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A tribute to all those who so professionally, tirelessly and compassionately provided service to the East Timorese evacuees

East Timorese Evacuees in Darwin, September 1999

In response to the evolving crisis following the election in East Timor, Darwin became the first haven for over 1860 East Timorese evacuees in September 1999. First came the arrival of 344 UNAMET workers and their families on September 10 followed a few days later by planes bringing an estimated 130 evacuees every 30 minutes making a second group of over 1500 East Timorese men, women and children.

The Centre for Disease Control (CDC) in Darwin along with nurse managers from Operations North, Territory Health Services, were charged with organising the formal health screening and disease control for the evacuees. The first task was to find available space and devise a system to accommodate the needs of the Department of Immigration, and Multicultural Affairs (DIMA), Welfare, Health Services Australia (HSA) doctors and nurses, a radiological service and clinical services to rapidly assess all evacuees with fever and suspected communicable diseases and provide treatment.

The "can do" attitude of all involved was evident with the Darwin Private Hospital identifying available space and without hesitation setting up the required floorplan. NT Medical Imaging efficiently and expertly accommodated the needs for chest x-rays for all evacuees 12 years and older. As numbers grew the Menzies School of Health Research made available further space for screening and waiting.

Contents

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CDC Darwin transformed overnight as it became the Fever/Chest Clinic which would serve approximately 215 adults and 170 children and also run 6 respiratory isolation houses on the Royal Darwin Hospital (RDH) campus to evaluate, accommodate and appropriately treat those with suspected tuberculosis. Marquee tents appeared outside of the Fever/Chest Clinic to accommodate triage and further waiting areas with floodlights needed at night.

The initial 344 evacuees all had blood slides done for malaria. Surprisingly only 3 were positive and further evacuees were screened only if they had fever or symptoms suggestive of malaria with the final number of malaria cases being 14. This laboratory load combined, with well over 300 sputums for acid fast bacilli (AFB) and culture and more than 80 stools examined for ova and parasites, highlights the plight of the microscopist. The laboratory at the RDH, however, unfailingly provided diagnostic services, with assistance also from the private laboratories. Laboratory workers do not see the human side of the crisis, hear the stories, see the children or feel the emotion but only receive the overwhelming workload, yet unfailingly they provided the critical diagnostic services.

The pathology paperwork and numerous clinical records necessitated the quick development and adaptation of comprehensive databases with continuous data entry by skilled CDC staff. These databases provided vital information for the efficient follow-up and management of the evacuees. Hand held records were also developed and provided a very useful and consistent tool for recording, maintaining and transmitting timely information in a coordinated fashion.

A clanging bell marked the updating meetings that occurred three times daily and became expected and useful gatherings. Administrative staff intuitively became the backbone of the Unit organising rosters, faxing, photocopying, filing, ordering, pulling chest x-rays and answering the constantly ringing phones.

As evacuees began to depart to safe havens down south CDC staff dealt with flight manifests attempting always to assist in keeping families together and to provide the needed information for health clearance and medical records for further follow-up where needed.

Chicken pox was identified as a potential epidemic in the UNAMET camp prior to the arrival of the evacuees though very few cases were actually found on initial screening or subsequently in Darwin. Nonetheless a chicken pox protocol was in place and used for the initial screening with the aim to shorten the contagious phase and identify for appropriate management those most at-risk, eg. pregnant women and their unborn children.

Protocols for other mainly communicable conditions (see table) were rapidly developed for the Fever/Chest Clinic and the Kalymnos Camp or “Tent City” which housed most of the evacuees. Protocols were in place for possible outbreaks in the Camp and information sheets for all people working with the evacuees were circulated which stressed the need for such precautions as measles-mumps-rubella (MMR) vaccine and base line Mantoux testing.

The initial 344 East Timorese evacuees felt to be “Darwin bound” for their time spent in safe haven in Australia were all given appropriate immunisations during their initial screening which included an MMR vaccine. The next 1500 plus evacuees were intended to travel south to safe havens within 3-5 days (which subsequently became longer) with their immunisations given on arrival at their southern destination. Before they travelled, however, a case of measles was diagnosed in this latter group which triggered an immediate MMR immunisation campaign of all evacuees 9 months (and later 6 months) of age to 30 years in the Darwin Kalymnos Camp. Over 600 MMR vaccinations were given the day following the measles diagnosis. This quick mobilisation attests to the capabilities and experience in the NT and also to the assistance given by RNs from Far North Queensland who had recently participated in mass immunisation campaigns following local cases.

Amid all of this organisation and activity were “the people”, the East Timorese people who were traumatised, very hungry and dehydrated but who also showed great faith and resilience. As days and weeks went by assisted by gatherings at Mass and their community their smiles and strength were apparent.

There are many images not soon to be forgotten eg the first night seeing an inconsolably sobbing, exhausted child going through the health screening process still at 7pm, having received several immunisations and with a woman with seven other children, all needing consoling or attention. The child is scooped up by a worker and held until he quiets. The child’s parents are

sought, only to find he has no mother – or father, and the tragedy of the crisis is brought home. Another scene is seeing one of Darwin's internationally prominent scientists quietly serving cool drinks to families and lollies to children as they wait patiently during the health screening.

Much work and service was done in a very short time by a team, a skilled and supportive team, which included staff from other districts and former CDC officers.

Many need to be acknowledged and praised for their resourcefulness, expertise, compassion and untiring contribution to this crisis situation.

It was a small contribution to our neighbour and to the rebuilding of East Timor.

Table East Timorese evacuees medical screening protocols, policies and guidelines

1. Referral policy for Kalymnos Clinic
2. Diarrhoea protocol for use at Kalymnos Clinic
3. Suspected measles protocol for use at Kalymnos Clinic
4. Admission policies
5. Diarrhoea protocol for use at Fever/Chest Clinic
6. Paediatric protocol (children less than 12 years) for use at Fever/Chest Clinic
7. Doctor's guidelines for use at Fever/Chest Clinic
8. Fever protocol for use at Fever/Chest Clinic
9. TB protocol for doctors at Fever/Chest Clinic
10. Protocol for pregnant women at initial immigration/welfare desk (Block 4)
11. Protocol for pregnant women at CDC (after completion of immigration processing at DPH)
12. TB check for pregnant women
13. Initial health assessment - MMR vaccination protocol
14. Immunisation Schedule
15. Protocol for Vitamin A and children
16. Deworming protocol for people who will be staying (in any location) in Darwin
17. Chickenpox protocol
18. Air travel protocol
19. Public Health Plan: Guide for Communicable Disease Control for East Timorese Evacuees at Kalymnos Camp or other NT Camps/Accommodations

Report on Men's Health Screening at Community W, May 1999

Simon Marrable and Ivor Alexander, CDC, Nhulunbuy

Background

The Centre for Disease Control (CDC), Nhulunbuy were contacted in mid April by the visiting District Medical Officer (DMO) of Community W to determine our interest in assisting with a Chronic Diseases Screening scheduled for May 1999. The community had adequate resources for Women's Chronic Disease Screening. They requested our involvement to utilise our experience gained from Well Men's Screenings held in other communities.

Despite some concerns we offered our support in running a simultaneous Well Men's Screening alongside the Chronic Diseases Screening. Two of us visited the community the following week to liaise with staff, obtain permission from Council leaders and to promote the screening throughout the community and the school. For the week of the screening the health centre was to be divided in two, men in the back, women in the front. We were to have a DMO, Aboriginal Health Worker (AHW) and two nurses from CDC. All staff were male.

The health centre ordered additional supplies and the private pathology service was put on notice to expect an increase in specimens for that week.

Method

In line with previous screenings a great deal of effort was made to secure the support of community leaders by both meeting them and making formal requests for their consent by letter. Input was sought in relation to our plans and community ownership of the screening was promoted. Posters were placed in prominent locations around the community. During the screening we negotiated suitable times for groups to attend and also encouraged individuals when we encountered them outside the clinic.

Our standard "Well Men's Screening" form was used containing name (English and Indigenous), DOB, height, weight, girth, Hb, BSL, BP, urine and blood tests taken, a check for worming tablets given and space for comments. A staff member attended each work station; one person to establish identity and complete pathology forms; one for BP, height, weight and girth, one for Hb, BSL and to offer worming tablets and finally one for urines, bloods and packaging of pathology. It took between 10 and 15 minutes for an individual to attend all the stations. The routine bloods and urines were for syphilis (RPR) and urine PCR (gonorrhoea, chlamydia, trichomoniasis). Other tests were included, as required, in response to a person's history or clinical presentation.

For the Chronic Diseases screening, individuals were collected from their home by a clinic worker. They had a full assessment by the DMO taking between 45 and 60 minutes. The DMO then indicated to us the need to include specific tests as part of our routine screening.

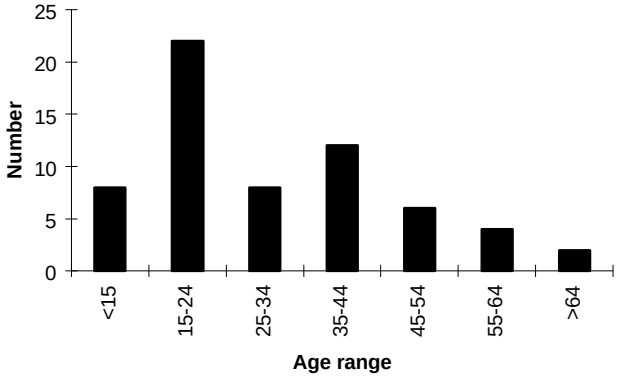
Efforts were made to explain the use and meaning of each test to each person to ensure informed consent. Education in relation to abnormal results was given immediately and individuals were referred to the DMO or clinic staff. Condoms and information booklets were available.

Results

The following results apply only to the Well Men's Screening. Results for tests taken for the Chronic Diseases screening were removed to prevent overlap of data. The sample number for each set of results is provided.

62 men attended the screening over five days. The total male population of the region (eg community and all outstations) is 588. Of these 409 are aged over 10 years, 350 over 15 years. We therefore screened 18% of our primary target of men over 15 years. These figures are from the community database and do not reflect whether people are transient or deceased and therefore are likely to be higher than the real figure. Ages ranged from 13 to 76 years

Age ranges of men seen at Community W



The high percentage of men aged 10-24 years (48%) is a result of very strong support from the school. The low attendance for ages 25-34 years (12%) is disappointing in regard to finding "core transmitters" of STD's. On a positive note the wide range in ages indicates broad community support.

