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Incursions of *Aedes aegypti* in port area of Darwin, Northern Territory, Australia, April and May 2013

Nina Kurucz and William Pettit, Medical Entomology, Centre for Disease Control

Abstract

There were 2 exotic mosquito incursions detected at the Darwin port in the Northern Territory (NT) on 23 April and 3 May 2013. In April, 5 adult Aedes aegypti were collected in a Biogents® (BG) sentinel trap and 1 adult Ae. aegypti was collected in a BG trap on 3 May. Larvae and pupae were subsequently detected in a routine Department of Agriculture Forestry and Fisheries (DAFF) Biosecurity sentinel tyre trap on 14 May. The April incursion coincided with the berth of an international vessel at the international Toll Marine Logistics (TML) port facility, while the May incursion coincided with a vessel travelling on a national route between Cairns, Gove and Darwin. In response to both incursions, all receptacles in the TML port facility and adjacent premises were treated with residual insecticide and adult mosquito control (fogging) was carried out. Enhanced exotic mosquito surveillance was established as per protocol to monitor for exotic mosquitoes over a period of 7 weeks. There have been no further detections of any adults or larvae Ae. aegypti at TML.

Key words: Exotic mosquitoes, Aedes aegypti, Aedes albopictus, international vessels, national vessels, Northern Territory ports

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Editor: Vicki Krause

Email: vicki.krause@nt.gov.au

Assistant Editors: Nathan Ryder
Vanessa Johnson
Anthony Draper
Rosalind Webby
Peter Markey
Chris Nagy
Heather Cook
Charles Douglas
Gabrielle Watt

Centre for Disease Control
PO Box 40596
Casuarina,
Northern Territory 0811



Website: <http://www.nt.gov.au/health/cdc/cdc.shtml>

Production Design: Meredith Neilson/Lesley Scott

Introduction

Since the dengue vector, *Aedes aegypti*, was declared eliminated in 1969, the Northern Territory (NT) has remained free of this exotic vector.¹ However, *Ae. aegypti* as well as *Ae. albopictus* pose a real threat to the NT, with the Darwin and other NT port areas particularly vulnerable to the importation of such vectors. Numerous incidents of risk importations in Darwin have been recorded over the years,¹⁻⁹ with the latest incursion of *Ae. aegypti* recorded in 2011.⁷

In April and May 2013, there were 2 incursions detected at the Toll Marine Logistics (TML) port facility in Darwin. Both incursions were responded to following the protocols outlined by the National Arbovirus and Malaria Advisory Committee (NAMAC).¹⁰ This report describes the response to both incursions.

Detection, elimination and surveillance

Detection and identification – April 2013

On 23 April 2013, Department of Agriculture Forestry and Fisheries (DAFF) Biosecurity collected and delivered a sample from a routine Biogents® (BG) trap that was set on 18 April and collected on 23 April to Medical Entomology (ME) of the Centre for Disease Control (CDC) NT Department of Health (DoH). The trap (BG2) was set at the international quarantine shed of the TML port facility in Darwin.

The sample was processed on 24 April and 3 adult female and 2 adult male *Ae. aegypti* were identified.

Survey and control operations – April 2013

Following the positive identification of *Ae. aegypti*, ME in liaison with DAFF Biosecurity carried out a comprehensive larval survey and treatment operation of all receptacles at TML and the adjacent Frances Bay Marine premises on 24 April. Receptacles were treated with alpha-cypermethrin (Bestox®) and s-methoprene pellets (Prolink®). No exotic mosquitoes were detected during the survey. In the evening of 24 April, ME carried out Ultra Low Volume (ULV) fogging using bioresmethrin (Reslin®) at TML and Frances Bay Marine to eliminate any *Ae. aegypti* adults that might have been present in the area (see Figure 1).

Figure 1. Exotic mosquito interception locations 24 April and 3 May and adult mosquito ULV fog route at TML 24 April 2013



On 26 April, additional exotic larval surveys were carried out by ME at properties neighbouring TML (TML engineering and the navy fuel storage depot). No exotic mosquitoes were detected. Barrier treatment of the TML international quarantine shed with alpha-cypermethrin was carried out on 30 April.

TML advised that the international cargo vessel, *Kathryn Bay*, docked at TML on 22 April and left on 23 April.

Enhanced surveillance – April 2013

Ovitrap

ME constantly maintains 4 ovitraps (egg traps) within TML and the adjacent premises of Frances Bay Marine, with 2 sentinel tyre traps also located at TML and maintained by DAFF Biosecurity.

There were 4 extra ovitraps set by ME at TML on 26 April 2013 and all traps were serviced weekly for 4 weeks (see Figure 2).

Adult traps

Following the incursion, the 2 routine BG sentinel traps at TML (BG1 and BG2) were serviced on 24 and 25 April, with an additional 3 BG traps deployed at TML on 26 April (Figure 2). The BG traps were baited with CO₂ gas delivered through a regulator attached to a D size gas bottle and these were serviced daily, with samples also collected daily until 3 May.

Figure 2. Enhanced and routine surveillance locations at TML 24 April to 11 June 2013



Detection and identification – May 2013

On 3 May 2013, a female adult *Ae. aegypti* was collected in the BG trap in the TML quarantine shed and later identified by ME. In addition, 36 fourth instar *Ae. aegypti* larvae and 3 pupae were collected from the sentinel tyre at the same quarantine shed by DAFF Biosecurity and identified by ME on 14 May. All larvae were s-methoprene affected.

Survey and control operations – May 2013

Following the second *Ae. aegypti* detection at TML another comprehensive receptacle survey and control operation was carried out by ME in liaison with DAFF Biosecurity at TML on 3 May. No exotic mosquitoes were found during the survey. ME carried out ULV fogging at TML and Francis Bay Marine in the evening of 3 May using phenothrin (Twilight®). The fogging route was similar to that shown in Figure 1.

The detection of the adult *Ae. aegypti* on 3 May coincided with the docking of the *Starbird* cargo ship at the international wharf on 2 May. The *Starbird* is an international vessel but had been travelling on a national route between Cairns, Gove and Darwin during the previous month. ME and DAFF Biosecurity carried out an exotic vector survey and set an overnight BG trap on board of the *Starbird* on 9 May. No exotic mosquitoes were detected.

The detection of *Ae. aegypti* larvae and pupae in the sentinel tyre trap on 14 May triggered another survey operation and control of damp and water filled receptacles at TML on the same day. However, no additional mosquito larvae were detected.

The *Kathryn Bay* again docked at TML on 14 May and ME in liaison with DAFF Biosecurity set an overnight BG trap on that night and carried out an exotic vector survey on board of the vessel on 15 May. During the survey, water holding receptacles were located and treated with surface spray and s-methoprene pellets, but no adult mosquitoes or larvae were collected.

Additional exotic vector survey operations were carried out by ME in the vicinity of TML, including the Paspaley property and the TML engineering properties and Francis Bay Marine on 29 May 2013. No exotic mosquitoes were detected.

Enhanced surveillance – May 2013

Ovitraps

Due to the second incursion of *Ae. aegypti* on 3 May and the detection of the additional *Ae. aegypti* larvae in the sentinel tyre trap on 14 May, all 8 ovitraps were again serviced weekly by ME and DAFF Biosecurity over the next 4 weeks.

Adult traps

All 5 BG traps were again serviced daily from 4 to 21 May and then weekly until 11 June 2013.

Discussion and conclusion

The 2 incursions of *Ae. aegypti* at TML in April and May 2013 once again demonstrated the vulnerability of the Darwin port area as an entry point for exotic mosquito vectors in the NT and the importance of routine vector surveillance and control operations in such areas to keep the NT free of exotic vectors and disease.

The April incursion was most likely associated with the berth of the *Kathryn Bay* an international vessel, at the TML port facility, while the May incursion was most likely associated with the berth of the *Starbird*, an international vessel travelling on a national route between Cairns, Gove and Darwin. The larvae

and pupae collected in the sentinel tyre on 14 May were most likely a result of a female *Ae. aegypti* that escaped from the *Starbird* and deposited eggs in the sentinel tyre between 30 April and 7 May, the period between when the vessel arrived and the refilling of the tyre with water and residual insecticide by DAFF Biosecurity. The eggs would have hatched on 7 May when the tyre was serviced and re-filled with water, inundating the eggs attached to the inside of the tyre.

Although an international vessel, the *Starbird* has been travelling the national Darwin to Gove route since 28 March 2013, and was present in Gove on 8 to 9 April, 1 day prior to Gove receiving 88 millimetres of rain. The vessel was also present in Cairns, when the exotic vector, *Ae. albopictus* was detected on 21 March 2013.

International vessels are routinely inspected to minimise the potential for exotic vector importations into the NT.^{5,10} However, vessels travelling on national routes from *Ae. aegypti* endemic areas, such as northern Queensland (QLD) to the NT are not currently inspected to prevent the transportation of exotic vectors. This poses a high risk of transporting *Ae. aegypti* from QLD ports to the NT or Western Australia.

The *Starbird* was not subjected to inspections while travelling on a national Australian route. This posed a risk of exotic mosquitoes being transported to Gove or Darwin as adults or eggs, with eggs potentially hatching following the significant rainfall in Gove the day after the arrival of the vessel.

Due to the potential risk of exotic vector importations in the Gove port area, ME in liaison with Environmental Health established a routine BG trap in the Gove port area in addition to existing routine ovitraps and sentinel tyre traps, and carried out a comprehensive exotic vector survey in May 2013. No exotic mosquitoes were detected.

To minimise the potential for future exotic vector incursions in the NT, a revision of current procedures should be considered. It would be recommended that vessels travelling on national routes from *Ae. aegypti* endemic areas should be subjected to routine inspections on arrival at NT ports or other areas currently free of dengue.

Acknowledgements

We thank all ME, DAFF Biosecurity and TLM staff who were part of the survey and control operations, and who assisted by providing access to properties as required. We would also like to thank the Commonwealth Government for providing relevant funding.

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EDITORIAL

Exotic mosquito incursions

By 5 December 2013 5 exotic mosquito incursion had been detected in the Darwin port area of the Northern Territory (NT) for the year. The 5 exotic mosquito incursions for 2013 have included:

1. *Aedes aegypti* incursion at Toll Marine Logistics on 23 April 2013
2. *Aedes aegypti* incursion at Toll Marine Logistics on 3 May 2013
3. *Aedes albopictus* incursion at East Arm Wharf on 16 August 2013
4. *Aedes albopictus* incursion at Toll Marine Logistics on 28 November 2013 and
5. *Aedes albopictus* incursion at East Arm Wharf on 5 December 2013.

The last detection, 5 December, was another single female Asian Tiger mosquito (*Ae. albopictus*) that was collected in a routine Biogents® (BG) trap set by the newly named Department of Agriculture (DoA) on 28 November and recovered 5 December 2013 at the East Arm Wharf in Darwin. In response to this new incursion Medical Entomology (ME) staff of Centre for Disease Control, NT Department of Health, in liaison with the Australian Government DoA, carried out activities as per protocol.

On 5 December, following the identification by ME staff of the single *Ae. albopictus* female from a BG trap, fogging (adult mosquito control) was carried out by ME at the East Arm Wharf. On 6 December ME staff carried out comprehensive larval surveys and treatment of all receptacles, including barrier spraying at East Arm Wharf. Further action included:

- ME staff setting an additional BG trap to the 2 routine BG traps set by DoA. All BG traps were serviced daily by DoA staff

for 1 week and from 13 December all BG traps serviced weekly.

- ME staff placing an additional ovitrap at the East Arm Wharf in addition to the 2 routine DoA ovitraps and the DoA sentinel tyre trap. All ovitraps were to be serviced weekly for a total of 4 weeks.

While 5 international vessels on route from Asia visited the East Arm Wharf between 27 November and 5 December, the most recent incursion could not be associated with a particular vessel. Surveillance results and other relevant information will be reported and evaluated as they become available.

In the 13 years, 2000 to 2012, a total of 20 *Ae. aegypti/albopictus* incursions were associated with cargo vessels in the NT (Darwin). The incursions per year were as follows:

2000 (5), 2001 (1), 2002 (1), 2003 (3), 2004 (0), 2005 (0), 2006 (1), 2007 (1), 2008 (0), 2009 (0), 2010 (5), 2011 (2), 2012 (1).

These data show that there were 2 other years (2000 and 2010) that also had 5 incursions. Increased numbers of incursions are concerning and action should be taken to reduce incidences in the future. Actions to be considered include:

- Targeting high risk cargo vessels directly (with barrier spray),
- Changing procedures so that risk cargo is inspected immediately by DoA and
- DoA inspections of vessels that travel to the NT from *Ae. aegypti* endemic areas, such as north Queensland.

Preventing incursions of exotic mosquitoes that have the potential to serve as vectors for viruses that cause diseases such as dengue fever and chikungunya is a high priority for the NT.

World AIDS Day – Time for a HIV test?

Jan Holt, Nathan Ryder and Meredith Neilson, Centre for Disease Control

Abstract

Sunday 1 December 2013 marked World AIDS Day with the Sexual Health and Blood Borne Virus Unit at Centre for Disease Control commencing a campaign to increase HIV testing rates. Public health authorities are encouraging general practitioners and other health providers to increase HIV testing by offering a routine test to anyone who might have put themselves at risk of HIV.

Background

Australia has recently committed to HIV reduction targets set by the United Nations (UN) 2011 Political Declaration on HIV/AIDS. Among other things this calls for:

- Strengthening partnerships and engaging new stakeholders
- Increasing HIV testing rates, to minimise delays between sero-conversion and diagnosis which will improve health outcomes and reduce health impacts of late diagnosis
- Implementing targeted and broad-based HIV awareness campaigns particularly in key populations groups and emerging populations.

HIV rates

The rate of HIV diagnosis in the Northern Territory (NT) is broadly the same as other areas in Australia and appears to be rising. In 2012 there was a 10% rise in new HIV diagnoses in Australia compared to the prior year, and in the NT there were a record 36 new cases of HIV. Unlike most of Australia the primary mode of transmission among people diagnosed in the NT is heterosexual contact with people from higher HIV prevalence countries and people travelling and working in those countries. However transmission among men who have sex with men still occurs.

Early detection

Early detection and treatment is now recognised as being critical to the control and the potential elimination of HIV transmission. Testing should be provided for pregnant women, anyone who

has unprotected sex overseas, a person with an STI, Hepatitis B or C, men who have sex with men or anyone who has migrated here from a country with higher rates of HIV.

Late diagnosis of HIV occurs in 31% of NT people compared to 17% nationally. Late diagnosis is associated with poorer health outcomes for a person and a prolonged period of potentially being able to transmit the virus to others. People on HIV treatment have been shown to be 96% less likely to transmit their infection to others. Early HIV treatment is very effective in keeping people healthy and they can expect to live a long life.

Increase HIV testing campaign

In response to the new treatment as prevention data, and the UN targets, the Sexual Health and Blood Borne Virus (SHBBV) Unit in partnership with the NT AIDS and Hepatitis Council are working to develop a campaign to increase voluntary HIV testing in the key affected populations in the NT. A campaign action plan and targeted messages and resources are being developed through a steering committee in consultation with organisations and individuals.

The initial component of the campaign aims to increase HIV testing by general practitioners (GPs) and other primary care clinicians to those people who are at risk according to the National HIV testing policy. Barriers identified by GPs to HIV testing from the literature include: lack of knowledge of testing indications and perceived requirement to perform detailed counselling. A letter from Dr Vicki Krause, the Director of CDC, has been widely distributed among primary care clinicians outlining when HIV testing is indicated and informing them that HIV is now considered a manageable chronic disease and only standard informed consent is required prior to HIV testing (see page 7).

