



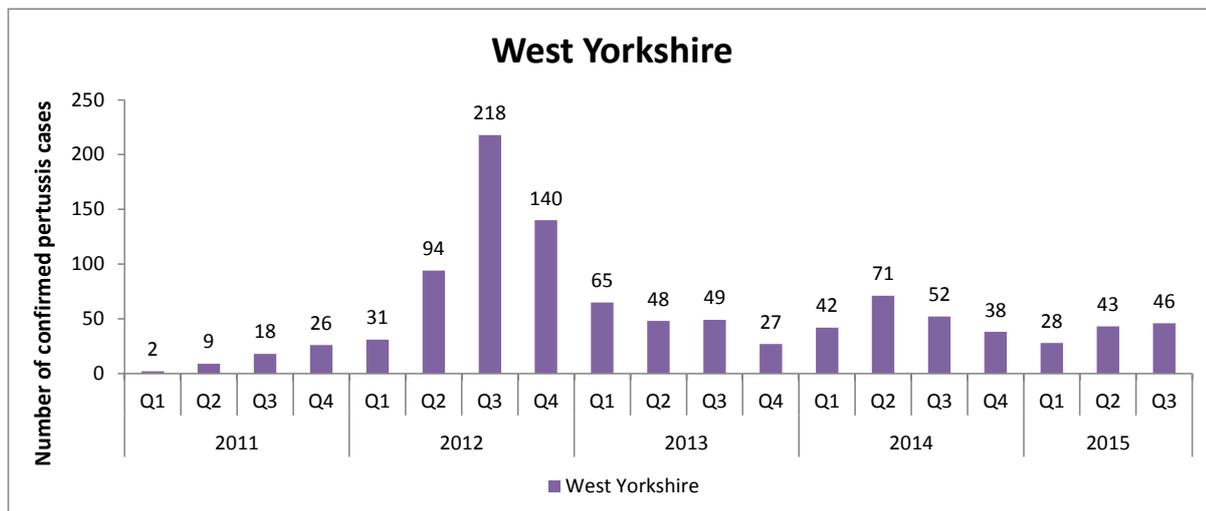
## Pertussis factsheet for healthcare professionals *Think pertussis in cases of cough!*

West Yorkshire

October 2015

### Background

Following the introduction of a vaccination programme for pregnant women in response to the national outbreak in 2012 the numbers of pertussis cases in West Yorkshire declined across all ages, but they still remain above levels seen prior to 2012. In recent months there has been an increase in the number of reported cases - with a total of 189 cases in 2015 to 30<sup>th</sup> September across West Yorkshire (Quarters 1-3), 117 of these have been confirmed.



It remains important to consider and test for pertussis in anyone with an unexplained or unusual cough, including adults who have previously been vaccinated. Pertussis is a notifiable disease and all suspected cases should be reported to the local Public Health England (PHE) Centre.

***Don't await lab confirmation to notify PHE - prompt public health action is the most effective!***

### Whooping cough

Pertussis (whooping cough) is an acute respiratory infection caused by the bacteria *Bordetella pertussis*. It usually begins with mild, cold-like symptoms, which develop over one to two weeks into coughing fits that can be severe. The cough can often last for two to three months. In the UK, a pertussis-containing vaccine (Pediatrix<sup>TM</sup> or Infranix-IPV+Hib<sup>TM</sup>) is routinely offered to babies at two, three and four months old and a fourth dose is included with the pre-school booster (Infanrix<sup>®</sup> – IPV - HiB or Repevax<sup>®</sup>) from 3 years 4 months of age. Since 2012 pertussis vaccination has also been recommended for pregnant women anytime between 28-38 weeks gestation (ideally between 28-32 weeks), to protect the newborn from birth until their routine vaccination starts.



Pertussis activity tends to peak every three to four years. There continues to be cases across West Yorkshire and all suspected cases should be considered for investigation and treatment as per the guidance below.

## Who it affects

Pertussis can affect people of all ages. Although it still affects infants, current high numbers of cases are now being confirmed in adolescents and adults who usually suffer a milder disease or one with atypical features – often delaying recognition – with a cough that may persist for many weeks. The reasons for this increase are not completely understood but waning immunity following vaccination and/or natural infection is likely to be a factor, although raised awareness and testing have also contributed to the increase in reported cases.

## What to look out for

You should suspect pertussis infection and report it to your local PHE centre if someone presents with an acute cough lasting for 14 days or more without an apparent cause plus one or more of the following:

Paroxysms of coughing

Post-tussive vomiting

Inspiratory whoop

Undiagnosed apnoeic attacks in young infants

OR

Someone with signs and symptoms consistent with pertussis and who has been in contact with a confirmed case in the previous 21 days

OR

Someone with signs and symptoms consistent with pertussis and known to be part of a group in which there is an ongoing outbreak investigation (for example, children attending the same school or nursery where pertussis is known to be circulating)

## Managing suspected pertussis

Children with clinically suspected or laboratory confirmed pertussis should be excluded from schools or nurseries until 48 hours after starting the recommended course of antibiotic therapy (table 1). Those who are not treated with antibiotics should be excluded for 21 days from onset of symptoms. Administer antibiotics as soon as possible after onset of illness in order to eradicate the organism and limit ongoing transmission.