STD's detected in men screened

Syphilis

Of 62 men who attended the screening, 59 had bloods taken for syphilis (RPR). The three not taken had recently been tested. From this sample:

- 1 (1.6%) tested positive and required treatment.
- 5 (8.5%) tested positive who had been previously treated and were on the East Arnhem database.

Urine PCR-gonorrhoea, chlamydia, trichomoniasis

Of 62 men who attended the screening, 58 provided first void urine samples for PCR. Of these, 19 were lost due to leakage in transit. From the remaining sample of 39:

- 1 (3%) tested positive for trichomoniasis and was treated
- 0 tested positive for gonorrhoea or chlamydia

No men tested positive for more than one STD. Of the 19 lost urine samples 42% were from the main STD target group of 15-34 year olds. This age group is most likely to have an undiagnosed STD. The two new positive results of syphilis and trichomoniasis were aged 21 and 23 respectively.

Body Mass Index (BMI) Assessment

The Australian Nutrition Foundation Height for Weight charts and their BMI Criteria for adults over 18 was used. From our sample, 22 were aged below 18 years and therefore do not apply to this scale. The remaining 40 fell into the following categories:

BMI	Number (n=40)
Below 18 (very underweight, long term health hazard)	0
18-20 (underweight)	4 (10%)
20-25 (acceptable range, least risk)	21 (53%)
25-30 (overweight, low risk to health)	14 (35%)
30-40 (morbid obesity, high risk to health)	1 (3%)

Blood Pressure (BP) Assessment

A sample of 62 men had their BP taken.

- 11 (18%) men had BP readings over 140/90, of these, 5 obtained an immediate DMO review, the remaining 6 were to be followed-up at the clinic.
- 51 (82%) men had BP readings below 140/90.
- 13 (21%) men had BP readings below 95/65. Of these, 10 were aged below 18 years, and none of the men complained of symptoms of hypotension.

Blood Sugar Level (BSL) Assessment

BSL's of between 2.2 - 8.8 were considered normal. A sample of 59 had their BSL's taken.

- 56 (95%) were within normal range.
- 3 (5%) had BSL's above 8.8. They were referred to DOM who ordered more comprehensive testing.

Haemoglobin (Hb) Assessment

A sample of 54 men accepted measurement of Hb. An Hb of 120gm/litre is the value considered normal by the Gove District Hospital Pathology Laboratory.

Hb	Number (n=54)
Below 100	1 (2%)
100-119	4 (7%)
120-139	22 (41%)
140 and above	27 (50%)

* Referred to DMO for follow up.

The health centre was notified of those in 100-119 range.

Screening Follow Up

A DMO was on site for the week of the screening and the following week. The majority of abnormal findings were dealt with immediately, either by treatment or more extensive testing.

It is normal practice to return to the community and assist with treatment follow-up and contact tracing for STD's. In this instance, due to only two new STD cases, follow-up was done during the routine Men's Health Nurse visit.

Information from this screening has been entered on the STD database at CDC, Nhulunbuy.

Discussion

Men's Health Screenings are now an intrinsic part of the CDC work within the East Arnhem region. We were encouraged by the number of men who came for the screening, however factors exist that may be responsible for preventing greater attendance. These include:

- This screening had only a two week lead in time. In general, we work towards having at least a month to allow for broader community consultation. In this situation there was the added problem of a change in council leadership making consultation and support harder to obtain.
- Combination with the Chronic Diseases screening for both men and women led to some role and leadership confusion. In truth we probably tried to do too much and stretched clinic resources. The clinic still has to function as a clinic over the period of the screening. On this note the importance of having enough staff to enable an organised methodical approach to screening cannot be stressed enough. Lack of staff is a major contributing factor towards the leakage of 19 urine specimens.
- Access to a venue completely separate from the health centre appears to be crucial to greater success. The strictly adhered to split in the clinic, separate room and entrance where only men, including staff, were allowed, was probably the reason we saw as many people as we did. A completely separate venue remains our preference.
- Prior to our arrival a long term AIDS/STD education Program run by an independent agency had commenced and had a number of weeks to run before completion. We endorse that program but as it had not run its full course when we visited for the Mens' Health Screening, some community members may have been fearful of any STD testing. Misinformation amongst the men that HIV testing would be included and fear of the implications of a positive test result appeared to act as a deterrent. HIV testing is not offered in routine screening, but is in the follow-up of a person with a diagnosed STD. This highlights the importance of community education as a basis of any screening program.

Despite the above factors, quality screening did occur and the responsibility for that lies firmly with a number of parties.

- Both the outgoing and incoming council presidents gave open public support for our visit.
- The clinic RN's and AHW's worked tirelessly in preparation and throughout the week. They maintained a sense of humour and calmness when, at times, all around them was chaos.
- The school principal and teachers gave their support by escorting the students to us in manageable groups.
- The support of the individual men who gave their time and encouraged others to do so. The community saw this as a positive exercise that was genuinely created in their interest.

Conclusion

This visit reinforced our understanding of the elements that make up successful Well Men's Screening. They are:

- Adequate lead in time.
- Full personal consultation with all senior community members and health clinic staff.
- A complete explanation of screening procedures in order to obtain tacit informed consent. Appropriate education and publicity.
- Securing a venue geographically separate from the health centre.
- Avoid combining the screening with other screening activities, however coordination so that Well Woman's Screening occurs in a similar timeframe has merit in that through contact tracing a far greater percentage of the community can be treated.
- Provide adequate staff to run the screening (at least four people of whom two are capable of performing all procedures and one has an intimate knowledge of the local community to ensure accurate identification of clients). As health centres continue their normal activities they can only dedicate minimal staff to the screening so the required staff must be imported.
- The pathology laboratory needs to be warned of the influx of specimens.
- Sufficient equipment and supplies; recognising that the health centres need to function as normal, a great deal of equipment and supplies need to be carried in or ordered well in advance to accommodate the added needs of the screening. Make sure all equipment works and works fast. If Hb and BSL measurements take 2-3 minutes a piece, the screening time is almost doubled.

- Provide health promotion material; in this case condoms and pamphlets. Where possible videos prove to be excellent as they also serve to occupy the participants and therefore take some of the time pressure off the team.
- Be observant and thorough in assessing people as they are screened as this is often the only time they have presented to a health professional in years. Factor in the potential need to return to assist the health centre to follow-up people for treatment.

It is common practice to follow-up each screening by returning to the community to treat individuals and in the case of infectious disease, trace their contacts. In this situation, due to the limited number of participants it was decided to follow-up on a regular basis. This community now gets monthly visits from the Men's Health Nurse who is available to see men about any health issues. Opportunistic screening for STD's forms a significant part of these visits.

Acknowledgment

Our thanks to the many people who supported the screening in Community W.

Report on Men's Health Week at Community Z, June 1999

Simon Marrable and Ivor Alexander, CDC, Nhulunbuy

Background

Community Z embarked on an intensive screening program over the months of May and June 1999. The screenings included Well Woman's, Children/Immunisation, Chronic Diseases and Well Men's. The Centre for Disease Control (CDC), Nhulunbuy was contacted by the Clinical Nurse Consultant (CNC) and requested to organise and run the Well Men's Health Week. We arranged a week in early June supported by the clinical manager and District Medical Officer (DMO).

An organisational meeting was immediately held at the community, an appropriate venue was obtained and permission was gained from community leaders. The CNC had been in the community for many years and had earned the trust and respect of the community. We were also offered the services of a highly respected community member with an interest in health. These two factors were to prove invaluable in both the planning and running of the program.

Additional supplies were ordered by the health centre. We also arranged assistance from the pathology laboratory who provided a person to label and package specimens and be available to take bloods as required.

Method

Consultation with community leaders was provided by the clinic CNC and our community contact. Due to their respect for the CNC and the involvement of the community member they offered broad support for the Health Week.

In the preceding week, posters were displayed throughout the community, individual flyers were delivered to each house and broadcasts were made over the local radio station. A visit was made to the local school to encourage students to attend.

The venue was located in the centre of the community but out of sight of the general public. It had very good facilities including a covered verandah, large kitchen, disabled toilet and a large room in which to conduct the screening. All male files were moved to this location which proved advantageous when determining correct identity and obtaining an accurate history.

Staff for the screening included two from CDC, an Aboriginal Health Worker (AHW), the pathology technician and most importantly the senior community member. Though some people dropped in, most were collected by him from their homes.

Our standard "Well Men's Screening " form was used containing name (English and Indigenous), DOB, height, weight, girth, Hb, BSL, BP, urine and blood tests taken, worming tablets given and space for comments. Four work stations were established, one for person identification and documentation, one for BP, height, weight and girth, one for Hb and BSL and one to take bloods and package pathology. Routine pathology was for RPR and urine PCR for chlamydia, gonorrhoea and trichomoniasis. Other

tests were at times included in response to a persons presentation or history. It takes a person approximately 10 minutes to attend all stations.

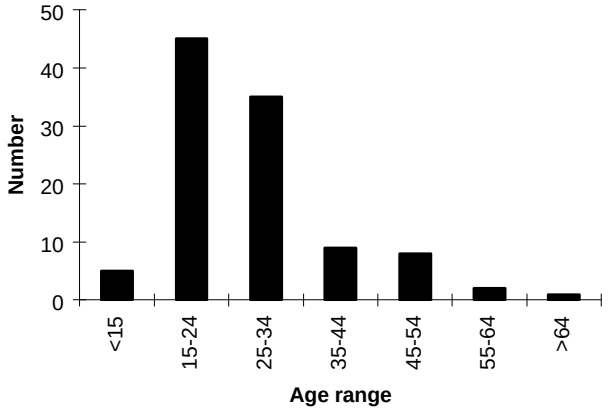
The use and meaning of each test was explained to obtain informed consent. If possible immediate education was provided in relation to abnormal results. Condoms were readily available.

Results

105 men attended the screening over five days, 85% of these were seen in the first three days. Ages ranged from 13 to 67 years.

Accurate census figures are difficult to obtain. There are approximately 400 male files in the Community Health Centre. These files include men from out-stations and men who may have moved to other communities. At the time of the screening the local staff estimated there to be around 135 men in the community. If that was the case this screening was attended by 78% of the resident male population. A further 20 men had been seen in a separate DMO run Chronic Diseases Screening and if included made for an even better figure of 93% of men participating in health screening.

