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Locally Acquired HIV Infection in a Northern Territory Aborigine

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Although five Aboriginal patients have been treated for HIV-related disease in the Northern Territory since 1985, each had contracted the disease in other parts of Australia. We now report the first case of an Aborigine acquiring HIV infection within the Northern Territory.

The patient is a 35 year old urban-based Aboriginal male who was known to be HIV negative in 1991. He had not been out of the Darwin area since that time. He had a past history of a closed head injury following a fight in 1987. He had been a heavy drinker of alcohol and was separated from his wife. He admitted to having had multiple female sexual partners over a period of ten years. No history of an illness consistent with HIV seroconversion was obtained.

An HIV test performed in February 1993 was positive on enzyme immunoassay and Western Blot. T cell subsets showed a T4 count of 550/microlitre (normal range: 405-2205) (21% of total lymphocytes), T8 count of 1270/microlitre (normal range: 165-1330) and a T4/T8 ratio of 0.43 (normal range: 0.72-3.60). There was no clinical evidence of any HIV-related illness.

The patient denied any injecting drug use, homosexual contact or sexual contact with Aborigines from remote communities. He had never received any blood products.

Although we cannot be certain about the original means of acquisition, the patient had multiple heterosexual partners in the Darwin region and had tested negative two years previously. This suggests that there is a pool of untested HIV-infected heterosexuals in the Top End community. The size of this pool can only be speculated upon but a public awareness campaign targeted at this group is necessary as a matter of urgency.

Due to the presence of high rates of sexually transmitted diseases in Aborigines in the Northern Territory it is clear that once HIV enters that population it will spread quickly, primarily through heterosexual contact. The potential exists for an HIV epidemic with rates of infection similar to those seen in Africa or South-East Asia.

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Gonorrhoea in Central Australia

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During the years 1988 through mid July 1993, there were a total of 985 cases of gonorrhoea reported to the Disease Control Centre (DCC) in Alice Springs. (Graph 1). The rise in numbers after 1990 can be at least partially explained by the fact that prior to late 1990 Central Australian Aboriginal Congress sent pathology specimens to a laboratory in Adelaide, and these results were not included on the DCC register. The estimated incidence rate for 1991 was 498 cases per 100,000 population compared to 553 cases per 100,000 population in 1992. Already through June 1993, there are 158 reported cases of gonorrhoea compared with 138 cases for the same period in 1992. This increase may be an artifact (i.e. better quality in laboratory isolation and improved diagnostic techniques, more awareness by clinicians of the need for swabs, better access to the clinic for the high risk population, and better contact tracing and follow-up) or may reflect a real rise in numbers. The total number of reported cases probably only represents the tip of the iceberg.

Of the total number of reported cases of gonorrhoea, 84% of the cases were seen in the Aboriginal population, 14.5% in the non Aboriginal population, and in 1.5% of the cases the race was unknown. For the year 1991, the estimated incidence rate in the Aboriginal population was 1375 cases per 100,000 population compared to 1754 cases per 100,000 population in 1992. In the non-Aboriginal population, the estimated incidence rate was 108 cases per 100,000 population in 1991 compared to 43 cases per 100,000 population in 1992. Thus, there has been a decreasing trend in the number of reported cases of gonorrhoea in the non-Aboriginal population and an increasing trend in those reported in the Aboriginal population (Graph 2).

Males accounted for 66.3% of the total number of cases, females for 33.5% and the sexual status was unknown in 0.2%. These numbers are similar to those seen in the national data (69% for males, 28% for females and 3% for unknown). The highest frequency of gonorrhoea in the Aboriginal population occurred between the ages 17 and 26 with a peak at age 20, while the highest frequency in the non-Aboriginal occurred between the ages of 19 and 33 with a peak at age 30.

During the period from 1990 through mid July 1993, only six cases of penicillinase-producing strains of *Neisseria gonorrhoeae* have been reported in Central Australia. There does not appear to be any trend in increasing frequency of these isolates. All six cases were in males. Three were of Aboriginal descent and three were of non-Aboriginal descent. Two isolates occurred in 1990, 3 in 1991, and one thus far in 1993. All isolates came from the Alice Springs area. None of these cases had a history of multiple episodes of gonorrhoea.

