
# RAMA UNIVERSITY

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## FACULTY OF NURSING

# EPIDEMIOLOGY OF PERTUSSIS

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# PERTUSSIS

- It is also called as WHOOPING COUGH.

- Is an acute infectious disease, usually of young children caused by *Bordetella pertussis.*

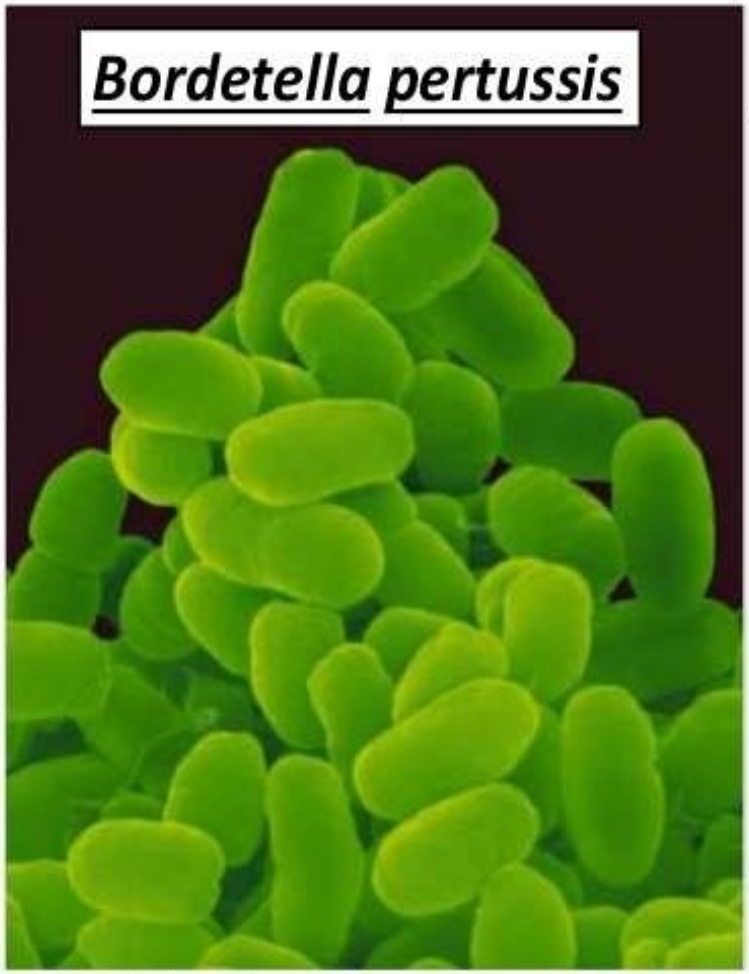
- It is clinically characterized by an insidious onset with mild fever and an irritating cough, gradually becoming paroxysmal with characteristic “whoop” (loud crowing inspiration) often with cyanosis and vomiting.

- The spectrum of the disease varies from severe illness to atypical and mild illness without whoop.

# EPIDEMIOLOGICAL DETERMINANTS

# AGEN

- The causative agent in large proportion is Bordetella pertussis.




- Gram-negative
- Aerobic
- Nonmotile
- Coccobacillus
- Size: 0.8-0.4 um
- Human Pathogen
- Isolated in 1906 by Bordet and Gengou.
- Habitat: mammalian respiratory epithelium

**WHOOPING COUGH**

- (Hoppe 1999) , Todar 2004)

# SOURCE OF INFECTION

- B. pertussis infects only man.
- The source of infection is a case of pertussis.
- A chronic carrier state does not exist.

# NFECTIVE MATERIAL

The bacilli occurs abundantly in the nasopharyngeal and bronchial secretions, which are infective.

Objects freshly contaminated by such discharges are also infective.

# NFECTIVE PERIOD

Whooping cough is most infectious durir
the catarrhal stage.
The infective period may be considered
extend from one week after exposure to
about 3 weeks after the onset of the
paroxysmal stage although communicab
diminishes. rapidly after the catarrhal sta

# SECONDARY ATTACK

Averages 90% in unimmunized household contacts.