The second stage of the campaign will involve the launch of a media campaign by the SHBBV Unit in partnership with the NT AIDS and Hepatitis Council, to encourage HIV testing in people who are at risk of HIV.



DEPARTMENT OF HEALTH

Territory Wide Services
 Centre for Disease Control
 Building 4
 Royal Darwin Hospital Tiwi NT 0810
Postal Address: PO Box 40596
 CASUARINA NT 0811
Tel: 08 8922 8044
Fax: 08 8922 8310

Dear Doctor

RE: IMPORTANT CHANGES IN HIV TESTING**Key practice points:**

- **HIV testing should be actively recommended for all people in the following groups regardless of perceived personal risk:**
 - People diagnosed with another sexually transmitted infection.
 - People with hepatitis B or C infection.
 - Men who have had male sexual partners.
 - People who have travelled to countries with higher HIV prevalence, for example most African countries and many in the Asia Pacific region, especially men who have had sex with sex workers, massage or bar staff.
 - People who have immigrated to Australia from countries with higher HIV prevalence.
 - People who have injected drugs.
 - Anyone who is a partner of a person from one of the above groups.
 - Any person with an illness associated with immunosuppression such as severe or recurrent candidiasis, shingles or diarrhoea.
 - All pregnant women.
- **As for any other diagnostic test only *standard informed consent* is required before HIV testing.**
- **HIV is now considered a *manageable chronic disease*, with life expectancy of those on treatment equal to those in the general population.**

Background

2012 saw a record number of 36 new HIV diagnoses reported in the Northern Territory. The primary mode of HIV transmission in the NT is heterosexual contact among people from higher prevalence countries and people travelling and working in those countries, although transmission among men who have sex with men still occurs. All except one person was determined to have a recognised HIV testing indication listed in the above practice points.

Early detection and treatment is now recognised as being critical to the control and potential elimination of HIV. People on HIV treatment have been shown to be 96% less likely to transmit their infection to others.

Late diagnosis of HIV occurs in 31% of NT cases compared to 17% nationally. Late diagnosis is associated with poorer health outcomes for the patient and a prolonged period of potential transmission to others.

The 2011 National HIV Testing policy has removed all reference to special HIV pre-test counselling. This change recognises the vast changes that have occurred in the prevention and management of HIV infection.

For more information on HIV and other infections see the Clinic 34 web page www.health.nt.gov.au/Clinic_34 or call your local Clinic 34: Alice Springs 8951 7549 Darwin 8999 2679, Katherine 8973 9049, Nhulunbuy 8987 0357 or Tennant Creek 8962 4250.

Yours sincerely

Dr Vicki Krause
 Director Centre for Disease Control

December 2013

ABN: 84 085 734 992

Department of Health is a Smoke Free Workplace

Northern Territory Needle and Syringe Program: Implementation of review recommendations

Katherine Moriarty, Sexual Health and Blood Borne Virus Unit, CDC

Abstract

In 2011, the Department of Health commissioned Anex to undertake a review of the Northern Territory (NT) Needle and Syringe Program (NSP). The review highlighted emerging issues in relation to patterns of injecting drug use and services for people who inject drugs and identified 17 recommendations.

The NT NSP Working Group is currently supervising the implementation of review recommendations. The Working Group has overseen a raft of achievements in relation to resource mobilisation, knowledge management, service delivery, workforce development and inter-agency cooperation. In the coming months, sustained effort will be required to achieve service expansion targets within the current legislative environment.

Key words: needle and syringe program, harm reduction, people who inject drugs, blood borne virus

Northern Territory Needle and Syringe Program

The Northern Territory (NT) Needle and Syringe Program (NSP) was established in 1989 and as a program fits under the harm reduction component of the National Drug Strategy 2010-2015. The distribution of sterile injecting equipment to people who inject drugs is also identified as a priority action area in the national HIV, hepatitis B and hepatitis C strategies.

The program distributes sterile injecting equipment, provides facilities for safe disposal of used injecting equipment, and offers information, support and referral services to people who inject drugs in order to prevent blood borne virus transmission, minimise injecting related injury and disease and strengthen access to health and social services. In 2012 430,781 units of sterile injecting equipment were distributed through the NT NSP.

The program is comprised of 3 primary outlets, 10 secondary outlets and 15 pharmacy-based outlets. Primary outlets provide a broad range of sterile injecting equipment alongside information, support and referral services for people who inject drugs and facilities for the safe disposal of used injecting equipment. Secondary and pharmacy-based outlets typically provide a limited range of sterile injecting equipment and disposal facilities.

Primary outlets are managed by the NT AIDS and Hepatitis Council (NTAHC) and are located in Darwin, Palmerston and Alice Springs (see Figure 1). Secondary outlets are located at Clinic 34s in Darwin, Alice Springs, Katherine, Tennant Creek and Nhulunbuy, and at hospital emergency departments in Alice Springs, Katherine, Tennant Creek and Nhulunbuy. There is also a secondary outlet located at the Yulara Medical Centre in Uluru-Kata Tjuta National Park.

Figure 1. Primary NSP Outlet in Alice Springs: NTAHC



Review of the Northern Territory Needle and Syringe Program

In 2011 the Department of Health (DoH) commissioned Anex to undertake a review of the NT NSP in order to assess:

- The extent to which the objectives of the NSP had been achieved
- Whether current NSP services represented the most effective and efficient means for achieving these objectives.

Published in November 2011, the final report highlighted emerging issues in relation to patterns of injecting drug use and services for people who inject drugs and identified 17 recommendations:

1. The **DoH** maintain the current level of funding for NSP and undertake regular reviews on the need for increased funding to address emerging issues and challenges.
2. The **DoH** improve the reach and penetration of the NT NSP (particularly in Darwin) through expanding the number of outlets including the establishment of additional secondary outlets situated in relevant agencies that provide services to priority groups (including the long grass people, and injectors living within or around Nightcliff).
3. The **DoH** improve coverage of the NT NSP through the expansion of service delivery modalities including the introduction of syringe vending machines to improve after-hours access to sterile injecting equipment.
4. The **DoH** continue to monitor the trends in NT NSP outputs and client visits.
5. The **DoH** provide financial assistance to secondary NSP outlets in distant regional centres to enable induction of new staff through visits to primary NSP sites.
6. The **DoH** review current arrangements in relation to workforce development and training to ensure that formalised training is provided to all staff on a regular basis with appropriate frequency.
7. The **DoH** liaise with NSP services to ensure that quality of data collected and reported on client visits is of a standard that would enable the reach and penetration of the NT NSP to be assessed over time.
8. The **DoH** facilitate the establishment of formal linkages between the NSP sector and NT Police with the aim of improving access to NSP services by injecting drug users.
9. The **DoH** provide funding to enable an investigation into the prevalence of steroid injecting within the NT, and its associated harms.
10. The **DoH** provide funding for an assessment of the prevalence of injection-related injuries and harms associated with pharmaceutical opiates.
11. The **DoH** undertake a review of the operation of the opiate pharmacotherapy program and patient outcomes.
12. **Primary NSP services** review and formalise the program for site visits by new NSP staff across the NT so as to contribute to consistent knowledge and understanding of NSP-related matters across the NSP workforce.
13. **NSP services** continue to maintain and promote awareness among clients of safe storage and disposal of injecting equipment; safer injecting practices (including the use of wheel filters); and blood borne virus transmission and prevention.
14. **NSP services** be more proactive in promoting client awareness of the benefits of using wheel filters and address attitudes and perceptions of clients regarding their use.
15. **NSP services** investigate the use of group approaches to complement existing strategies for information provision and education for clients, and consider ways to utilise peer information networks to improve the reach and penetration of health promotion messages to injecting drug users.
16. **NSP services** be mindful of the impact of physical layout on clients' ability and willingness to approach staff to discuss problems, and where possible to minimise the negative impact.
17. **NSP services** take a proactive approach in providing information, education and referrals to clients.

Northern Territory Needle and Syringe Program Working Group

Established in July 2012, the NT NSP Working Group is currently overseeing the implementation of review recommendations in order to strengthen harm reduction services for people who inject drugs in the NT.

- Updated the harm reduction component of the Certificate IV in Alcohol and Other Drugs and supported training delivery
- Strengthened coordination and information sharing between NSP staff across the NT.

In addition, Working Group members are currently:

- Drafting a NT NSP Policy and Operational Guidelines
- Exploring service expansion options, including syringe vending machines and peer distribution of sterile injecting equipment
- Finalising a scoping study on the prevalence of injecting drug use among Aboriginal communities in Central Australia
- Conducting a NT NSP staff training needs assessment with a view to offering formalised orientation and training to primary, secondary and pharmacy-based NSP staff across the NT
- Undertaking a rapid assessment of wheel filter uptake and workforce development needs in relation to wheel filters
- Drafting a NT NSP Safe Disposal Strategy in collaboration with local councils
- Establishing an NTAHC volunteer program in order to strengthen the engagement of people who inject drugs in service planning and delivery.

Conclusion

Throughout Australia, NSPs have played a central role in preventing BBV transmission, minimising injecting related injury and disease and strengthening access to health and social services among people who inject drugs.¹

\$5.2million was spent on NSP service delivery in the NT between 2000 and 2009. Epidemiological and economic modelling estimates this spending has prevented 483 new hepatitis C infections and resulted in healthcare savings of \$4.2million.²

The NT has seen significant changes in patterns of injecting drug use and services for people who inject drugs since the NSP was established in 1989. The recent review provided a valuable opportunity to reflect on these changes and identify emerging priorities.

The establishment of the NT NSP Working Group provides an excellent example of inter-agency collaboration and evidence-informed policy and program development.

The Working Group has overseen a raft of achievements in relation to resource mobilisation, knowledge management, service delivery, workforce development and inter-agency cooperation.

The Working Group continues to oversee the implementation of review recommendations. In the coming months, sustained effort will be required to achieve service expansion targets within the current legislative environment.

Acknowledgements

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Sexual Health and Blood Borne Virus policy audit

Katherine Moriarty, Sexual Health and Blood Borne Virus Unit, CDC

Abstract

In October 2013, the Sexual Health and Blood Borne Virus Unit (SHBBVU) conducted a rapid audit of all policies, guidelines, protocols and fact sheets relating to sexually transmissible infections (STIs) and blood borne viruses (BBVs) in the Northern Territory (NT).

The audit identified a total of 64 policies, guidelines, protocols and fact sheets relating to STIs and BBVs in the NT. 36 documents were released by the SHBBVU while 28 documents were released by other agencies. 18 of these documents were due for review.

Opportunities exist to streamline the process by which these documents are developed, reviewed and disseminated and increase collaboration across the Centre for Disease Control and the Department of Health more broadly.

Key words: sexual health, sexually transmissible infection, blood borne virus, policy audit

Background

In October 2013, the Sexual Health and Blood Borne Virus Unit (SHBBVU) conducted a rapid audit of all policies, guidelines, protocols and fact sheets relating to sexually transmissible infections (STIs) and blood borne viruses (BBVs) in the Northern Territory (NT).

The audit was intended to streamline the process by which policy documents are developed, reviewed and disseminated and support effective collaboration across the Centre for Disease Control (CDC) and the Department of Health (DoH) more broadly. The audit did not examine policy content or identify priorities with respect to policy development.

Methods

Policy documents were located through key word searches of the following directories:

- DoH website
- Protocol Management and Production Tool (PROMPT) on the DoH intranet
- Remote Health Atlas on the Department of Health intranet
- SHBBVU Teamsite

Key words included 'sexual health', 'sexually transmissible infection', 'blood borne virus', 'HIV', 'hepatitis', 'gonorrhoea', 'chlamydia', 'syphilis' and 'trichomoniasis'.

A directory of policies, guidelines, protocols and fact sheets was created and key staff within CDC (including all SHBBVU staff) were consulted via email.

Policy documents were classified according to the following categories:

- Internal documents released by the SHBBVU
- External documents released by the SHBBVU
- NT STI and BBV documents released by other NT Government agencies

The title, author, upload date, review date and location of each document were also recorded. National policies and guidelines were excluded from the audit, except where they had been adopted by the NT Government.

Results

The audit identified a total of 64 policies, guidelines, protocols and fact sheets relating to STIs and BBVs in the NT. There were 36 documents (7 internal and 29 external) released by the SHBBVU while 28 documents were released by other agencies. Of these, 18 documents were due for review (3 external documents released by the SHBBVU and 15 released by other agencies).

Internal documents were accessible through the SHBBVU Teamsite, while external documents were variously accessible through the:

- DoH website
- Protocol Management and Production Tool (PROMPT) on the DoH Intranet
- Remote Health Atlas on the DoH Intranet
- SHBBVU Teamsite.

The audited policies, guidelines, protocols and fact sheets appeared to utilise a variety of different templates.

Discussion

The NT Government has produced a significant number of policies, guidelines, protocols and fact sheets which support the public health response to STIs and BBVs in the jurisdiction. Opportunities exist to streamline the process by which these documents are developed, reviewed and disseminated and increase collaboration across the CDC and the DoH more broadly.

Recommendations

1. The directory of policies, guidelines, protocols and fact sheets created for the purposes of this audit should be adopted as the SHBBV Policy Register.
2. The BBV Policy Officer should update the SHBBV Policy Register each quarter,

share the updated register with SHBBVU staff and notify internal and external policy makers where documents are due for review.

3. The SHBBVU Teamsite should be merged with the CDC Teamsite. All STI and BBV policies, guidelines, protocols and fact sheets should be available through the CDC Teamsite. External policy documents should also be accessible through the DoH website, through PROMPT and through the Remote Health Atlas, where appropriate.
4. Standardised templates for policies, guidelines, protocols and fact sheets should be developed for use across the CDC.
5. The SHBBVU should work closely with policy makers across the DoH to ensure a collaborative approach to STI and BBV policy development.

Acknowledgements

The author wishes to acknowledge the support and collaboration of CDC colleagues, in particular Vicki Krause, Lesley Scott, Nathan Ryder, Suzanne Connor and Linda Garton.

Safe Work Australia competition

Kristy Sanderson, CDC, Alice Springs

CDC in Alice Springs came second in the Safe Work Australia competition held in October. Prizes were awarded to work places that were most compliant in meeting work, health and safety (WHS) standards. Inspections took place during mid-October 2013.

CDC Alice Springs has been taking their WHS very seriously so were thrilled to receive a placing with all the other workplaces they competed against. They received a \$40 Woolworths voucher for their efforts.



Twelve month review of Clinic 34's Palmerston youth sexual health clinic at headspace Top End

Jan Holt, Peter Knibbs, and Nathan Ryder, Sexual Health and Blood Borne Virus Unit, CDC

Abstract

Background

In 2012 Clinic 34 established an outreach sexual health youth clinic within headspace Top End in Palmerston, providing STI testing, emergency contraception and pregnancy testing. This paper reviewed its utilisation, client satisfaction and associated cost 12 months after it commenced.

Methods

Clinical and demographic data were extracted for all clients attending the outreach clinic. 15 young people were recruited to complete an anonymous written survey regarding their satisfaction with the clinic. A basic cost analysis was conducted.