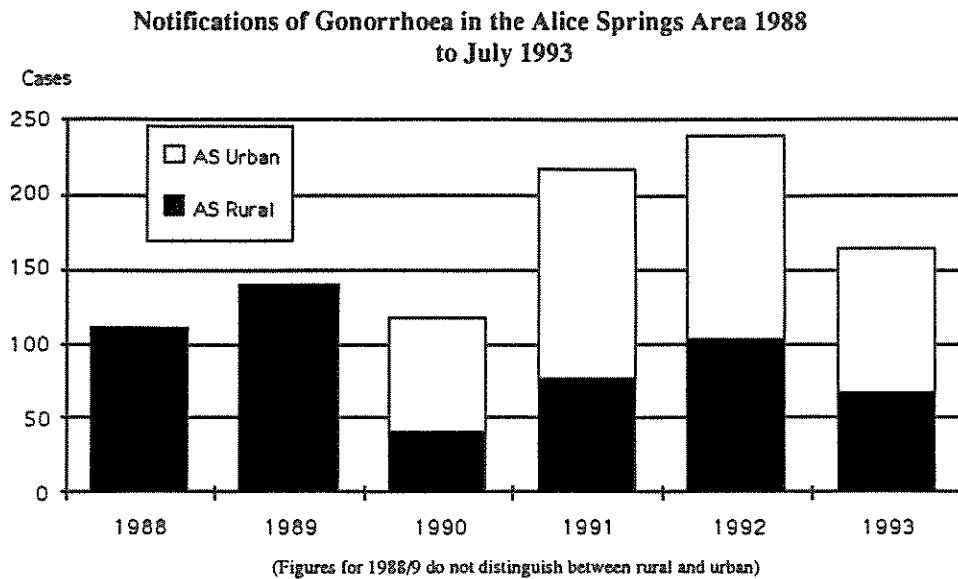
When looking at the data by months there does not seem to be any significant seasonal trends. It is interesting to note that other developed countries, including Australia, report a strong seasonal pattern with an increase in the summer months. The reason for this lack of trend seen in Central Australia is unclear.

Of the 985 cases of gonorrhoea reported from 1988 through mid July 1993, 732 (74%) had patient identifiable data. Eighty-two (13%) of these individuals had more than one infection which in total represented 199 cases (27%). Thirty-six (44%) of the individuals with multiple infections were diagnosed at more than one facility and 24 (30%) of these individuals were diagnosed in multiple communities. Of those persons with multiple infections, 63 (77%) were men and 19 (23%) were women.

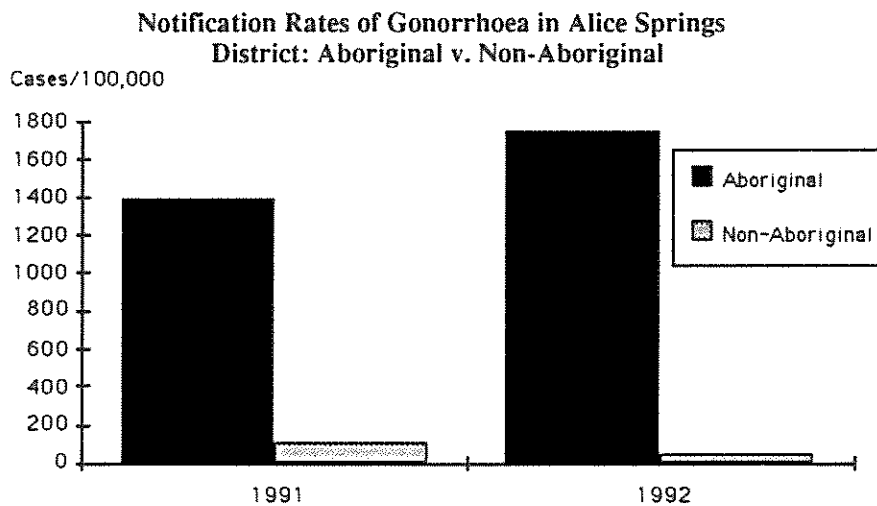
The majority (63%) of the total cases (985) of gonorrhoea reported to the DCC were diagnosed in the Alice Springs area while 27% of cases were diagnosed in the bush communities.

Of the 455 cases of gonorrhoea reported in Alice Springs area between 1990 and mid July 1993, 324 were male (71%), 130 were female (29%), and one person's sexual status was unknown. Of these cases with patient identifiable data, 322 persons had 373 episodes of gonorrhoea. Thirty-six (11%) of these individuals had multiple infections and accounted for a total of 87 cases (23%).

