The influenza virus changes each season; most years the change is a minor drift to slightly altered viruses to which the community retains some immunity from previous infection or vaccination. In some years however the virus shifts to a completely new strain to which no one has immunity. This strain can then rapidly spread through the community and a completely new vaccine is required to protect against it.

The introduction of an old virus to a new area can also lead to rapid spread amongst a susceptible community as happened with Zika virus in Brazil. In the period 2015-17, Brazilian health authorities reported 223,230 suspected cases of Zika and 133,527 confirmed cases. These numbers do not take into account the significant number of asymptomatic cases, up to 80%. There are estimates of several million real cases throughout the Americas, over a period of a year and a half - by far the largest recorded known outbreak of a Zika virus.

The majority of Zika infection cases do not result in symptoms. In these cases the only way that it can be detected is by blood or urine testing. The increasing number of flights to potentially infected areas has increased the risk of importation and transmission of Zika, Dengue and Chikungunya in North Queensland.

Sexually transmitted infections are particularly difficult to monitor as there are sensitivities around providing information on sexual contacts. For this reason outbreaks of sexually transmitted disease are difficult to control. Syphilis is a sexually transmitted disease and many people infected with syphilis do not realise that they have the disease, do not seek treatment and therefore continue to pose a risk of infection to others, including unborn fetuses. For this reason, health practitioners need to be proactive in seeking out and treating STIs by encouraging those at risk to be screened.

In order to detect outbreaks of disease, whether caused by new or already recognised viruses or bacteria, a surveillance system is required. This not only alerts us to the spread of disease but also allows us to monitor our progress controlling the resultant disease.

The public health unit receives and monitors surveillance data from a number of different sources including clinical notification of disease and reports of laboratory testing. There is a list of notifiable diseases for Queensland which can be accessed at http://disease-control.health.qld.gov.au/

*Dr Richard Gair, Director*

*Tropical Public Health Services (Cairns)*
With cheap direct flights from Cairns, Bali remains a travel hotspot for Far North Queenslanders.

As a result, there has been a three-fold increase in imported dengue cases into our region from Bali (see figure 1), as well as an increase in travellers bitten by monkeys or dogs whilst in Bali, leading to a substantial increase in the use of costly post exposure rabies vaccines which are in short supply.

To ensure your patients make the most of their holiday and return home healthy, here are our top three public health messages for Bali travel:

1. Don’t monkey around
   - Tourists are often encouraged to interact with monkeys but monkeys may become aggressive, especially around food. All patients who have been bitten by a monkey will require a post exposure course of rabies immunoglobulin and 4 vaccinations. The same applies for dog bites in Bali. Contact TPHS to notify the exposure and arrange supply of immunoglobulin and vaccine.
   - Travellers may choose to have a course of pre-exposure rabies vaccines prior to travel which means that they are already protected. This will also provide protection from the Australian Bat lyssavirus.

2. Spray them away
   - Dengue is endemic in Bali and we often see imported cases of dengue from this region, which puts us at risk of a local dengue outbreak. Encourage patients to avoid mosquito bites at all times including applying repellent at regular intervals, especially during the day. Spraying surface spray in dark areas under furniture in hotel rooms will kill any mosquitos that may be present.
   - All febrile returning travellers should have bloods taken for dengue and Zika testing and be notified on clinical suspicion to Tropical Public Health Services (Cairns).

   **Recommended testing schedule:**
   - Dengue NS1 (first 9 days of illness)
   - Dengue and Zika PCR (first 5 days of illness)
   - Dengue and Zika serology (from day 3 of illness)
   - Urine Zika PCR (first 2 weeks of illness)

   **Figure 1: Notifications of imported dengue cases in Far North Queensland by country acquired (onset date between 1 Jan 2011 and 31 Dec 2016)**

3. Peel it, cook it or chuck it
   “Bali belly” is a common unwelcome souvenir for returning tourists and may be due to infection from food or water. Travellers should only:
   - Drink bottled water, including when cleaning their teeth.
   - Consume freshly cooked food or consume factory-packed food from a reputable manufacturer.
   - Eat fruit and raw vegetables that have been washed in safe water or peeled by them.
Since mid-2016, a range of measures has been rolled out to prevent potential transmission of Zika in North Queensland.