Results

During the 12 month period, 48 youth clinics were held with a total of 134 people attending these clinics. All but 2 people were in the targeted under 25 year age group. Word of mouth from other young people and referrals from health promoting school nurses were the 2 most common ways clients found out about the clinic. An STI was diagnosed in 17% of all clients. All people surveyed were very satisfied with the service. They felt the service was welcoming and friendly. A few stated they would prefer the service to be open more frequently and after hours. The cost analysis found that the cost to operate the clinic during this review was \$15,436.80 per annum or \$115 per client.

Conclusion

The youth clinic was successful in attracting young people in the targeted age group and provided a satisfactory clinical service to a region where specialist sexual health service was lacking. However this service was under-utilised during the reviewed period. Improved and ongoing promotion of this clinical service is required.

Keywords: sexual health youth clinic, STIs, headspace Top End

Background

Youth aged between 15 to 25 years in the Northern Territory (NT) carry the highest burden of sexually transmitted infections (STIs) compared to other Australian jurisdictions.

The city of Palmerston and the adjacent growth corridor has a large population of young people and is one of the fastest growing regions in Australia. Robertson Barracks, located nearby, is home to a large contingency of young army personnel. Due to the absence of any specialist sexual health services in the Palmerston and surrounding area, Clinic 34 Darwin opened an outreach sexual health clinic targeting people under 25 years of age. The goal of the youth outreach clinic was to enable easier access to STI testing for people 25 years and younger.

The service was established in April 2012 and operates every Wednesday afternoon from 1200 to 1700. It is located within the youth orientated mental health service *headspace Top End*. The clinic was promoted using posters and 'Z cards' (a small, discrete information card) distributed widely to youth organisations, Robertson Army Barracks, schools, sporting venues and school health expos. There were 2 newspaper advertisements and an editorial placed in the local Palmerston Sun newspaper. The service provides STI testing, emergency contraception and pregnancy testing. It operates by either booked appointment or drop in on the day.

We performed a review of the service following the first year of operation examining clinic utilisation, client characteristics, STIs diagnosed, client satisfaction and costs associated with the outreach clinic.

Method

For the main Darwin clinic and the outreach clinics, data is entered into the Sexual Health Informatics Program (SHIP) (this is a program that stores client details and clinical information)

for all clients including age, gender, cultural background, clinical diagnoses and how the person found out about the clinic. Data was extracted from SHIP and analysed descriptively using Microsoft Excel.

Occasions of services, basic demographic information and clinical diagnoses were extracted for patients attending the outreach clinic, and for patients attending Darwin Clinic 34 who reside in Palmerston, Howard Springs or Humpty Doo postcodes.

Information was extracted from the NT Notifiable Diseases System (NTNDS) to determine the total number of chlamydia, gonorrhoea and trichomonas notifications over the period of the clinic review (4 April 2012 to 13 March 2013) in the Palmerston, Howard Springs or Humpty Doo postcodes.

A survey was conducted to find out the level of client satisfaction. This was a written anonymous survey of 15 young people who attended the clinic over a 4 week period in March 2013.

A basic cost analysis was performed by calculating the number of staff hours required per patient.

Results

Clinic utilisation

Occasions of service to the clinic

From 4 April 2012 to 13 March 2013 there were 48 sexual health youth clinics held at *headspace Top End* with a total of 134 people attending. The median number of patients seen per clinic was 3 and varied from 0 to 7. There were 7 clinics out of 48 that had no patients attend. There was no trend over time to suggest an increasing number of people attending the outreach service (see Figure 1).

The average age of clients was 18.5 years of age (range 12-32 years) (see Figure 2). All occasions of service at the *headspace* clinic except 2 were in the target group of 12-25 years old, with 50.7% being in those under 18 years. More females than males attended the clinic (84 versus 50) (see Figure 3) and approximately 25% of visits to *headspace clinic* were by youth who

Figure 1. *headspace* visits April 2012-March 2013

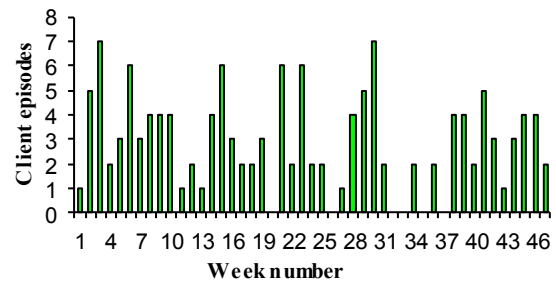


Figure 2. Consultations by age

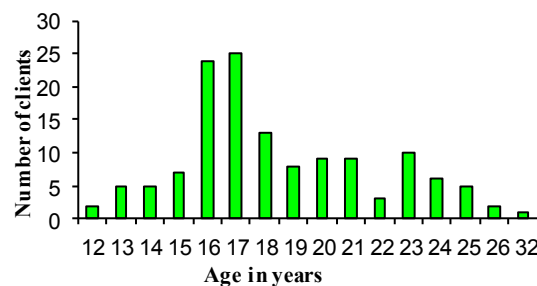
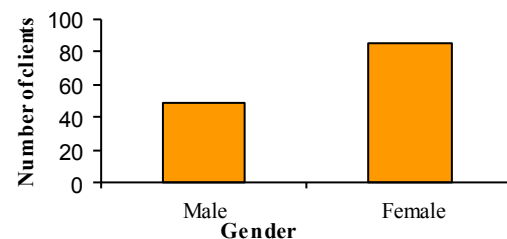


Figure 3. *headspace* visits by gender



identified as Aboriginal or Torres Strait Islander. In addition, 3 young people born in Africa also attended.

Effect on youth presentations to Darwin Clinic 34

Opening the *headspace* clinic did not increase the number of young clients attending the main Darwin clinic. During the 6-month period prior to the *headspace* clinic being opened (November 2011 to April 2012) 904 clients aged 25 years and younger attended clinic 34 Darwin, compared with 798 attending during the 6 months after the establishment of the *headspace Top End* youth clinic (September 2012 to February 2013).

Promotion of headspace youth clinic

There were 52 young people (39%) who stated that they heard about the clinic through word of mouth from a friend. School nurses were also an important source of information with 24 clients (18%) stating this as their referral source. Another 32 people (24%) stated they had heard about the service from other service providers (this included Department of Children and Families, school counsellors, Clinic 34 and a general practitioner). For 9 people (7%) the internet provided the referral information and 17 people (13%) gave no information about how they knew about the service (see Table 1).

Table 1. Stated means of being aware of the clinic

How did you find out about the headspace youth clinic?	Number (%)
By a friend telling me	52 (39)
By the school nurse	24 (18)
From the internet	9 (7)
Other (in some case a referral agency was noted)	32 (24)
Didn't answer this question	17 (13)

Table 2. Clinic diagnoses from headspace clinic from April 2012 to March 2013

Diagnosis	Male	Female	Total (%)
Bacterial vaginosis	0	1	1 (0.7)
Candidiasis	0	4	4 (3)
Chlamydia	7	6	13 (9.7)
Genital wart	1	0	1 (0.7)
Molluscum contagiosum	1	0	2 (1.5)
Trichomoniasis	0	3	3 (2.2)
Total	9	14	23 (17)

Clinic diagnoses

During the period 4 April 2012 to 13 March 2013 23 of the 134 (17%) of the people who attended the headspace Top End clinic were diagnosed with an STI. Of significance 13 (9.7%) were diagnosed with chlamydia and 3

(2.2%) trichomonas. There were no gonorrhoea or syphilis diagnoses (see Table 2).

During this same period Clinic 34 Darwin saw 355 people aged 15-25 who lived in the Palmerston and rural area with 69 (19%) diagnosed with a clinical illness. There were 52 (14.6%) cases of chlamydia, 2 (.05%) cases of gonorrhoea and 15 (4.2%) trichomonas diagnoses.

Patient satisfaction

A short survey was conducted with 15 young people (11 women and 4 males) who had used the youth sexual health clinic. The surveys were completed by 4 young women who identified as Aboriginal and 4 men who were non-Aboriginal. All were in the target age group, with 9 in the age group 14-18 years old and 6 in the 19-24 year old age group.

When asked "How long did you wait to be seen by the nurse", 14 respondents waited 5-10 minutes and 1 waited more than 15 minutes to be seen. When asked "did you feel welcomed and made to feel comfortable by the staff" all 15 responded "Yes". Free text responses were all positive and included:

"staff are very friendly and discreet", "friendly, welcoming staff", "great staff, very friendly", "very pleased", "very helpful". "I love headspace I'll be coming more often".

"is welcoming and helpful, catering to my needs", "very friendly", "they are quick and efficient", "because it is quick and the people are nice", "good and easy", "because it's an easy free way to make sure your healthy" (sic).

There were mixed responses to the question "The clinic is open on Wednesday afternoon, does this time suit you?" Some clients indicating an after-hours service and more frequent opening days would be better. No clients proposed any specific ways to improve the clinic when directly asked to make suggestions.

Cost analysis

headspace Top End clinic operates for 5 hours each Wednesday with an additional 1 hour staff travel time required. Staff spent 288 hours staffing the clinic, which equates to 2 hours and 8 minutes per client.

Using the mid-point N4 level salary plus allowances and basic operational costs (\$53.60 per hour) the staff cost of operating the clinic is \$15,436.80 per year, or \$115 per patient.

Discussion

The Clinic 34 *headspace Top End* youth clinic was very successful in attracting the intended target group and providing a highly satisfactory clinical service to most clients. However, in terms of increasing service provision to the region the clinic has not been as successful. The main Clinic 34 in Darwin city provided a far greater amount of care to people from the Palmerston region, with 2.5 times more young people seen with over 4 times more young people treated for an STI.

This outcome is likely due to a combination of both the poor clinic utilisation rate (many clinic periods had no clients attend and the average staff time per patient was over 2 hours) and the current limited clinic opening hours.

The *headspace Top End* clinic already meets many of the criteria found to be required to be acceptable to young people.¹ The clinic is open in the afternoon to 5pm, generally found to be preferred time for young people attending clinical services. It is possible even later hours may suit young people in the workforce, although the current hours do allow after school attendance. The clinic operates on a “drop in” basis with no appointment. The clinic is located in a service not specifically associated with STIs.

It is possible that expanding the opening hours may increase the visibility and accessibility of the clinic, however at present this requires a significant commitment of staffing resources at the expense of the more efficient main clinic.

Young people, especially females, prefer STI testing to be combined with reproductive health. Redirecting the resources used for this clinic to other reproductive and primary care services may be a more acceptable and efficient means of increasing STI testing in the area.

If the clinic remains in its current format increased efforts to promote the clinic are required. As most clients report hearing about the clinic through word of mouth, continuing to promote the clinic at youth network meetings and other ‘stall day’ events appears worthwhile. As many people were told about the clinic by school nurses it is important to continue to actively work with school nurses to promote the clinic. It also would be worth attempting to engage with other youth and sporting organisations in the area. Initially posters and pamphlets were used extensively to promote the clinic, given few people reported these as their source of information the role of the resources needs to be reconsidered. Only a small proportion of people surveyed stated they found out about the clinic via the internet, the accessibility of information in the clinic websites should be evaluated.

In conclusion the Clinic 34 *headspace Top End* youth clinic in Palmerston has provided care for a small number of highly satisfied clients however is extremely under-utilised. Efforts are needed to either increase utilisation rate or redesign the clinic service to better meet the needs of this area. A range of options will be considered in early 2014.

References

1. Senderowitz, J. Making reproductive health services youth friendly. Research, Program and Policy Series. Washington, DC: FOCUS on Young Adults/Pathfinder International. 1999.

Immunisation update-Adult and Special Groups Vaccination Schedule

Chris Nagy and Rosalind Webby, CDC

Abstract

In September 2013 the Adult and Special Groups Vaccination Schedule and Northern Territory (NT) pneumococcal vaccination and revaccination guidelines were revised and published.

These schedules now complete the update of all vaccination schedules in the NT and reflect the recommendations in the 10th Edition Australian Immunisation Handbook. The Childhood Vaccination Schedule was updated in July 2013. All vaccination schedules have been printed with burgundy as their accent colour. Any old vaccination schedules should be removed from circulation. The new recommendations are summarised below.

Key words; Adult immunisation, special group immunisation, vaccination, adult immunisation schedule

Adult and Special Groups Vaccination Schedule

Hepatitis B vaccine

Recommendations for the administration of hepatitis B include:

- Household and sexual contacts of people with hepatitis B
- People on dialysis
- Migrants and refugees from endemic countries
- People with chronic liver diseases
- People with HIV infection
- People with hepatitis C infection
- People who inject drugs
- Recipients of certain blood products
- People requiring solid organ transplants or haematopoietic stem cell transplants.

All Indigenous adults should also be vaccinated if they have not been previously vaccinated or do not have immunity through natural infection. The infant Hepatitis B Program began in the NT in 1988, so adults who are 25 years or less should have been previously vaccinated. The NT Immunisation Register (NTIR) should have a

record of infant hepatitis B vaccination if the person was born in the NT. Please ring 8922 8315 (Top End) or 8951 6928 (Alice Springs) for NTIR information.

Measles mumps rubella vaccine

Measles, mumps, rubella vaccine is recommended for all people born after 1966 without a history of 2 doses of measles, mumps, rubella at least 4 weeks apart or serological evidence of protection against all 3 diseases.

There has been a recent increase in the number of cases of measles in Australia – both locally and internationally acquired.

Pertussis, tetanus and diphtheria vaccines

Recommendations for pertussis vaccination:

- Mothers should have a pertussis containing vaccine within the last 5 years either before pregnancy, from the 28th week of gestation or as soon as possible after delivery.
- If the pertussis containing vaccine is given during pregnancy (after 28th week gestation) then a self-funded additional pertussis containing vaccine is required for the infant in the second year of life. Infants of mothers vaccinated during pregnancy will receive maternal antibodies at birth. These maternal antibodies may interfere with the infant's response to pertussis containing vaccines given at 2, 4, and 6 months and an additional dose of pertussis containing vaccine (Infanrix) is required at 18 months of age for these children.
- If not vaccinated in the last 10 years, fathers and other household carers of infants under the age of 7 months should have a pertussis containing vaccine from the time the expectant mother has reached 28 weeks gestation.
- Health care workers and others working with young children should be vaccinated with pertussis containing vaccine within the last 10 years.
- People aged 65 years and over who have not had a pertussis containing vaccine in the last 10 years.

Influenza vaccine

The eligibility for free influenza vaccine under the National Immunisation Program in 2014 will be the same as in 2013.

Influenza vaccine should be offered free for:

- All Indigenous people 15 years and over
- All non-Indigenous people 65 years and over
- All pregnant women (all trimesters)
- People aged 6 months and over with increased risk of complications from influenza including chronic medical conditions and immune-compromising conditions.

The 2014 Southern Hemisphere vaccine will change from the 2013 Southern Hemisphere vaccine. The 2014 Southern Hemisphere vaccine will contain the 3 antigens:

- A/California/7/2009 (H1N1)
- A/Texas/50/2012 (H3N2)
- B/Massachusetts/2/2012 like virus.

NT pneumococcal and revaccination Guidelines

Different vaccine recommendations have been introduced in accordance with conditions known to be associated with invasive pneumococcal disease.

People with increased risk of pneumococcal disease are recommended to receive additional doses of Pneumovax23[®].

A maximum of 3 adult Pneumovax23[®] doses (including the dose given at age 15 years) should be given in a person's lifetime. This is based on the balance between disease protection, possible increased adverse events and blunting of the antibody response with multiple revaccinations.