Graph 1



Graph 2



Editorial Note:

Rates of gonorrhoea throughout the NT remain high. In 1992 the total rate was 423/100,000 population. Surveillance of gonorrhoea is the most efficient and complete of all STDs as all laboratory isolates are automatically notified.

There are many reasons for the persistence of an ongoing epidemic and these include: i) the existence of

large numbers of asymptomatic carriers (both men and women); ii) inadequate access to - or reluctance to seek - appropriate medical services and iii) the presence of "core-transmitters" of infection-individuals with multiple sexual partners and recurrent infections who are not amenable to educational interventions. Control efforts for gonorrhoea should focus on these issues.

Haemophilus influenzae type b (Hib) vaccination programs, update

Nan Miller, Senior Project Officer, Disease Control, Darwin

The first Haemophilus influenzae type b (Hib) vaccine was licensed in Australia in May 1992. This vaccine, PRP-D ('ProHIBit'), is only recommended for children 18 months to five years of age. Hib vaccines suitable for children as young as two months of age became available early in 1993.

In anticipation of these 'early' Hib vaccines, the Federal government made a commitment to fund routine infant Hib vaccination programs ie. children two months of age starting from 1 July 1993. The National Program was extended to include all children up to five years of age (catch-up program) starting from 1 September 1993.

The Northern Territory 'pre-empted' the National Program with the inclusion of Hib into the NT routine childhood vaccination program in March and on 1 April 1993 extended it to include children born on or after 1 December 1992. A 'catch-up program' for children up to five years of age ie. born after 1 April 1988, officially began on 1 July 1993.

Two Hib vaccines were selected for use in the routine National Program except in the Northern Territory where only PRP-OMP ('PedvaxHIB') is in the routine schedule.

Current situation

WA, SA, Tasmania, ACT, Qld, NSW & Vic.

The free vaccine is available through most immunisation clinics, local councils and general practitioners for children born after 1 April 1988. The two vaccine policy is—

- 1) PRP-OMP ('PedvaxHIB')- All Aboriginal children, less than five years of age.
- 2) HbOC ('HibTITER') - All Non-Aboriginal children, less than five years of age.

Northern Territory

The free vaccine is available through Departmental health centres, Independent Medical Services, paediatricians and participating general practitioners. The vaccine policy is—

diatricians and participating general practitioners. The vaccine policy is—

ROUTINE CHILDHOOD IMMUNISATION

PRP-OMP 'PedvaxHIB' - All children born on or after 1 December 1992.

CATCH-UP

- 1) PRP-OMP 'PedvaxHIB' - All Aboriginal children, less than five years of age.
- 2) HbOC ('HibTITER') - All Non-Aboriginal children, less than five years of age, born before 1 December 1992.

Rationale for two vaccine policy

All three Hib conjugate vaccines licensed in Australia for use in infants are safe and effective. However the vaccines are not identical and have areas of strengths and weaknesses.

HbOC and PRP-T vaccines give excellent protection in infants after the second dose and stimulate immunological memory which can be boosted for sustained protection. In European children Hib disease commonly occurs at an older age so sustained antibody levels are more critical.

PRP-OMP produces an antibody response after a single dose at two months of age but the immunity wanes quicker and is less boostable than the other vaccines. In Aboriginal children Hib disease occurs at a much earlier age with many cases occurring between two and four months of age and no cases occurring after three years of age in those cases notified in the NT or Western Australia

Since the NT has the highest incidence of Hib disease in Australia for both Aboriginal and Non-Aboriginal children the PRP-OMP is most appropriate for our routine childhood vaccination program.

Schedules

Vaccine	age at first dose, months	Primary series	Age at booster dose, months
PRP-OMP (PedvaxHIB)	2-6	Two doses, 2 months apart	12
	7-11	Two doses, 2 months apart	18
	12-14	One dose	18
	15-59	One dose	-
HbOC (HibTITER)	2-6	Three doses, 2 months apart	18
	7-11	Two dose, 2 months apart	18
	12-14	One dose	18
	15-59	One dose	-

The booster dose should be given a least 2 months after the previous dose.

Note: - It is recommended that the same brand of vaccine be given when more than one dose is required.

Invasive Haemophilus type b (Hib) Disease in the Northern Territory, 1993

Alan Ruben, Darwin

This paper reviews the cases of invasive Haemophilus influenzae type B (Hib) disease in the Northern Territory (NT) in 1993. Hib causes meningitis, epiglottitis, septicaemia, osteomyelitis, septic arthritis and cellulitis. Children aged under five years are particularly susceptible. Previous work by Dr. Jeff Hanna has shown that all children in the NT have higher rates of Hib disease than the rest of Australia, with Aboriginal children having amongst the highest rates in the world.