Table 1. Recommended antibiotic treatment and post exposure prophylaxis\* by age

Age group	Clarithromycin	Azithromycin	Erythromycin	Co-trimoxazole <sup>1</sup>
<b>Neonates (under 1 month)</b>	Preferred in neonates  7.5 mg/kg twice daily for 7 days	10 mg/kg once daily for 3 days	Not recommended	Not licensed under 6 weeks
<b>Infants (1-12 months)</b>	Under 8kg  7.5 mg/kg twice daily for 7 days		1-12 months  125mg every 6 hours for 7 days	6 weeks – 6 months  120mg twice daily for 7 days
	8-11kg  62.5mg twice daily for 7 days		7-12 months  240mg twice daily for 7 days	
<b>Children</b>	12-19kg  125mg twice daily for 7 days	10 mg/kg (maximum 500mg) once daily for 3 days	1-2 years  125mg every 6 hours for 7 days	1-5 years  240mg twice daily for 7 days
	20-29kg  187.5mg twice daily for 7 days		3-8 years  250mg every 6 hours for 7 days	6-12 years  480mg twice daily for 7 days
	30-40kg  250mg twice daily for 7 days		Over 8 years  500mg every 6 hours for 7 days	Over 13 years  960mg twice daily for 7 days
<b>Adults</b>	500mg twice daily for 7 days	500mg once daily for 7 days	500mg every 6 hours for 7 days	960mg twice daily for 7 days
<b>Pregnant women<sup>2</sup></b>	Not recommended	Not recommended	Preferred antibiotic - not known to be harmful	Contraindicated in pregnancy

\* The doses for prophylaxis are the same as those for treatment (across all ages).

<sup>1</sup> Consider if macrolides are contraindicated or not tolerated.

<sup>2</sup> For pregnant contacts a risk assessment should be done to consider the risk and benefits of antibiotic therapy /prophylaxis. The aim of treatment/prophylaxis of pregnant women is to prevent transmission to the neonate. Where possible, pregnant women should begin treatment three days before delivery.



## Laboratory tests

### **Culture samples**

*Send swabs for culture to the local NHS laboratory.*

Take cultures by nasopharyngeal swabs / pernasal swabs / nasopharyngeal aspirates. Do not take throat swabs or anterior nasal swabs.

Sample the posterior nasopharynx using a nasopharyngeal swab/pernasal swab (typically flexible ultrafine twisted wire shaft with nylon/Rayon swab). The Copan-style swab is also acceptable for a nasopharyngeal aspirate. The pernasal swab (PNS) needs to be gently pushed along the floor of the nasal cavity towards the posterior wall of the nasopharynx as this is where the *Bordetella pertussis* bacteria are most likely to be found. After sampling, place the PNS for culture in transport media and transfer it without delay to the local hospital laboratory for processing.

The sensitivity of nasopharyngeal culture is affected by patient age (it decreases as people get older), vaccination status and length of illness. The sensitivity also decreases with time after onset and is highly dependent on specimen quality. Timing the specimen collection is important: sensitivity decreases substantially (55% to under 10%) from week one to week four. This means it is vital to have accurate details about the onset of symptoms on the patient request form.

### **Oral fluid testing (for detecting the anti-pertussis toxin IgG)**

*Send oral fluid testing samples to Colindale (this can be done via the local NHS laboratory).*

This test is offered to seek laboratory confirmation of clinically suspected cases in people aged between 5 and 16 years (that is, under 17) who have had cough for more than two weeks and have NOT received a pertussis vaccine in the past year. Local PHE centres send these kits in response to any such cases reported to them. They will also post the kit directly to patient's home or to a health professional if preferred. Taking the oral fluid sample is straightforward and clearly explained in the instructions included with each kit.

Clinical management and public health action should not be delayed by awaiting results.

### **Serology testing (for detecting the anti-pertussis toxin IgG)**

*Send serology samples to Colindale (this can be done via the local NHS laboratory).*

Serological testing is used to seek laboratory confirmation of cases where the date of onset of cough has been at least two weeks before specimen collection. It detects antibodies to pertussis toxin and an PT IgG titre of 70 international units per millilitre (IU/ml) and above is considered evidence of recent infection (in the absence of vaccination within the past year). This method is predominantly used to confirm cases in older individuals (over 17 years old).

### **Polymerase chain reaction (PCR)**

*Send swabs for PCR to the Regional PHE laboratory at the Leeds General Infirmary (this can be done via the local NHS laboratory).*



PCR testing of swabs continues to be free of charge for primary and secondary care submissions for all patients (including healthcare workers) of any age so long as the pernasal swab or nasopharyngeal aspirate is taken within three weeks of symptom onset.

Take pernasal samples for PCR as for culture above, but send them “dry” if possible (that is, not in transport media). PNS for PCR sent in transport media will still be tested.

*Table 2. Appropriate laboratory tests (and providing laboratories) for cases of suspected pertussis*

Age	Clinical symptoms: Up to 2 weeks of cough	Testing offered by	Clinical symptoms: Over 2 weeks of cough	Testing offered by
<b>For community cases across all ages NPS/PNS for PCR is offered for free through the Regional PHE lab*</b>				
<b>Up to 1 year &amp; hospitalised</b>	NPA/NPS/PNS for PCR	Regional PHE lab*	<i>Same as under 2wks of symptoms</i>	<i>Same as under 2wks of symptoms</i>
	Or NPA/NPS/PNS for culture	Local NHS lab		
<b>Up to 1 year &amp; in the community</b>	NPA/NPS/PNS for culture	Local NHS lab	Serum for serology	Colindale lab*
<b>1-4 years</b>	NPA/NPS/PNS for culture	Local NHS lab	Serum for serology	Colindale lab*
<b>5-16 years</b>	NPS/PNS for culture	Local NHS lab	Oral fluid samples	Colindale lab*
<b>Adults (17 years up)</b>	NPS/PNS for culture	Local NHS lab	Serum for serology	Colindale lab*
NPA nasopharyngeal aspirate. NPS nasopharyngeal swab. PNS pernasal swab. PCR polymerase chain reaction.				
* These samples can be sent via the local NHS laboratory or directly to the specified laboratory.				

If you are uncertain about the testing facilities and where to send samples, please contact your local microbiologist for information.