CD Tip of the Month: Pertussis Case Classification

Tips provided by Joel Blostein, MDCH (August, 2009)

1- For pertussis, MDSS and CDC's National Notifiable Disease Surveillance System (NNDSS) allow only 'Confirmed' and 'Probable' classifications of case reports; there is not a 'Suspect' case classification for pertussis. See the box below for the case definition and classifications.

2- In the majority of cases, a case must report a duration of cough of at **least 14 days** to meet the 'Probable' or 'Confirmed' case definition. If a person is contacted prior to 14 days after cough onset, they need to be re-contacted later to determine if the cough lasted for at least 14 days. **Only a culture positive** case can be considered to be 'Confirmed' with a cough lasting fewer than 14 days.

Be sure to complete the Duration of Cough at Final Interview question on the MDSS case investigation form in the Clinical Information Section.

3- Also, in the majority of cases, a case must have duration of cough for at least 14 days **and** at least one of the following three symptoms: paroxysms of coughing, inspiratory 'whoop' or posttussive vomiting to meet the 'Probable' or 'Confirmed' case definitions.

Exceptions are for non-culture confirmed cases which are part of an outbreak setting or are household contacts to a confirmed case. These cases do not need to have one of the additional clinical symptoms, but still must report a cough of at least 14 days duration. These are considered to be 'Probable'. Culture positive cases with a cough of any duration do not need additional symptoms to be classified as 'Confirmed'

4- A positive PCR test does not automatically mean that the case is 'Confirmed' (a PCR test is **not** the same as culture confirmation). In most cases, a PCR positive case needs to meet the clinical criteria (cough of at least 14 days and one of the other designated symptoms) to be 'Confirmed.'

A positive PCR can be classified as 'Probable' if there is a cough of at least 14 days' duration and no other symptoms when the case is part of an outbreak setting or a household contact to a confirmed case.

5- DFA and serologic testing are **not** approved laboratory confirmation methods. The case must be classified using clinical and epi criteria alone. For example, if the case meets the clinical criteria (cough of at least 14 days plus one other symptom) it can be marked as 'Probable' or if the case meets the clinical criteria **and** is epi-linked to another lab-confirmed case it can be marked as 'Confirmed'.

6-The MDCH VPD Investigation Guidelines for Pertussis contain additional information on case classification:
http://www.michigan.gov/documents/mdch/5Pertussis_Rev2008_231443_7.pdf

Pertussis – CDC/CSTE case definition

Clinical case definition

A cough illness lasting at least 2 weeks with one of the following: paroxysms of coughing, inspiratory "whoop," or post-tussive vomiting, without other apparent cause (as reported by a health professional)

Laboratory Criteria for Diagnosis

- Isolation of *Bordetella pertussis* from clinical specimen
- Positive polymerase chain reaction (PCR) for *B. pertussis*

Case classification

Probable: meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case

Confirmed: a case that is culture positive and in which an acute cough illness of any duration is present; or a case that meets the clinical case definition and is confirmed by positive PCR; or a case that meets the clinical case definition and is epidemiologically linked directly to a case confirmed by either culture or PCR

Comment

The clinical case definition above is appropriate for endemic or sporadic cases. In outbreak settings, a case may be defined as a cough illness lasting at least 2 weeks (as reported by a health professional). Because direct fluorescent antibody testing of nasopharyngeal secretions has been demonstrated in some studies to have low sensitivity and variable specificity (9,10), such testing should not be relied on as a criterion for laboratory confirmation. Serologic testing for pertussis is available in some areas but is not standardized and, therefore, should not be relied on as a criterion for laboratory confirmation.

Both Probable and Confirmed cases should be reported nationally.