Category A: highest risk

- Asplenia (including splenectomy, sickle cell disease or other haemoglobinopathies)
- Immuno-compromising conditions such as

immunosuppressive therapy

- HIV infection
- Chronic kidney disease eGFR<30ml/min or on dialysis
- Haematological or other malignancies
- Haematopoietic stem cell transplant or organ transplant
- CSF leak
- Cochlear transplant
- Intracranial shunt.

All people who are in Category A should receive a single dose of Prevenar13[®] at the time of diagnosis or first presentation. After Prevenar13[®] they should wait for 2 months and then be vaccinated with Pneumovax23. If previous Pneumovax23[®] has been given wait for at least 12 months until giving a single dose of Prevenar13[®].

Category B: increased risk

- Diabetes
- Chronic cardiac disease (excluding hypertension)
- Chronic lung disease including severe asthma
- Chronic liver disease
- Chronic cardiac disease
- Alcoholism
- Down syndrome
- Tobacco smoker.

Neither category A or B

Indigenous people without Category A or B conditions should receive 2 doses of Pneumovax 23[®] at age 15 years and 50 years or 5 years after the last dose.

Non-Indigenous people without risk factors should receive one dose of Pneumovax23[®] at age 65 years or over.

Contact your regional CDC for further immunisation advice and report all adverse events following immunisation to CDC as soon as possible.



September 2013

Adult and Special Groups Vaccination Schedule

Disease	Recommendation	Vaccine note references	Vaccine
Hepatitis B	Special groups including Indigenous people who have not been previously vaccinated, or do not have immunity through natural infection	■ #	Engerix-B [®] paediatric formulation (<20 years) Engerix-B [®] Adult or HBVAXII (> 20 years) HBVAXII renal formulation also available
Influenza	All Indigenous people 15 years and over	●	Vaxigrip [®] jnr (6 -35 months) Vaxigrip [®] (3 - <10 years) Fluvax [®] or Vaxigrip [®] (10 years and over) Other brands privately available
	All people 65 years and over		
	All pregnant women in any trimester		
Measles Mumps Rubella	People ≥ 6 months of age at increased risk of complications i.e. cardiac disease, Down syndrome, obesity, chronic lung disease (including severe asthma), chronic neurological, immunocompromising and other medical conditions requiring regular medical follow-up or hospitalisation in the preceding year		
	All people born after 1966 without a history of either 2 doses of a MMR containing vaccine, serological evidence of protection or a good history of natural immunity against all 3 diseases		
Pneumococcal Disease	Please see NT pneumococcal vaccination and revaccination guidelines		M-M-Rij [®] or Priorix [®] Pneumovax 23 [®] Prevenar 13 [®]
Pertussis	Postnatal women	♀	Boostrix [®] or Adacel [®]
	Fathers and carers of infants under the age of 7 months	⚙	
	All people at 65 years and over	☐ #	
Tetanus and Diphtheria	All people at 50 years	◆ #	ADT [®] Booster or Boostrix [®] or Adacel [®]

Additional vaccines are recommended for other specific groups including immunosuppressed and medically at risk. Refer to p130-175 and the disease specific sections of the 10th Edition Australian Immunisation Handbook (AIH) or ring your regional CDC for further advice.

Vaccine notes

■	= Household and sexual contacts of people with hepatitis B, people on dialysis, migrants from endemic countries, people with chronic liver disease, HIV, HepC, IVUDU and recipients of certain blood products, HSCT and solid organ transplants.
●	= REPEAT VACCINE YEARLY. 2 doses given 1 month apart are recommended for both children <9 years of age who are receiving influenza vaccine for the 1st time and immunosuppressed individuals receiving influenza vaccine for the 1st time.
♀	= As soon as possible after delivery if no combination pertussis vaccine has been given in the previous 5 years. Vaccine can be given from the 28th week of pregnancy but if given during pregnancy an additional (self funded) pertussis containing vaccine is required for the infant at 18 months of age. (see AIH p311).
⚙	= Can be given from the time the expectant mother has reached 28 weeks of pregnancy if no combination pertussis vaccine has been given in the previous 10 years.
☐	= If no pertussis containing vaccine has been given in the previous 10 years.
◆	= If no vaccination in the previous 10 years.
#	= Provider or self-funded. These vaccines are recommended but not funded by the National Immunisation Program.



NT pneumococcal vaccination and revaccination guideline

September 2013

Pneumovax 23®		#Prevenar 13® Category A only at time of diagnosis	
All persons with Category A or B condition (including tobacco smokers)		No Category A or B condition	
Dose 1	At time of diagnosis of Category A or B condition	Indigenous people ≥15 years of age	Non Indigenous people ≥65 years of age
Dose 2	Due at least 5 years after dose 1	Indigenous people ≥50 years of age or 5 years after 1st dose, whichever is later	Non Indigenous people – Not required
Dose 3	Indigenous people ≥ 50 years of age or 5 years after the 2nd dose whichever is later Non Indigenous people ≥ 65 years of age or 5 years after the 2nd dose whichever is later *Dose 3 not required if Category B and 1st dose given ≥50 years of age (Indigenous) or ≥65 years of age (non Indigenous) people	Not required	

Does your client have a condition in Category A or B?

Category A - highest risk group Australian Immunisation Handbook (AIH) 10th Edition p326

Asplenia (including splenectomy, sickle cell disease or other haemoglobinopathies), immunocompromising conditions including undergoing immunosuppressive therapy, HIV infection, chronic kidney disease; eGFR < 30ml/min (stages 4 or 5) or receiving dialysis, CSF leak, organ transplant, cochlear implant, intracranial shunt, haematological and other malignancies, haemopoietic stem cell transplants (Refer to AIH 10th Edition p156)

Category B - increased risk group (AIH 10th Edition p327)

Diabetes, chronic lung disease including severe asthma, chronic liver disease, chronic cardiac disease, alcoholism, Down syndrome, tobacco smoker

Vaccine Notes

All people with a Category A condition should receive a single dose of Prevenar 13® if no previous Prevenar 13® doses have been given. Give at least 12 months after any previous Pneumovax 23® dose. Wait 2 months between Prevenar 13® and any subsequent Pneumovax 23® dose.
Pneumovax 23® (23vPPV) – maximum 3 adult doses – can be given at/over 15 years of age. Doses given under 15 years of age do not count as adult doses.
Refer to Australian Immunisation Handbook 10th edition or contact Centre for Disease Control for people aged <15 years of age (Indigenous) or <18 years of age (non Indigenous).
Refer to AIH 10th Edition p329-330 for people who have received additional doses of Pneumovax 23® in childhood (apart from previously scheduled 18 month dose for Indigenous children)

Information:

For more information contact your nearest Centre for Disease Control.
Darwin 8922 8044 Alice Springs 8951 7549
Katherine 8973 9049 East Arnhem 8987 0357
Barkly 8962 4259

Terrence Guyula Aboriginal Health Practitioner

Joy Pascall, CDC, Nhulunbuy.

Terrence Guyula is a Senior Aboriginal Health Practitioner (AHP) who is well recognised for the valuable contributions he has made to improving Aboriginal health within the East Arnhem district. He first started work with the Department of Health in July 1987 and has dedicated 26 years to improving the health of his fellow community members.

In 2010 Terrence received the Northern Territory (NT) Aboriginal and Torres Strait Islander Health and Leadership Award and in 2009 he was awarded both the Remote Award and the Legend Award at the Aboriginal Health Worker Excellence Awards in the NT held in Darwin.

Terrence is well known for his contribution to the setting up and running of the Gapuwiyak Men's clinic. Terrence felt the frustration of the local male patients who had trouble accessing the clinic for men's business. With the assistance of Miwatj and the Department of Health a demountable was set up outside the main clinic to accommodate the men's clinic. After the clinic's opening the number of males attending increased by 600%.

For the past 4 years Terrence has worked at the Yirrkala Health Centre a well-known Aboriginal community in East Arnhem. During his time in Yirrkala Terrence concentrated his efforts on promoting awareness about and prevention of rheumatic heart disease. Terrence's reputation as a role model and community leader has played a crucial role in his work with his fellow community members.

Terrence is now employed as the Sexual Health AHP at CDC Nhulunbuy. He started in July 2013 and he is a very welcome asset to our team.



Northern Territory refugee vaccination policy updated

Chris Nagy, Vanessa Johnston, Helena White, and Rosalind Webby, CDC, Darwin

Each year, between 120-200 new refugees arrive and settle in the Northern Territory (NT). They often have no vaccine records or give an incomplete history of vaccination. Additionally, vaccination schedules of the refugees' countries of origin may not match the recommended Australian vaccination schedule. Because of these factors it may be necessary to offer 'catch-up vaccines' at times that differ from the National Immunisation Program (NIP).

The NT Refugee Vaccination Policy was first compiled by the Centre for Disease Control (CDC) and the Refugee Health Service in October 2011. It aimed to provide a coordinated approach to the assessment and delivery of age-appropriate vaccines for newly arrived refugees to the NT. The policy describes the roles and

responsibilities of the NT CDC, the Darwin Refugee Health Service, Community Care Centres or other General Practices who may be providing vaccine services to this group.

Recent changes to the vaccine recommendations for adults and children published in *The Australian Immunisation Handbook* required that the policy and schedules contained within it be updated.

The updated October 2013 NT Refugee Vaccination policy has now been published and is available on the internet at [http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/65/68.pdf&siteID=1&str_title=Refugee immunisation policy.pdf](http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/65/68.pdf&siteID=1&str_title=Refugee%20immunisation%20policy.pdf)

A is for antibiotics: Mass drug administration as a strategy to control trachoma in remote Indigenous communities

Brendan Johnson and Jenine Gunn, Centre for Disease Control, Darwin

Abstract

This paper describes the detection of a high prevalence of trachoma in a remote Indigenous community in the Northern Territory and the results of a series of mass drug administrations undertaken to reduce the burden of disease. The establishment of partnerships is shown to be essential to the success of the program: other strengths, weaknesses and lessons learned are described.

Key words: Trachoma, community, treatment, blindness, SAFE Strategy.

Background

Trachoma

Trachoma is a highly infectious eye disease occurring in early childhood and spread by sharing ocular, nasal and oral secretions through close contact such as displays of affection, children playing together and sharing the same bed.¹ Recurrent infections lead to scarring of the tarsal conjunctiva and in-turning of the eyelashes which abrade and ultimately scar the surface of the cornea causing blindness in adults (trichiasis). Trachoma is the leading cause of infective blindness in the world. It is estimated that 6 million people are blind from trachoma. Trachoma has been a cause of blindness for thousands of years, although it has disappeared from developed countries over the past 100 years. Trachoma continues to occur in developing countries and in areas where personal hygiene is poor. Blindness from trachoma is preventable.¹

Although trachoma disappeared from most of Australia by the 1930s, it continues to be endemic and a significant public health problem in Indigenous populations in many remote communities. Australia is currently the only developed country in which blinding trachoma persists.¹

The Northern Territory Trachoma Program

In February 2009 the Australian Government committed to eliminate blinding trachoma from

Indigenous communities by 2020 – in accordance with the World Health Organisation (WHO) Global Elimination of Trachoma program - GET 2020. The aim of the Northern Territory (NT) Trachoma Program is to eliminate blinding trachoma from endemic communities. The WHO recommends a multi-faceted intervention strategy known as the **SAFE** strategy (Surgery, Antibiotics, Facial cleanliness and Environmental improvement).²

Surgery for trichiasis: Eye lid surgery to correct the in-turning of the eye lashes before the cornea becomes permanently damaged.

Antibiotics: Azithromycin is effective in treating *Chlamydia trachomatis* infection.

Facial cleanliness: It is well documented that children with clean faces have less trachoma infections. Health promotion is required to educate communities about trachoma, the importance of personal hygiene and practical advice on maintaining facial cleanliness to reduce transmission of the organism.

Environmental improvements: These actions are required to reduce overcrowding and promote the availability of adequate health hygiene hardware (water and sanitation).

The NT Trachoma Program delivers the SAFE strategy via an extended, collaborative network of organisations and services that undertake screening, community treatment, health promotion, community worker education and training and enhancing access to tertiary services.

The case study

Establishing the prevalence

The school screen

In 2011 the NT Trachoma Program staff from the Centre for Disease Control (CDC) undertook screening of a large remote Indigenous community containing at least 300 school age children. The school based screening was

undertaken in conjunction with Healthy School Age Kids screening which is a Department of Health (DoH) Health Development Unit program. Of 120 children screened 8 (6%) were identified as having active trachoma.

The benchmark for screening coverage according to the *Guidelines for the public health management of trachoma in Australia*, is 80% or greater of school aged children.³ The 2011 screening coverage rate of approximately 40%, resulting in a prevalence rate of 6%, may not have been representative of the unscreened portion of the target population given the highly variable school attendance rate. Therefore, a follow up survey was planned to establish accurately the trachoma prevalence in children who were not attending school.

Follow-up household screen

In consultation with key stakeholders and advisors a prevalence survey was designed that randomly selected 60 houses with a target of screening 50 children less than 15 years old. Children screened during the school based event were excluded from this sample. The screening was performed by public health nurses from the CDC NT and occurred at the children's residences. Complications identified during the survey included: some houses did not contain children that fulfilled the criteria (Indigenous children <15 years of age); dogs attacking the car when driving in the community and obstructing the screening teams' access to the selected houses; difficulty in locating the children; absence of a suitable adult to provide consent when the teams were present; and children not wishing to have their eye lids examined. Further houses were selected to enable the required sample size to be achieved.

Over 3 days 51 children were screened of whom 13 were identified as having active trachoma. The prevalence rate observed in this survey was 25.5%. This is defined as hyperendemic trachoma by the National Trachoma Surveillance and Reporting Unit (NTRSU).

Treatment in a hyperendemic setting.

Background

The *Guidelines for the public health management of trachoma in Australia* for

populations with >10% active trachoma and no obvious clustering of cases, recommend a single dose of azithromycin for "all Aboriginal and Torres Strait Islander children in the community aged 6 months to 14 years; and all household contacts aged 6 months or more".³ *The Guidelines for Public Health Management of Trachoma in the NT* adds that "for communities with a prevalence of 20% or more re-treatment with azithromycin at 6 months is recommended".⁴ Although not explicit in the 2008 NT guidelines, the Trachoma Program recommended 6 iterations of 6 monthly treatments provided to all people over the age of 6 months living in the community, a strategy adopted from the WHO recommendations.² This accelerated regimen, in comparison to annual treatments, reduces the prevalence of trachoma faster by limiting the opportunity for re-colonisation and capturing more members of a highly mobile population.⁵ Prior to the completion of the 6 treatments, the national guidelines were reviewed and the recommended number of community treatments was reduced to 5.

Methods

Drawing upon the experiences of the school based, and community based screening teams, community members, and past and present resident service providers a strategy was developed to deliver an age appropriate dose to every Indigenous person in the community during one working week. The first mass drug administration (MDA) occurred in September 2011, and established the process for subsequent rounds. This was a methodical, house-by-house, street-by-street process supplemented by treatment of passing groups, and the attendance of treatment teams at community events such as football training or local competition games. As the week progressed an increasing number of people indicated that they had received the medication and by the end of the week the teams were searching for a handful of individuals who had not yet been treated.

Data Sources

Maps of the community were available which were provided to the teams. Each team was allocated a section of the community and they went from house to house. Empty houses were

identified and excluded, as were those belonging to non-Indigenous families, as non-Indigenous families usually do not have the overcrowded conditions associated with trachoma transmission. As each house was visited those present and treated were recorded and those who normally lived there but who were absent were noted for follow-up.

