Introduction

Welcome to the latest edition of the Tropical Public Health Services (Cairns) newsletter.

This edition covers a range of topics. There is an article on Pertussis (Whooping Cough), of which we are continuing to see a significant number of cases across the region as well as other parts of Australia. Pertussis is particularly dangerous for infants under 6 months of age. The best available protection against pertussis is vaccination.

The recent heatwave, which affected Far North Queensland in November and December 2018, highlighted two issues; 1) the expected increase in the frequency of heatwaves in the future and the resultant considerations for public health; and 2) the issue of bat exposures. Both issues are addressed in this newsletter.

The recent heatwave led to the death of a high number of bats and also resulted in disorientated bats accidently coming into contact with humans. These factors resulted in a marked increase in the number of human bat exposures requiring post-exposure vaccination to protect against Australian bat Lyssavirus.

This issue involves a report on the recent conference of the Public Health Association of Australia which was held in Cairns. Tropical Public Health Services (Cairns) had a stall at the conference showcasing some of our work, and staff from the unit presented on interesting public health topics.

A recent water symposium on Hammond Island was attended by staff from Tropical Public Health Services (Cairns) and focussed on the work being done by the Unit to improve water supplies in the Torres Strait. This project adopts a new approach to building the capacity of Indigenous water operators to assure the ongoing safety and quality of water supplied by Indigenous local governments as well as improve regulatory compliance. The project is also part of a key strategy for promoting the well-being of the Aboriginal and Torres Strait Islander population in the Far North and is an essential step towards ‘Closing the Gap’.

Also included in this edition is information on the development of a North Queensland HIV Action Plan, acute rheumatic fever and rheumatic heart disease facts and a snapshot profile of the Cairns and Hinterland Hospital and Health Service population.

Dr Richard Gair
Director
**Pertussis is a respiratory tract disease caused by the bacterium Bordetella pertussis. It is highly infectious, with epidemics usually occurring every 3-4 years in Australia. In 2018 the Cairns and Hinterland Hospital and Health Service received 158 notifications of laboratory confirmed pertussis.**

In 2017, 219 cases were confirmed. This is a significant rise on previous years of 26 cases in 2016 and 34 cases in 2015.

In 2018 around 70% of all confirmed cases were in school aged children, the overwhelming majority of whom were fully vaccinated.

Pertussis containing vaccines feature heavily in the National Immunisation Program Schedule, with a primary course of vaccines administered at 6 weeks/2 months, 4 months and 6 months, followed by boosters at 18 months and 4 years, and in year 7 via the school based immunisation program. Free pertussis containing vaccine is also available for all pregnant women in their final trimester, regardless of past vaccination history, to protect the baby in the first six months of life when vaccination of the baby is not effective.

The acellular pertussis vaccine protects against severe pertussis symptoms, with an efficacy of 71% for preventing milder symptoms and 84% for preventing typical disease. Immunity wanes over time, with rapid decline in pertussis antibody levels within 2 years after vaccination. Therefore, though not funded, it is recommended that all adults receive a booster of a pertussis containing vaccine every 10 years. This is particularly relevant for those with significant occupational such as health care workers, childcare workers and teachers.

**CLINICAL IMPLICATIONS**

Pertussis infection is characterised by a prolonged coughing illness. The cough gradually becomes paroxysmal and may end in vomiting, cyanosis and/or a high pitched inspiratory whoop. Vaccinated cases often present with milder symptoms and therefore may be harder to identify. All suspected cases of pertussis should have a nasopharyngeal swab collected for PCR testing. Serology is no longer accepted as a confirmatory test.

The nasopharyngeal swab should be collected within the first 3 weeks from onset of cough. Cases remain infectious for up to 3 weeks post onset of cough and should be isolated and treated with an appropriate 5-day antibiotic course for cases to be considered non-infectious. For cases that have been coughing for longer than 3 weeks, antibiotics are not required.