Age ranges of men seen at Community Z



The high number of participants in the 15-34 age ranges is very pleasing. They are a key target group for core transmitters of STDs and are also a group that rarely attend the health centre.

STDs detected in men screened

104 men accepted testing for either urine PCR, syphilis RPR or both. No men were found to have more than one STD. In total, 9 previously undetected STDs were found accounting for 9% of participants. STD notification and treatment schedules were sent to the Health Centres.

Syphilis

Blood for RPR was taken on 101 men, 3 were not taken due to evidence of recent testing in their file and 1 person refused.

The pathology laboratory returned 15 positive results. Of these:

- 5 were past positive readings, on STD database and previously treated
- 6 were past positive readings, on STD database but requiring review
- 3 were new positive readings, treatment schedules sent to clinics
- 1 was a new positive, probable false positive referred for retesting.

Urine PCR-gonorrhoea, chlamydia, trichomoniasis

103 men accepted urine testing, 99 provided samples adequate for testing requirements.

Of these:

- 2 (2%) tested positive for gonorrhoea
- 2 (2%) tested positive for chlamydia
- 1 (1%) tested positive for trichomoniasis

Body Mass Index (BMI) Assessment

The Australian Nutrition Foundation Height for Weight charts and their BMI Criteria for adults over 18 was used. 82 participants were graded under this criteria.

BMI	Number (n=82)
< 18 (very underweight, long term health hazard)	11 (13%)
18-20 (underweight)	24 (29%)
20-25 (acceptable range, least risk)	33 (40%)
25-30 (overweight, low risk to health)	12 (15%)
30-40 (morbid obesity, high health risk)	2 (3%)

For participants under the age of 18 years, a "BMI for Age" scale designed by the Department of Endocrinology, The Adelaide Children's Hospital, 1989, published by Pharmacia and Upjohn, has been used. The scale indicates the average BMI ranges for each age below 18.

Of the 21 participants under 18:

BMI for Age	Number (n=21)
Below normal (bottom 5th percentile, very underweight)	3 (14%)*
Normal (5^{th}-95th percentile, eg 90% of population)	18 (86%)
Above normal (top 5th percentile, morbid obesity)	0

The health centre was notified about people with BMIs less than 18 and 'below normal' in the under 18 age group.

Of those in the normal BMI range, 72% lay below the mean.

Blood Pressure (BP) Assessment

Of the 103 men who had their BP taken:

- 26 (25%) men had BP's readings over 140/90
- 63 (61%) men had BP's readings between 95/65 and 140/90
- 14 (14%)* men had BP's readings below 95/65

People with BP's readings over 140/90 are deemed to be hypertensive and in need of some professional intervention. The clinics received a list of patients with elevated blood pressure in order to follow-up with their DMO.

***** Low blood pressure does not usually appear in screening criteria. We note it here because we feel this data may be of interest to people wishing to study the apparently high number of Aboriginal people with asymptomatic hypotension. A rudimentary search did not provide evidence of any such study having been done nor of any normal lower limit of BP.

Blood Sugar Level (BSL) Assessment

BSL's of between 2.2 and 8.8 were considered normal.

Of 103 men tested:

- 101 (98%) men were within normal range
- 2 (2%) men tested above 8.8

Those with elevated BSL's were referred to the clinic for follow-up by the DMO.

Haemoglobin (Hb) Assessment

All 105 participants accepted testing. A Hb of 120gm/litre is the value considered normal by the Nhulunbuy District Hospital Pathology Laboratory.

Hb	Number (n=105)
< 100	6 (6%)*
100-119	9 (9%)
120-139	34 (32%)
>140	56 (53%)

*Referred to clinic for follow up by DMO. Two of these readings are suspected testing errors through insufficient blood catch.

The health centre was notified of those in the 100-119 range.

Screening Follow-up

Information from this program has been added to the STD database at CDC, Nhulunbuy.

Treatment and contact tracing for STD's has been followed up by the Health Centre.

Results indicating other disorders have been sent to the clinic for follow-up by themselves or their visiting DMO.

Discussion

In terms of the percentage of available men and the age groups attending, this stands as our most extensive community screening. As such, the results are a very good measure of the general health of this community and may prove of value to a number of health disciplines and agencies.

This community is well served by health facilities. In addition to the public health centre there is an outstation service that regularly visits smaller communities and there is also the option of road access to Gove District Hospital. With less isolation and stable management of all health services over a number of years, Community Z could be expected to be generally healthier than most in the East Arnhem Region.

If this is the case a number of figures are of some concern:

- 9% of the sample had newly detected STD's
- 25% have some form of hypertension
- 6% have an Hb below 100, (anaemia)
- 13% of adults have a dangerously low BMI
- 14% of boys had BMI's below normal range
- 72% though within normal range were below the mean BMI

To avoid alarmist responses it is important to put these figures into perspective. It is very possible that these results provide higher percentages than is true.

1. Our testing apparatus were portable and used under less than ideal conditions. They are reliable and ideal for our purposes. Clinicians would not however rely on them for a definitive diagnosis. In most cases far more accurate testing would be done in the health centre or hospital and a thorough physical assessment would be made.
2. These figures do not take into account the results of follow-up by the DMO.
3. The level of STD's is lower than from a 1995 health program run in community Z. It is also in line with a downward trend of new infections over the past few years. So, even though 9% is a higher figure than we would like, it also indicates that our current methods are having a positive effect.
4. We do not know what the "normal" values or percentages for many of these problems are in other Aboriginal communities.

Hopefully further "Men's Health Weeks" will expand our database enough to allow meaningful and statistically significant comparisons to be made.

Acknowledgment

We would like to thank everyone who helped make this week successful, in particular the clinic CNC and the community members who dedicated so much time and enthusiasm towards this project.

Men's Health Program at Gapuwiyak

Stephen Bryce, Gapuwiyak Community Health Centre

The situation in some other communities

Mr X has been named as a contact for an STD (his wife had a positive Tampon Test as part of her antenatal check up). He is picked up by a Health Worker (his aunt) in the clinic Troop Carrier and now sits in a crowded waiting room where he is the only adult male. Next to him sit his next door neighbour and on the other side, his mother in law. The clinic staff are all female except the District Medical Officer (DMO) who calls him into the consulting room. The door is broken and will not shut properly. Both DMO and patient sit close together in a 'rugby scrum' type formation while the consultation is conducted in whispers. Mr X then has to produce a urine specimen and so dutifully carried his readily recognisable yellow-topped urine bottle through the waiting room to the only toilet. After this, the female Health Worker labels the specimen at the desk in front of the rest of the waiting room. By now everyone has worked out what is going on. Mr X later confides to his close friends how utterly humiliated he felt. They all vow never to go back to the clinic if they can possibly avoid it.

The Gapuwiyak Men's Clinic

Gapuwiyak is fortunate in having a Men's Health Program that, while not perfect, has enjoyed considerable success. A key part of the program is a separate men's clinic (a demountable about 25 metres from the main clinic). The Program was the vision of Senior Male Health Worker, Terence Guyula who has kept it all running despite a very high turnover of non-Aboriginal staff. Fortunately, Terence was supported by Miwatj Health and Territory Health Services (THS) in helping to get resources to kick off the program.

The program has been running since 1996/1997. After opening, the adult male clinic attendance figures increased by 600%. These figures have been consistently sustained since that time. Gapuwiyak Aboriginal leaders have told us that Yolngu men are genuinely very interested in their health (in contradiction to some stories we have heard). STD management, contact tracing and access to men for health education have become infinitely more effective. With the arrival of a full time male GP in 1998 combined with an extensive men's screening program, a large amount of previously

undiagnosed chronic diseases has been uncovered and many men locked into management Programs.

This has been an enormous task that has soaked up a lot of resources. (The majority of adult male chronic disease in the NT would be undiagnosed). We have had to learn a lot of things the hard way. Below, we have put together a list of principles that we consider important in any Top End Aboriginal Men's Health Program. It is by no means a simple recipe for success, but a series of guidelines that have been derived from coal face experience.

A list of principles that we consider important in any Arnhem Land Men's Health Program

1. A separate Men's health space with a separate waiting area and toilet

We consider this a core and non-negotiable principle. The exact nature of this space will vary. Perhaps a part of an existing clinic; perhaps a demountable like at Gapuwiyak; perhaps a caravan. In terms of the Preventable Chronic Diseases Strategy, if the above principle is not addressed then half of the target adult population (ie men) will be extremely difficult to access. Senior THS staff have been very interested and sympathetic when these issues are brought up. However have explained that funding to put Men's clinics in every community does not exist at present. Perhaps cooperative efforts between organisations like Miwatj (which currently has a strong Men's Health focus) and THS will come up with workable solutions.

2. A competent and well supported male Health Worker

There are potentially excellent male Health Workers in every community. Unfortunately, the current system often prevents these men from becoming competent and functional. Those who have worked in this district for some time will have seen several male Health Workers or Health Worker students throw in the towel. Part of this problem would be having to work in a female dominated clinic which men rarely attend. We have heard stories where male Health Workers spend most of the day filing and sweeping the floor. In this situation he learns little and becomes quickly demoralised. Often closely connected with this is the lack of a men's health space.

Also, it is worth noting that doctors and nurses who work in remote communities (like East Arnhem) would ensure that they had several years of supervised experience before becoming a 'practitioner' in a remote clinic. In the same way, after graduating from a one year course at Batchelor College, a male Health Worker would not be capable of running a Men's Health Clinic without close supervision. We are concerned at stories of Health Workers who have been given too much responsibility too quickly and been set up to fail. (At the same time it is also wrong to withhold responsibility from Health Workers when they are ready for it).

We would argue that a new qualified Health Worker needs a minimum of four hours per day of supervision/mentoring (ideally full time). There must also be help readily available if a difficult problem is encountered. This 'apprenticeship' style of learning is more consistent with traditional Aboriginal methods of teaching than the 'classroom' approach. For female Health Workers, this mentoring usually happens automatically as they work alongside nursing staff or DMOs. One is more likely to be left on one's own in a separate Men's Clinic.