Hib immunisation is now part of the routine immunisation schedule and a "catch-up program" is also ongoing (see above).

Several countries, including the U.S.A. and Finland, have virtually eradicated Hib disease with the introduction of effective vaccination campaigns starting in 1988. In the U.S.A., native Americans were previously as severely affected as Aboriginal children. The vaccine has dramatically reduced the amount of disease in these populations. There is great potential for a significant improvement in the health of all Territory children with an effective Hib vaccination campaign.

There has been a variable response across the NT to

uptake of the vaccine, which is provided free of charge. Although many children at age two months are now receiving the vaccine, less than half of the older children, aged seven months to five years, have been immunised in the Darwin and Katherine urban regions. This means that children are still at risk and will suffer serious disease. A one year old unimmunised child with meningitis from urban Darwin was admitted to hospital as recently as the last week of September.

EPIDEMIOLOGY OF HIB DISEASE IN THE NORTHERN TERRITORY

In the first nine months of this year, 22 cases of invasive Hib disease were notified to Communicable Disease Control in children aged less than five years.

Eight cases were notified directly using the notification forms and a further 14 cases were notified by the Haemophilus Surveillance Scheme. This active Surveillance Scheme has been established to evaluate the effectiveness and safety of the vaccine, and is operated through the Disease Control Centres in all the districts.

The incidence rate in Australia is between 30 and 50

cases per year for each 100 000 children aged under five years. The following tables show that NT children continue to have very high rates of infection.

Location:

Key: Number (Rate/100 000/9 months)

Location	Aboriginal	Non-Aboriginal	Total
Top End	7 (207)	5 (61)	12 (104)
Central	10 (614)	0 (0)	10 (253)
TOTAL	17 (340)	5 (47)	22 (142)

With the exception of non-Aboriginal children from Central Australia these rates are compatible with rates in previous years. Of special note is that no non-Aboriginal children from Central Australia were reported with the disease during the first nine months of 1993. The Alice Springs urban vaccine uptake "catch-up program" is approaching 90%. In previous years the rate amongst these children has exceeded 200/100 000.

Ages:

As previously described by Jeff Hanna, the majority of Aboriginal children are affected under the age of 18 months.

Key: Number (Rate/100 000/9 months)

Age (yr)	Aboriginal	Non-Aboriginal	Total
0	9 (899)	1 (48)	10
1	6 (599)	2 (96)	
2	2 (416)	0	2
3	0	1	1
4	0	1 (48)	1
TOTAL	17 (340)	5 (48)	22

Type of Infection

Meningitis was the commonest reported type of infection. Epiglottitis is virtually unknown amongst Ab-

original children, for reasons which are not understood. It is probable pneumonia is actually the commonest Hib infection in the community, but is often not specifically diagnosed.

	Aboriginal	Non-Aboriginal	Total
Meningitis	8	2	10
Epiglottitis	0	2	2
Pneumonia	4	0	4
Osteomyelitis	1	0	1
Cellulitis	2	0	2
Septic Arthritis	1	0	1
Unknown	1	1	2

Deaths:

So far this year two children, both Aboriginal, have died from invasive *Haemophilus* disease.

CASES FOLLOWING IMMUNISATION

There have been no vaccine failures.

There have been three cases of disease within three weeks of immunisation. Two cases in Aboriginal children occurred within three weeks of the administration of PRP-OMP (*Pedvax-Hib*), and one case in a non-Aboriginal child occurred two weeks after the administration of Hb-OC (*Hib-TITER*).

A comprehensive literature search was undertaken and interstate immunisation experts were consulted following these cases. There was no evidence to suggest that immunisation with the new conjugate vaccine is predisposing to disease. All the evidence shows that with an effective immunisation program, the disease can virtually be eradicated. It is felt that the timing of these infections in relation to the vaccine is coincidental in a high-risk population.

COMMENTS:

These data are preliminary and represent only the first nine months of this year. It is likely that there are further cases not notified through either Disease Control Notifications or the *Haemophilus* Surveillance Scheme, and therefore the data are incomplete.