The objective of public health follow-up of pertussis cases is to prevent disease in high risk contacts. High risk contacts include infants less than 6 months old and women in their last month of pregnancy, with a focus on exposures in households, childcare and healthcare settings. Depending on the setting, antibiotic prophylaxis will be recommended to protect high risk contacts. Please contact Tropical Public Health Services (Cairns) for advice if you have concerns that a suspected or confirmed pertussis case may have exposed a high-risk contact.

<table>
<thead>
<tr>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infective agent</strong></td>
</tr>
<tr>
<td><strong>Mode of transmission</strong></td>
</tr>
<tr>
<td><strong>Incubation period</strong></td>
</tr>
<tr>
<td><strong>Infectious period</strong></td>
</tr>
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<td></td>
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<td><strong>Testing</strong></td>
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Public Health Conference in Cairns

The theme for 2018 was ‘Leading in public health: Challenges for local and planetary communities’ and showcased the innovative work in public health happening around the country.

Tropical Public Health Services (Cairns), saw the conference as a great opportunity to promote the public health work we do here in Far North Queensland and our exhibitor’s stall at the conference was well attended. People were particularly interested in talking to the Medical Entomology team about the tanks of mosquitoes and larvae on display.

Staff from Tropical Public Health Services (Cairns) presented on the following topics:

- Preparing for Zika transmission in Australia – A presentation about the risk of Zika in Australia and what has been done to prepare, should we get local transmission of the virus.
- Indigenous access to immunisation services in Cairns: an urban myth? – Rural and remote immunisation rates in the Aboriginal and Torres Strait Islander population are good, yet rates in urban Cairns are often well below national benchmarks.
- Antenatal care: know the gap to close it – Analysis of the types of antenatal services accessed by Aboriginal and Torres Strait Islander women in north Queensland.
- A spike in meliodosis cases: Do roadworks increase the risk of infection? – A discussion about the spike in meliodosis cases in south Cairns in 2017.

Contact us if you are interested in obtaining a copy of any of these abstracts.

Cairns and Hinterland Hospital and Health Service Chief Executive, Clare Douglas, was one of three speakers who presented in a plenary session on health in the tropics. Clare spoke about public health roles of academic health centres in tropical Australia. Dr Richard Gair, Director Tropical Public Health Services (Cairns), and Joy Savage, Executive Director Aboriginal and Torres Strait Islander Health, contributed to the panel discussion after the plenary session called ‘Re-imagining tropical public health: Addressing the public health challenges for northern Australian communities’.
Queensland future climate: Heatwaves

We may not think of heatwaves as big contributors to the nations mortality rate but research shows that extreme temperatures have caused more deaths in Australia over the past 100 years than any other natural event. They have been described as “silent killers”, causing more deaths since the 1890s than bushfires, cyclones, earthquakes, floods and severe storms combined.

A heatwave is defined as any long period of very hot weather. In Australia, heatwaves usually range in temperature from 37°C to 42°C. A heatwave is described by the Australian Bureau of Meteorology as three or more days of high maximum and minimum temperatures that are unusual for a given location. Heatwaves are caused by a number of factors including greenhouse gases, cyclones and anti-cyclones, soil moisture, landscape changes, El Niño and high-pressure systems.

In November 2018, monthly temperature records were topped in Far North Queensland, with Cairns reaching 42°C and parts of Cape York experiencing their highest temperatures on record.

In response to the recognition that heat related events will become more common in the future and pose a significant risk to health, the Queensland Fire and Emergency Services (QFES), Queensland Health (QH) and the Department of Science and Environment (DES) led a State heatwave risk assessment workshop in Cairns on 28 September.

At the workshop, QFES discussed their work, in partnership with QH and the DES, on a detailed macro level risk assessment of future heatwave risk in Queensland. The key objectives of the assessment include:

- Supporting Queensland Health in their role as the lead functional agency for heatwaves under the State Disaster Management Plan; and
- Analysing and reporting on severe and extreme heatwave risk against the exposed elements categories used in the Queensland Emergency Risk Management Framework (QERMF).
The project is a collaborative effort across governments and non-government organisations, and involves engagement at the state and regional level. It will result in the publication of the State Heatwave Risk Assessment in 2019.