Tropical Public Health Services (Cairns) has expanded the vector control activities of the Dengue Action Response Team (DART), developed local prevention and control strategies, held education sessions for health professionals, developed Zika testing guidelines and developed a range of Zika resources for the health sector and the general public.

Since 1 January 2016, 38 cases of Zika have been imported into Queensland, with 10 of those cases imported into North Queensland, including 2 cases into Far North Queensland. Most of the imports into Queensland have been from Pacific island nations. All identified imports have been followed up and, to date, we have avoided local transmission of the virus.

Zika is a mosquito-borne virus and is the only flavivirus known to be spread sexually, although this mode of transmission is far less common. People with Zika infection usually have mild or no symptoms. Those who are symptomatic may have fever, rash, headache, joint pain, non-purulent conjunctivitis or muscle pain.

The main risk associated with Zika infection is that infection during pregnancy can cause congenital Zika syndrome in the foetus, leading to a range of birth defects in babies. It should be noted that the majority of infections in pregnancy are not thought to lead to significant problems.
Congenital Zika syndrome

Congenital Zika syndrome is described by the following five features:

• Severe microcephaly where the skull has partially collapsed
• Decreased brain tissue with a specific pattern of brain damage
• Damage to the back of the eye
• Joints with limited range of motion, such as clubfoot
• Too much muscle tone restricting body movement soon after birth.

Not all babies born with congenital Zika syndrome will have all of these problems. Some infants with congenital Zika virus infection who do not have microcephaly at birth may later experience slowed head growth and may develop postnatal microcephaly (CDC, 2017). The majority of infections in pregnancy are not thought lead to significant problems.

The Zika public health challenge

Zika presents a range of challenges for detection and control. The rate of asymptomatic infection is up to 80%, meaning detection in the community is difficult. Recently, all requests for dengue PCR or dengue serology have had Zika PCR or Zika serology added. This is an important surveillance measure but means that only those who are symptomatic get tested.

Distribution of Aedes aegypti mosquito and dengue activity in Queensland

Clinical advice

A tourist or traveller returning from a tropical country can bring Zika virus into North Queensland where it can spread via local mosquitoes causing an outbreak. If this scenario unfolds health professionals will need to ensure that they provide appropriate advice to pregnant patients and their partners as well as those planning on pregnancy.

Health professionals need to provide advice to couples planning pregnancy and to pregnant women and their partners about travel. This includes:

• delay pregnancy if travelling to a tropical country
• avoid travel to tropical countries whilst pregnant
• avoid bites from mosquitoes in North Queensland and in tropical countries
• avoid unprotected sex (without a condom) with a partner who has travelled to a tropical country.

This advice is particularly important given the popularity of travel to neighbouring countries in South East Asia and the trend of ‘babymoons’, holidays taken by pregnant women before the arrival of their baby.

General Practitioners should offer Zika testing to any pregnant woman who has travelled to a tropical country* during her pregnancy.

* For an up to date list of Zika affected countries you can visit the Commonwealth Department of Health’s website: http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-zika-countries.htm

As a general rule, all travellers to tropical countries, not just pregnant women, should:

• Stay in fully screened or air conditioned accommodation. An insecticide treated bed net may be useful (also helps against malaria)
• Use surface spray to kill any mosquitoes indoors
• Wear long sleeved, light-coloured clothing and cover your feet
• Use a strong insect repellent (containing DEET or Picaridin) regularly on exposed skin, including daytime
• See a doctor for testing immediately if ill on return to Australia.
Travelers who go to places with Zika can be infected with the virus and pass it to their partner sexually when they return home. Pregnant women and those wanting to get pregnant should avoid ‘unprotected’ sex with partners who may have been exposed to Zika by abstaining completely, or using condoms. Women who could get pregnant should use reliable contraception as well as condoms for the recommended period.

Recommendations for unprotected sex following Zika or possible Zika exposure:

- For male partners who were exposed to Zika, or had confirmed Zika - avoid unprotected sex for 6 months after leaving that area, or after diagnosis, and if your partner is pregnant, until she delivers the baby.

- For women who were exposed to Zika, or had confirmed Zika - avoid unprotected sex (and pregnancy) for 8 weeks after leaving that area, or after diagnosis. See above if the partner was also exposed.

