

# TROPICAL PUBLIC health news.

Tropical Public Health Services (Cairns)

## Introduction

Welcome to the second issue of the quarterly Tropical Public Health Services (Cairns) newsletter.

In this issue we highlight topical issues as well as providing a reminder about the importance of communicable disease notification.

Ebola virus disease has been in the news over the last few months due to the largest ever outbreak of the disease with over 5,600 deaths in West Africa. Transmission outside of Africa remains an extremely rare event, but nevertheless precautions including measures to enhance early detection have been stepped up around the world. Tropical Public Health Services (Cairns) has been involved in local preparations.

Early detection is one of the key objectives of infectious disease surveillance and control. It is important to reduce transmission and prevent or limit outbreaks. That is why in some cases, we ask doctors to notify on suspicion only without waiting for laboratory confirmation. These conditions are discussed in the article on page 2.

We are now entering the wet season in North Queensland, and this brings increased risk of transmission of mosquito-borne diseases including dengue fever. Early detection of dengue cases is



A record number of 50 participants from Aboriginal and Torres Strait Island local governments across Queensland attended the 29th Environmental Health Worker and Animal Management Worker Training Workshop held in Cairns on 11 -13 November.

Organised by Tropical Public Health Services (Cairns), this bi-annual workshop focused on the connection between disease, disease vectors and nuisance insects, and related public health risks. This included disease/germ theory, mosquito monitoring and identification, and large scale mosquito control techniques. It provided theoretical and practical skills for participants to put into use in their communities to help improve public health.

particularly important to our efforts to eradicate infected mosquitoes and control outbreaks.

The health and life expectancy of Indigenous Australians is significantly worse than the rest of the community. Some communicable diseases contribute to the poor health outcomes of Indigenous people including Rheumatic Heart Disease and some sexually transmitted diseases. These issues are discussed more detail in the articles about Rheumatic Heart disease and syphilis in Far North Queensland.

Additionally, we have recently started publishing our public health alerts for Far North Queensland on the 'GP Portal' webpage of the Cairns and Hinterland Hospital and Health Service [http://www.health.qld.gov.au/cairns\\_hinterland/html/gp-liaison.asp](http://www.health.qld.gov.au/cairns_hinterland/html/gp-liaison.asp).

As always, I welcome your suggestions for future issues of our newsletter. Please email me [richard.gair@health.qld.gov.au](mailto:richard.gair@health.qld.gov.au) with your feedback.

Regards,  
Dr Richard Gair, Director



### In this issue:

- + Acute Rheumatic Fever in North Queensland
- + Syphilis outbreaks and case study
- + Which Dengue test when?

## You've tested, but have you notified?

**Dr Trent Yarwood**  
Public Health Registrar & Infectious  
Diseases Physician

*There is a long list of notifiable diseases listed in the Public Health Regulation 2005. Many of these are reported by the testing laboratory and data is collected for epidemiologic and statistical purposes.*

There are a number of diseases, however, where notification on suspicion is required – this means that if a clinician is requesting testing for a disease then your local public health unit should be made aware of the patient and their testing.

The easy way to remember these diseases is to think of the groups of vaccine-preventable diseases (for example measles, rubella, diphtheria), potential outbreak or epidemic diseases (dengue, Hepatitis A, highly pathogenic influenza, gastroenteritis clusters) or rare and exotic diseases (cholera, exposure to Hendra virus or rabies/lyssavirus). Acute rheumatic fever is also notifiable and of public health importance in our region.

The public health response to these diseases can begin even before the diagnosis is confirmed - by acting early, public health staff can minimise the risk of exposure of other individuals, and where appropriate, arrange for exposed persons to be given vaccination or prophylactic antibiotics.

The **dengue**-transmitting mosquito, *Aedes aegypti* lives in Far North Queensland. A patient with dengue can potentially infect several mosquitoes, each of which can then go on to spread the disease to other people in the area. If dengue

is suspected, the Dengue Action Response Team (DART) will begin a mosquito control response as soon as possible. A single missed case can be enough to set off a local outbreak that lasts many months, so early notification of every suspected case is essential.