It should be no surprise that heatwave duration and frequency are projected to intensify across Queensland over the next 100 years. Climate models indicate that the frequency of heatwaves may exceed 18 days per year in 2030. By 2090 heatwaves may show a massive intensification in the tropics, occurring one third of the year and lasting more than 50 days in Townsville, Cairns and the Torres Strait2.


So what are the implications for clinicians into the future?

Preventative advice and response to heat related illnesses will become even more important.

Key messages:

• Everyone is at risk of heat-related illnesses.
• Some people are more at risk of heat-related illness, including pregnant women, those who are old or young, or those who have co-morbidities, cognitive impairment and poor social support.
• Some medicines can increase the risk of heat-related illnesses, or may be less effective or more toxic when stored at high temperatures.
• Health professionals can help reduce heat-related illnesses by identifying at-risk people and implementing strategies to reduce risks.
• Advance planning may help to reduce heat-related effects on patients6.

Some illnesses or conditions can occur as a direct result of excessive heat, such as heat rash, cramps, exhaustion, heat stroke and exertional heat stroke.

Heat may also exacerbate existing medical conditions such as heart disease and diabetes. Clinicians should consider the possible contribution of heat to other more common clinical presentations during a heatwave.

The following conditions may be precipitated or worsened by dehydration:

• Altered mental state
• Cardiovascular impairment
• Electrolyte disturbances
• Renal impairment
• Urolithiasis
• Falls5.

Additionally, the following may occur due to heatwaves:

• Exacerbation of asthma and other respiratory illness
• Gastroenteritis, mostly due to poor food handling and storage5.

It is important to recognise that as heat related events increase, preparation and planning especially for the most vulnerable will become more important. A clear understanding of how sustained high temperatures impact on health and what preventative measures to take will be key in keeping those at risk in our community safe.
Bat exposures and Australian bat Lyssavirus

At this time of year, which combines bat breeding season and heatwave events, Tropical Public Health Services (Cairns) receives a lot of phone calls from well-meaning members of the public who have been bitten or scratched whilst handling bats.

Usually these people have been attempting to free the bats from a fence or pick them up from the ground to relocate them.

The majority of bat exposures are avoidable. Only people who are trained and vaccinated should handle bats, and members of the public should be advised to contact a registered wildlife/carer group to retrieve a bat that needs assistance.

Australian bat lyssavirus (ABLV) is a member of the Rhabdoviridae family, genus Lyssavirus which causes the disease rabies. Australia is currently free of rabies in other mammals however ABLV infection has been documented in flying foxes and microbats and it should be assumed that all bat species have the ability to carry in and transmit ABLV.

There have been 3 cases of human infection with ABLV in Queensland in the last 22 years, in 1996, 1998 and 2013, and ALL were fatal. Rabies virus is transmitted by the saliva of an infected animal via a bite or scratch or by contamination of mucous membranes or broken skin. There is no evidence that the virus can be transferred through contact with bat urine or faeces.

The incubation period is usually between 3-8 weeks but can be as short as a few days or as long as several years.

Tropical Public Health Services (Cairns) responded to 63 bat exposures in 2017 and 61 bat exposures in 2018 with the majority of these occurring from October to December. Any exposure in an unvaccinated person requires a post exposure course of Rabies immunoglobulin and 4 doses of rabies vaccine.

CLINICAL IMPLICATIONS

Following exposure to ABLV, the wound should be washed thoroughly for at least five minutes with soap and water, an antiseptic solution such as povidone-iodine should be applied and the wound should not be sutured unless this is unavoidable.