Testing

Ask about recent travel to tropical countries. Zika has been confirmed in Pacific island nations and Singapore and may also be circulating in other countries where the dengue mosquito is found.

<table>
<thead>
<tr>
<th>Time Since Onset of Symptoms</th>
<th>Tests to Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 9 days</td>
<td>Blood</td>
</tr>
<tr>
<td></td>
<td>Dengue and Zika PCR (up to 5 days)</td>
</tr>
<tr>
<td></td>
<td>Dengue and Zika serology</td>
</tr>
<tr>
<td></td>
<td>Dengue NS1</td>
</tr>
<tr>
<td></td>
<td>Urine</td>
</tr>
<tr>
<td></td>
<td>Zika PCR</td>
</tr>
<tr>
<td>More than 9 days</td>
<td>Blood</td>
</tr>
<tr>
<td></td>
<td>Dengue and Zika serology</td>
</tr>
<tr>
<td></td>
<td>Urine</td>
</tr>
<tr>
<td></td>
<td>Zika PCR (up to 14 days)</td>
</tr>
</tbody>
</table>

Further information


If you are a health professional who sees pregnant patients, you can contact the Zika Program at Tropical Public Health Services (Cairns) Tropical Public Health Service (Cairns) on 07 4226 5555 if you would like some Zika ‘showbags’ to give to these patients. The bags contain brochures, insect repellent and condoms.

Remember you must notify Tropical Public Health Services (Cairns) immediately on clinical suspicion of Zika.
National Seasonal Influenza Program 2017

Funded influenza vaccine stocks are now available. For 2017, the Influenza vaccines are all Quadrivalent vaccines containing one new strain – B/Phuket/3073/2013–like virus.

The 2017 Influenza Program is funded for:
- Pregnant women (in any trimester)
- Indigenous children aged 6 mths to <5 yrs
- Indigenous people aged ≥15 years
- Any person aged ≥6 years
- Any person aged ≥6 months with a medical condition that places them at increased risk of complications from influenza.

There is an emphasis on encouraging vaccination for pregnant women, Indigenous children (6 months to 5 years) and persons medically at risk.

This year there is a new ATAGI requirement to ensure ALL vaccinations are recorded on the Australian Immunisation Register (AIR). You can do this via the following options:

- Vaccination Record Forms – VIVAS
- Direct entry onto Australian Immunisation Register (AIR) – record encounter

Before administering check you have the correct vaccine for the person’s age (see Table 1).

- AFLURIA Quad® – Not for use under 18 years
- Only FluQuadri Junior™ can be used for children aged 6 months to <3 years of age. Adult (0.5mL) doses CANNOT be halved to make a paediatric dose.
- Influenza vaccines are NOT registered for use in any infant under 6 months of age.

### Table 1: VACCINES REGISTERED FOR USE BY AGE GROUP

<table>
<thead>
<tr>
<th>Age Group</th>
<th>FluQuadri Junior™ 0.25mL Sanofi Pasteur</th>
<th>FluQuadri™ 0.5mL Sanofi Pasteur</th>
<th>Fluarix Tetra™ 0.5mL 6yr</th>
<th>AFLuria Quad™ 0.50mL Seqirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 months</td>
<td>✓</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>6 months to &lt;3 yrs</td>
<td>No</td>
<td>✓</td>
<td>✓</td>
<td>No</td>
</tr>
<tr>
<td>≥3 to 18 years</td>
<td>No</td>
<td>✓</td>
<td>✓</td>
<td>No</td>
</tr>
<tr>
<td>≥18 years</td>
<td>No</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

NB: No influenza vaccine is registered for use in this age group.

Whooping cough vaccine for pregnant women

**The Whooping Cough Vaccine Program for pregnant women is still funded.**

- Vaccine to use – Adacel®
- Funded for ALL pregnant women in EVERY pregnancy in their third trimester (ideally from 28 - 32 weeks onwards)

Getting your **FREE influenza & whooping cough vaccines** during pregnancy protects both you and your baby

**Influenza vaccine** can be given at any time during each pregnancy. The **whooping cough** (pertussis) vaccine is recommended in the third trimester of each pregnancy.

