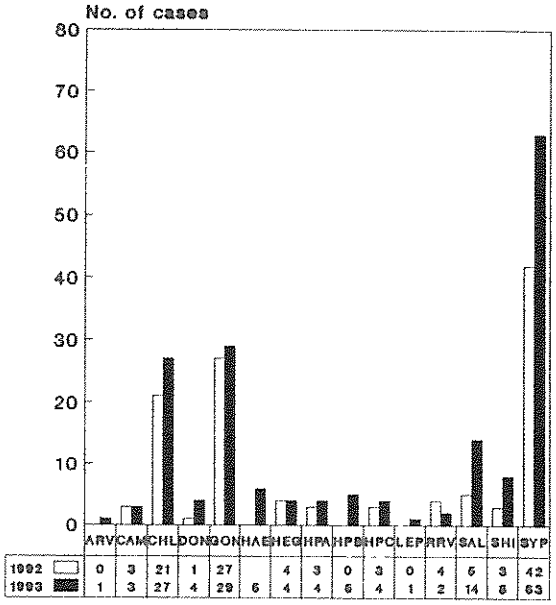
Barkly Region
1 Jul - 30 Sept 1992 & 1993

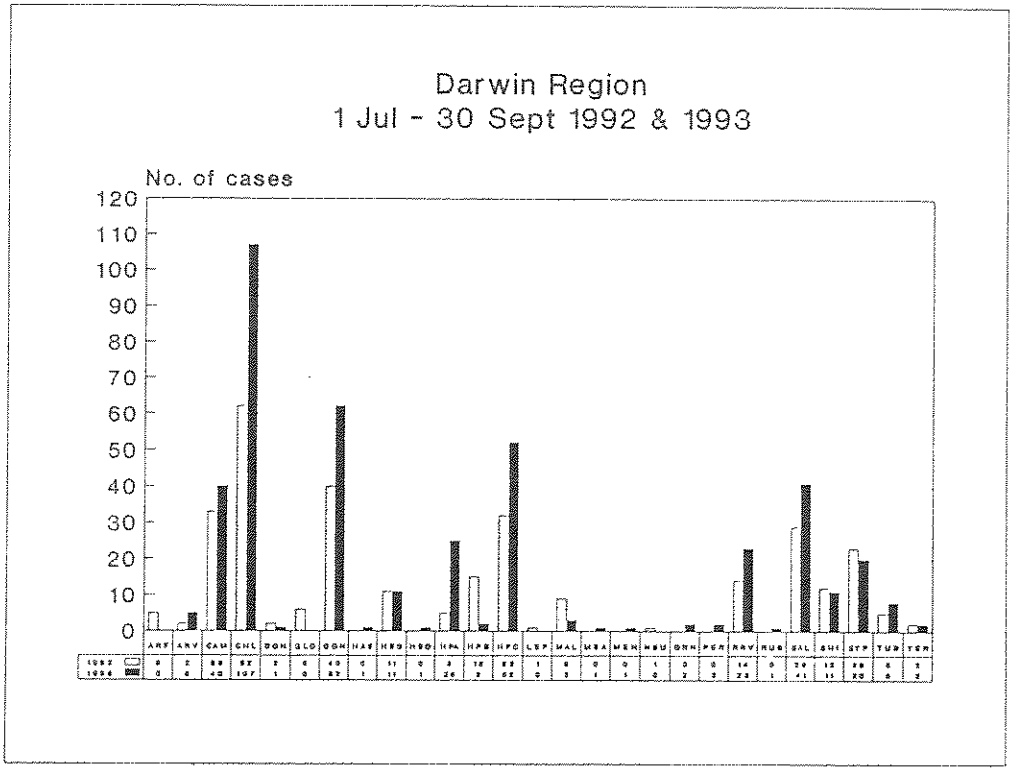


East Arnhem Region
1 Jul - 30 Sept 1992 & 1993



Katherine Region
1 Jul - 30 Sept 1992 & 1993





LETTER TO THE EDITOR

Letter to the Editor

Under Reporting of Gonorrhoea

With reference to the report by McCarthy and Scrimageour in the October, 1993 issue of the Northern Territory Communicable Diseases Bulletin, I would suggest that the figures do not give a true picture of the incidence of gonorrhoea in Central Australia.

The Alice Springs Hospital Pathology Laboratory is a "hospital-only" laboratory, apart from the specimens received from the Alice Springs Prison. Over the period 1988 to mid-1993 the Alice Springs Pathology Laboratory had had 444 positive specimens for Neisseria gonorrhoea (excluding isolates from outbreaks of gonococcal ophthalmia). As the majority of patients with gonorrhoea do not normally attend hospitals, and we had identified 45% of the reported cases of gonorrhoea, there is obviously a major under-reporting of gonorrhoea in Central Australia.

Fran Morey, Microbiologist, Alice Springs Hospital

Editorial Reply

Surveillance of gonorrhoea is considered to be the most complete of all STDs in the NT for the following reasons: i) gonorrhoea in men is predominantly symptomatic and often symptomatic in women; it usually results in consultation with the medical services, ii) diagnosis is relatively easy with microbiological techniques being within the expertise of any laboratory and iii) laboratory notification is routine. However there is, undoubtedly under-reporting of cases. Some reasons for this under-reporting and under-ascertainment of gonorrhoea may include the following: 1) Many patients are treated empirically and no microbiological confirmation is sought and hence no automatic laboratory notification occurs 2) private laboratories, in contrast to public laboratories do not notify positive smears or the presence of gram negative intracellular diplococci on gram stain. Often only a smear might be done or if a swab for culture is taken the transport of the swab is not optimal and any potential organisms are not viable on reaching the laboratory. Although the smear is a more sensitive way of detecting disease, the inability to monitor for drug resistance when relying upon only the smear means that culture should always be attempted and 3) some patients are asymptomatic and anecdotal reports suggest that the rate of asymptomatic disease in Aboriginal men is higher than the 5% usually quoted.

Gonorrhoea has an important effect on the health of Aboriginal people. While treatment has largely prevented the complications in men, the burden of secondary consequences for women is high. There is a paucity of data related to the extent of the effect of gonorrhoea on the health of Aboriginal women, however it is clear that the proportion of pelvic inflammatory disease (PID) caused by gonorrhoea is far higher than that caused by chlamydia. The extent to which gonorrhoea effects fertility and ectopic pregnancy rates has never been adequately assessed in the NT.