Post exposure prophylaxis, free of charge, will be provided free to the patient and should be administered as soon as practicable. The post exposure prophylaxis consists of a single, weight dependant, dose of Human Rabies Immunoglobulin (HRIG) and 4 doses of rabies vaccine administered on day 0, 3, 7 and 14. Consideration should also be given to the need for tetanus vaccination at this time.

Post exposure vaccination for people who have been previously vaccinated consists of 2 doses or rabies vaccine administered on day 0 and day 3.

Wildlife carers, vets and people who handle bats are encouraged to have their serology checked every two years and receive a booster dose if their VNAb is < 0.5 IU/ml. However, there is no recognised level of protective antibody and any further exposure requires the 2 doses regardless of a serology result of >0.5 IU/ml.

Key points

- Australian bat lyssavirus (ABLV) is a fatal infection in humans, with no proven treatment
- All bats in Australia including microbats should be considered to be carrying ABLV
- Any exposure to ABLV should be notified to Tropical Public Health Services (Cairns) and treated immediately
- Effective post exposure prophylaxis is available free through the public health unit
- There is no recognised immunity level i.e. post exposure prophylaxis is always indicated. In a previously vaccinated person. All subsequent exposures require two booster doses of vaccine.

If you require further information or need to report an exposure please call Tropical Public Health Services (Cairns). http://disease-control.health.qld.gov.au/Condition/687/australian-bat-lyssavirus
A North Queensland HIV Project Team is being established at Tropical Public Health Services (Cairns) to develop a North Queensland HIV Action Plan to guide the ongoing response to HIV in North Queensland.

The team comprises a Public Health Medical Officer, Principal Public Health Officer and Public Health Nurse.

The HIV outbreak is primarily occurring in Aboriginal and Torres Strait Islander people in North Queensland. From January 2014 to the end of December 2018, there were 70 new cases of HIV diagnosed in Aboriginal and Torres Strait Islander people in Queensland with 38 of these cases residing in Far North Queensland (54%).

The project team will work closely with Sexual Health Services, other government and non-government service providers, Aboriginal and Islander Community Controlled Health Services, GPs and the communities affected by the current HIV outbreak to understand factors impacting the outbreak and define immediate outbreak response needs. The reach of the North Queensland response is expected to include Cairns, Townsville, North West, Cape York and the Torres Strait.

The team are funded to 30 June 2019 to complete the North Queensland HIV Action Plan, commence response activities and define ongoing response actions to stop the outbreak.

The current contact for the team is Colette Cashman (HIV Public Health Nurse) on (07) 4226 5676.

Please be proactive about HIV testing. Offer testing for HIV when:
• performing an STI screen
• someone tests positive for an STI
• providing testing for a man who has sex with other men

Early commencement on antiretroviral medications for people diagnosed with HIV can keep them well and prevent transmission of the virus.
Dunstan Peniyamina is a registered medical doctor in PNG and has been employed as the Cross-border Communications Officer for eleven years.

Dunstan is based Tropical Public Health Services (Cairns) and works closely with Cairns and Hinterland Hospital and Health Service and Torres and Cape Hospital and Health Service. His position is Commonwealth funded under the National Partnership Agreement: Torres Strait Health Protection Strategy - Mosquito control and cross border liaison services.

Dunstan’s role includes:

- Facilitating PNG patient referrals from Queensland Health facilities to Daru General Hospital for ongoing care, including cases of TB.
- Monitoring and sharing communicable disease outbreak information from PNG.
- Providing clinical and surveillance information on PNG nationals diagnosed and/or treated in Australia.

Dunstan travels regularly throughout the year to Thursday Island Hospital and Saibai and Boigu Primary Health Care centres and biannually to PNG (National Department of Health, Daru General Hospital, Western Province Health Office).

His role has a focus on border health between the Torres Strait Protected Zone, which includes 13 inhabited Torres Strait islands and 13 treaty villages along the southern coast of PNG.

