Medical Officer of Health
Public Health
ADVICE

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Rise in Pertussis (Whooping cough): the role of primary care

KEY POINTS:

- **Protecting through *timely* immunisation is crucial, including each pregnancy**
- **Azithromycin is fully funded for 5 days for pertussis treatment and prophylaxis**
- **Nasopharyngeal swab for PCR gives a rapid result, but is not reliable 3 weeks after symptom onset; take blood for serology**

Hawke's Bay may be experiencing the start of a pertussis epidemic. This article provides a reminder on the testing, treatment, and management of cases and contacts by primary care.

Pertussis is a highly transmissible respiratory disease caused by *Bordetella pertussis*, a Gram-negative bacillus. Following vaccination or infection immunity wanes over time, leading to ongoing transmission and epidemics. New Zealand has experienced epidemic increases of pertussis about every four years that last about two years. This pattern was the same even before the vaccine was first used in 1945; however, morbidity and mortality have been reduced through immunisation.

Neonates and infants have the highest mortality from pertussis, and therefore the primary focus for control is protecting them through timely antenatal and infant immunisation. Pertussis vaccine (as TdaP) is free for pregnant women between 28 and 38 weeks gestation and protects the infant until they can be vaccinated. Vaccination provides about 85% protection for approximately 6 years after 3 infant doses. True contraindications are fever >38°C or anaphylaxis to a component of the vaccine or a previous dose. The only precaution is if a child is under investigation by a neurologist, where vaccination should be discussed with the specialist.

Antibiotic prophylaxis has a limited role in preventing spread because of ongoing circulation in the community, and is generally only given to household contacts where there is an infant, pregnant woman or other person at increased risk of complications. **Five days of Azithromycin is recommended for both therapy and prophylaxis** and is fully funded for pertussis (see Immunisation Handbook 2017, p.392 for doses and alternatives). Treatment needs to be given during the catarrhal stage to modify disease outcome; and reduces the infectious period to five days, if given within 3 weeks of symptoms.

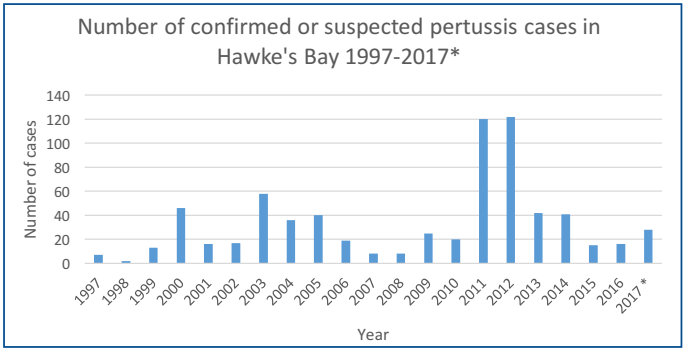


Figure one:
Number of confirmed or probable cases of pertussis in Hawke's Bay by month Jan 1997 to June 2017*

*as of 18/7/17

Presentation of cases varies with age, immunisation status and previous infection. The classic presentation is for one to two weeks of runny nose and cough followed by paroxysmal coughs that end with an inspiratory gasp or typical whoop and/or vomiting. Apnoea and /or cyanosis may precede paroxysmal cough in infants and can be a presenting feature of severe disease.

For surveillance, the **clinical case definition** is for cough for over 2 weeks with at least one of: (1) paroxysms of cough; (2) cough ending in vomiting or apnoea; or (3) inspiratory whoop. However, this definition will not be useful for early diagnosis.

Laboratory testing is usually with PCR, but this stops being reliable from the third week after symptom onset when serology may be more useful. Testing is **not needed** for a clinically compatible case with a known contact to a confirmed case during the incubation period (usually 7-10 days, range 5-21 days).

Additional information on testing

Laboratory testing is useful to confirm the diagnosis made on clinical suspicion, but negative laboratory tests cannot exclude pertussis. PCR is the quickest and most sensitive test, but sensitivity depends on taking an adequate nasopharyngeal swab early (within the first two to three weeks) in the course of the disease. If confirmation is required beyond two to three weeks, serology is more useful. Culture, while slower and less sensitive than PCR, has the value that it provides an isolate useful in tracking ongoing changes in the organism. Culture requires a nasopharyngeal swab transmitted in bacterial transport medium, while PCR requires a dry swab. **Notification is on clinical suspicion**, and whether laboratory confirmation of the diagnosis will be useful, and what test to request, can be discussed at the time.

Rates of vaccine coverage and equity between population groups in Hawke's Bay has improved considerably over the past 5 years. We would like to take this opportunity to thank our colleagues in primary care for your efforts to protect individual and population health through notification and supporting timely immunisation.

Alcohol

Exciting work is underway to address hazardous drinking. Hawke's Bay DHB issued a Position Statement in 2016 with a vision of 'Healthy Communities, family and whānau living free from alcohol-related harm and inequity'. A strategic framework was developed with local health sector stakeholders. Three key priority areas were identified:

Health services and alcohol

Evidence shows that screening and brief intervention measures can benefit those experiencing alcohol-related harm, and should be part of routine clinical practice. Primary care is in a unique position to ask about a person's drinking behaviour, and to assist the person to make a connection between their behaviour and any associated risks and harms.