It is proposed to review all hospital and private laboratory records to find any missing cases. It is imperative that the effectiveness of the vaccine and the vacci-

nation delivery program be assessed. A study of the immunogenicity and tolerability of the Hib vaccine in Aboriginal and Caucasian infants in the NT is underway. It is proposed to officially include invasive Hib disease on the N.T. Notifiable Diseases list and to establish direct laboratory notification.

Immunisation of two month old infants and the "catch-up program" for children aged less than five years should be a priority for NT health care providers and for the community 'at large'. The NT should aim for a 95% coverage rate to be reached within one year.

Special attention needs to be given to the maintenance

of the cold chain, as with all vaccines.

Surveillance through notifications should be increased to establish vaccine effectiveness, and for surveillance of vaccine side effects.

Support and priority should be given to establish practical and efficient immunisation databases to maximise the immunisation program Territory wide.

Invasive Hib disease can be virtually eliminated with an effective immunisation program.

Treatment of Adult Community-acquired Pneumonia in the Top End

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

The prime aim of treating community-acquired pneumonia is to prevent death. We have been looking at the more severe pneumonias admitted to Royal Darwin Hospital, represented by patients with positive blood cultures (bacteremic). The findings have been used to define treatment guidelines based on severity of pneumonia and presence or absence of risk factors. In passing, it is of interest that there have been few diagnosed cases of "atypical pneumonia" at Royal Darwin Hospital. There may well be more cases presenting in the community.

Table 1 shows the four commonest organisms isolated in 122 cases of adult community-acquired bacteremic pneumonia. Of note is that 46% of cases overall are gram-negative organisms. Gram-negative pneumonia accounted for 65% of deaths, with the gram-positives accounting for 35%. *Streptococcus pneumoniae* is the commonest organism isolated but *Pseudomonas pseudomallei* is the organism most commonly causing death. *Acinetobacter baumannii* is the second most important gram negative organism, associated with almost the same number of deaths as *Streptococcus pneumoniae*.

TREATMENT PROTOCOLS

People with risk factors such as diabetes, alcohol, chronic lung disease (and smoking), chronic renal failure and steroid therapy are at particular risk for gram negative pneumonia. However, melioidosis will

occasionally occur in an apparently immunocompetent person. Based on this Table 2 defines the initial therapy of adult community-acquired pneumonia at Royal Darwin Hospital. Irrespective of risk factors, mild pneumonia is treated with penicillin, as *Streptococcus pneumoniae* remains the commonest organism. If risk factors are present and the pneumonia is moderate or severe then it is important to cover both *Acinetobacter baumannii* and *Pseudomonas pseudomallei*. Therefore, gentamicin is used with ceftriaxone or ceftazidime. Ceftriaxone will be initially adequate for melioidosis if used in a dose of 2 grams per day. The MIC's are around two to four times those of ceftazidime, and so if melioidosis is isolated then ceftazidime should be substituted. Ceftriaxone, however, has a better gram positive coverage than ceftazidime. When used with gentamicin ceftriaxone will generally hold *Staphylococcus aureus* infection. Once *Staphylococcus aureus* is isolated then the appropriate treatment becomes usually flucloxacillin. Ceftriaxone will also provide adequate coverage for *Streptococcus pneumoniae*. Once *Streptococcus pneumoniae* is isolated, however, penicillin becomes the drug of choice. If *Acinetobacter baumannii* is isolated, then gentamicin may be continued. Alternative therapies for *Acinetobacter baumannii* include imipenem alone, or piperacillin together with the gentamicin. Finally, we have found an urgent gram stain of initial sputum to occasionally be helpful in directing therapy. The results of sputum culture are less reliable as they may just indicate throat and upper respiratory tract flora.

TABLE 1

Adult Community-Acquired Bacteremic Pneumonia

Royal Darwin Hospital 1986-1993

122 cases, 43 deaths (35%)

Bacteria	Admission		Deaths		Mortality by organism
	No.	% of total admissions	No.	% of total deaths	%
<i>Streptococcus pneumoniae</i>	47	39%	10	23%	21%
<i>Pseudomonas pseudomallei</i>	23	19%	13	30%	57%
<i>Acinetobacter baumannii</i>	16	13%	9	21%	56%
<i>Staphylococcus aureus</i>	15	12%	4	9%	27%

TABLE 2

Initial Therapy of Adult Community-acquired Pneumonia at Royal Darwin Hospital

	MILD PNEUMONIA	MODERATE PNEUMONIA	SEVERE PNEUMONIA
No risk factors* present	Penicillin	Penicillin	Ceftriaxone
Risk factors*	Penicillin	Ceftriaxone plus Gentamicin	Ceftriaxone or Ceftazidime plus Gentamicin

For "atypical pneumonia" : add/substitute erythromycin

- * Risk factors include - alcohol
diabetes
chronic lung disease
chronic renal failure
steroid therapy

Investigation of an Outbreak of Vomiting and Diarrhoea Among Mountain Bike Enthusiasts

Tiina Voolmann, Nan Miller and Darren Mitchell, CDC Darwin, and Kon Vatsalis, Environmental Health Branch Darwin.