**Measles** is one of the most transmissible of infections. Each case can result in dozens of possible exposures, and the disease can be spread before patients have developed any symptoms. By keeping potential patients at home and ensuring vaccination of contacts, we can keep our region measles-free.

**Invasive meningococcal disease** is thankfully quite rare, but receives significant media attention and causes anxiety in the public. Secondary cases in people in close contact with an index case are also rare, but vaccination and antibiotic prophylaxis are recommended to reduce this risk even further. Public health staff will arrange post-exposure prophylaxis for contacts. In order to do this in a timely manner, the index case needs to be notified to public health immediately.

Exposures to bats are very common in the Far North. There have been three cases of the **Australian Bat Lyssavirus** infection (ABL) – all of which were in Queensland, and all of which have been fatal. Although the risk is low, all bats can potentially carry ABL. Vaccination is available to some groups who are at risk of bat exposure, but for those not previously vaccinated, a course of post-exposure prophylaxis is the only way of protecting against disease. As the vaccine is in scarce supply, public health units co-

ordinate the supply and distribution of the vaccine – post-exposure prophylaxis is done free of charge.

**Rheumatic Heart Disease** is of great importance to Indigenous Australians and causes significant cardiac morbidity and mortality. Patients who have had Acute Rheumatic Fever are at greatly increased risk of going on to develop further episodes. These recurrences lead to valvular heart disease and contribute to the high rates of cardiovascular disease in Indigenous Australians. Monthly injections of penicillin are effective at preventing recurrences of rheumatic fever, but patients in the region at present on average receive less than 50% of their scheduled injections. Notifying these patients to the Rheumatic Heart Disease register allows them to be followed-up with education and ensures that prophylaxis is given to prevent recurrent disease.



Although **reporting on suspicion** of disease can seem like an unnecessary additional step, the Communicable Disease Control team at Tropical Public Health Services (Cairns) can help in arranging follow-up of cases and additional testing. We are happy to discuss cases and can be contacted on **(07) 4226 5555**. For urgent notifications after-hours, there is a public health medical officer on-call on **0408 721 092**.

## VACCINATION FACTS MATTER.



## Immunisation Update

*The National Centre for Immunisation Research and Surveillance has identified a nationwide trend of declining support for immunisation.*

You may notice more families who are questioning the need for vaccines or the need for the number of vaccines advised by the National Immunisation Program.

These resources may assist your practice with these families:

[www.qld.gov.au/vaccinate](http://www.qld.gov.au/vaccinate)

[www.science.org.au/immunisation](http://www.science.org.au/immunisation)

[www.ncirs.edu.au/immunisation/fact-sheets/parent-resources-fact-sheet.pdf](http://www.ncirs.edu.au/immunisation/fact-sheets/parent-resources-fact-sheet.pdf)

## Acute Rheumatic Fever in North Queensland

*Acute Rheumatic Fever and the resultant condition Rheumatic Heart Disease are preventable diseases of poverty usually associated with populations living in developing countries. However rates of both diseases within Aboriginal and Torres Strait Islander Australians are amongst the highest in the world.*

Acute Rheumatic Fever (ARF) is predominately found in children aged between 5 and 14 years, while Rheumatic Heart Disease (RHD) is found to affect an older group of people usually aged between 35 and 39 years.

Aboriginal and Torres Strait Islander people are more than 8 times more likely to be hospitalised for both ARF and RHD than any other population group. Furthermore, they are more than 20 times more likely to die from RHD than the rest of the population in Australia. Most Aboriginal and Torres Strait Islander people requiring heart valve surgery for RHD are less than 25 years old.

As of 1 May 2014, there were 1,593 clients on the state-wide RHD Register with active care plans; 441 of these clients resided in the

Cairns and Hinterland area, 268 in Cape York, and a further 307 in the Torres Strait-Northern Peninsula area.

Acute rheumatic fever is a notifiable condition in Queensland. All suspected and confirmed cases must be reported to the nearest Public Health Unit as soon as possible. The ARF Notification Form is available on [www.health.qld.gov.au/cdcdg/documents/nr-arf.pdf](http://www.health.qld.gov.au/cdcdg/documents/nr-arf.pdf).