# HOST FACTORS

GE : Whooping cough is primarily a disease of
fants and preschool children.
he highest incidence is found below the age of 5
ears.
adults pertussis is often unrecognized because of
s atypical course.
owever the older age groups represent an importa
ource of infection for susceptible infants.
cidence and fatality are observed to be more amo
male than male children

# IMMUNITY

- Adequate immunization ensures a good immunity to the disease.

- Also recovery from pertussis also confers immunity.

# ENVIRONMENTAL FACTORS

Disease shows a seasonal trend with more cases occurring during winter and spring months, due to overcrowding.

Socio economic conditions and ways of life also play a role in the epidemiology of the disease.

Thus the exposure of risk is greater in the lower social classes living in overcrowded conditions

# MODE OF TRANSMISSION

Whooping cough is mainly spread by droplet infections and direct contact.

Each time the patient coughs, sneezes or talks the bacilli are spread into the air.

# INCUBATION PERIOD

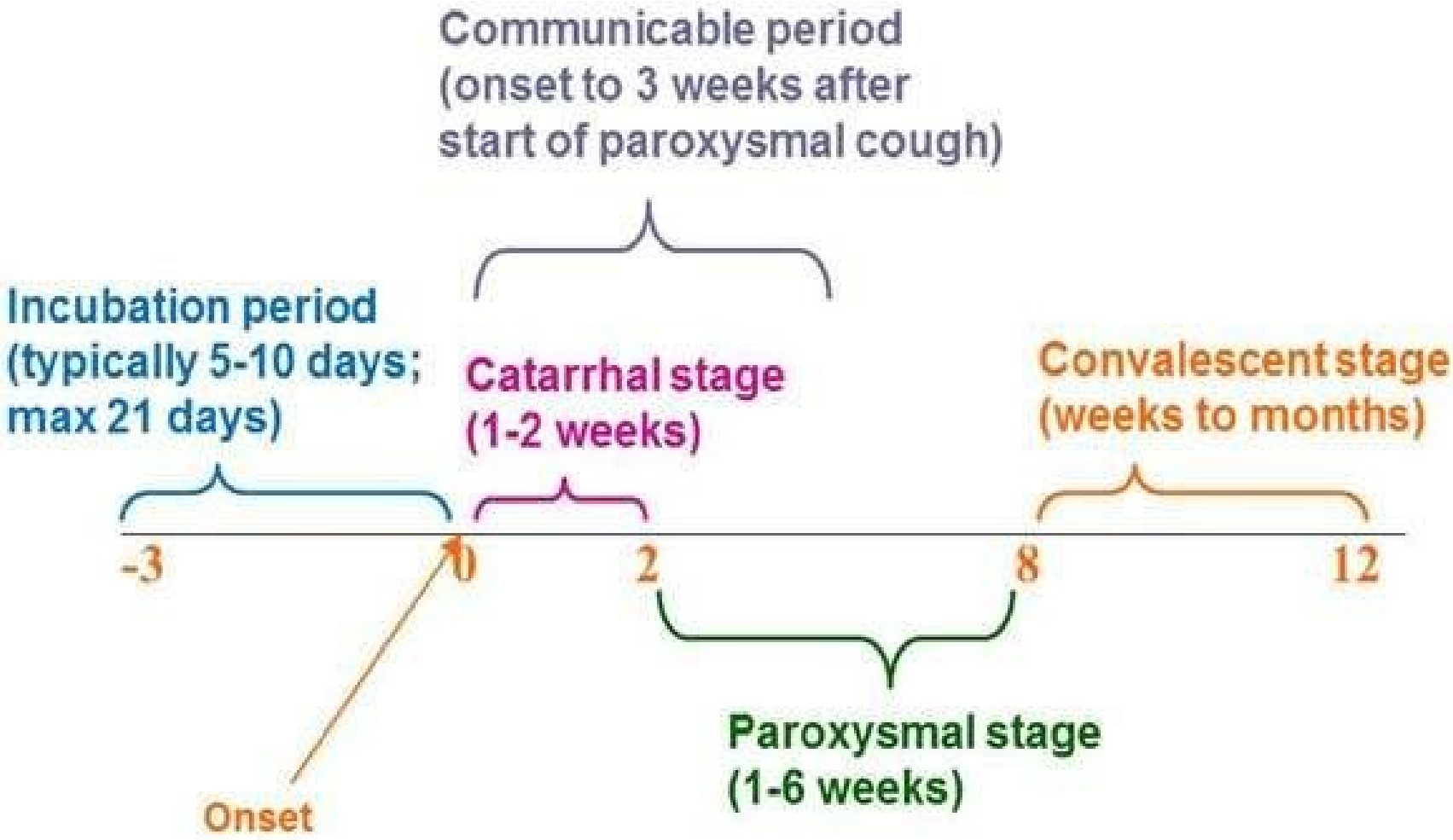
- Usually 7 to 14 days, but not more than 3 weeks.