The primary data source was a list of residents extracted from the NT DoH Primary Care Information System (PCIS). During the week this list was modified according to information provided by local workers and residents as to who was no longer present in the community or added to if non-listed people received treatment. Each team had a copy of the complete list and recorded the treatment given to individuals. Because individuals may have received treatment at a house other than their own, or opportunistically while at work, in the store or at an event, at the end of each day the teams compared their lists and made sure all treated individuals were identified. Combining the data sources enabled a targeted approach towards the end of the week with teams having a list of 'outstanding' individuals who needed to be treated. The help of local Indigenous workers was particularly valuable in this phase.

Weights and measures

During the first treatment in 2011 all children were weighed using either infant or adult scales. Although this generated a plethora of growth assessment data it was time consuming. In March 2012 a height stick with colour coded segments that correlated to a dose of azithromycin was used. This enabled a rapid determination of the appropriate dose. As height is not an appropriate measure for children under 2 years of age, they were weighed using portable electronic scales. Adults received a standard dose of 1gram.

Antibiotics

The properties of azithromycin lend it to this form of community wide treatment as it remains an active agent in the secretions of the eye for 10 days after administration. The suspension lasts 5 days at room temperature after preparation

allowing the bulk of the suspension to be prepared on the first day during the set-up phase. It was kept chilled in eskies thereafter as outdoor daytime temperatures were above normal room temperature. It can be safely administered to pregnant and breast feeding women, children over 3kg, and as a single dose is safe to administer with most regular medications.³ A piece of fruit or a 'cheese stick' were offered to minimise any gastric upset following the treatment.

Branding

To assist teams to quickly who had been treated a decal (temporary tattoo) of Milpa the Goanna, the program mascot, was applied to the left lower arm of children and youths after they had received the medication. A trachoma program branded silicon wrist band was supplied to adults.

Treatment teams

Each MDA was carried out by 5 teams each of which contained 2 volunteers, a trachoma team member – usually a public health nurse or physician, and a Community Based Worker (CBW). The CBWs were primarily Fred Hollows Foundation trained CBWs, hosted by Family as First Teachers or Aboriginal Health Practitioners or CBWs sourced from the local health service and other community based organisations. Each team was allocated a section of the community, and where possible the team leaders were allotted the same section for each repetition of the MDA.

Volunteer recruitment

Prior to each MDA volunteers were sought via a request for expressions of interest forwarded to health staff and medical and nursing students. This consistently generated a considerable amount of interest and requests to participate often exceed the available positions. Although the community treatments occurred when the climatic conditions were relatively mild, the combined heat and humidity were a challenge for locals and visitors alike. This did not seem to deter people from volunteering to be included in subsequent MDAs.

Milpa

The trachoma mascot, Milpa the goanna, was utilised to increase the awareness of trachoma, and to promote clean faces. Milpa, a human sized goanna materialised in the community during the treatment weeks, dancing and miming the gestures of face washing. He was sighted visiting children at the child care, preschool and middle school at lunch time and travelling around the community each afternoon on the back of a ute. He was greeted with enormous enthusiasm by kids and adults but regrettably the dogs were unimpressed by the presence of a giant goanna in their midst and protested vociferously.

It remains an enigma that whenever Milpa appeared one of the volunteers briefly disappeared.

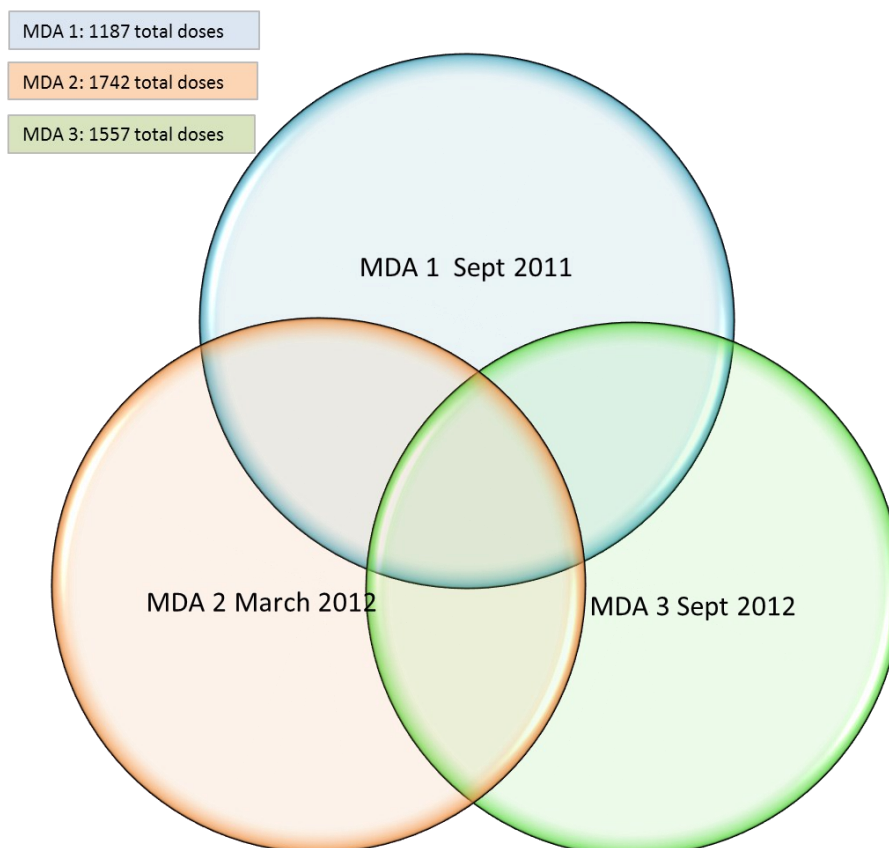
Results

The coverage target for MDAs is 85%. Establishing the denominator in the community

was problematic as the population is highly mobile and there are significant seasonal and cultural variations. Initial population estimates varied from 2700 to 3500. Methods to make the denominator more accurate were comprehensive and consistent across each MDA, giving the best possible estimate of coverage. The number of people treated in each MDA ranged from about 1100 to 1800.

Analysis of the full set of treatment records is incomplete. A simple analysis of the first 3 treatments is shown in Figure 1. This confirms the highly mobile nature of the population. Although the numbers treated in each MDA are reasonably high, the number of individuals that received 2 or 3 treatments is low. Only 20% of the estimated target population received all 3 of the 6 monthly treatments; 56% received 2 out of the 3 of the 6 monthly treatments. The effectiveness of the program will be evaluated in mid-2014 when it is planned to screen children in the community, targeting the 5 to 9 year olds in order to re-assess the prevalence of trachoma.

Figure 1. Intersection of the 6 monthly mass drug administration (MDA) events and the number of doses after 3 such MDA events in a large community hyperendemic for trachoma. (Values in brackets represent proportion of population)



Discussion

The logistics of the MDAs were complex. Equipment and supplies were pre-positioned with larger items transported to the community via barge. The community needed to be consulted and informed about all aspects of the program and to consent to its implementation. Teams were recruited, briefed and housed. Vehicles were essential to the work and needed to be sourced from within the community. The scope of the exercise is indicated by the amount of consumables and resources utilised as listed in the Box. The full costs of the MDAs have not been calculated but also include vehicle fuel, aircraft charter, accommodation, and trachoma project staff time following up the MDAs. The MDA that was supported by the NCCTRC provided other logistical challenges, but the presence of their logisticians did a lot to overcome these issues and the overall benefit to the program far outweighed any disadvantages.

Without the active cooperation of community members, service providers including the schools, clinic and non-government organisations and the active participation of CBWs and other community members the MDAs would have been less effective. Time and resources invested up front to ensure comprehensive consultation enabled a more successful project.

The absence of good population data will always lend uncertainty to the calculation of coverage rates, but it was generally acknowledged that by the end of each MDA almost all the people present in the community at the time had been approached and offered azithromycin. Few people refused. Achieving 6 monthly treatments is challenging due to mobility and shows what effort might be needed to cover the majority of the at risk population with, for instance, 3 treatments in a recommended series of total of 5 treatments 6 monthly.

A further constraint was the use of paper based lists generated from PCIS. This was probably the most accurate starting point and the knowledge of local people enabled them to be modified, but a constant finding was that people used different names or did not appear on the list at all which caused frustration and delay during the work. Needing to compare lists at the end of the day as described above was an added burden. Finally,

Box. Approximation of consumables and human resources utilised over the 5 MDAs

- 8700 doses dispensed (combined suspension and tablets)
- 2600 litres of chilled water
- 100 personnel participated in the community component
- 2100 pieces of fruit given with Azithromycin to reduce GI disturbance
- 4600 human hours dispensing antibiotics, handing out water, recording and applying temporary washable tattoo's
- 30 vehicles

the treatment provided to individuals in the field during the MDA need to be entered manually into PCIS after the event.

For MDAs in large communities in the future, finding an electronic solution to patient identification and dose recording would streamline the field work with PCIS and be a major advantage.

Links and contacts

- NT Trachoma Program Coordinator Ph: 89516902
- Indigenous Eye Health Unit: Melbourne University: <http://www.ieu.unimelb.edu.au/>
- Fred Hollows Foundation: <http://www.hollows.org.au/>
- WHO simplified Trachoma grading card: http://www.who.int/blindness/causes/trachoma_documents
- Australian Trachoma surveillance annual report: <http://www.kirby.unsw.edu.au/surveillance/australian-trachoma-surveillance-report-2011>
- Remote Area Health Corp (Tutorials): <http://rahc.janison.com/jportal/custom/rahc/pages/logon.aspx?LogTo=http%3a%2f%2frahc.janison.com%2fportal%2fdefault.aspx>
- The National Trauma and Critical Care Response Centre: <http://www.nationaltraumacentre.nt.gov.au/>

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The AusMAT experience in assisting trachoma control

In 2012 discussions with the National Trauma and Critical Care Response Centre (NTCCRC) about possible collaboration with the CDC led to a proposal to use the MDAs planned for 2013 as deployment exercises for NTCCRC and Australian Medical Assistance Team (AusMAT) members. In April 2013, 13 AusMAT volunteers from throughout Australia, including 3 logisticians, 2 NTCCRC staff and 8 health professionals were recruited to join the 4 NT Trachoma Program staff and 1 local volunteer. During the week prior to the planned deployment 2 AusMAT volunteers were diverted to respond to an epidemic of dengue in the Solomon Islands. Luckily 2 medical students placed with the CDC at the time were able to accept an invitation to participate at short notice.

On previous MDAs, teams were housed in existing accommodation in the community. For the AusMAT deployment a site approximately 20km out of town was selected after consultation with community members and traditional owners. Power to the site was provided by generators and water was trucked in from the community. Shelter was provided in the form of 2 Western Shelter tents which were erected by the AusMAT volunteers. Team members were provided with a grab bag including water and rations to last 24 hours, a camp stretcher, an inflatable hiking mattress and a mosquito net.

On the first day April 8 2013 a sudden violent storm passed over the site which flooded the tents and knocked over other structures. The 18 member team were facing a very uncomfortable week. The 'logies' (logistic personnel) rose to the challenge and by the evening of

the second day the team returned back to a 'glamp site' (see Figure). From then on things only got better. Daily, team members were greeted by new additions to the camp-site such as; shade structures, chemical toilets, washing machines, showers affording privacy and an array of cooking and refrigeration facilities. By the third day the camp even hosted state and federal health ministers and the press for lunch. <http://www.abc.net.au/local/photos/2013/04/10/3734248.htm>.

On Friday morning April 12 2013 the camp was pulled down and packed up and by 5pm the entire team had arrived back in Darwin. The event was considered a success by all. The AusMAT team was unfortunately unable to participate in the next MDA as cultural events made all suitable camp sites unavailable.

The collaboration by CDC and the community with NTCCRC proved very beneficial to all parties and importantly contributed to a successful MDA, bringing the community closer to the goal of eliminating blinding trachoma.

Figure. The AusMAT accommodation ('glamp site')



Be aware of listeria

Anthony Draper, OzFoodNet Epidemiologist, Centre for Disease Control, Darwin

Listeria monocytogenes can cause serious illness in some people. There have been only 8 cases of listeriosis recorded in the NT since 1995,¹ however in 2012-2013 a large national outbreak of listeriosis occurred and was associated with the consumption of soft cheese. This outbreak affected 34 people, resulting in 6 deaths and 1 miscarriage.² Previously in 2009, another large outbreak occurred nationally and was associated with the consumption of chicken wraps. This outbreak resulted in 13 cases of invasive listeriosis with 3 foetal deaths.³

The information below is from Food Standards Australia New Zealand and provides advice for people at risk of listeriosis.⁴

What is listeria?

Listeria are bacteria that can cause a serious illness called listeriosis in some people. While Listeria infection is uncommon and causes few or no symptoms in healthy people, it can be very dangerous for those people at risk.

Listeriosis is usually caused by eating food contaminated by certain types of Listeria bacteria. The Listeria bacteria are found widely in nature. Storing contaminated foods, even in the refrigerator, may allow the Listeria bacteria to grow.

The bacteria may be present in raw foods or may contaminate food after it has been cooked or processed.

Who is at risk?

People at higher risk of listeriosis include:

- Pregnant women, their unborn and newborn children
- Older people (generally considered to be persons over 65-70 years)
- People of all ages whose immune systems have been weakened by disease or illness, for example cancer, leukaemia, AIDS, diabetes, liver or kidney disease
- Anyone on medication that can suppress the immune system, for example, prednisone or cortisone, including organ transplant patients.

If you have any concerns about whether you are at risk please consult your medical practitioner.

What are the symptoms?

In persons at risk, symptoms may include fever, headache, tiredness, aches and pains. Less common symptoms are diarrhoea, nausea and abdominal cramps. Symptoms may progress to more serious forms of the illness, such as meningitis and septicaemia.

Symptoms in pregnant women may be mild, but listeriosis can result in miscarriage, premature birth or, in rare cases, stillbirth.

If you have any concerns about symptoms or illness please consult your medical practitioner.

What precautions should I take if I am at risk?

The food industry and governments work together to ensure our food is safe. However, if you or anyone in your household is in the at risk group, it is important you reduce your risk by taking a few simple precautions. These include:

- Preparing, storing and handling food hygienically
- Avoiding certain foods which have a higher risk of Listeria contamination
- Being careful about food prepared by others.

Eat freshly cooked or freshly prepared foods

Ideally, eat only freshly cooked food and well-washed freshly prepared fruit and vegetables. However, leftovers can be eaten if they are refrigerated promptly and kept no longer than a day. It's important that you do not eat food if there is any doubt about its hygienic preparation or storage.

Cook foods thoroughly

Thorough cooking of food kills Listeria bacteria. Ensure food is cooked thoroughly.

Reheat foods to 'steaming' hot

If you plan to eat previously cooked and refrigerated leftovers, only keep them in the refrigerator for a day and reheat them thoroughly to steaming hot. This will kill Listeria bacteria.

When reheating food, especially in a microwave, make sure the food is steaming hot throughout.

Make safer food choices

As a general rule, avoid perishable foods (need to be refrigerated) that have been prepared well in advance and are to be eaten without further cooking.

The tables overleaf list some examples of higher risk foods and safer alternatives. You should avoid consuming these higher risk foods, especially if you are unsure about how they have been prepared, stored and handled. Food is safe if you cook it or reheat it to steaming hot throughout and serve it hot.