The Torres Strait Treaty was signed in 1978 and entered into force in 1985. The Treaty allows for free movement between PNG and the Torres Strait Protected Zone to maintain family ties, hunting and gathering and cultural ceremonies. With this movement of people comes the risk of communicable diseases.

In 2018 there were a number of small outbreaks in the PNG treaty villages. Some affected people from these villages presented at Primary Health Care Centres in the Torres Strait Protected Zone, with most presenting at the Saibai Island Primary Health Care Centre. These outbreaks included skin ulcers, pertussis and diseases.

In his role, Dunstan gathers information about cases presenting in the Torres Strait and liaises with Tropical Public Health Services (Cairns), Torres and Cape Hospital and Health Service and the Western Province Health Office in PNG. Tropical Public Health Services (Cairns) provides public health advice to clinicians in the Torres Strait and the PNG Western Province Health Office provides a response to outbreaks in the treaty villages.

An outbreak of vaccine-derived poliovirus type 1 (cVDPV1) was reported in PNG in June 2018. The co-coordinator of the national polio emergency response in PNG, Keith Feldon, attributed the outbreak to several years of sub-optimal vaccination coverage (50-60% vaccination coverage across the country).

In November/December 2018 polio booster vaccinations (inactivated polio vaccine) were provided to Torres Strait Islander people, 15 years and over, at Boigu, Saibai and Dauan Island Primary Health Care Centres. In the treaty villages, the PNG government provided oral polio vaccine for children under 15 years of age.

A total of 26 cases of polio were confirmed in 9 provinces of Papua New Guinea. Three Supplementary Immunization Activities (SIAs) of expanding scope have taken place since late July, from three provinces to nine, to nation-wide. The most recent was aimed at children under the age of 15, due to large numbers of poorly-immunized older children (http://polioeradication.org/polio-today/polio-now/this-week/).

The ‘Safe and Healthy Drinking Water in Indigenous Local Government Areas Project Pilot’ being undertaken by Tropical Public Health Services (Cairns) is designed to safeguard Far North Queensland Indigenous communities from public health risks including illness caused by exposure to unsafe drinking water or lack of a continuous water supply.

The project adopts a new approach to building the capacity of Indigenous water operators to assure the ongoing safety and quality of water supplied by Indigenous Local Governments and improve regulatory compliance. The project is also a key strategy for promoting the well-being of the Aboriginal and Torres Strait Islander population in the Far North and is an essential step towards ‘Closing the Gap’.

To date, the project has been rolled out to seven pilot sites in the Torres Strait - Hammond, Warraber, Coconut, Saibai and Boigu Islands and two communities on Moa Island (Kubin and St Pauls). The project is currently being implemented on Mabuiag Island in the Torres Strait as well as the mainland Cape York communities of Lockhart River and Hope Vale.

A key objective of the project is to facilitate upgrades to infrastructure and technology, primarily around disinfection and monitoring which are essential for removing microbiological pathogens and verifying the safety of drinking water. These upgrades allow Indigenous water operators to become proficient in technology and systems considered standard by water service providers in most major centres around Australia. Other key objectives include implementation of a support strategy to promote drinking water and awareness as well as provide community support and mentoring for water operations to ensure safe drinking water.

A key component of the support strategy to promote drinking water and awareness included the delivery of a drinking water symposium which brought together Torres Strait and Cape York based water service providers (Local Councils who provide a drinking water supply service), government regulatory agencies, university academics and other industry experts. The inaugural two-day event held on the 24th and 25th October 2018, hosted by the Torres Strait Island Regional Council in partnership with Tropical Public Health Services (Cairns), was held on Hammond Island and attracted over fifty-five participants.

The event provided Indigenous (and non-Indigenous) water operators from remote Far North Queensland communities an opportunity to network and learn about additional ways to improve, and help ensure, the provision of a safe drinking water supply. Sessions held at the symposium covered a range of topics including waterborne illnesses, water laboratory requirements and processes, the importance of water quality management plans, water security and public health expectations in managing drinking water supplies.