# CLINICAL COURSE

- B pertussis produces a local infection; the organism is not invasive.
- It multiplies on the surface epithelium of the respiratory tract and causes inflammation and necrosis of the mucosa leading to secondary bacterial infection.

- **Three stages can be seen in the clinical course of the disease.**
- 1.CATARRHAL STAGE.
- 2. PAROXYSMAL STAGE.
- 3. CONVALESCENT STAGE.

# Clinical Course (in weeks)



# CATARRHAL STAGE

- Lasts for 10 days.

- It is characterized by its insidious onset, lacrimation, sneezing and coryza, anorexia, malaise and general hacking night cough that becomes diurnal.

# PAROXYSMAL STAGE

Lasts for 2-4 weeks.
It is characterized by bursts of rapid, consecutive coughs followed by a deep, high pitched inspiration (whoop).
It is usually followed by vomiting.
In young infants it may cause cyanosis and apnoea.

- In adults and adolescents, uncharacteristic, persistent cough may be the only manifestation .

# CONVALESCENT STAGE

- Lasts for 1-2 weeks.
- The illness generally lasts 6 – 8 weeks.

# COMPLICATIONS

- Complications occur in 5-6 percent cases, most frequently in infants aged less than 6 months.
- The chief complications are; bronchitis, bronchopneumonia and bronchietasis.
- The violence of the paroxysms may precipitate subconjunctival haemorrhages, epistaxis, haemoptysis and punctate cerebral haemorrhages which may cause convulsions and coma.

# CONTROL OF PERTUSSIS

# CASES

The general principles of control includes early diagnosis, isolation and treatment of cases, and disinfection of discharges from nose and throat.
Early diagnosis is possible only by bacteriological examination of nose and throat secretions (obtained from nasopharyngeal secretions - swabs).
Erythromycin is the drug of choice.

dose of 30-50mg/kg of body weight in
divided doses for 10 days has been
ecommended.
ossible alternatives are
mpicillin, septran or
etracycline.

During paroxysmal phase of disease, antimicrobial drugs will not change the clinical course but may eliminate the bacterium from the nasopharynx and thus reduce the transmission of the disease.

# CONTACTS

- Infants and young children should be kept away from cases.

- Close contacts may be given prophylactic antibiotics (erythromycin or ampicillin) for 10 days to prevent the infecting bacteria to become established.

# ACTIVE IMMUNIZATION

The vaccine is usually administered in the national immunization programme as combined DPT.

3 doses (each dose about 0.5 ml) of DPT vaccine intramuscularly- at 1 month interval, starting at the age of 6 weeks.

A booster dose is given at 18-24

# PASSIVE IMMUNIZATION

- Hyperimmune globulin is administered.

- The merit of passive immunization is yet to be established.