Avoid ready-to-eat food from salad bars, sandwich bars, delicatessens and smorgasboards

Ready-to-eat foods from salad bars may have been prepared and refrigerated some time before they are put on display. *Listeria* bacteria may have grown in these foods so they are best avoided.

Foods on open display in delicatessen counters are more likely to become contaminated by *Listeria* than foods that are sold packaged by the manufacturer. Avoid these foods.

Avoid foods that are past their 'best before' or 'use by' date

Choose and consume foods well within their 'use by' or 'best before' date. Once opened, eat promptly.

Do not eat refrigerated foods that are past their 'use by' or 'best before' date.

Only buy ready-to-eat hot food if it's steaming hot

If you buy ready-to-eat hot food, for example a cooked chicken, make sure it's very hot and either eat it or refrigerate it promptly on arriving home. Use it within a day.

If eating out, order hot meals

Choose menu items that are cooked to order and served hot. Do not eat food that is served lukewarm. It is best to avoid smorgasboards and salad bars. If this isn't possible, choose the hot foods only.

Good food hygiene

- Take some simple food hygiene steps to reduce the risk of foodborne disease
- Thoroughly wash and dry your hands before preparing food, particularly before preparing ready-to-eat food
- Keep your refrigerator clean and operate it below 5°C
- Wash knives, cutting boards and kitchen appliances and dry thoroughly after handling raw food to prevent contamination of cooked and ready-to-eat foods
- Thoroughly wash and dry raw fruit and vegetables before eating or juicing
- Thaw ready-to-eat frozen food in the refrigerator or microwave – don't thaw at room temperature
- Thoroughly cook all raw meat, chicken and fish
- Don't leave foods to cool on the bench or stove top. Put them in the refrigerator after the steam has gone
- If you are keeping food hot, keep it very hot (60°C or hotter). Keep cold food cold (5°C or colder)
- Thoroughly reheat food until it is steaming hot
- Keep stored foods covered
- Store raw meat separately from cooked and ready-to-eat food in the refrigerator. Store it below other foods so that there is no chance it will drip onto other foods.

For information on good food hygiene visit the Food Safety Information Council website www.foodsafety.asn.au

Making safer food choices

Listeria is managed by hygienic preparation, storage and handling of food. Avoid consuming higher risk foods, especially if you are unsure that hygienic practices have been followed. These tables list some examples of higher risk foods and safer alternatives.

Food Standard Australia New Zealand (FSANZ) ensures safe food by developing effective food standards for Australia and New Zealand.

Table 1. Examples of some higher risk foods

Food type	Examples
Cold meats	Unpackaged ready-to-eat from delicatessen counters, sandwich bars, etc Packaged, sliced ready-to-eat
Cold cooked chicken	Purchased (whole, portions, or diced) ready-to-eat
Pate	Refrigerated pate or meat spreads
Salads (Fruit and vegetables)	Pre-prepared or pre-packaged salads e.g. from salad bars, smorgasbords, etc
Chilled seafood	Raw (e.g. oysters, sashimi or sushi) Smoked ready-to-eat Ready-to-eat peeled prawns (cooked) e.g. in prawn cocktails, sandwich fillings, and prawn salads
Cheese	Soft, semi soft and surface ripened cheeses (pre-packaged and delicatessen) e.g. brie, camembert, ricotta, feta and blue
Ice cream	Soft serve
Other dairy products	Unpasteurised dairy products (e.g. raw goats milk)

Table 2. Safer alternatives

Food type	Safe	Precautions
Cold meats	Home cooked	Store in fridge and use within a day of cooking
Chicken	Home cooked	Ensure chicken is cooked thoroughly, use immediately - store any leftovers in fridge and use within a day of cooking
	Hot take-away chicken (whole, portions)	Use immediately or store any leftovers in fridge and use within a day of purchase
Salads	Freshly prepared salads – home made	Wash all vegetables and fruit thoroughly. Store any leftover prepared salads in fridge, use within a day of preparation
Seafood	All freshly cooked seafood	Use immediately - store any leftovers in fridge and use within a day of cooking
Cheese	Hard cheese (e.g. cheddar, tasty)	Store in fridge
	Processed cheese, cheese spreads, plain cream cheese, plain cottage cheese	Purchase cheeses packaged by the manufacturer. Store in the fridge
Other dairy products	Pasteurised dairy products (e.g. pasteurised milk, yoghurt, custard, dairy dessert)	Store in fridge
	Packaged frozen ice cream	Maintain the ice cream frozen
Canned and similarly packaged foods	All	Store unused portions in fridge in clean, sealed containers and use within a day

We are an integral part of a strong food regulatory system operating between governments at all levels in Australia and New Zealand.

We develop food standards with advice from other government agencies, input from stakeholders and food regulatory policies endorsed by the Legislative and Governance Forum on Food Regulation. FSANZ and the food industry work together to ensure our food is safe.

Our decisions are open and accountable, based on the rigorous scientific assessment of risk to public health and safety.

In Australia, we develop food standards for the entire food supply chain, from primary

production through to manufactured food and retail outlets.

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3. McKercher, CM and The OzFoodNet Working Group, OzFoodNet Quarterly Report, 1 July to 30 September 2009, *Communicable Diseases Intelligence Quarterly Report*. 2009; 33(4):426-432.
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The NT is saying goodbye to head lice and their eggs!

Emily O’Kearney, Centre for Disease Control, Darwin

Hedrin 15® products are accepted as the most effective treatment for head lice in the Northern Territory (NT). Hedrin 15® spray gel has recently been approved to replace Hedrin® Original lotion in all Department of Health pharmacies. The Hedrin 15® spray gel will be available in approximately 2 months, once all old stock is exhausted.

Remote health clinics are following suit and will also stock Hedrin 15® spray gel and AMSANT have been advised of the change for Aboriginal Medical Services.

As the new Hedrin 15® products are effective at killing lice and nits, the NT can now look forward to saying goodbye to not only head lice but also their eggs!

For more information on head lice and recommended treatments, please see the CDC factsheet at: http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/45/18.pdf&siteID=1&str_title=Head.



Abstracts from peer reviewed published articles related to the Northern Territory

Measles transmission by ‘fly-in fly-out’ workers in Australia

C. Burgess, P. Markey, S. Skov, and G. Dowse.

Aust N Z J Public Health. 2013; 423-6. doi: 10.1111/1753-6405.12100

Objective: To describe the outbreak investigation and control measures for a cluster of measles cases involving ‘fly-in fly-out’ (FIFO) workers on an off-shore industrial vessel.

Methods: Following Australian guidelines, measles cases were interviewed and at risk contacts on the Australian mainland received measles vaccine, immunoglobulin or health advice. For the industrial vessel: (i) exposed FIFO workers who had already left the vessel received health advice through their employer; (ii) workers remaining on the vessel were offered measles vaccine; and (iii) FIFO workers joining the vessel for 21 days following the prodrome onset of the last case of measles on the vessel were offered measles vaccine. Measles virus isolates were sent for genotype determination.

Results: 4 measles cases from 2 Australian jurisdictions were epidemiologically linked to the retrospectively identified index case, a New Zealand FIFO worker. No further cases were detected following the institution of outbreak control measures.

Conclusion: FIFO workers congregating on large industrial projects are a discrete risk group with the potential to spread infectious diseases over large distances, both domestically and internationally.

Implications: FIFO workers’ immunisation history should be reviewed prior to deployment. Catch-up vaccination, where appropriate, would minimise transmission of vaccine-preventable diseases such as measles and help maintain a healthy, productive workforce.

Surveillance of pneumococcal serotype 1 carriage during an outbreak of serotype 1 invasive pneumococcal disease in central Australia 2010–2012

J. Lai, H. Cook, TW. Yip, J. Berthelsen, S. Gourley, V. Krause et al

BMC Infectious Diseases 2013, 13:409 doi:10.1186/1471-2334-13-409

Background: An outbreak of serotype 1 invasive pneumococcal disease (IPD) occurred in Central Australia from October 2010 to the latter part of 2012. Surveillance of serotype 1 carriage was conducted to determine epidemiological features of asymptomatic carriage that could potentially be driving the outbreak.

Methods: 130 patients and accompanying persons presenting at Alice Springs Hospital Emergency Department consented to nasopharyngeal swab (NPS) collection. NPS were processed by standard methods, including culture, pneumococcal *lytA* quantitative real-time PCR, serotype 1-specific real-time PCR and multi-locus sequence typing (MLST).

Results: Pneumococcal carriage was detected in 16% of participants. Carriage was highest in the under 10 year olds from remote communities surrounding Alice Springs (75%). Four NPS were positive for serotype 1 DNA by PCR; 3 were also culture-positive for serotype 1 pneumococci. Serotype 1 isolates had atypical colony morphology on primary culture. All serotype 1 carriers were healthy children 5 to 8 years of age from remote communities. By MLST, serotype 1 isolates were ST306, as were IPD isolates associated with this outbreak.

Conclusions: During an outbreak of serotype 1 ST306 IPD, carriage of the outbreak strain was detected in 3% NPS collected. All carriers were healthy children 5 to 8 years of age.

Serotype-Specific Changes in Invasive Pneumococcal Disease after Pneumococcal Conjugate Vaccine Introduction: A Pooled Analysis of Multiple Surveillance Sites

D. Feikin, E. Kagucia, J. Loo, R. Link-Gelles, M. Puhon, T. Cherian et al.

*PLoS Med 10(9): e1001517.
doi:10.1371/journal.pmed.1001517, September 2013*

Background: Vaccine-serotype (VT) invasive pneumococcal disease (IPD) rates declined substantially following introduction of 7-valent pneumococcal conjugate vaccine (PCV7) into national immunization programs. Increases in non-vaccine-serotype (NVT) IPD rates occurred in some sites, presumably representing serotype replacement. We used a standardized approach to describe serotype-specific IPD changes among multiple sites after PCV7 introduction.

Methods and Findings: Of 32 IPD surveillance datasets received, we identified 21 eligible databases with rate data ≥ 2 years before and ≥ 1 year after PCV7 introduction. Expected annual rates of IPD absent PCV7 introduction were estimated by extrapolation using either Poisson regression modeling of pre-PCV7 rates or averaging pre-PCV7 rates. To estimate whether changes in rates had occurred following PCV7 introduction, we calculated site specific rate ratios by dividing observed by expected IPD rates for each post-PCV7 year. We calculated summary rate ratios (RRs) using random effects meta-analysis. For children < 5 years old, overall IPD decreased by year 1 post-PCV7 (RR 0.55, 95% CI 0.46–0.65) and remained relatively stable through year 7 (RR 0.49, 95% CI 0.35–0.68). Point estimates for VT IPD decreased annually through year 7 (RR 0.03, 95% CI 0.01–0.10), while NVT IPD increased (year 7 RR 2.81, 95% CI 2.12–3.71). Among adults, decreases in overall IPD also occurred but were smaller and more variable by site than among children. At year 7 after introduction, significant reductions were observed (18–49 year-olds [RR 0.52, 95% CI 0.29–0.91], 50–64 year-olds [RR 0.84, 95% CI 0.77–0.93], and ≥ 65 year-olds [RR 0.74, 95% CI 0.58–0.95]).

Conclusions: Consistent and significant decreases in both overall and VT IPD in children occurred quickly and were sustained for 7 years after PCV7 introduction, supporting use of PCVs. Increases in NVT IPD occurred in most sites, with variable magnitude. These findings may not represent the experience in low-income countries or the effects after introduction of higher valency PCVs. High-quality, population-based surveillance of serotype-specific IPD rates is needed to monitor vaccine impact as more countries, including low-income countries, introduce PCVs and as higher valency PCVs are used.

Human papillomavirus vaccine coverage among female Australian adolescents: success of the school-based approach

J. Brotherton, S. Murray, M. Hall, L. Andrewartha, C. Banks, D. Meijer et al.

MJA 2013;199: 614–617 doi: 10.5694/mja13.10272

Objective: To describe quadrivalent human papillomavirus (HPV) vaccination coverage achieved in the HPV vaccination catch-up program for girls aged 12–17 years.

Design: Analysis of data from the Australian National HPV Vaccination Program Register.

Participants: Girls aged 12–17 years as at 30 June 2007.

Main outcome measures: HPV vaccine coverage by dose (1, 2 and 3), age and state of residence, using Australian Bureau of Statistics estimates of resident populations as the denominator.

Results: Notified vaccination coverage for girls aged 12–17 years nationally was 83% for dose 1, 78% for dose 2 and 70% for dose 3. The Australian Capital Territory and Victoria recorded the highest three-dose coverage for the 12–17-year-old cohort overall at 75%. The highest national three-dose coverage rate by age was achieved in 12-year-olds (74%). In Queensland, coverage among Indigenous girls

compared with non-Indigenous girls was lower with each dose (lower by 4% for dose 1, 10% for dose 2 and 15% for dose 3). This pattern was not seen in the NT, where initial coverage was 17% lower among Indigenous girls, but the course completion rate among those who started vaccination was identical (84%).

Conclusions: The catch-up HPV vaccination program delivered over 1.9 million doses of HPV vaccine to girls aged 12–17 years, resulting in 70% of girls in this age group being fully vaccinated. The range in coverage achieved and the lower uptake documented among Indigenous girls suggest that HPV vaccination programs can be further improved.

Adolescent school-based vaccination in Australia

K. Ward, H. Quinn, M. Bachelor, V. Bryant, S. Campbell-Lloyd, A. Newbound et al.

CDI, 2013, 37 (2):E156-167

Adolescents have become an increasingly prominent target group for vaccination in Australia and other developed countries. Over the past decade, voluntary school-based vaccination programs have evolved to become the primary method of delivering adolescent vaccines funded under Australia's National Immunisation Program (NIP). These programs operate at a state and territory level and offer NIP vaccines to adolescents in specific school grades using local teams of trained vaccine providers. This paper summarises the current operation of voluntary school-based vaccination programs in Australia. Information was obtained through a literature review, semi-structured interviews with those managing and implementing school-based vaccination programs in each jurisdiction and a review of program resources. Available coverage data was obtained from each state or territory. Vaccines are delivered at the school, during school hours, and typically target late primary or early secondary school grades. Written parental consent is required for any vaccine to be administered. Operation of the programs is influenced by various factors at the school and provider level. Despite variability in program implementation, collection and analysis of coverage data, comparable coverage has been achieved across all states and territories.

Coverage is higher than that reported by other countries where adolescent vaccines are mandated for school entry or available only through community vaccination providers. Voluntary school-based vaccination programs are an established mechanism for the delivery of adolescent vaccines in Australia and vaccines offered will continue to evolve in light of national recommendations. Current gaps in evidence include a detailed understanding of the influence of procedural factors on uptake, the best ways to maximise consent form return and, standardisation of coverage data reporting.

Trends in testing and notification for genital gonorrhoea in a northern Australian district, 2004–2008

JY Su and J. Condon

Sexual Health. 2012, 9(4) 384-388
<http://dx.doi.org/10.1071/SH11113>

Background: The study aimed to examine the trends in notification and testing for genital gonorrhoea (*Neisseria gonorrhoeae*) in the Darwin Remote District of Northern Territory, Australia, between 2004 and 2008.

Methods: Using laboratory testing data and notification data, we calculated the annual sex- and age-specific notification rates, testing rates and positivity rates, and examined their trends. A deterministic matching method was used to identify unique individuals tested in order to estimate the number of years out of five in which each individual was tested. The correlation between testing rates and notification rates was calculated.