Youth and alcohol

There is clear evidence that early use of alcohol is a predictor for issues in adult life, including alcohol and substance dependence. De-normalising alcohol, youth friendly approaches, tackling the drivers of youth drinking and reducing their exposure to alcohol have all been identified as potential strategies to address youth drinking.

Pregnancy and alcohol

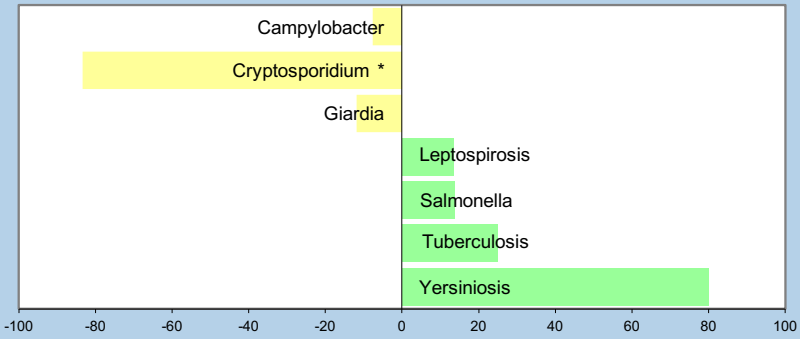
Progress has been made in recent years around Fetal Alcohol Spectrum Disorder (FASD). However, misconceptions exist around alcohol use in pregnancy both within the community and amongst health professionals.. Addressing these issues and creating environments where pregnant women are supported not to drink in the community is vital. Primary care can give the clear message that there is no safe level for alcohol consumption in pregnancy.

On the 5th of July 2017 a workshop was held where regional stakeholders from across the sector met to discuss the priority focus areas identified and how to gain traction. The draft Strategic Framework was also workshopped in small groups.

The draft strategy has been sent to the Executive Committees and Board for their endorsement. Work is now focused on creating the necessary infrastructure within the DHB for governance and delivery. We will keep you informed of progress.

Disease Surveillance Summaries

Selected Hawke's Bay disease notifications for January 2017 to June 2017 compared to the average for the same period during 2012-2016



Note: *denotes p<0.0001

Selected notifications July 2016 to June 2017

	Hawke's Bay		New Zealand	
Disease	**Cases**	**rate***	**Cases**	**rate***
Campylobacter	1,318	816.6	7,541	160.7
Chlamydia	1,580	978.9	30,541	650.8
Cryptosporidium	22	13.6	1,100	23.4
Giardia	69	42.8	1,590	33.9
Gonorrhoea	203	125.8	3,871	82.5
Hepatitis B	3	1.9	40	0.9
Hepatitis C	1	0.6	29	0.6
Invasive pneumococcal disease	17	10.5	499	10.6
Latent tuberculosis infection	11	6.8	284	6.1
Legionella	2	1.2	248	5.3
Leptospirosis	14	8.7	142	3.0
Malaria	1	0.6	25	0.5
Meningococcal disease	2	1.2	86	1.8
Pertussis	33	20.4	1,235	26.3
Rheumatic fever – initial attack	6	3.7	128	2.7
Salmonellosis	40	24.8	1,081	23.0
Shigellosis	7	4.3	212	4.5
Tuberculosis - new case	12	7.4	284	6.1
VTEC/STEC Infection	14	8.7	471	10.0
Yersinia	29	18.0	917	19.5

* Annualised crude rate per 100,000 population calculated from 2016 mid-year estimates.

Note: The figures for Chlamydia & Gonorrhoea are for the 12 months ending Mar 2017.

Commentary on disease trends

Gonorrhoea and chlamydia rates are increasing, and higher than the national rate, which may be as a result of earlier and better detection. Please remember to promote safe sex and offer condoms.

High rates of campylobacter reflect the outbreak last year, but notifications have returned to previous levels since then.

Leptospirosis continues to increase both regionally and nationally. We are in the process of conducting a study to investigate this and enhance prevention and management measures with local stakeholders.

Rheumatic fever refresh

A recent case of acute rheumatic fever in Hawke's Bay has highlighted atypical presentations of Rheumatic Fever.

You'll recall that rheumatic fever is the immunological response to an untreated Group A Streptococcal throat infection. This immunological response can involve various tissues of the body including the heart, the joints, the brain and the skin. The symptoms of rheumatic fever typically develop one to five weeks after the throat infection and resolve over weeks to months. An episode of rheumatic fever can cause permanent damage to the heart – rheumatic heart disease.

Signs and symptoms of acute rheumatic fever can include fever, fatigue, monoarthritis or polyarthritis, Sydenham's chorea, erythema marginatum and subcutaneous nodules. Confirmatory tests may include blood tests for inflammatory markers and Streptococcal serology, ECG and echocardiogram.

Hawke's Bay has had a number of acute rheumatic fever cases who had no recall of a recent sore throat, and some who had no joint symptoms at presentation, only chorea. It is worth including rheumatic fever in the differential diagnosis of any young person (age at highest risk 3-35 years), especially Māori and Pacifica who present unwell but with atypical symptoms.

For a more comprehensive review of rheumatic fever visit http://learnonline.health.nz for free access to a very good online learning resource consisting of 4 modules, each taking only a few minutes to complete.

Public Health Advice is also available on the Hawke's Bay District Health Board website:

http://www.hawkesbay.health.nz/page/pageid/2145871321