Who the mentor is would probably vary as per size and character of the community. It could be a Senior male Health Worker or a male registered nurse. Alternatively a male GP with an interest in Men's issues may be appropriate. Long term staff are infinitely more effective in this role for a multitude of reasons. Because of cross cultural issues, it takes six to twelve months for a good working relationship to develop between staff (there needs to be learning on both sides). High staff turnover in a community will regularly sabotage this process. Large amounts of clerical work and in some places, pressures to pursue Medicare vouchers will both potentially distract staff from the mentoring process. Hopefully the mentor can strike the right balance between close supervision and 'sitting on their hands' to allow a Health Worker to reach maximum potential.

3. The Clinic/Health Centre must have the resources to absorb the extra work the Men's Clinic generates

If a Men's Clinic gets up and running, one can expect more pathology, more form filling, more patient travel, more referrals, longer follow-up and review lists, a larger pharmacy and a more pressured pharmacy budget. Hopefully, after hours call outs, overtime and medical evacuations will reduce but one should expect some lag time before significant benefits are seen. Large communities with infrequent

DMO visits or ones with a long line of short-term DMOs will have marked difficulties coping with all the newly diagnosed chronic diseases that a Men's screen could produce. Ensuring regular and quality specialist visits can help to buffer these problems and cut down on patient travel.

We have heard of clinics going considerably over budget as a result of aggressive chronic disease screening. Perhaps this can be discussed ahead of time.

4. Good quality education must be available for the men on various issues as they arise

This can be very time consuming but is essential to any long-term positive outcomes being sustained. Good education is an essential factor in patients complying with their treatments. We have invested a lot in terms of acquiring good educational resources and refining our educational approaches. There appears to be encouraging early signs that this is paying off.

5. A compromise - the "Men's Health Week"

To be realistic, many communities will have to wait several years before they have an actual Men's clinic. Issues revolve around lack of resources, lack of suitable staff and sometimes resistance from certain sectors of the community (although in our experience support for the idea of a men's clinic is generally very strong). A compromise would be the 'Men's Health Week' where existing male clinic staff, usually boosted by extra staff from say Miwatj or the Disease Control Unit, set up in a tent or an appropriate Council building away from the main clinic. During the week, screening is done and usually some form of health education.
These weeks are generally well attended and successful, however the actual screening process is only a small proportion of the total work involved. The main work (depending on how comprehensive the screening) lies in sorting through all the results, generating review lists and then going and managing all the positive findings. Health services should bear this in mind in the planning stages. We have heard stories of 'successful' screening programs which generate huge amounts of data that no-one ever has time to look at.

The intermittent programs (while certainly very worthwhile) fail to address the following: The lack of a permanent Men's space where ongoing follow-up and management of positive findings can take place (many of these consultations require urine specimens). Intermittent Men's weeks cannot provide the long-term support and education of chronic disease and cannot provide ongoing STD contact tracing and follow-up. Also, they cannot train and mentor a new male Health Worker.

Conclusion

As said previously, these principles are not a "formula". However, we hope the lessons we have learned out here can be of use to others who are embarking on Men's Health Programs. Every Community will have a unique flavour and style to its Program - one it can "own" and develop.

Acknowledgment

The Gapuwiyak Men's Health Program report was a collaborative effort between Stephen Bryce (Gapuwiyak Community Medical Officer), Terence Guyala (Senior AHW, Gapuwiyak Health Centre), Ross Jackson (RN, Gapuwiyak Health Centre) and Tim Duggan (Health Educator, Miwatj). Copies of the full report can be obtained by contacting Gapuwiyak Health Centre on 8987 9150.

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Editorial

The Cinderella status of men's health is gradually fading, and it is now widely recognised as an important policy area. The National Indigenous Men's Conference and the 3rd National Men's Health Conference were both held in Alice Springs in October, and focussed attention on the area. However, key questions remain unanswered. First - what balance of gender specific programs are needed to overcome issues of access to mainstream health services? Second - what age groups and what settings should be targeted for maximum effect? Third - what resources are needed to deliver appropriate programs?

The three articles in this edition of the *Bulletin* offer complementary approaches to addressing men's health issues in the East Arnhem Region. The Gapuwiyak Men's Health Program has received widespread praise as an exciting community-based initiative. It has raised the profile of men's health in

the whole region, and demonstrated that programs will be well received if they are owned by the community and well planned. The author describes the key elements that he believes explain the success of the program, and some of the barriers to implementation. To help us think through how such a program can be successfully adapted to other settings, he then outlines the principles he thinks are particularly important.

The two articles from CDC, Nhulunbuy, show the contribution that externally based public health personnel can make to a one-off Men's Health screening effort. Public health personnel have particular skills in information collection and analysis, and can help local personnel in the phases of community consultation and feedback. Establishing clear and respectful partnerships is the key to successful screening, sustained follow-up and ongoing program momentum.

All accounts demonstrate a commitment to a continuous reflection-action cycle. We desperately need more primary care practitioners to contribute their experience to policy development, and so break down the barriers between policy and operational staff that can exist even within the same organisation. The *Bulletin* would welcome further correspondence on the topic of Men's Health. Or you can contribute your ideas directly to the Men's Health Unit in Health House (phone 8999 2424).

A case report of imported malaria from Papua New Guinea found in Nhulunbuy, East Arnhem District

Stephen Flew, formerly GDH and DMO Numbulwar

A 45 year old Australian resident of Papua New Guinean origin presented to Gove District Hospital in August 1999 with signs and symptoms of malaria, after a visit to her home village in the West Sepik Province, on the north coast of New Guinea. She had returned to Papua New Guinea (PNG) for 14 days after an absence of 12 years, to visit relatives affected by the tsunami which had occurred exactly one year ago. Apart from 2 days in the provincial capital of Vanimo, she had spent all her time overseas in a newly constructed village somewhat inland from the coastal lagoon where her village had been situated prior to the disastrous tsunami of July 1998. Whilst she was not sleeping under a mosquito net during this time she saw very few mosquitoes around her and did not recall being bitten at all. Nevertheless she had continued to take the antimalarial prophylaxis of doxycycline 100mg daily prescribed by her local GP 3 days before her departure, throughout her stay in PNG and for 3 days after her return to Australia. She had only stopped taking the medication when she became ill 4 days after her return to Australia, as she thought it might be responsible for making her feel sick.

Her illness began with headache, fever, rigors and malaise sufficient to keep her home from her work as a cleaner the next day, before abating to headache and lethargy for a couple of days. The fever and rigors then returned worse than before, with severe headache and vomiting. She finally presented to the Accident and Emergency Department in the evening, one week after her illness had begun, having failed to improve in the preceeding 48 hours. At this stage she had a temperature of 38.2, pulse of 104, BP of 105/80 and urinalysis which revealed + urobilinogen, ++ blood, + protein and the presence of ketones. She was given paracetamol and told to return the next day for blood tests. The following day she was examined and noted to be afebrile but pale, with a soft systolic ejection murmur, slight hepatomegaly and 5cm of spleen palpable below the left costal margin.

Initial investigation with the rapid ICT malaria antigen detection kit tested positive for both *Plasmodium falciparum* and pan-malarial antigens. This test is unable to distinguish mixed falciparum and vivax malaria from falciparum malaria alone. Thick and thin blood films stained by Giemsa method revealed only the ring forms and trophozoites of *P. falciparum,* with a parasite count of 1596/uL (<1% of red blood cells infected). Hb was 95g/L, WCC 4.2, platelets 193, ESR 38, U&E normal. Blood cultures were negative. G6PD deficiency and thalassaemia screen both came back

negative (both ovalocytosis and ∝ thalassaemia are relatively common in PNG and provide some protection from complications of falciparum malaria).

The patient was admitted to the general ward and commenced on oral quinine 600mg tds, initially with intravenous fluids and 4 hourly blood glucose monitoring. Temperature spiked the next day to 39.4 but settled thereafter and she quickly became asymptomatic except for slight dizziness and lightheadedness. Initially only quinine bisulphate (which has only 70% the activity of quinine sulphate) was available in the hospital but she was switched to quinine sulphate after a couple of days. Fansidar also had to be ordered in from outside and was given in a stat dose of 3 tablets on Day 6, following which *P. falciparum* gametocytes were seen in the blood film (the next day and subsequent days). Daily ferrous sulphate and Vitamin C were commenced, in view of a mild iron deficiency. Quinine was continued until Day 10 when blood slides had become negative for trophozoites and ring forms of *P. falciparum*, although scanty gametocytes persisted. She was then considered safe to discharge home, to continue regular monitoring on an outpatient basis. It was decided to administer a course of 2 weeks of primaquine, 22.5mg daily, for eradication of any possible hibernating vivax hypnozoites, as well as to eliminate remaining falciparum gametocytes. Once again there was a delay of some 3 days before supplies of primaquine were obtained from Darwin.

Although this particular case of falciparum malaria was relatively uncomplicated, with gradual (albeit slow) improvement in parasitaemia levels (see table), LFT's etc there was an expected drop in haemoglobin levels during treatment, from 95 to 81g/L. The blood picture was suggestive of iron deficiency anaemia and iron studies confirmed this. Interestingly there had been a previous admission of this patient to Nhulunbuy District Hospital 3 years ago (7/11/96-12/11/96) with severe iron deficiency anaemia (Hb 2.9, red cells 1.9, MCV 51, MCHC 293, PCV 0.1, reticulocyte count 2.8%, Se Fe <1, ferritin 4, TIBC 85). On this occasion no malarial parasites were seen (on a single blood smear) and the patient was transfused 3 units of blood before developing a transfusion reaction with the 4th unit. Investigations done at that time for the cause of the anaemia (including serum folate, B12, TFT's, colonoscopy, endoscopy and stool MC&S) were all normal and the cause was put down to some recent menorrhagia but appears not to have been followed up any further.

