



# Epidemiological Alert

## Pertussis (Whooping Cough) 2 March 2012

### Current Situation

Pertussis is regarded as a major cause of childhood morbidity and mortality. An estimated 50 million cases and 300,000 deaths occur every year worldwide. The case-fatality rate in developing countries is estimated to be as high as 4% of infants under 12 months old.

In the Region of the Americas, the annual total of cases range from 20,000 to 30,000. Vaccination coverage with DPT3, in the Region, reached approximately 93% in 2009. However, outbreaks continue to be detected in several countries, indicating that new measures have to be taken in order to increase the degree of protection.

In 2011 and the start of 2012, an increase in pertussis cases has been reported in Argentina<sup>1</sup>, Colombia<sup>2</sup>, Chile<sup>3</sup>, Canada and the USA,<sup>4</sup> with cases predominantly in adolescents and newborns.

In light of this situation, the Pan American Health Organization/World Health Organization (PAHO/WHO) reiterates the recommendations issued by the Technical Advisory Group (TAG) on Vaccine-Preventable Diseases during their XIX Meeting in July 2011.

Member States of the Region are encouraged to increase their level of surveillance, to continuously monitor the level of vaccination coverage in one year old infants and children under 5 years old, with particular emphasis on identifying susceptible groups.

#### Pertussis ( CIE-10 A37.0, A37.9)

Whooping cough is an acute bacterial infection of the respiratory tracts caused by the bacterium *Bordetella pertussis* that is transmitted from an infected individual to another by means of droplets expelled by the respiratory tracts.

The incubation period is between 7 to 10 days, after the which patients develop catarrhal symptoms, including the cough. The different phases of the disease (catarrhal, convulsive and of convalescence) can last from one to several months.

In its catarrhal initial phase, pertussis is easily communicable with a secondary case at a rate of up to 90% in non-immune people who are in contact with the patient.

Patients who are not treated can be contagious for three weeks or more starting for the time of the characteristic cough. Chronic carriers of *B. pertussis* are not frequent.

Most of the cases are in children of one to 5 years old. Between 5 to 6% of pertussis patients suffer complications, with more frequency in infants under 6 months old.

Adolescents and adults are frequent carriers of transmission of *B pertussis*.

<sup>1</sup> Integrated Surveillance Bulletin. Ministry of Health Promotion and Programs. No 109. EW 8. January 2012.

<sup>2</sup> National Health Institute Epidemiological Bulletin. Available at: <http://www.ins.gov.co/?idcategoria=83894&pag=3>

<sup>3</sup> Periodic reports, pertussis. Department of Epidemiology. Chile Ministry of Health.

<sup>4</sup> Centers for Disease Control and Prevention. Pertussis Outbreaks. <http://www.cdc.gov/pertussis/outbreaks.html>

## Laboratorial diagnosis

Bacterial cultivation, polymerase chain reaction (PCR) and serological diagnosis are the laboratory diagnostic tests used to detect infection caused by the bacterium *B. pertussis*.

Etiological diagnosis is based on recovering *B. pertussis* from nasopharyngeal samples obtained during the catarrhal stage and early paroxysmal stage. This test is very specific but not very sensitive (less than 60%) and it requires selective media.

Polymerase chain reaction (PCR) for *Bordetella* is a more sensitive test and can be carried out on the same biological samples used for cultures.

Serological diagnosis is based on detecting a significant increase in the concentration of specific antibodies against pertussis toxin (PT) in paired serum samples collected (catarrhal stage and convalescent stage). This test cannot be used for diagnosis during the first year following vaccination.

## Recommendations

Faced with an increase of whooping cough cases in several countries of the Region, PAHO/WHO makes the following recommendations:

1. Strengthen surveillance in order to monitor the disease burden, to evaluate the impact of immunization through vaccination and to identify outbreaks.
2. Analyze the vaccination coverage of one year old infants and children under five years old, special emphasis on identifying groups without vaccination coverage.
3. Vaccinate health workers to prevent to hospital transmission to infants under six months old and to people with compromised immune systems.
4. Take into consideration the recommendations made at the last meeting of the Technical Advisory Group (TAG) on vaccine-preventable diseases to:
  - a. Implement initiatives to improve pertussis surveillance.
  - b. Immunize pregnant women in the case of an outbreak, for optimal protection of newborns.

## References

1. Final report of the Pan American Health Organization XIX Technical Advisory Group (TAG) Meeting on Vaccine-Preventable Diseases, in Buenos Aires, Argentina, 6-8 July 2011. [http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=1862&Itemid=1674](http://new.paho.org/hq/index.php?option=com_content&task=view&id=1862&Itemid=1674)
2. Pertussis vaccines: WHO position paper. Weekly epidemiological record. No. 40, 2010, 85, 385-400. <http://www.who.int/wer/2010/wer8540.pdf>