Talk to your doctor, nurse or midwife. For more information go to qld.gov.au/vaccinate
Why is Queensland Health offering this program?
During 2016 in Australia, there was a substantial rise in the number of meningococcal W cases, with more cases of this strain reported than meningococcal B cases. In Queensland during 2016, there was a rise in the numbers of meningococcal W cases, and also meningococcal Y cases. The total number of notifications of meningococcal disease in Queensland in 2016 was 45. Of these, 17 were meningococcal B, 13 meningococcal W and 13 meningococcal Y.

As there is a safe and effective vaccine that covers strains A, C, W and Y, the Meningococcal ACWY Vaccination Program is being introduced. It is designed to protect young people and also reduce risks for the community as a whole by decreasing the proportion of people carrying the bacteria in their nose and throat.

What is the Meningococcal ACWY Vaccination Program?
The Queensland Government is offering free meningococcal ACWY vaccination to all Year 10 students through the School Immunisation Program and is also offering free vaccine for young people aged 15 to 19 years of age through their doctor or immunisation provider. While the vaccine is provided free by the Queensland Government, the doctor may charge a consultation fee.

Why is this program targeting 15 to 19 year olds?
Some of the highest rates of meningococcal carriage occur among 15 to 19 year olds and this age group can transmit the meningococcal bacteria to people who are at increased risk of infection, including young children.

The reason we are vaccinating 15 to 19 year olds is to reduce the risk of meningococcal disease caused by strains A, C, W and Y in this age group, and to reduce the spread of meningococcal disease caused by these strains. Vaccinating this group will protect individuals immediately and the wider community over time.

• Targeted School Immunisation Program for all Year 10 students in the SIP in 2017.
• Also funded for all persons aged 15 – 19 years from June 2017 – May 2018.

Where can 15 to 19 year olds get the vaccine?
15 to 19 year olds will be able to get the meningococcal ACWY vaccine either through the School Immunisation Program if they are in Year 10, or from their usual immunisation provider, such as their GP. The vaccine is free, however the doctor may charge a consultation fee.

When will the program start?
The school immunisation program will commence in some schools in school term 2, 2017 with progressive implementation throughout the 2017 school year. GPs and other immunisation providers will have vaccines available from June.

Who will be eligible?
Individuals in either of the following two groups are eligible:
• Students in Year 10 in 2017
• Young people aged 15 to 19 years at time of vaccination.
## Count of notifications for selected conditions for Far North Queensland

### TOTAL

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cairns &amp; Hinterland</th>
<th>Torres Strait &amp; Cape York</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Rheumatic Fever</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Barmah Forest Virus</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Campylobacter</td>
<td>144</td>
<td>10</td>
<td>154</td>
</tr>
<tr>
<td>Chlamydia (STI)</td>
<td>585</td>
<td>137</td>
<td>722</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Dengue Fever</td>
<td>20</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Gonorrhoea (STI*)</td>
<td>135</td>
<td>33</td>
<td>168</td>
</tr>
<tr>
<td>Group A Streptococcal Infection</td>
<td>11</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Hepatitis A (All)</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hepatitis B (All)</td>
<td>20</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>39</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>Influenza (Lab Confirmed)</td>
<td>208</td>
<td>14</td>
<td>222</td>
</tr>
<tr>
<td>Leprosy</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>30</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>Melioidiosis</td>
<td>17</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Meningococcal Infection (Invasive)</td>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Pertussis</td>
<td>10</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Pneumococcal Disease (Invasive)</td>
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<tr>
<td>Q Fever</td>
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</tr>
<tr>
<td>Ross River Fever</td>
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<td>6</td>
<td>64</td>
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<tr>
<td>Rotavirus</td>
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<td>20</td>
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<tr>
<td>Salmonellosis (All)</td>
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<td>129</td>
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<tr>
<td>Syphilis (Infectious)</td>
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<td>72</td>
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<tr>
<td>Varicella (Chicken Pox and Unspecified)</td>
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<td>15</td>
<td>122</td>
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<tr>
<td>Yersiniosis</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Zika Virus</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Data extracted and correct as of 07/04/2017

NOTE figures for Gonorrhoea and chlamydia are for number of positive tests not number of individuals with the disease (one person may have multiple tests)