Day	Parasite count (/uL)	Tropho-zoites*	Ring forms*	Gameto-cytes*
1	1596	+	+	
2	805	+	+	
3	507		+	
4	180		+	
5	132		+	
6	196		+	
7	<100		+	+
8	<100		+	+
9	<100			+
10	<100			+
11				
12	<100			+
13				
14				
15				
16	<100			+
17				
18				
19				
20				
21	<100			+
22				
23				
24	negative			

** P. falciparum*

Discussion

The above case of uncomplicated falciparum malaria is fairly typical of an ex-resident of a malarious area returning to visit her former place of residence after some years of living overseas in a malaria free environment. The patient in this case could not recall having ever had malaria before, but she was certainly exposed to malaria whilst growing up in this highly malarious zone of PNG and would have acquired a partial immunity (which gradually wanes without continued exposure to infection). Malaria in PNG is possibly becoming more drug resistant to both Fansidar and quinine. Anecdotal reports of resistance to normal doses of quinine used to treat malaria in victims of the tsunami were received at the annual PNG Medical Society Symposium in 1998 and have been documented at other sites, including Ok Tedi. The response to parasite clearance was somewhat tardy, with asexual blood forms of falciparum taking 9 days to clear from the blood with quinine and Fansidar. This is certainly longer than the currently recommended regime of 3 days of quinine in PNG, and even the 7 day regime used in Australia. However Fansidar was administered somewhat later than usual (due to delays in procurement) and the initial form of quinine used (bisulphate) has only 70% of the bioavailability of the sulphate salt. The appearance of the falciparum gametocytes after administration of

Fansidar is quite common. A stat dose of primaquine 45mg has been advocated for sterilisation of falciparum gametocytes from the blood following treatment with quinine. However despite the administration of 22.5mg of primaquine daily in this case it took 10 days for clearance of gametocytes from the blood to be achieved. It would seem that this particular parasite could also have been at least partially resistant to the doxycycline used for chemoprophylaxis. Although she may have missed a maximum of 2 or 3 doses, she had taken 17 of the 35 tablets prescribed for her and had continued taking tablets up until she became ill. However it is not certain that the initial symptoms were due to malaria. A blood smear for malaria was not done until 1 week after she became ill and her initial fever settled before returning.

There is concern about the public health implications of imported cases of malaria resulting in the re-introduction of malaria (via endemic mosquito vectors) into the malaria receptive areas of northern Australia. Currently this means that patients are generally kept in hospital until free of asexual blood forms. Action by the Medical Entomology Branch is usually only triggered by the appearance of gametocytes in the patient's blood, which often happens towards the end of therapy (especially after Fansidar) and just prior to discharge. Although this was a case of relatively light parasite infestation (<1% red blood cells infected) and symptoms resolved after just 2 days treatment, it took 3 weeks to clear the blood of gametocytes. It would have been unrealistic to have kept the patient in hospital for all of that time. Indeed it was difficult enough to keep a well patient in hospital for the 9 days it took to achieve clearance of asexual blood forms. Once asexual blood stages are cleared, a stat dose (45 mg/adult, 0.7mg/kg/child) of primaquine to sterilise gametocytes can enable discharge despite persisting gametocytes.

Early diagnosis and correct management is vitally important in falciparum malaria, which can easily prove fatal if neglected or mishandled. Symptoms are often deceptively benign and fever does not necessarily follow the classical malignant tertian pattern (spiking every 48 hours), especially in the early stages. Deterioration can be rapid, especially in the non-immune, with a sudden rise in parasitaemia and the onset of serious complications such as cerebral oedema, hypoglycaemia, pulmonary oedema, gastro-intestinal haemorrhage, shock, hepatorenal failure and splenic rupture. Any history of a febrile illness and exposure to malaria within 2 years (with or without prophylaxis), combined with suggestive signs such as fever, hepatosplenomegaly and urinalysis positive for bile or blood, should alert the attending physician and warrant urgent investigation and/or hospitalization. Malaria antigen detection kits such as the ICT provide a quick and relatively reliable screening test after hours, even in unskilled hands, but thick and thin blood smears examined by properly trained technicians remain the gold standard of malaria diagnosis.

Close monitoring of parasitaemia, blood sugars and fluid balance state as well as cardiac, renal, pulmonary and hepatic function may be required in the management of falciparum malaria. Most cases could be managed by interested medical personnel in regional centres, in consultation with appropriate specialists (eg Infectious Diseases Unit, RDH) and with ready access to timely referral. Regularly updated management guidelines such as the "Malaria Protocol: Guidelines for Health Professionals in the Northern Territory"[1]and the malaria section of the latest "Antibiotic Guidelines"[2] should be followed where possible. Essential drugs should be on hand in major centres to properly treat malaria, including appropriate forms of parenteral and oral quinine, chloroquine, doxycycline, primaquine, Fansidar (pyrimethamine/sulphadoxine) and mefloquine. These items should be available in all hospitals in the Northern Territory, given the recent rising trend of imported malaria cases both Australia wide and especially within the Territory itself. There is now frequent traffic of residents and visitors to and from the Territory and highly malarious regional locations in PNG, Indonesia and East Timor.

References

1. Territory Health Services. Malaria Protocol: Guidelines for health professionals in the Northern Territory. 3rd ed. January 1997. (See update page 17).
2. Therapeutic guidelines: antibiotic. 10th ed. March 1998. North Melbourne: Therapeutic Guidelines Limited. 1998: 97-102.

What have they done to my 'mozzies' ma? A public health response to an imported case of Falciparum malaria

Ivor Alexander, CDC, Nhulunbuy

Preamble

The town of Nhulunbuy is situated on the Gove Peninsula on the northwestern corner of the Gulf of Carpentaria, 650 km east of Darwin. The town is a special mining lease in escro and the mining company is the largest private employer in the NT. The population is approximately 4000 and is the administrative centre for East Arnhem Land. The majority of the working population are employed by the mining company with the next biggest form of employment being the Public Service. The local civic authority is Nhulunbuy Corporation Ltd (NCL). NCL is not a local government authority as the lease for the mining company also includes the township, but the corporation fulfils the functions and responsibilities that a local government council would usually perform. One of the roles of the NCL is to oversee the mosquito control program including the "fogging" and mosquito larval control program. Mosquitoes are the vectors for a range of endemic diseases in Arnhem Land including those caused by the alphaviruses, Ross River and Barmah Forest, as well as the flaviviruses Kunjin and Murray Valley Encephalitis.

Situation

The Centre for Disease Control (CDC) Nhulunbuy was contacted on 5 August by staff of Gove District Hospital (GDH) and advised that a woman with a provisional diagnosis (pd) of malaria had been admitted to the general ward. She had returned from Papua New Guinea (PNG) a few days previously.

Interventions

A Communicable Disease Officer (CDO) from CDC attended and administered the Malarial Surveillance questionnaire[1] to the patient. The question/answer format elicited that she was employed as an industrial cleaner and worked evening shifts till after midnight. Part of her shift was spent outdoors which had implications for the possibility of her being bitten by mosquitoes. Her accommodation was screened and airconditioned which is seen as a factor in reducing the risk of transmission. She could not recall being bitten on her return to Nhulunbuy but this could not be ruled out as she didn't recall being bitten in PNG either. Copies of the questionnaire were faxed to these two units as soon as they were available

CDC Nhulunbuy advised CDC Darwin, who notified the Medical Entomology Branch (MEB) of THS in Darwin, and also contacted the NCL and advised them of a probable malaria case. The "fogging" is performed by a private contractor, responsible to the NCL. There is a "mozzie" trapping program coordinated by the MEB in Darwin. Every Tuesday afternoon (barring public holidays), a package of "dry ice" is flown in from Darwin. This "dry ice" is put into the traps which are placed around the town and its boundaries. As the "dry ice" breaks down it releases carbon dioxide (CO^2) into the air. This CO^2 simulates expired air and attracts female mosquitoes into the trap. The trap collections are flown to Darwin every Wednesday where a species/count/sex breakdown of the mosquitoes and advice is provided by the MEB.

The "fogging" program is reactive in nature. That is, the mozzie count from the traps determines which areas will be subjected to "fogging". The physical "fogging" is performed by a private contractor who utilises a LECO-ULV (Ultra Light Volume) system and employs the insecticide brand name "Reslin" $(Biomesrethrin)^2$ and a carrier agent. The MEB coordinates the control program with NCL and advises on locations for trapping and fogging, including non routine aspects such as malaria cases.

Following discussions with all the main players it was decided to extend the number of trap sites, to extend the number of nights per week on which they were placed and to extend the "fogging" program to the nights following the trapping. An extra shipment of "dry ice" was sent by MEB Darwin and extra traps were placed at additional sites, including the woman's place of residence and place of employment. An inspection in the Buffalo Creek area 700m from her residence revealed a semi-permanent mosquito breeding site. This pooling had been monitored over the proceeding months and close inspection had determined an absence of larvae. The traps were placed on the evening of the 10, 13 and 17 August and "fogging" was performed

on the nights of the 14, 16 and 18. The trapping (see table below) revealed fairly low mosquito counts apart from a trap situated a fair distance away from her residence and a trap site within 500m of her place of employment. As Anopheles mosquitoes can fly up to 1 km from their breeding sites, counts within 1 km of her place of residence indicated a need for fogging. The trap site near Buffalo Creek has historically revealed high levels of mosquitoes and the general area is regularly "fogged".

Mosquito trap results

Location of trap	Dates and counts of Anopheles[+] species in relevant traps			
	11 Aug	14 Aug	18 Aug	25 Aug
Residence: Bottle Brush Avenue	N/S	8(0)	N/S	N/S
Workplace (Wallaby Beach Plant site)	N/S	1(0)	N/S	N/S
Buffalo Creek (700m distance from residence)	44(27)	65(23)	36(7)	30(5)
Wallaby Beach (500m from plant workplace)	19(0)	11(0)	6(0)	7(0)
Gove Lagoon	32(2)	N/S	20(0)	14(0)

[+]Total *Anopheles* with *Anopheles farauti* numbers in brackets.

N/S – Not set

Counts of *Anopheles farauti*, the most efficient potential local vector of malaria are the most relevant when considering possible fogging control for malaria cases.

The fogging operation centred around Buffalo Creek and Gove Lagoon. The fogging aims to kill the older mosquitoes to interrupt possible transmission. The reduction of *Anolpheles farauti* numbers by 18 August had possibly achieved this, as well as achieving an overall lowering of *Anopheles farauti* numbers

Discussion

Due to the relatively quick notification to CDC Nhulunbuy by staff at GDH, the interventions were able to be implemented promptly. The various groups that were contacted responded in a timely manner and the provision of Medical Entomology Branch advice and "dry ice" transportation and the arrangements between NCL and the "fogging" contractor were implemented in a timely manner.

Addendum

At follow up test reporting on the 11 September the microscopy was negative and no malarial parasites were seen. The woman has reported an uneventful recovery and remains very well.

Acknowledgment

Thanks to Peter Whelan (Medical Entomology Branch) for his critical input and comments.