For additional information on the RHD Register and Control Program in Queensland, please contact **1300 135 854** or email [ARFRHDregister@health.qld.gov.au](mailto:ARFRHDregister@health.qld.gov.au)

For information to support the diagnosis, treatment and management of ARF and RHD, the national guidelines are available from the RHD Australia website [www.rhdaustralia.org.au](http://www.rhdaustralia.org.au).

## New surveillance system for Arboviruses

*A novel system for the early detection of arboviruses (such as Ross River virus, Barmah Forest virus, Japanese Encephalitis, and West Nile virus Kunjin subtype) will be piloted in Cairns early next year in conjunction with James Cook University.*

The system involves luring mosquitoes into a CO2 baited trap and collecting any expectorated virus on honey-baited cards. The cards are then submitted to the laboratory to detect any viruses. Previously early detection has relied on weekly testing of the blood of sentinel animals such as chickens or pigs, which has its limitations, is time consuming and any animals that test positive to a virus must be replaced.

The new system has been successfully trialled recently in Queensland and the Northern Territory where it was found to be reliable as an early detection system, less time consuming and more cost effective. From February to May 2015, three traps will be placed in swamp and mangrove areas around Cairns, which will enable Tropical Public Health Services to start monitoring the level of arboviruses circulating in the environment.

# Recent outbreaks of Syphilis

By Dr Annie Preston-Thomas  
Public Health Registrar

*Syphilis is a serious infection that can result in significant morbidity and mortality for unborn babies and neonates.*

Since 2010 there has been a sustained increase in notifications of infectious syphilis in Far North Queensland, especially among Aboriginal and Torres Strait Islander people. There is an ongoing outbreak in North West Queensland and clusters of cases notified in the Northern Peninsula Area of Cape York, Kowanyama and more recently Mareeba.

Syphilis is highly infectious and often people don't present to health services with symptoms, adding to the challenge of controlling its spread. Syphilis is predominantly diagnosed in young people. The true extent of the number of people affected is probably underestimated because of low testing rates.

The case study (right) illustrates the potential for serious outcomes from syphilis infection.

Effective control of syphilis ideally requires a comprehensive sexual health program including community education, health promotion and the following six elements.

## 1. Opportunistic testing

Groups at higher risk for STIs including Aboriginal and/or Torres Strait Islander people aged 15 to 40 should be offered an STI screen including a syphilis serology test at least once a year whenever they present for healthcare.

## 2. Testing for syphilis for anyone diagnosed with another STI.

## 3. Antenatal screening

All women should be tested for syphilis with their booking bloods at first presentation. Higher risk groups, including Aboriginal and/or Torres Strait Islander women should also be tested at 28 and 34-36 weeks. A woman should also be offered testing at delivery if :

- she has had syphilis during her pregnancy, or
- she has had limited antenatal care and testing, or
- she was diagnosed with another STI during the pregnancy

## 4. Recognition of symptoms

Syphilis should always be considered in a sexually active patient with mucosal ulceration, especially of the genitals, and/or a rash. Symptoms/signs of secondary syphilis may include a rash (may be on palms and soles), condylomata lata (wart-like oral or genital mucosal lesions), hair loss, lymphadenopathy, and flu-like illness. Refer to the Queensland Health Sexual Guidelines ([www.health.qld.gov.au/sexhealth](http://www.health.qld.gov.au/sexhealth)) or the Primary Clinical Care Manual guidelines for appropriate tests.

## 5. Treatment

Presentations of genital ulcer should be treated initially with Benzathine Penicillin 1.8 gm IMI and azithromycin 1gm PO stat and notification should be sent to the syphilis register: 1800 032 238.

## 6. Contact tracing

Contacts should be treated at their first presentation in accordance with the guidelines above. Your local contact tracing officer will be able to support and advise you.

## Preventable death? A case study

A young woman presented to her local health service at 16 weeks gestation for a booking visit for her first pregnancy. Her antenatal blood test results included negative syphilis serology.