Results: The notification rates for the 15–24 year age group increased sharply from 2004 to 2005, and then trended downwards between 2005 and 2008, with a decrease of 48.2% in females and 59.9% in males. No evident trends were found in testing rates. The positivity rates for this age group decreased by 46.3% in females (from 8.9% to 4.8%), and by 70.4% in males (from 10.8% to 3.2%) between 2004 and 2008. Over 76% of the population in this age-group had been tested at least once during the study period. A moderate correlation was found between notification rates and testing rates in both sexes.

Conclusions: There was a significant decreasing trend in the notification rate of gonorrhoea between 2005 and 2008, which was most probably due to a decrease in prevalence. This study demonstrates the importance and utility of population-level testing data in understanding the epidemiology of common bacterial sexually transmissible infections such as gonorrhoea.

Burden of tuberculosis in indigenous peoples globally: a systematic review [Review article]

D. Tollefson, E. Bloss, A. Fanning, J. Redd, K. Barker, and E. McCray.

Int J Tuberc Lung Dis 2013; 17(9): 1139-1150

Background: The burden of tuberculosis (TB) in the estimated 370 million indigenous peoples worldwide is unknown.

Objective: To conduct a literature review to summarize the TB burden in indigenous peoples, identify gaps in current knowledge, and provide the foundation for a research agenda prioritizing indigenous health within TB control.

Methods: A systematic literature review identified articles published between January 1990 and November 2011 quantifying TB disease burden in indigenous populations worldwide.

Results: Among the 91 articles from 19 countries included in the review, only 56 were from outside Australia, Canada, New Zealand and the United States. The majority of the studies showed higher TB rates among indigenous groups than non-indigenous groups. Studies from the Amazon generally reported the highest TB prevalence and incidence, but select

populations from South-East Asia and Africa were found to have similarly high rates of TB. In North America, the Inuit had the highest reported TB incidence (156/100 000), whereas the Metis of Canada and American Indians/Alaska Natives experienced rates of <10/100 000. New Zealand's Maori and Pacific Islanders had higher TB incidence rates than Australian Aborigines, but all were at greater risk of developing TB than non-indigenous groups.

Conclusion: Where data exist, indigenous peoples were generally found to have higher rates of TB disease than non-indigenous peoples; however, this burden varied greatly. The paucity of published information on TB burden among indigenous peoples highlights the need to implement and improve TB surveillance to better measure and understand global disparities in TB rates.

Variant Human T-cell Lymphotropic Virus Type 1c and Adult T-cell Leukemia, Australia

L. Einsiedel, O. Cassar, P. Bardy, D. Kearney and A. Gessain

Emerg Infect Dis. 2013 Oct

.<http://dx.doi.org/10.3201/eid1910.130105> DOI: 10.3201/eid1910.130105

Human-cell lymphotropic virus type 1 is endemic to central Australia among Indigenous Australians. However, virologic and clinical aspects of infection remain poorly understood. No attempt has been made to control transmission to indigenous children. We report 3 fatal cases of adult T-cell leukemia/lymphoma caused by human T-cell lymphotropic virus type 1 Australo-Melanesian subtype c.



Centre for Disease Control

November 2013

Measles information for general practitioners

It is important to recognise the early symptoms and signs of measles to prevent further spread of this highly contagious illness in the community.

What are the important diagnostic features?

Many conditions causing fever and rash can mimic measles but careful history taking can usually sort out the likely cases from the rest. Here is a list of the important features of measles:

1. Susceptibility

Those susceptible include:

- Babies 6-12 months when the maternal antibodies have declined but they haven't yet been immunised
- All those born after 1966 who have not been immunised and do not have a history of having had measles
- People who have had only 1 measles-containing vaccine. Routine childhood measles vaccination did not include 2 doses until 1986 so those born between 1966 and 1986 have often had just 1 dose of vaccine
- People who are immunocompromised are also at risk – at any age, even if immunized.

Those who are considered immune and not likely to get measles are the following:

- Anyone born before 1966
- Anyone who has had 2 measles containing vaccines.

Cases in these 2 groups are not unheard of but are very rare.

2. Exposure

To acquire measles a susceptible individual must be exposed to an infectious case. Measles does not circulate in the NT so a case would require history of travel to a country where measles is endemic or exposure to a known or suspect case. People generally develop symptoms of the infection after 7-10 days but may take up to 18 days after having been exposed to an infectious person.

It is possible to acquire measles from an undetected imported case, particularly in airports, but this is uncommon.

3. A prodrome

The measles rash is preceded by a prodrome of 2-4 days, which is characterised by fever and respiratory symptoms; cough, coryza and conjunctivitis. The prodrome is rarely longer than 4 days.

4. Cough, coryza and conjunctivitis

Measles is a respiratory disease and these 3 features are most common. Koplik spots are whitish plaques seen on the buccal mucosa but are usually gone by the time the rash starts.

5. Fever present at rash onset

The fever of measles extends through the rash period. With many other childhood exanthema, the fever has gone by the time the rash starts.

6. A generalised morbilliform rash beginning on the face

The rash will last for 4-7 days and often coalesces.



CENTRE FOR DISEASE CONTROL**What is the initial management?**

- Any case of rash and fever should avoid the waiting room and be directed immediately to an isolated room that can be closed off for at least 2 hours.
- The best test for measles is a PCR on a throat swab and urine. Please do not send a suspected case to a pathology collection centre. In the Top End the test can be expedited to be done at the Royal Darwin Hospital (RDH) laboratory.
- Notify Centre for Disease Control (CDC) immediately on 8922 8044. After hours ask for the on-call CDC doctor through the RDH switchboard 8922 8888. CDC will provide advice, assist with identification of contacts and vaccination of susceptible contacts and where possible expedite testing through the RDH laboratory.
- Isolate the case at home until at least 4 days after the appearance of the rash, at which time the case is no longer considered infectious.
- Unless the case is very obvious (with all 6 features above) it is best to avoid alerting schools and child care until the case can be confirmed. Communicate this to the case and parents.

For more information contact the Centre for Disease Control in your region

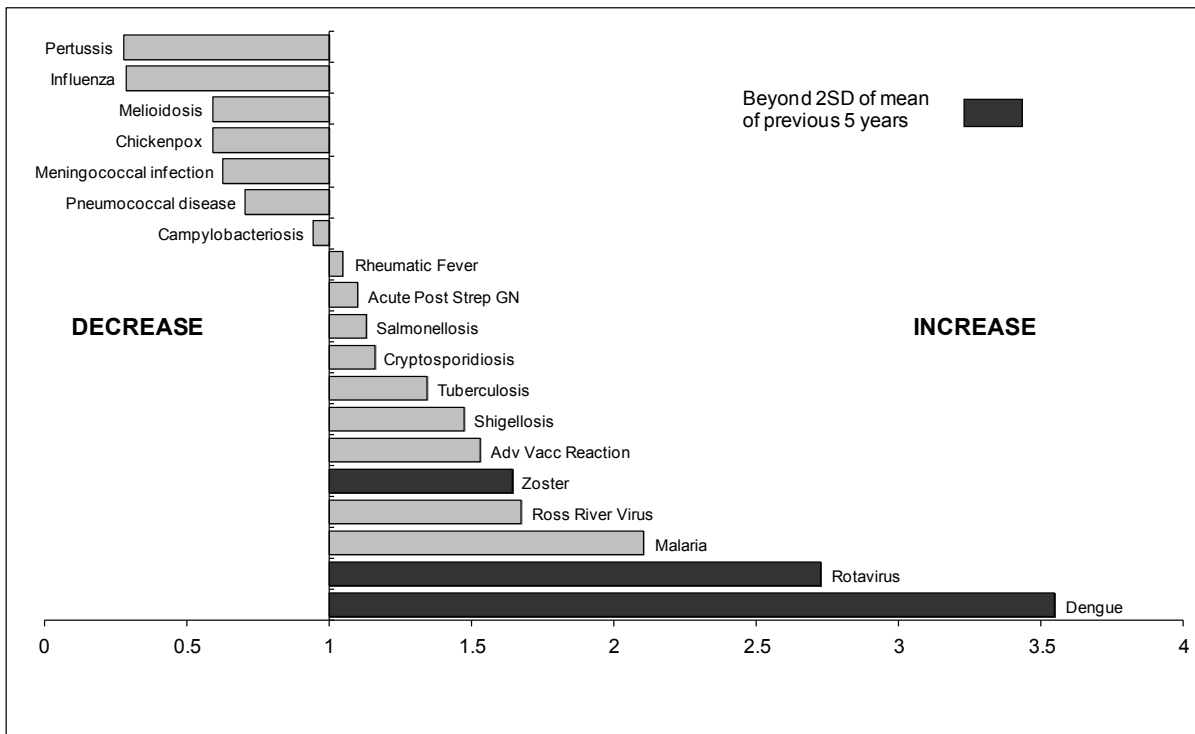
Alice Springs	8951 7540
Darwin	8922 8044
Katherine	8973 9049
Nhulunbuy	8987 0357
Tennant Creek	8962 4259

or <http://www.nt.gov.au/health/cdc>

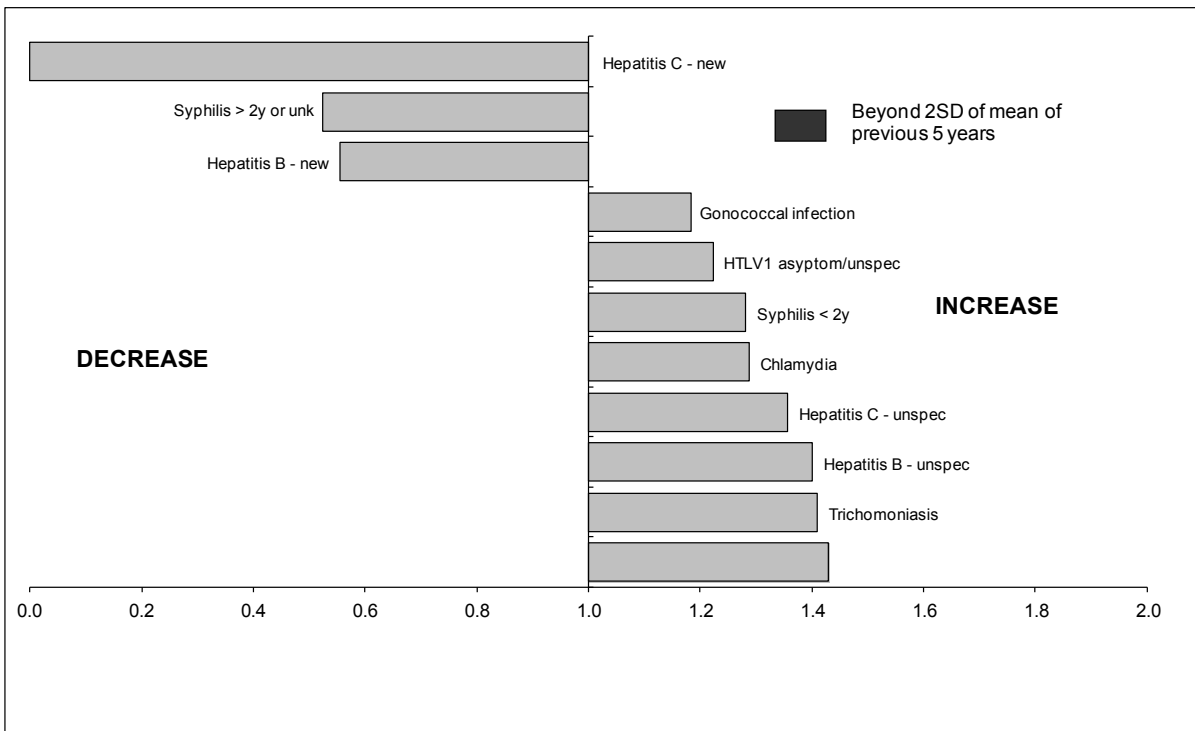
NT NOTIFICATIONS OF DISEASES BY ONSET DATE AND DISTRICTS
1 July-30 September 2013 and 2012

	Alice Springs		Barkly		Darwin		East Arnhem		Katherine		N T	
	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012
Acute post strep glomerulonephritis	1	6	2	1	2	3	1	1	3	1	9	12
Adverse vaccine reaction	2	5	0	0	9	6	1	0	3	2	15	13
Amoebiasis	0	0	0	0	1	0	0	0	0	0	1	0
Barmah Forest virus	11	2	0	0	64	13	1	0	6	0	82	15
Campylobacteriosis	19	5	0	0	22	36	2	1	4	3	47	45
Chickenpox	6	16	0	1	19	17	0	8	0	19	25	61
Chikungunya	0	0	0	0	2	0	0	0	0	0	2	0
Chlamydia	274	142	26	9	390	342	47	41	82	69	819	603
Chlamydial conjunctivitis	1	0	0	0	5	1	0	0	0	1	6	2
Congenital rubella	0	0	0	0	0	1	0	0	0	0	0	1
Cryptosporidiosis	7	1	0	1	1	12	2	2	3	2	13	18
Dengue	0	0	0	0	19	8	3	0	0	0	22	8
Food/water borne disease	0	0	0	0	5	0	0	0	0	0	5	0
Gastroenteritis - related cases	12	0	0	0	4	0	2	0	0	0	18	0
Gonococcal conjunctivitis	0	0	0	0	1	0	0	0	0	1	1	1
Gonococcal infection	269	146	20	9	103	83	12	16	67	68	471	322
Group A strep invasive	6	5	1	2	9	11	4	0	3	1	23	19
Hepatitis A	0	0	0	0	0	2	0	0	0	0	0	2
Hepatitis B - chronic	16	17	0	1	10	6	5	9	0	0	31	33
Hepatitis B - new	0	1	1	0	0	1	0	0	0	0	1	2
Hepatitis B - unspecified	18	9	0	0	36	40	4	1	0	0	58	50
Hepatitis C - unspecified	10	8	1	0	51	53	0	1	2	2	64	64
<i>H Influenzae</i> non-b	0	2	0	0	0	2	0	0	1	0	1	4
HIV	1	2	0	0	7	7	0	0	0	0	8	9
HTLV1 asymptomatic/unspecified	22	13	0	0	0	2	0	0	1	0	23	15
Hydatid	0	0	0	0	1	1	0	0	0	0	1	1
Influenza	32	60	5	4	54	112	9	18	29	42	129	236
Legionellosis	0	0	0	0	1	0	0	0	0	1	1	1
Malaria	0	1	0	0	8	6	0	0	0	0	8	7
Measles	0	0	0	0	0	2	0	0	0	0	0	2
Melioidosis	0	0	0	0	2	0	0	0	0	0	2	0
Meningococcal infection	1	0	0	0	0	0	0	0	0	0	1	0
Mumps	0	0	0	0	1	0	0	0	0	0	1	0
Non TB Mycobacteria	0	0	0	0	0	0	0	0	0	1	0	1
Pertussis	3	3	0	0	21	33	0	3	1	9	25	48
Pneumococcal disease	12	10	1	0	3	9	0	1	4	0	20	20
Rheumatic Fever	11	6	0	0	5	18	5	17	5	2	26	43
Ross River Virus	3	0	0	0	60	26	5	0	6	0	74	26
Rotavirus	96	32	6	7	51	35	1	2	8	11	162	87
Salmonellosis	17	10	2	1	68	43	6	3	8	9	101	66
Shigellosis	11	6	2	0	1	1	3	2	6	3	23	12
STEC/VTEC	0	1	0	1	0	0	0	0	0	0	0	2
Syphilis <2years	4	2	0	0	6	1	0	0	0	0	10	3
Syphilis >2years or unknown	3	3	1	0	7	14	1	0	1	1	13	18
Trichomoniasis	301	134	55	7	231	192	136	116	136	150	859	599
Tuberculosis	0	1	0	0	10	8	0	1	1	0	11	10
Typhoid	0	1	0	0	0	0	0	0	0	0	0	1
Varicella - unspecified	0	0	0	1	1	1	1	0	0	0	2	2
Zoster	14	12	0	1	37	22	7	3	7	9	65	47
Sum	1,183	662	123	46	1,328	1,170	258	246	387	407	3279	2531

Ratio of the number of notifications (3rd quarter 2013 cases to the mean of 3rd quarter cases 2008-12):selected diseases



Ratio of the number of notifications (3rd quarter cases to the mean of 3rd quarter cases 2008-2012): sexually transmitted diseases



Comments on notifications P39

Dengue

There were 22 cases of dengue notified in the 3rd quarter which was 3.6 times the expected number of 6. There were 9 acquired in Bali and 8 in East Timor reflecting the increase in dengue transmission which is occurring in the Region.