References

1. Form HM99-7/91
2. Material Data safety sheet: Supplied by distributor.

Revision and review of the NT Malaria Protocol

The last indigenous case of malaria in Australia was in 1962. Since then there have been occasional introduced cases of malaria in north Queensland, where there have been brief cycles of transmission of malaria due to local mosquitoes being infected from a person coming into Australia with malaria. Since 1962 there have been no such introduced cases of malaria in the NT, despite the presence of potentially malaria transmitting mosquitoes across the Top End, including around communities, smaller towns and in Broome, going through the northern third of the NT (north of Tennant Creek) across to just north of the outskirts of Darwin. Territory Health Services, through Centre for Disease Control (CDC) and Medical Entomology, have maintained a formal program directed at preventing introduced cases of malaria which would lead to the possibility of re-establishment of endemic malaria in northern Australia. Although there is some dispute about receptivity for malaria within Australia, the receptive area is generally considered to be north of the 19th parallel, which is a line from just south of Townsville in Queensland. Since 1991 there have

been between 26 and 43 cases of imported malaria annually in the NT.

The malaria protocols in the NT have to date included admission to hospital for all malaria cases in conjunction with assessment of risk of local transmission by Medical Entomology. A second aspect of the guidelines has been appropriate management of individuals with malaria to prevent complications of malaria, most importantly death from *Plasmodium falciparum* malaria. Treatment guidelines are based on those in the national Antibiotic Guidelines. CDC is now revising the guidelines last published as Malaria Protocol: Guidelines for Health Professionals in the NT - 3rd edition 1997.

From June to August of this year there has been an noted increase in cases of malaria coming into the NT. The need to recognise the possibility of malaria in overseas travellers and visitors and to make a timely diagnosis of the malaria parasite species and stage is important for individual outcomes and for public health management. Additionally, the public health requirement for admitting all cases of malaria to hospital has been reassessed and it has been decided to recommend that some patients can be treated outside of hospital provided that the diagnosis is established as *Plasmodium vivax* malaria and appropriate management and follow-up can be implemented and assured. Medical Entomology and CDC will maintain surveillance of all public health risks from each of these imported malaria cases.

The more recent screening of East Timorese evacuees has demonstrated the excellent laboratory services in the NT from both the public and private sector. Reading malaria slides in a country where malaria is not endemic is a relatively rare event and we are fortunate in the Territory to have private and public laboratories providing this quality service.

The following points highlight aspects of the protocol and summarise important changes:

1. Malaria remains a notifiable disease.
2. All cases of *Plasmodium falciparum* malaria and any malaria cases where the species cannot be confirmed within 24 hours require admission to hospital. This is standard practice within Australia and is considered best practice to prevent life threatening complications of falciparum malaria.
3. All cases of *Plasmodium falciparum* malaria will be treated with a gametocytocidal single dose of primaquine prior to discharge and once G6PD deficiency is excluded.
4. Confirmed cases *Plasmodium vivax* malaria no longer require admission to hospital provided:
   a) there is no evidence of co-infection with *Plasmodium falciparum* malaria;
   b) the species diagnosis on microscopy can be confirmed by the haematology laboratory at Royal Darwin Hospital (within 24 hours) if needed;
   c) the patient agrees to remain indoors in screened or air-conditioned accommodation between dusk and dawn until chloroquine therapy is completed;
   d) the patient is notified to CDC so that CDC officers can ascertain that patients treated as outpatients do not pose a public health risk; and
   e) the case is discussed with the Infectious Diseases physicians or registrar at RDH (to discuss eg spleen size and sports restrictions and eradication treatment with primaquine (see 5).
5. To prevent relapses of *Plasmodium vivax* malaria, all patients residing in the malaria receptive area of northern Australia are recommended to have the fourteen day course of primaquine following G6PD screening. Primaquine is now off TGA restrictions, but is not on the PBS and may still be difficult to access. To facilitate availability of primaquine the Infectious Diseases Registrar or physician at Royal Darwin Hospital (ph: 8922 8888) can be contacted to organise a supply from hospital pharmacy if requested.
6. With increasing travel of Territorians to endemic malaria areas, including groups of people eg Aboriginal Australians from highly malarial receptive remote areas of the Top End, health professionals are referred to expert travel medicine advice (including for malaria prophylaxis) through Travel Medicine clinics or the WHO or CDC Guidelines as noted on pages 100-102 of Therapeutic Guidelines - Antibiotics 1998/1999 Edition 10.

Please contact CDC Darwin (ph: 8922 8044) for further information or clarification.

Bush trip with a 'snag'

Sharon Doyle, CDC, Tennant Creek

On the 11th June this year, the women's health nurse, Wendy, and I took a trip to an Aboriginal community three hours drive southeast of Tennant Creek. The planned activities, as requested by the community, were Women's Health Checks. As part of the trip to this community and another, one hour further east, I had decided to check and update the client files with the most recent immunisation data and offer opportunistic immunisation to any person that might present to either health centre.

To make the trip especially interesting, the Army were having a lovely time creating an entirely new road surface out of the dirt and simply getting to the communities tested the 4WD skills to the limit.

The plan was to arrive at the Health Centre at about 1000 hours and start the Well Women's Checks as the women arrived. Not a soul could be found of the dozen women required. Not to be frazzled by this, Wendy helped me with filing record sheets already photocopied from various sources and adding these to the files, cross referencing the information contained on the immunisation record page in the clinic notes and recording Medicare numbers as we went along.

We worked until about 1300 hours and stopped briefly for lunch. By this time we had emptied the filing cabinet and cross-referenced all the copied data into the notes. We had also started "humbugging" the Aboriginal Health Workers (AHWs) to organise the BBQ as we had hoped to be leaving for the next community by about 1700 hours to avoid driving in the dark.

The AHWs at the Health Centre had been busy chasing up women and had also told people that the "baby needle" sister was at the clinic. After some time and encouragement at around 1430 hours a few of the women started to turn up. Wendy commenced the women's checks and left me with the AHWs to the community list that I was working through to identify immunisation needs.

Finally at about 1500 hours the BBQ arrived and so did the people! Wendy stopped her work to help with cooking and dishing out sausages on bread with sauce and fending off the dogs. The kids were fed first and then the adults. In the mean time I was overwhelmed with people wanting me to weigh their kids and jab them with anything they needed. Thankfully the AHW's were keeping track of the files, identifying the kids as one jumped off the scales and the next jumped on to be weighed. The clinic area was packed with people.

I actually saw about 30 people between 1500 and 1800 hours and of those 30, 9 kids were immunised. A further 4 were not immunised as I ran out of the required vaccine. All the kids were weighed and given a brief health check. Six of the 30 people seen were reviewed for complaints not related to immunisation and 4 of those were adults.

The numbers actually immunised might seem insignificant to some, however we were able to "catch up with" the kids we did and raise awareness of immunisation in a fun and community driven way. The tactic worked very well with minimal fuss, and we'd do it again to achieve the results we did.

At about 1900 hours, after repacking the car and cleaning up the clinic, 2 very exhausted nurses thanked their helpers and made their way to the next community to do it all again the next day.

An outbreak of shigellosis in a tour group in Central Australia

In May 1999 an outbreak of diarrhoea occurred in a tour group travelling through Central Australia. Nine of fourteen travellers were afflicted with some degree of gastrointestinal illness, with two reporting bloody diarrhoea. Stool samples were positive for a shigella species in three individuals, one of whom required intravenous rehydration in Alice Springs Hospital. By the time the positive culture results were available, the tour group had left Alice Springs and subsequent investigation of the tour company was undertaken by the Environmental Health Officers in Perth. No specific source for the shigella has been identified but the episode highlights the potential morbidity associated with this pathogen: in this case an attack rate of 64%. Meticulous attention to hygienic food handling makes simple economic sense in an industry driven largely by word of mouth recommendation.

Tetanus vaccination - how often and what to do with patients with severe reactions?

Vaccination with tetanus toxoid has been available for over 80 years but it was not until after World War II that it began to be incorporated into childhood immunisation schedules. Today tetanus is a rare disease, with approximately 10 cases occurring per year in Australia. It should be noted that unlike poliomyelitis or smallpox, the disease is not eradicable, as the causative agent, *Clostridium tetani,* is an ubiquitous soil organism and every individual will come in contact with it during their lifetime. Maintenance of adequate individual immunity to tetanus is therefore mandatory and the current childhood schedule of vaccination provides excellent levels of long-term immunity. The Australian recommendation is for a booster dose every 10 years (though a current review process is considering a booster only at age 50 years), unless there is an intervening tetanus-prone wound, in which case the interval should be reduced to 5 years. (N.B. tetanus toxoid should always be given as the adult diphtheria/tetanus preparation (ADT) because diphtheria immunity wanes and herd immunity may reach a point where an epidemic of that disease is possible).

Occasionally an adult due for revaccination at 10 years may give a history of a severe reaction to a previous tetanus injection. Recently a patient was seen who had been told by a medical officer never to have another tetanus vaccination. While clinical judgment is important in this circumstance (eg a good history may reveal that the reaction was not as severe as the patient originally conveyed), there are some exceptional circumstances where tetanus antibody testing may be useful. An individual with adequate levels of tetanus antibodies on ELISA testing does not require a booster and a repeat test 5 - 10 years later may be recommended. Diphtheria antibody testing should also be carried out at the same time and a monovalent diphtheria booster given if indicated.

Sera for tetanus/diphtheria antibody testing are forwarded from the Royal Darwin Hospital laboratory to the Microbiological Diagnostic Unit in Melbourne.

Immunisation tidbits

Guidelines for preterm babies

All childhood vaccines

Preterm for immunisation purposes is defined as any infant born before 37 weeks gestation.

- Provided they are well, babies born preterm should be immunised at the usual chronological age (ie birth, one month, 2 months, etc).
- Half doses of vaccines **MUST NOT** be given.

Hepatitis B and PedvaxHIB vaccines

Some preterm babies do not respond as well as term babies to hepatitis B vaccine and to the PRP-OMP type of Hib vaccine (PedvaxHIB) therefore;

- Preterm babies should be given an additional dose of hepatitis B vaccine at 12 months of age (ie birth, 1, 6 & 12 months of age).
- Preterm babies whose first Hib immunisation was PedvaxHIB should be given an additional dose of PedvaxHIB at 6 months of age (ie 2, 4, 6 & 12 months of age).

NB: A paediatrician should be consulted before starting immunisation in preterm babies with a birth weight less than 2000 g.