INTRODUCTION

On Monday morning, 26 July, 1993, a member of staff at the Darwin CDC arrived at work and commented that at least 20 members of the Mountain Bike Club had become ill at a race meeting. The meeting had been held in a rural setting near a small town over a three day weekend. As this area is used for recreation by a large number of Top End residents and tourists, an investigation was undertaken.

The racing began mid-Friday with racers, friends and family attending during the day(s) or staying overnight in the area at a local motel or a nearby camp with bunkhouse accommodation. Food was brought from home or obtained from the motel restaurant, a local take-away/restaurant facility or the local general store. Water was obtained from home or locally at the motel, the camp and the store. Bidons used by the racers were filled from a large 20L cooler used by the Club for its meetings. This cooler was initially filled Friday morning at the motel and mid-afternoon onwards from the outside tap at the general store. The first cases of illness began at 0100 hr Saturday morning.

METHOD

The illness was defined as nausea, vomiting and/or diarrhoea developing in attendees at the event, commencing after mid-day Friday and no later than the following Tuesday and who had no chronic diarrhoeal illness. A questionnaire was designed and completed by CDC staff who interviewed attendees of the race meeting.

Of the 58 people who attended the meeting, 56 were able to be contacted. Three people who had been ill at the meeting, submitted throat swabs and stool samples for laboratory testing. The Environmental Health Branch arranged for the Water Authority to collect water samples from the storage tank for the town, the motel water and three outlets around the town for bacteriological examination. Testing of water at the camp was intended but not done.

RESULTS

Of 56 people, two had illness which did not fit the case definition and 32 developed illness consistent with the case definition. The attack rate was 60%. Food sources were recorded in only 44 of the subjects. The relative risks for illness based on source of food varied from 0.8 to 1.6. These findings supported the assumption that food was not the source of the illness. The relative risk (RR) of illness was significant in those who drank water from the cooler (RR 7.9, 95% CI 2.0-30.1). All of the eight people who brought water from home and did not drink any other water at the meeting, did not get ill. These results suggest that the water from the cooler (obtained from the motel and the shop) was strongly associated with the development of illness.

Laboratory tests on the samples from the three ill participants were negative for bacterial pathogens, parasites and viruses (testing included electron microscopy). The storage tank water supplying the entire town gave an unacceptably high coliform count. Tap water from the motel tested as satisfactory, as did two of three taps around town even though the storage tank supplied them all.

CONCLUSION

An outbreak of nausea, vomiting and/or diarrhoea occurred in 60% of attendees at a Darwin Mountain Bike Club meeting. Although no infectious agent was isolated from the throat and stool samples taken, epidemiological analysis found a strong association between illness and water from the cooler. Also, when only water from home was used, illness did not occur. These findings fit in with the bacteriological findings of unsatisfactory water from the water storage tank. How the contamination of this water supply occurred is being further investigated. The town water supply has now been adequately chlorinated and the drinking water has since been proven to be safe.

Central line infection in renal dialysis patients at Royal Darwin Hospital

Tim Heath, Toby Trahair, Anne Arthur, Pam Boustead, Bart Currie: Royal Darwin Hospital

A retrospective audit was performed examining central line infection in renal dialysis patients at Royal Darwin Hospital during the 18 month period from 1 July 1991 to 31 December 1992.

Thirty three patients required inpatient dialysis (54% aboriginal; 61% male; average age 51). Culture positive episodes of central venous line or 'Vas cath' (venous dialysing catheter) infection were identified from the hospital's Infection Control database. Culture positive patients' medical files were examined. 'Central line infection' was defined as positive culture of catheter insertion site or tip, and or bacteraemia, in association with local signs of catheter infection as described in the clinical notes. Where this information was not available colonisation was assumed to be present. In some cases we were unable to distinguish from medical records whether the infected line was a 'Vascath' or a standard central venous line, so for the purposes of this study these devices were considered as a single entity - called "central lines" (CL).