One of the fundamental successes of the project has been a reduction in the number of microbial drinking water incidents (E.coli detection) in remote Indigenous Local Government areas. Tropical Public Health Services (Cairns) data indicates that microbial drinking water incidents reduced from 16 incidents in 2017 pre-project implementation (pre-project implementation), to 10 incidents (the first year of implementation), to two (2) incidents in 2018 (to July being the second year of project implementations). The project is currently funded until June 2019.

Participants on day one of the 2018 Far North Queensland Indigenous Council Drinking Water Symposium, Hammond Island, Torres Strait.
Cairns and Hinterland Population Health Profile

Cairns and Hinterland Hospital and Health Service (HHS) has a culturally and linguistically diverse population, with the highest number of Aboriginal and Torres Strait Islander residents of any HHS, and many residents who were born overseas.

Understanding the diversity in our community helps us plan and deliver health services that are accessible to everyone.

The Tropical Public Health Services (Cairns) Health Surveillance team has recently released population diversity profiles for the Cairns and Hinterland HHS, including seven regional profiles for the Port Douglas-Daintree, Cairns North, Cairns South, Cairns South Outer, Innisfail-Cassowary Coast, Tablelands East and Tablelands West areas.


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Snapshot of Cairns and Hinterland HHS population

In 2016, 252,830 people lived in the Cairns and Hinterland HHS

- 29,729 (12%) residents were of Aboriginal and Torres Strait Islander origin

- 223,101 (88%) Non-Indigenous

56% of residents lived in areas with the highest levels of socioeconomic disadvantage

Cairns South had the largest population living in areas of disadvantage

11% of residents spoke a language other than English at home. 85% of those residents spoke English well or very well

40% of residents speaking a language other than English lived in Cairns South

71% of residents reported that they were born in Australia.

Of the residents born overseas, 45% were born in the United Kingdom, New Zealand or Western Europe
Tropical Public Health Services (Cairns) hosts the Queensland Rheumatic Heart Disease Register and Control Program. Here are some facts about Acute Rheumatic Fever and Rheumatic Heart Disease in Queensland.
The Sexual Health Team at Tropical Public Health Services (Cairns) produced targeted sexual health messaging about syphilis and HIV for the Christmas and New Year periods when many people in Far North Queensland travel and may engage in sex with new partners. The messaging was disseminated to Hospital and Health Services, Aboriginal Community Controlled Health Services and regional airports.

Syphilis and HIV are on the rise in NQ.

- Use condoms
- Get an STI Test
- Partner tested
- See my doctor/nurse/health worker for regular health checks

Using condoms and regular testing are good ways to prevent STIs

PRACTICE SAFE SEX, USE CONDOMS!

For more information go to: www.qld.gov.au/health/staying-healthy/sexual-health

Produced by Tropical Public Health Services (Cairns), Cairns and Hinterland Hospital and Health Service

An initiative of the North Queensland Aboriginal and Torres Strait Islander Sexually Transmissible Infections Action Plan 2016-2021
## 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>
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<tbody>
<tr>
<td>Acute Rheumatic Fever</td>
<td>4</td>
<td>2</td>
<td>6</td>
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<tr>
<td>Barmah Forest Virus</td>
<td>10</td>
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<tr>
<td>Campylobacter</td>
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<tr>
<td>Chlamydia (STI)</td>
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<td>322</td>
<td>1279</td>
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<tr>
<td>Cryptosporidiosis</td>
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<td>82</td>
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<td>Dengue Fever</td>
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<tr>
<td>Gonorrhoea (STI)</td>
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<tr>
<td>Hepatitis B (All)</td>
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<td>Influenza (Lab Confirmed)</td>
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<td>Group A Streptococcal</td>
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<td>Pertussis</td>
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<tr>
<td>Pneumococcal (Invasive)</td>
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<td>Salmonellosis (All)</td>
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<td>Yersiniosis</td>
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Data extracted and correct as of 31/12/2018

*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)*