Reference

National Health and Medical Research Council. The Australian Immunisation Handbook. 6th ed. Canberra: AGPS, 1997: 28-29.

Hepatitis A and combined Hepatitis A and B vaccine

Two HAV vaccines: Havrix® (SmithKline Beechum); VAQTA® (Merck Sharp & Dohme distributed by CSL); and one combined hepatitis A & B vaccine Twinrix® (SmithKline Beechum) are currently registered for use in Australia.

Twinrix is not available from THS hospital pharmacies.

Havrix® and VAQTA® require 2 doses for long term protection while Twinrix® requires 3 doses.

Hepatitis B School Age Vaccination Program

Nan Miller, CDC, Darwin

Territory Health Services completed a one year Hepatitis B Vaccination Program for school age children (6 -16 years) in May 1999. In conjunction with the Universal Infant Hepatitis B Program (all children born after 1 August 1990) the NT is now well placed to achieve hepatitis B elimination in children 0-17 of age ie effectively stop transmission of the virus. Eliminating hepatitis B is the primary reason that the NT chose a large scale 'mop up' program, rather than an annual school based program over the next 10 years.

Hepatitis B vaccination is a three dose schedule with the three injections being administered over 4-6 months. Although primarily school based, the program did not coincide with the school year which limited the time frame to effectively deliver a multi dose program Initially, the program concentrated on the urban areas in an attempt to complete the course of vaccines within the school year and to avoid the end of the year shift of students. In the rural and remote areas, an opportunistic clinic based focus was used. The program was also available from Community Care Centres and participating general practitioners throughout the NT. The table below outlines the results of the program at its completion. Some students who started the program in 1999 had not completed the three doses at time results were calculated.

The school population change from 1st to 3rd dose reflects withdrawals from schools. Children who moved from one NT school to another are included in the school population, but those who left school or who moved interstate are not included. Children moving from other states to NT schools are not included in the school population for the second and third doses. Second or third doses may also have been given by GPs and not recorded.

The ideal outcome is 85% or greater coverage for all three doses. Although we did not achieve this target, the success of this program cannot be underestimated. Overall, participation was high, coverage rates increased by nearly 40% and over 41,000 doses of correctly spaced vaccine were safely delivered and administered. The success of this program is a credit to the coordinators, health care staff and Department of Education who contributed to the planning and administration of a very complex program.

The full evaluation report was distributed to all stakeholders in June 1999 and can be obtained by calling 8922 8564.

Table Coverage rates for the School Age (6-16 year olds) Hepatitis B Vaccination Program, April 1998 - April 1999

Vaccine dose	*School population	Previously vaccinated	Given vaccine	Total vaccinated	Coverage rate
First	32,309	8,835	16,010	24,845	**77%**
Second	32,184	8,220	14,324	22,544	**70%**
Third	31,563	7,959	11,465	19,424	**62%**

*****Source - NT Department of Education 1997 school lists.

STOP PRESS!

Lederle Laboratories have announced that all Bicillin-LA Tubex 2ml are now being distributed with a smaller 21 gauge needle. Note that there are still batches available with the previous larger 20 gauge needle, and that at present the cartons packaging the new smaller needles still refer to the 20 gauge needles. In addition, please note that the Bicillin-LA 4ml size still has an 18 gauge needle.

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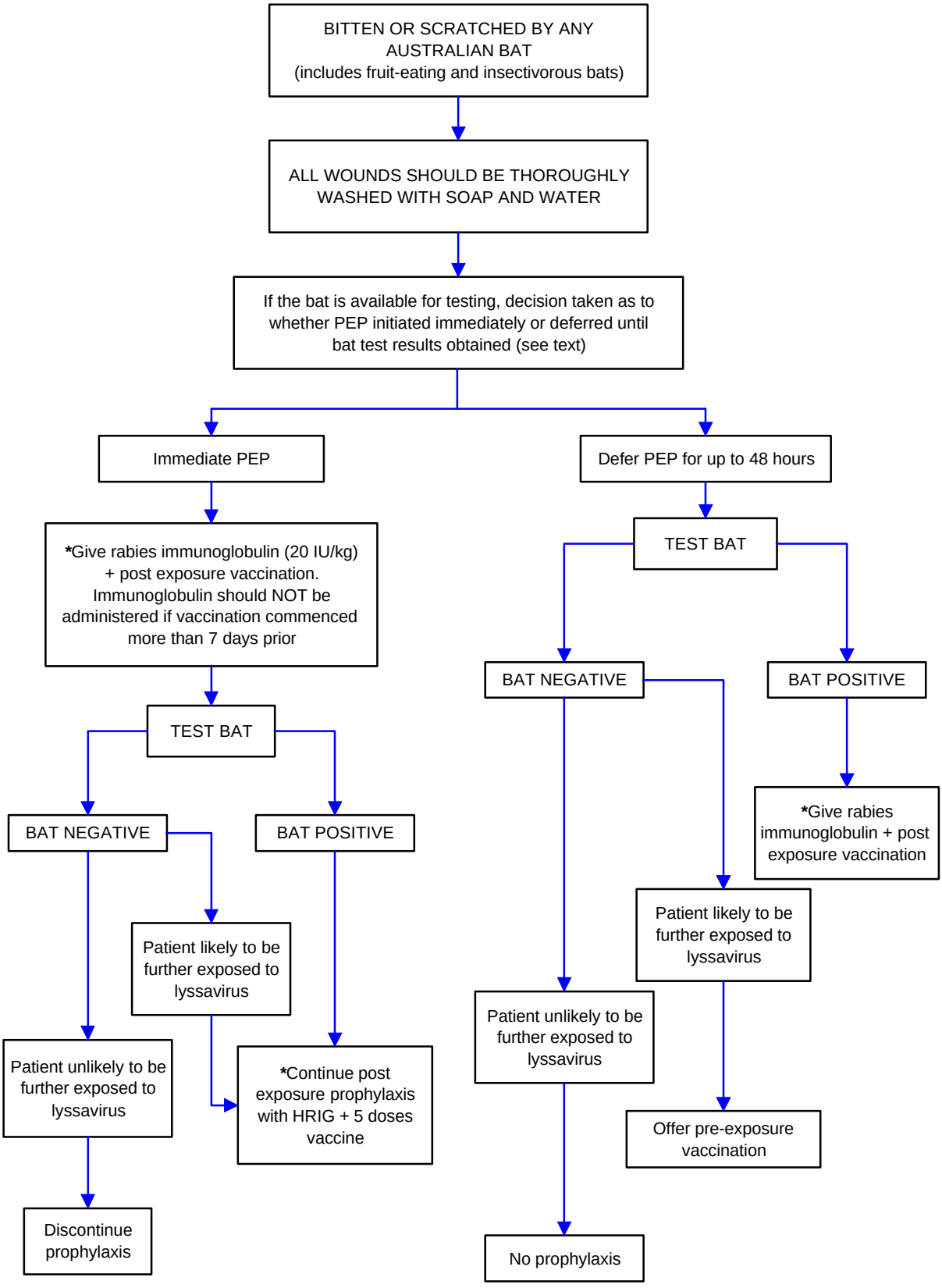
Australian bat lyssavirus post exposure prophylaxis (PEP)

Updated flow chart to follow from last Bulletin's article, page 15 (Vol 6 No 2 June 1999)



*If history of pre-exposure vaccination, **DO NOT** give rabies immunoglobulin; give 2 doses of vaccine on days 0 and 3.

NT MALARIA NOTIFICATIONS
April to June 1999

Merv Fairley, CDC, Darwin

Eight notifications of malaria were received for the second quarter of 1999. The following table provides details about where the infection was thought to be acquired, the infecting agent and whether chemoprophylaxis was used.

ORIGIN OF INFECTION	REASON EXPOSED	AGENT	PROPHYLAXIS	COMMENTS
Indonesia	Resident	*P.falciparum*	No	Diagnosed Royal Darwin Hospital (RDH).
South East Asia	Holiday	*P.falciparum*	Yes	Diagnosed RDH
India	Work	*P vivax*	Partial	Diagnosed Katherine District Hospital
PNG/Indonesia	Holiday	*P.vivax*	Partial	Diagnosed RDH
PNG	Visit	*P falciparum*	No	RDH
PNG	Holiday	*P falciparum*	Yes	RDH
PNG	Work	*P vivax*	Yes	Army
South East Asia/Indonesia	Holiday	*P vivax*	Partial	RDH

Points to note regarding notifications (page 24)

- Amoebiasis, Australian Encephalitis (MVE), Botulism, Brucellosis, Chancroid, Cholera, Congenital Rubella Syndrome, Diphtheria, Gastroenteritis, Gonococcal Opthalmic Neonaturam, Haemolytic Uraemic Syndrome, Haemophilus Inf type b, Hepatitis C (incidence), Hepatitis D & E, Hydatid Disease, Leprosy, Leptospirosis, Listeriosis, Lymphogranuloma venereum, Lyssavirus, Plague, Poliomyelitis, Q Fever, Shiga-like toxin (verocytotoxin) producing *Escherichia coli* infection, Tetanus, Thrombotic Thrombocytopaenic purpura, Typhoid, Typhus, Viral Haemorrhagic Fever and Yellow Fever are all notifiable but had "0" notifications in this period.
- Notifications for both shigella and campylobacter infections are considerably higher this year than for the corresponding period in 1998 (increases of approximately 100% and 50% respectively). Apart from a small outbreak of Shigella in a tour group passing through Alice Springs in May (see above), no common source or local outbreaks were identified and the reason for the increased notifications is not clear at present.
- The increase in syphilis appears to be due to an increase in community screening and possibly more effective case finding at the primary health care level, particularly for East Arnhem and Katherine.
- There was a major increase in rotavirus notifications from April - June 1999 with some remote area Aboriginal communities reporting epidemics. Hospitalisations also increased. By late June 1999 numbers had returned to normal.