Forty three separate episodes of CL infection were documented amongst fifteen patients. Fifteen (35%) of these episodes were associated with bacteraemia, five of which were polymicrobial bacteraemias (total isolates 22). Clinically infected CL tips were cultured in 12 of these bacteraemic cases, nine (75%) yielding the same organism isolated from blood culture. Six patients had more than one CL infection. Two patients developed complicating endocarditis, and three patients died during the same admission that CL infection occurred (although retrospectively it was not possible to directly attribute deaths to this). Fifty percent of all bacteraemias in dialysis patients during the study period were found to be associated with CL infection.

The most frequently implicated pathogens were Staphylococcus aureus and coagulase negative staphylococci. Half of the isolates caused by S. aureus were methicillin resistant (MRSA). Enteric gram negative organisms accounted for a third of CL related infections, and a higher proportion (43%) of bacteraemic isolates. The agents responsible for bacteraemia are tabulated below:

<u>Bacteraemia central line infection</u>	<u>No. isolates</u>
S. aureus (methicillin sensitive)	5
MRSA	4
Coagulase negative staphylococcus	3
Enterobacter sp. (E. cloacae 2, E sakazakii)	3
Pseudomonas aeruginosa	2
Klebsiella pneumoniae	2
Acinetobacter sp. (A. baumannii 1, A. calcoaceticus 1)	2
Enterococcus faecalis	1

In general the standard of documentation regarding the insertion, remove and clinical status of CLs was poor. Hence these figures underestimate the magnitude of the problem. On a number of occasions it was clear that clinically infected catheters were not removed promptly and recurrent or continuing sepsis was documented. In some instances dialysis was continued via a catheter, despite bacteraemia and evidence of line infection.

Calculation of the rate of bacteraemic infection for dialysing catheters was not possible as the total number of catheters used in unknown, thus direct comparison to other published data is difficult. However the proportion of dialysis patients sustaining blood line bacteraemia was high (45%) over a relatively short observation period, and represents a prominent cause of morbidity and a potential source of mortality. These figures indicated an urgent need to re-evaluate both nursing and medical management of CLs in renal dialysis patients in our hospital, and this is currently under way.

Protocols delineating the aseptic technique required for inserting and managing 'Vascaths' and their dressings have been revised in detail, and appropriate training undertaken amongst haemodialysis nursing staff. A register has been constructed to document all dialysing catheters (recording their insertion, removal, dressing and appropriate culture) in an attempt to increase awareness of the importance of central line management, and to aid future audits. Ongoing education and supervision of medical, anaesthetic and nursing staff is essential if we are to successfully reduce the septic complications of intravascular lines in our dialysis patients.

Pertussis - on the increase

By CDC Darwin Staff

Three cases of pertussis have been reported since August 1993 for a total of seven cases this year. The three recent cases are as follows:

Case 1

A six week old girl from Daly River, too young for routine immunisation, became unwell the last week of July 1993. She was admitted to Royal Darwin Hospital (RDH) on 2 August and nursed on an open plan ward for the first twelve hours. When the clinical diagnosis of pertussis was made she was isolated and erythromycin treatment was begun. She was discharged well two weeks later on 17 August and notified on 18 August following a positive PCR for *Bordetella* from a nasopharyngeal aspirate taken two weeks previously. The local medical officer and hospital infection control were notified. No contacts were found to be unwell and none were offered preventive treatment with erythromycin as the 14 day incubation period had passed.

Case 2

A ten week old boy from a remote Arnhem Land community was admitted to RDH on 30 August. He had been immunized with Hib, Hepatitis B and BCG. He had not received his first DPT triple antigen (TA) immunization. He presented to a health clinic with a one week history of cough and was clinically diagnosed as having pertussis. Initially, his mother declined admitting him to hospital. Three days later his health deteriorated and he was admitted to hospital and isolated and treated with erythromycin. He was discharged from hospital well, three weeks later.

Contact tracing was carried out in the community following the local doctor's clinical diagnosis. Contacts were given immunization, where appropriate, and erythromycin per the NT Pertussis Outbreak Protocol. The clinical diagnosis was confirmed by a positive PCR for *Bordetella* nasopharyngeal aspirate result.