Ten weeks later she presented to her regional Emergency Department with reduced foetal movements. There was no foetal heartbeat detectable on CTG and she proceeded to deliver a stillborn baby. At this time she had genital lesions, clinically diagnosed as condylomata lata. A swab of the lesions was positive for *Treponema pallidum* on PCR testing. Her syphilis serology was reactive with an RPR of 1:128. She was treated for secondary syphilis with IM benzathine penicillin.

Contact tracing identified a male partner who had been treated for syphilis the previous month. There was no documentation about contact tracing in his file.

It is possible that the baby might not have died if the young woman had been tested and treated through contact tracing at the same time her sexual partner had been diagnosed with syphilis.

Contact tracing is an important element of syphilis control that can be challenging. If someone will not respond to questions about contacts at initial enquiry, sometimes reiterating the question later in the consultation, informing the person of its purpose and reassuring them of their confidentiality can be helpful.

Foetal deaths from syphilis are entirely preventable, and effective implementation of these measures should be a priority amongst health services in north Queensland.

# Which Dengue test when?

Dengue outbreaks in North Queensland are a regular occurrence. Early notification is vital for response and control of an outbreak. Ordering the right test at the right time is of utmost importance.

## Which tests to order?

When ordering dengue testing the **onset of illness** (refer timeline diagram below) is vital in determining which tests to order:

- Dengue PCR: day 1-5
- NS1: day 1-9
- Serology: day 4 onwards. An **IGM (positive)** does not equate to a confirmed case. This needs to be confirmed by the Queensland Health Forensic and Scientific Services (QHFSS) reference laboratory.
- Other indicators of Dengue fever include: low WBC, low platelets and deranged Liver Function Tests (LFTs).

## PCR Testing

A PCR detected test result is a **confirmatory test** for Dengue fever. It can identify dengue typing (1, 2, 3 or 4). It is most useful when done in the first five days of illness (i.e. until IgM is detectable). It can determine Phenotyping, which helps to identify where the virus may have originated and monitor for endemnicity.

## NS1 Tests

The NS1 test detects the antigen specific to the Dengue virus protein. The advantage of this test is that testing can occur from day of illness onset to day 9 of illness. This test is now run routinely at Cairns and Townsville Hospitals on all dengue requests as well as by Sullivan Nicolaides Pathology (SNP).

QML and SNP also offer a rapid NS1 test. This test is **not a confirmatory** test and results of these rapid tests are only an indicator of a Dengue infection.

NS1 tests do not identify types of Dengue.

## Dengue/Flavivirus serology

Commercial Elisa kits used by QML, SNP and hospital pathology services are very sensitive but not very specific, so results need to be confirmed by the QHFSS reference laboratory. The QHFSS Elisa test is much more specific but still needs acute and convalescent sera to:

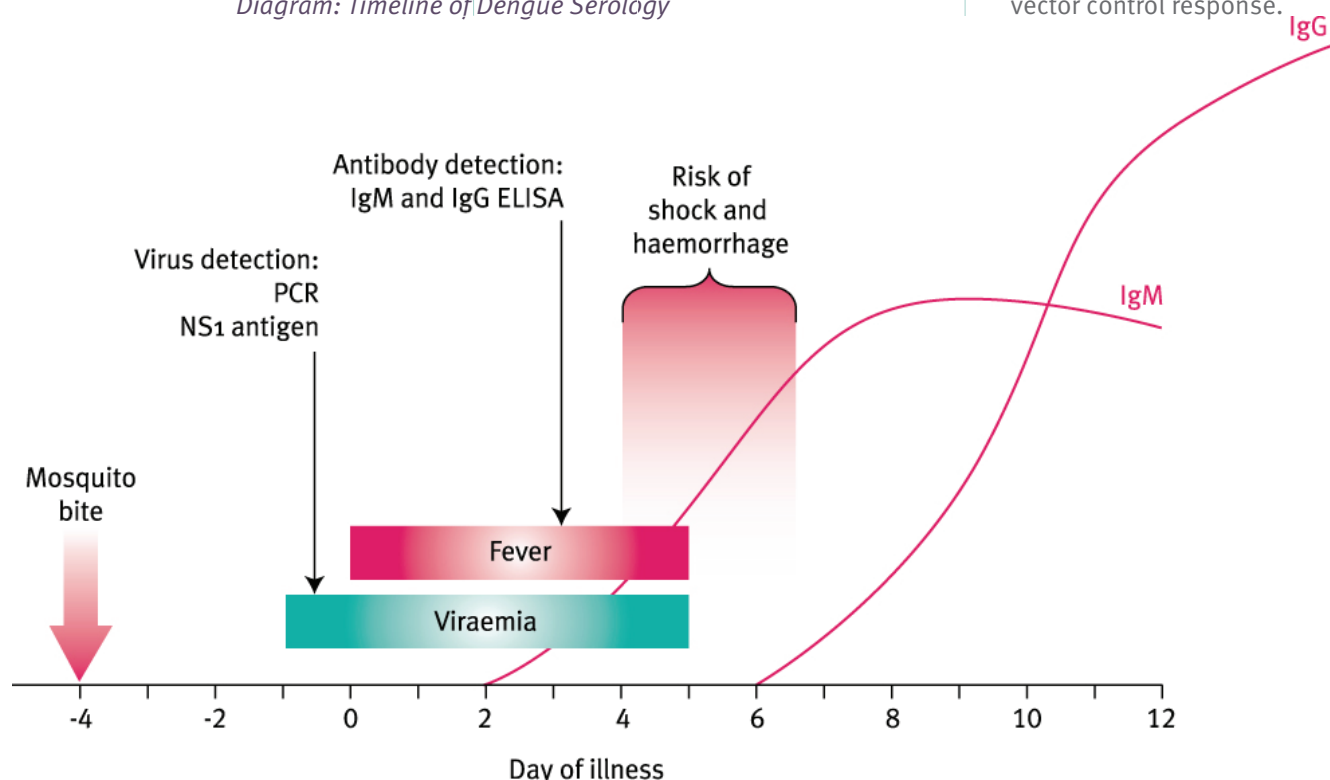
- Detect rising or falling IgM (some people have a persisting IgM)
- Detect rising or falling IgG
- Detect sero conversion.

These results can sometimes be confusing if a person is reinfected with dengue - very high IgG titres may be seen and typing may reflect the previous infection rather than current infection.

Tests can be added to pathology already taken under the order of a Public Health Medical Officer or requesting doctor.

Whenever testing for Dengue fever is undertaken, we ask doctors to advise Tropical Public Health Services (Cairns) on clinical suspicion so there is no delay in vector control response.

Diagram: Timeline of Dengue Serology



## Notifiable conditions reported in Far North Queensland:

TOTAL	Cairns & Hinterland	Torres Strait & Cape York	TOTAL
(1 January 2014 – 31 October 2014)			
Acute Rheumatic Fever	14	21	35
Barmah Forest Virus	41	5	46
Campylobacter	426	10	436
Chlamydia (STI)	1683	602	2285
Cryptosporidiosis	40	<5	≈45
Dengue Fever	137	<5	≈139
Gonorrhoea (STI)	284	144	428
Hepatitis A (All)	0	0	0
Hepatitis B (All)	48	10	58
Hepatitis C	160	10	170
HIB	0	0	0
Influenza (Lab Confirmed)	713	144	857
Invasive Group A Streptococcal	0	0	0
Leptospirosis	49	0	49
Malaria (All)	8	0	8
Measles	9	0	9
Melioidosis	6	5	11
Meningococcal Infection (Invasive)	<5	0	≈5
Pertussis	90	30	120
Pneumococcal Disease (Invasive)	0	0	0
Q Fever	16	<5	≈20
Ross River Virus	175	22	197
Rotavirus	25	<5	≈30
Salmonella (All)	182	29	211
Shigella (All)	23	12	35
Syphilis	30	10	40
Varicella	284	37	321
Yersinia	43	<5	≈48
Zoster	<5	0	≈5

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### Useful web links:

- [Travel Vaccination advice for GPs](#)
- [Communicable Disease Control Guidance and Information](#)
- [Communicable Disease Control Manual, 5th Edition, June 2011](#)
- [Immunisation information for health professionals](#)
- [Queensland Sexual Health Clinical Management Guidelines 2010](#)
- [RHD and ARF guidelines](#)