NT NOTIFICATIONS OF DISEASES BY DISTRICTS
1 APRIL TO 30 JUNE 1999 AND 1998

DISEASES	ALICE SPRINGS		BARKLY		DARWIN		EAST ARNHEM		KATHERINE		TOTAL	
	'99	'98	'99	'98	'99	'98	'99	'98	'99	'98	'99	'98
Acute Rheumatic Fever	2	3	2	0	1	3	4	0	4	3	13	9
Adverse Vaccine React.	0	0	1	1	1	3	0	2	2	0	4	6
Arbovirus infections												
Barmah Forest Virus	0	0	0	0	2	4	1	1	0	3	3	8
Dengue	0	0	0	0	0	2	0	0	0	0	0	2
Kokobera Virus	0	0	0	0	0	1	0	0	0	0	0	1
Kunjin Virus	0	0	0	0	0	1	0	0	0	0	0	1
Ross River Virus	0	1	0	0	7	18	0	1	2	2	9	22
Atypical Mycobacteria	0	-	0	-	0	-	1	-	1	-	2	-
Campylobacter	20	19	0	0	39	15	2	2	2	4	63	40
Chlamydia	79	50	5	9	92	57	7	22	19	26	202	164
Chlamydia Conjunct.	3	-	0	-	1	-	0	-	1	-	5	-
Congenital Syphilis	0	1	0	0	0	0	0	0	0	0	0	1
Cryptosporidiosis	8	12	0	0	11	22	2	0	6	3	27	37
Donovanosis	0	4	0	0	0	1	0	0	0	1	0	6
Glomerulonephritis	0	0	1	0	0	0	0	2	0	0	1	2
Gonococcal Disease	90	79	16	6	99	85	29	32	33	65	267	267
Gonococcal Conjunct.	0	0	0	0	0	1	0	0	0	1	0	2
Hepatitis A	0	0	1	0	2	5	0	3	0	4	3	12
Hepatitis B	0	0	1	2	2	0	0	1	0	0	3	3
Hepatitis C (prevalence)	1	6	0	0	50	44	1	1	2	3	54	54
HIV infections	0	0	0	0	3	4	0	0	0	0	3	4
HTLV-1	7	3	1	0	2	0	0	0	0	0	10	3
Influenza	1	-	0	-	9		2	-	2	-	14	-

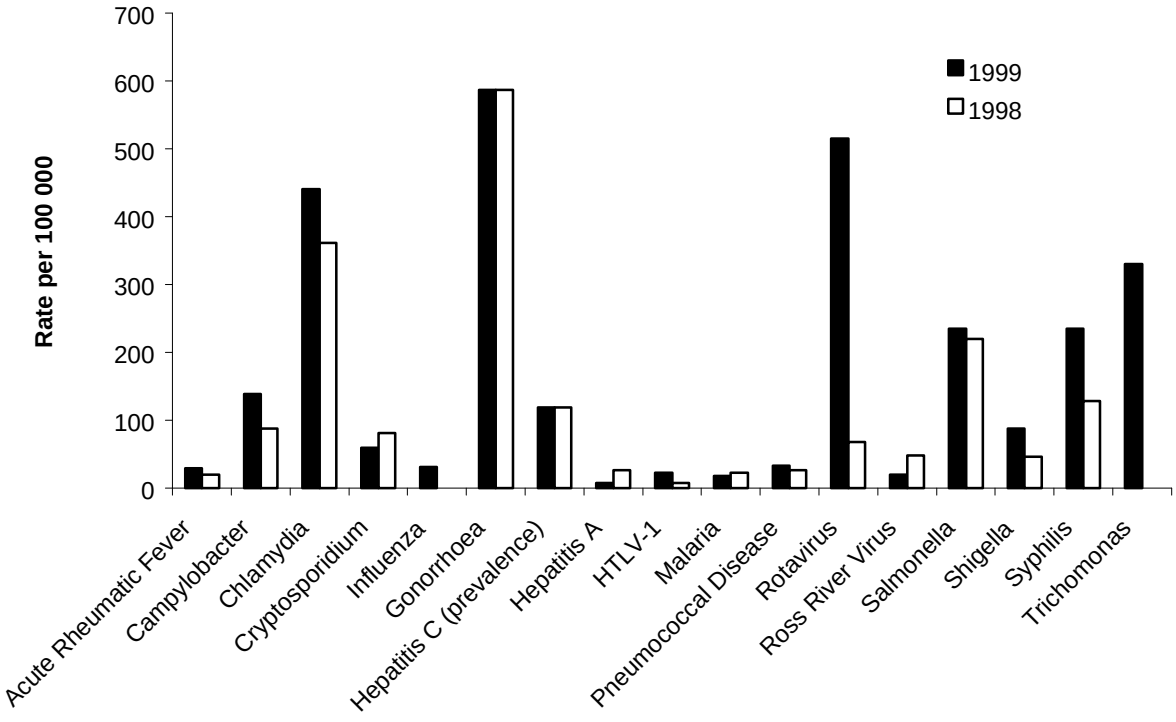
Legionnaires Disease	0	0	0	0	0	0	0	0	1	0	1	0
Malaria	0	1	0	1	7	8	0	0	1	0	8	10
Measles	0	0	0	0	4	0	0	0	0	0	4	0
Melioidosis	0	0	0	0	3	7	1	1	1	5	5	13
Meningococcal Infection	1	3	0	0	0	0	1	0	1	0	3	3
Mumps	0	1	0	0	0	0	0	0	0	0	0	1
Pertussis	0	1	0	0	0	2	0	0	0	1	0	4
Pneumococcal Disease	7	11	0	0	5	1	0	0	3	0	15	12
Rotavirus	63	24	37	0	67	6	26	0	41	1	234	31
Rubella	0	0	0	0	0	1	0	0	0	0	0	1
Salmonella	14	20	4	2	60	58	7	6	22	14	107	100
Shigella	23	6	2	4	12	6	1	4	2	1	40	21
Syphilis	34	25	17	13	20	12	21	3	15	5	107	58
Trichomonas	10	-	5	-	69	-	50	-	16	-	150	-
Tuberculosis	1	1	0	0	4	1	0	0	1	1	6	3
Vibrio Food Poisoning	0	-	0	-	0	-	0	-	1	-	1	-
Yersiniosis	0	0	0	0	0	1	0	0	0	0	0	1
Total	**364**	**271**	**93**	**38**	**573**	**368**	**156**	**81**	**179**	**143**	**1365**	**901**

NOTIFIED CASES OF VACCINE PREVENTABLE DISEASES IN THE NT BY REPORT DATE 1 APRIL TO 30 JUNE 1999 AND 1998

DISEASES	TOTAL		No. cases among children aged 0-5 years	
	'99	'98	'99	'98
Congenital rubella syndrome	0	0	0	0
Diphtheria	0	0	0	0
Haemophilus influenzae type b	0	0	0	0
Hepatitis B	3	3	0	0
Measles	4	0	1	0
Mumps	0	1	0	0
Pertussis	0	4	0	1
Poliomyelitis, paralytic	0	0	0	0
Rubella	0	1	0	1
Tetanus	0	0	0	0

- Mumps is largely under-reported.

NT WIDE NOTIFIABLE DISEASES 1 APRIL TO 30 JUNE 1999 AND 1998



Rates <10/100 000 not listed
NT est.resid.pop - 181 923 supplied by Epidemiology & Statistical Branch, THS

In Memory of Ellen Kettle (1922-1999)
Bush nurse, pioneer, chronicler, champion of the poor and surveillance officer

A Eulogy to Ellen by Dr John Hargrave

While all of us feel sad at Ellen's passing, I don't believe that that is what she really wanted. I often talked to Ellen about our fate when we died and she always said that she rejoiced in going to her Maker. She had complete faith - more faith than almost anyone I have ever known. She said that when her time came, she wanted to go quite quickly in the sure and certain knowledge that she would be going to a better place. And that, I think, embodies much of Ellen's philosophy and also much of what guided her throughout her life.

I worked with her through a very large part of her working life and my working life as well and I know of no-one who could have done more for so many under-privileged people than she has done. I first met her in the bush on the Barkly Tablelands in 1956 and it was not long afterwards that we were working almost full-time together. Somewhat earlier than that she had been working at Yuendumu under very difficult conditions. It was through her mighty efforts and through her dogged determination that most of the Aboriginal leprosy patients came to get the treatment they so badly needed. It was through her courageous patrols through the bush, mostly great treks completely alone and often at great risk, that she reached the people who needed her the most. Prior to her efforts many patients were terrified of isolation. With her they had sufficient courage to come forward for treatment. Very early on I asked her to go to Arnhem Land to look after leprosy patients at the Liverpool River and there she came to know and to love those for whom she cared. The conditions she worked under were primitive to say the least and many of the patients were in the latest stages of their disease, but I do not believe that I have ever heard Ellen complain. She was, of course, intimately involved in the Aboriginal Health worker movement and in earlier times worked closely with Philip Roberts and Mercia, his sister, and other Aboriginal people of high degree. She had many close Aboriginal friends, particularly from Arnhem Land and they will sorely miss her. Later in her career she spread her wings throughout the Territory and then went on to Papua New Guinea, where all her efforts were directed towards setting up good nursing services that ultimately ensured an effective transition to Independence.

Later she came home to the Northern Territory, and home it was to her, here to complete an exhaustive and indeed the only comprehensive history of medical and nursing services in the Northern Territory. It was a mighty compendium in two volumes. These, however, were not her only ventures into writing. Her first book - GONE BUSH - was an instant success. It was a very human sort of story that everyone loved and I have read it time and time again. She also wrote an excellent history of nursing about Papua New Guinea while working there and that, too, is a serious work of reference. While in the Northern Territory, she studied and published the first definitive article on the weights of Aboriginal Babies in Arnhem Land and this, although written many years ago, is still regarded as a benchmark.

It was she who started all our work in Timor. She felt that it should be directed towards the care of leprosy patients and it was through her efforts that we did indeed get to see them there. It was she who carried the project through until just a few short years ago. It was she who insisted that the Program should be entirely for the poor. If she had not gone there in the first place and insisted on something being done, I doubt if anything would have ever got itself off the ground. Ellen was much loved by the poor of Timor.

She was made a Member of the Most Excellent Order of the British Empire very early in her career, long, it seems to me, before many of her major achievements that were yet to come. She had indomitable courage. She always said exactly what she thought. A lot of people thought she was fairly serious but to those of us who knew her well she had a wonderful sense of humour. It was always a great delight to work with her. It is not possible to chronicle all she did. What I have already said is only a fraction of what she really did.

So let us think of Ellen as one who loved life but who had no fear of death. Let us think of her as one who is happy to be going home to rejoin her parents and other loved ones who have gone before her. Let us not mourn her but let us too rejoice to think that she is going to a place where she will indeed forever be at peace.