

## PERTUSSIS

### *Includes Probable Cases*

#### **Background**

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of a condition important to military-associated populations.

#### **Clinical Description**

Pertussis or “whooping cough” is a highly infectious respiratory disease most commonly considered a disease of childhood. It is caused by the bacterium *Bordetella pertussis*. Clinically pertussis begins with upper respiratory tract symptoms (i.e., cough, runny nose, mild fever) lasting one to two weeks; this stage is followed by the development of severe coughing episodes (paroxysms) that typically involve a characteristic “whoop” upon inspiration. Recovery can be prolonged and affected individuals may experience a persistent cough that takes weeks to months to resolve. Pertussis is vaccine preventable; yet many outbreaks are reported each year in the United States.<sup>1</sup>

#### **Case Definition and Incidence Rules**

For surveillance purposes, a case of pertussis is defined as:

- One record of a reportable medical of pertussis infection; laboratory confirmation *not* required.

For surveillance purposes, a *probable* case of pertussis is defined as:

- *One hospitalization or outpatient medical encounter* with any of the defining diagnoses of pertussis (see ICD9 and ICD10 code lists below) in the *primary* diagnostic position.

#### **Incidence rules:**

For individuals who meet the case definition:

- The incidence date is considered the date of onset documented in a reportable medical event report, or the first hospitalization or outpatient medical encounter that includes a defining diagnosis of pertussis.
- An individual is considered an incident case only *once per lifetime*.

*(continued on next page)*

<sup>1</sup> Armed Forces Health Surveillance Center. Pertussis diagnosis among service members and other beneficiaries of the U.S. Health System, January 2005-June 2012. *Medical Surveillance Monthly Report (MSMR)*; 2012 August; Vol 98(8): 14-17.



### Case Definition and Incidence Rules *(continued)*

#### **Exclusions:** *(applies to probable cases of pertussis only):*

- Cases with *one* medical encounter with evidence of pertussis immunization *within 7 days* before or after the case-defining encounter; as indicated by the following vaccine administered (CVX) codes: 001 (DTP), 011 (pertussis), 020 (DTaP), 050 (DTaP-Hib), 102 (DTaP/DTP-Hib-HepB), 106 (DTaP,5 pertussis antigens), 107 (DTaP, unspecified formulation), 110 (DTap-HepB-IPV), 115 (Tdap), 120 (DTap-Hib-IPV), 130 (DTaP-IPV)
- Individuals with evidence of a positive test for serologic immunity to pertussis *within 7 days* before or after the case defining encounter.
- Cases with *one* Current Procedure Code (CPT) or *one* ICD9/ICD10 procedure code indicating pertussis vaccination or antibody testing recorded during the *same* medical encounter; as indicated by the following codes.
  - ICD9 codes: V03.6 (pertussis alone), V06.1 (DTP, DTaP], V06.2 (DTP TAB), V06.3 (DPT+polio), 99.37 (vaccination against pertussis), 99.39 (administration of diphtheria-tetanus-pertussis, combined). In ICD10 use Z23 (encounter for immunization) plus procedure code for type of immunization.
  - CPT codes: 90698 (DTap-Hib-IPV), 90700 (DTaP), 90701 (DTP), 90715 (Tdap), 90720 (DTP-Hib), 90721 (DtaP-Hib), 90723 (DtaP-HipB-IPV)

### Codes

The following ICD9 and ICD10 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Pertussis (Whooping cough)	A37 (whooping cough)	033 (whooping cough)
	A37.0 (whooping cough due to <i>Bordetella pertussis</i> )	033.0 ( <i>Bordetella pertussis</i> [ <i>B.pertussis</i> ])
	- A37.00 (whooping cough due to <i>Bordetella pertussis</i> without pneumonia)	
	- A37.01 (whooping cough due to <i>Bordetella pertussis</i> with pneumonia)	484.3 (pneumonia in whooping cough)
	A37.1 (whooping cough due to <i>Bordetella parapertussis</i> )	033.1 ( <i>Bordetella parapertussis</i> [ <i>B. parapertussis</i> ])
	- A37.10 (whooping cough due to <i>Bordetella parapertussis</i> without pneumonia)	



- A37.11 (whooping cough due to <i>Bordetella parapertussis</i> with pneumonia)	484.3 (above)
A37.8 (whooping cough due to other <i>Bordetella</i> species)	033.8 (whooping cough due to other specified organism)
- A37.80 (whooping cough due to other <i>Bordetella</i> species without pneumonia)	
- A37.81 (whooping cough due to other <i>Bordetella</i> species with pneumonia)	484.3 (above)
A37.9 (whooping cough, unspecified species)	033.9 (whooping cough, unspecified organism)
- A37.90 (whooping cough, unspecified species without pneumonia)	
- A37.90 (whooping cough, unspecified species with pneumonia)	484.3 (above)

### Development and Revisions

- In June of 2015 the case definition was updated to include ICD10 codes.
- This case definition for pertussis was developed in August 2012 by the Medical Surveillance Monthly Report (MSMR) staff for use in a MSMR article on pertussis.<sup>1</sup> The definition was used more recently in 2014 for a MSMR “Surveillance Snapshot” on pertussis.<sup>2</sup> The case definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

#### Case Definition and Incidence Rule Rationale

- This case definition does not require that the RME report specify laboratory confirmation of pertussis.
- The case finding criterion for a “probable” case of pertussis requires only one hospitalization or outpatient medical encounter. A second encounter is not required to define a case. As such, cases identified using the criterion should be interpreted cautiously. The criterion is sensitive and will identify “possible” cases of pertussis (e.g., in a disease outbreak) that, in fact, are not true or confirmed cases of pertussis. Investigators may want to consider a more specific case definition.

#### Code Set Determination and Rationale

- The code set used for the June 2014 MSMR article on pertussis did not include ICD9 code 484.3 (pneumonia in whooping cough). This code is included in this document and will be included in the code set for future analyses.

<sup>2</sup>Armed Forces Health Surveillance Center. Surveillance Snapshot: States with the Most Pertussis Diagnoses Among Service Members and Other Beneficiaries of the Military Health System, January 2012-June2014. *Medical Surveillance Monthly Report (MSMR)*; 2014 June; Vol 21(6): 18-19.



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**Reports**

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AFHSC reports on pertussis in the following reports:

- Monthly: AFHSC Reportable Events Monthly Report. Available on the AFHSC website at: <http://www.afhsc.mil>; see “Reports and Publications”.
- Weekly: DoD Communicable Disease Weekly Report; Summary of Communicable Reportable Events by Service; Available on the AFHSC website at: <http://www.afhsc.mil>; see “Reports and Publications”.

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**Review**

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Jun 2015	Case definition reviewed and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
Feb 2012	Case definition developed by AFHSC MSMR staff.

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**Comments**

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*Armed Forces Reportable Events:* Pertussis is a reportable medical event in the Armed Forces Reportable Events surveillance system under “Vaccine Preventable” disease.