Case 3

A three and a half year old fully immunised girl (i.e. TA at 2, 4, 6 and 18 months) from urban Darwin became ill on 4 September with dry cough. She

progressed to coughing to the point of vomiting on 10 September at which time she was seen by her local GP and started on erythromycin. Three days later because of growth of *Haemophilus influenzae* on a throat swab the antibiotics were changed. On 17 September *Bordetella pertussis* antigen was detected by direct immunofluorescence and reported to the GP and Darwin CDC. Erythromycin was recommenced for 14 days.

The three weeks following the paroxysmal coughing stage are included in the period of communicability for pertussis. During this time the child, still coughing attended day care. Family members and day care contacts were screened, immunized where appropriate and offered erythromycin for 14 days.

No epidemiological links were elicited among these three cases

Comment:

There have been seven cases of pertussis notified in the N.T. this year. Five of these cases were from Darwin district and two from Alice Springs. This compares with no cases in 1991 and one case in 1992 in the N.T.

As of 4 October 1993, the Communicable Diseases Intelligence reported 1,472 cases of pertussis nationally compared with 353 cases for the equivalent 1992 period. The age range was from less than one year to 84 years.

Pertussis is an infection which affects all age groups, but is a most serious disease in infants and young children. For those unimmunised with underlying malnutrition, respiratory and enteric infections it is among the most lethal diseases of these age groups.

The pertussis vaccine is safe, effective and inexpensive. Health care providers should check the immunisation status of children less than four years of age, particularly those in contact with babies less than six months of age.



Profiles and Staff Updates

New staff within Disease Control

Vicki Krause
Director
Disease Control, Darwin

Vicki has taken the position of Director of the Disease Control centre (DCC) as well as retaining the title of Head of TB Control. She is also the DCC Program Manager for the Darwin area and runs the Darwin TB Chest Clinic.

Vicki did her medical training in Philadelphia, Pennsylvania, USA and is a specialist in internal medicine. She has a Diploma of Tropical Medicine and Hygiene from London, is an Australian Fellow of the Faculty of Public Health Medicine and a Member of the American College of Physicians.

She has worked in the Indian Health Service of the US Public Service in Montana and Oregon. She has worked in an internal medicine private practice outside Washington, DC which also served an intellectually disabled community project. She was physician to the free-clinic which provided public health for illegal immigrants, migrants and refugees.

Prior to coming to the Territory she worked for three years in Port Moresby with the Health Department of Papua New Guinea (PNG) as a specialist physician and as an honorary lecturer at the University of PNG.

The past four years have found Vicki in DCC re-establishing and running the TB Control Program. She represents the Territory as a member of the NH&MRC Communicable Diseases Standing Committee and is a member of the NH&MRC Panel on Tuberculosis. She is married with two children.

Lynette Windsor
Aboriginal Female Educator
AIDS/STD Unit, Alice Springs

Lynette is the Women's HIV, AIDS, STD Educator with the Disease Control Centre in Alice Springs. She says "I am looking forward to getting to know my peer groups. It is also important that all educators be given full support at all times, AIDS is a deadly virus, and we need to control its spread."

Over the years Lynette has worked with Aboriginal students from communities throughout central Australia through the Department of Education's Yirara College. Lynette was born and has spent most of her life in Alice Springs. She is married with three daughters.

Darren Mitchell
Research Officer
Disease Control, Darwin

Darren has recently taken up the position of Research Officer, Disease Control in Darwin. He has previously held positions with the Northern Territory University, tutored sociology for several years and a nursing background.

He has an undergraduate degree in sociology and communications and has undertaken postgraduate studies in sociology and management. He is currently completing a Master of Public Policy with a focus on program evaluation. Darren has a keen interest in research methods, social policy and community-based social research - particularly in the areas of health and illness, gender, sexuality and family studies.

William Armstrong
Aboriginal Male Educator,
AIDS/STD Unit, Alice Springs

William was born in Alice Springs and grew up in his traditional country on Henbury Station, near the Finke River. He attended Alice Springs for his primary education and St Paul's College in NSW for his secondary education. In 1989 William did stage 1 of the Alcohol and Drug Counselling Course in Brisbane. Upon completion of the course he was employed by HALT in the areas of substance abuse, family breakdown due to alcohol and petrol sniffing.

Of his present position, as the Male Adult Educator for the region, William comments: "the reception I have received from communities visited so far is very warm and encouraging." He says "I look forward to visits to the many communities in our region, not only to educate our people, but also for the feedback and what prevention strategies Aboriginal people are implementing in communities in addressing this and other issues."