Zoster

The higher than expected number of zoster cases (65 cases v 40 expected) continues the trend upward which is likely due to the gradual uptake of PCR testing. Further investigation into this trend is planned.

Rotavirus

There were 162 cases of rotavirus notified in the 3rd quarter of 2013, 2.73 times the 5 year mean of 59. This increase was due to a G3P[8] outbreak that commenced in the Top End region in May 2013 and spread to Central Australia during the 3rd quarter. This is in contrast to recent years where outbreaks have tended to occur earlier and be of shorter duration. The

most recent substantial NT-wide outbreak occurred in the 2nd quarter of 2010. In the 2013 outbreak the majority of the cases were aged less than 5 years with around 60% assessed as fully vaccinated against rotavirus. Overall rotavirus outbreak notifications continue to be less compared to the pre-vaccine era and anecdotal reports indicate hospitalisations and disease severity have declined.

Note: AIDS, anthrax, arbovirus infection - not otherwise specified, Australian bat lyssavirus, avian influenza, botulism, brucellosis, chancroid, cholera, ciguatera fish poisoning, congenital syphilis, Creutzfeldt-Jakob disease, diphtheria, donovanosis (granuloma inguinale), gonococcal neonatal ophthalmia, hepatitis D, hepatitis E, hepatitis - not otherwise specified, Hendra virus, Japanese encephalitis, Kunjin virus infection, leptospirosis, listeriosis, lymphogranuloma venereum, lyssavirus - not otherwise specified, Murray Valley encephalitis, ornithosis, plague, poliomyelitis, Q fever, rabies, rubella, severe acute respiratory syndrome (SARS), shiga-like toxin (verocytotoxin) producing *E. coli* infection, smallpox, strongyloides (extraintestinal), tetanus, typhus, Vibrio disease (invasive), Vibrio food poisoning, viral haemorrhagic fevers, yellow fever and yersiniosis are all notifiable but had '0' notifications in this period.

NT malaria notifications July to September 2013

Liz Stephenson, CDC Darwin

There were 8 cases of malaria notified in the 3rd quarter of 2013. The following table provides details about where the infection was thought to be acquired, the infecting agent, whether chemoprophylaxis was used and where the patient lived.

No. cases	Origin of infection	Reason exposed	Agent	Chemoprophylaxis	NT region
2	Indonesia West Papua	Expatriate visiting relatives	<i>P. falciparum</i>	No	Darwin
1	Indonesia West Papua	Expatriate visiting relatives	<i>P. vivax</i>	No	Darwin
1	Indonesia West Java	Unauthorised person	<i>P. ovale</i>	No	Darwin
3	Mozambique	Refugee	<i>P. falciparum</i>	No	Darwin
1	South Sudan	Expatriate visiting relatives	<i>P. falciparum</i>	Yes	Darwin

Immunisation coverage for children aged 12-<15 months at 30 September 2013

Region	Number in District	%DTP	%Polio	%HIB	%HEP B	%Fully vaccinated
Darwin	316	91.8%	91.8%	91.5%	91.5%	91.1%
Winnellie PO Bag	83	96.4%	96.4%	96.4%	96.4%	96.4%
Palm/Rural	262	91.2%	91.2%	90.8%	90.5%	90.5%
Katherine	128	94.5%	94.5%	94.5%	94.5%	94.5%
Barkly	22	100.0%	100.0%	100.0%	100.0%	100.0%
Alice Springs	121	93.4%	93.4%	92.6%	93.4%	92.6%
Alice Springs PO Bag	44	97.7%	97.7%	97.7%	97.7%	97.7%
East Arnhem	59	89.8%	89.8%	89.8%	89.8%	89.8%
NT	1035	92.9%	92.9%	92.6%	92.6%	92.4%
Australia	77,007	91.6%	91.5%	91.2%	91.1%	90.9%

Immunisation coverage for children aged 24-<27 months at 30 September 2013

Region	Number in District	%DTP	%Polio	%HIB	%HEP B	%MMR	%Fully vaccinated
Darwin	291	95.2%	95.2%	94.2%	94.5%	94.2%	92.8%
Winnellie PO Bag	101	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%
Palm/Rural	248	97.2%	97.2%	95.6%	97.2%	96.8%	95.2%
Katherine	99	100.0%	100.0%	100.0%	100.0%	99.0%	99.0%
Barkly	18	94.4%	94.4%	94.4%	94.4%	94.4%	94.4%
Alice Springs	134	94.8%	94.8%	94.8%	94.0%	95.5%	93.3%
Alice Springs PO Bag	67	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%
East Arnhem	43	97.7%	97.7%	95.3%	97.7%	93.0%	93.0%
NT	1001	96.6%	96.6%	95.8%	96.3%	96.0%	94.9%
Australia	76,238	94.9%	94.9%	93.7%	94.4%	93.8%	92.3%

Immunisation coverage for children aged 60-<63 months at 30 September 2013

Region	Number in District	%DTP	%Polio	%MMR	%Fully vaccinated
Darwin	266	86.8%	86.8%	87.6%	86.8%
Winnellie PO Bag	72	97.2%	97.2%	97.2%	97.2%
Palm/Rural	244	91.4%	91.0%	91.4%	91.0%
Katherine	98	94.9%	94.9%	94.9%	94.9%
Barkly	98	94.9%	94.9%	94.9%	94.9%
Alice Springs	149	87.9%	87.9%	88.6%	87.9%
Alice Springs PO Bag	27	100.0%	100.0%	100.0%	100.0%
East Arnhem	44	90.9%	90.9%	90.9%	90.9%
NT	998	91.0%	90.9%	91.3%	90.9%
Australia	75,768	92.6%	92.5%	92.5%	92.1%

Immunisation coverage 30 September 2013

Compiled by Charles Strebor, CDC Darwin

Immunisation coverage rates for Northern Territory (NT) children by regions based on Medicare address postcode as estimated by the Australian Childhood Immunisation Register are shown on page 42.

Background information to interpret coverage

Winnellie PO Bag is postcode 0822, which includes most Darwin Rural District communities, some East Arnhem District communities and some people who live in the Darwin 'rural area' who collect mail from the Virginia store or Bees Creek. Alice Springs PO Bag is postcode 0872, which includes Alice Springs District, Nganampa and Ngaanyatjarra communities.

The cohort of children assessed at 12 to <15 months of age on 30 September 2013 were born between 1 April 2012 and 30 Jun 2012 inclusive. To be considered fully vaccinated, these children must have received 3 valid doses of vaccines containing diphtheria, tetanus, pertussis, and poliomyelitis antigens, either 2 or 3 doses of PRP-OMP Hib or 3 doses of another Hib vaccine, and 3 doses of hepatitis B vaccine. All vaccinations must have been administered by 12 months of age.

The cohort of children assessed at 24 to <27 months of age on 30 September 2013 were born between 1 April 2011 and 30 June 2011 inclusive. To be considered fully vaccinated, these children must have received 3 or 4 valid doses of vaccines containing diphtheria, tetanus, pertussis, 3 doses of vaccines containing poliomyelitis antigens, either 3 or 4 doses of PRP-OMP Hib or 4 doses of another Hib

vaccine, and 3 doses of hepatitis B vaccine and 1 dose of measles-mumps-rubella (MMR) vaccine. All vaccinations must have been administered by 24 months of age.

The cohort of children assessed at 60 to <63 months of age on 30 September 2013 were born between 1 April 2008 and 30 June 2008 inclusive. To be considered fully vaccinated, these children must have received 4 or 5 valid doses of vaccines containing diphtheria, tetanus, pertussis antigens, 4 doses of poliomyelitis vaccine and 2 valid doses of MMR vaccine. All vaccinations must have been administered by 60 months (5 years) of age.

Interpretation and comment

The vaccination coverage rates for children in the NT are comparable with the national average for all age cohorts, with NT children being slightly ahead of the national average for the 12 to <15 (NT 92.4%, National 90.9%) and 24 to <27 months (NT 94.9%, National 92.3%) cohorts and slightly behind the national average for the 60 to <63 months cohort (NT 90.9%, National 92.1%). Indigenous children were slightly less likely (Indigenous 92.3%, Non-Indigenous 92.4%) to be fully immunised than non-Indigenous children in the 12 to <15 month cohort but more likely to fully immunised than non-Indigenous children in the 24 to <27 (Indigenous 97.4%, Non-Indigenous 93.4%) and the 60 to <63 (Indigenous 96.5%, Non-Indigenous 87.3%) cohorts.

Further information about the Australian Childhood Immunisation Register coverage may be found at: <http://ncirs.edu.au/immunisation/coverage/index.php>

Centre for Disease Control staff updates October-December 2013

Top End

Congratulations to CDC Public Health Nurse Kim Caffrey and her husband Aaron McMahon on the birth of their beautiful baby Eve. Eve was born on 30 October weighing 4.25kilograms. Kim reports that she is a healthy, hungry girl with a calm nature.



Darwin Clinic 34 Manager, **Peter Knibbs**, has retired after working for the Department of Health for 20 years. Peter also received a most deserved lifetime Achievement award from the Northern Territory AIDS and Hepatitis Council. **Suzanne Connor** has left her Remote Sexual Health Program Manager position and replaced Peter as the Clinic 34 Manager. **Kelly Hosking** is the acting Remote Sexual Health Program Manager.



Peter Knibbs

Peter Whelan received the 2013 Chief Minister's Public Sector Medal for the Department of Health. With over 40 years of outstanding service Peter retired in May and was sent off with a super farewell evening celebration at the Darwin Medical Entomology office grounds in November. We wish Peter all the best in his next endeavours.



Peter Whelan (Health) and Lorna Melville (Primary Industries and Fisheries) 2013 medal winners at the Chief Minister's Public Sector awards with Vicki Krause at the awards night

Congratulations to **Dr Matthew Pittman** who won the 2013 Top End Hospital Service Research Awards in honour of Dr Zulfikar Jabbar (formally Trevor Taylor Awards). Matthew's presentation titled 'Melioidosis: a new treatment paradigm' won first prize and Matthew received \$2500 for his efforts.



Photo from DoH Forecast Feedback. Aarany Sivakaanthan 2nd, Matthew Pitman 1st, Simon Roberts 3rd, Amber Ruane, Special Commendation.

Centre for Disease Control staff updates July-September 2013

Joel Kurtain and Debi Boddin of the Adolescent Sexuality Education Program staff, left Darwin CDC in November.

Central Australia

Katie Lynch, a Trachoma Program Public Health Nurse, left CDC on 8 November to return to her home state of Queensland. Katie will be working as a Public Health Nurse with Queensland Health in Brisbane working in pandemic planning.

CDC Tennant Creek Public Health Nurse **Celina Bond** retired on 31 October after working there since 1999. Celina will be moving back to Victoria to be closer to family. She will miss Central Australia tremendously where she has formed many happy memories and also contributed significantly to the health system in Tennant Creek and CDC in particular.

Vivian Casey has commenced as a Public Health Nurse with the Remote Sexual Health Program. Vivian has recently worked for Congress as a Remote Area Nurse based in Mutijulu. She also had experience working for Nganampa Health South Australia where she was involved in education provision during the Nganampa Health annual STI population screen.



Valda Shannon, Jennifer Kitching and Celina Bond at Celina's farewell.

Helen Tindall, TB Nurse in CDC Alice Springs, has taken leave for 18 months. Helen will be running a TB programme in Cambodia with Medecins Sans Frontieres. Kate Wales has shifted from the Trachoma Program to this TB RN position. Sorry Trachoma!

Honor Murphy has recently started as the Clinic 34 receptionist in Alice Springs. She is an Alice Springs local and has recently worked as a ward clerk at Alice Springs Hospital.

Jordan Braver has started in October as the Adolescent Sexuality Education Promotion Officer.

Vale - Nan Miller

CDC

Nan Miller, a very well regarded and long serving RN in the Northern Territory and contributor to Immunisation Programs locally, nationally and internationally died at home Monday 23 December following a brief battle with cancer. Nan retired from the Department of Health in January 2006 after more than 20 years of service.

She commenced working in the NT in 1985 as a community health nurse at what is now the Centre for Disease Control (CDC). Initially she worked as a project officer but her experience, knowledge and expertise lead her to be Deputy Head of CDC at that time.



From 1989, Nan was the Immunisation Senior Project Officer and it is within immunisation that Nan made her mark. Nan was successful in developing and strengthening immunisation service provision in the NT which still bears the successes of her legacy. She was a pioneer in the introduction of hepatitis B vaccine programs throughout the NT. She and the CDC team contributed to the successful MMR (measles mumps rubella) vaccine introduction—and also to a campaign with a funny dragon called the Horrible Hib Monster and to another that found a new way to spell Nu Mo coccal.

Nan was the absolute driving force behind the development of the first vaccine transport and storage policies in NT. These principles and policies were used to form the building blocks of the ‘vaccine cold chain’ that are used throughout Australia today.

In 1997, she developed one of the first vaccination training courses in Australia and this course remains unique in that it was tailored to meet the needs of all vaccine providers - doctors,



Nan with Christine Selvey and Sam Bullen at her retirement

nurses *and* Aboriginal Health Workers. For many years Nan gave immunisation advice and education sessions to the public and immunisation providers.

Nan was recognised for her nursing achievements and dedication to the NT immunisation service by being named the inaugural ‘Living Legend’ at the annual nursing awards in 2006. Nan’s knowledge of immunisation practice, especially in the NT, was definitely legendary.

At the end of her career Nan took her immunisation skills and expertise and worked in Papua New Guinea as an immunisation field officer and program manager for several years.

Nan was the voice at the end of the Darwin immunisation phone for more than 15 years. We missed it in 2006 when she retired and we will miss it even more now. Our thoughts are with her husband Trevor and extended family and friends.

Vale - Dr Age Dyrting

Medical Superintendent East Arm Hospital 1973-82

Dr Age Dyrting passed away on 11 November 2013. Dr Dyrting arrived in the NT in the late 1960s and worked for quarantine and the Aerial Medical Service until he became Medical Superintendent of the East Arm Hospital in 1973 where he remained until its closure in 1982. He was one of a small group of leprosy specialists who led the change of policy to allow sufferers of leprosy to be treated in the community. He was reputed as a passionate advocate for his patients and a great teacher.



Nan at her retirement with the CDC team in 2006