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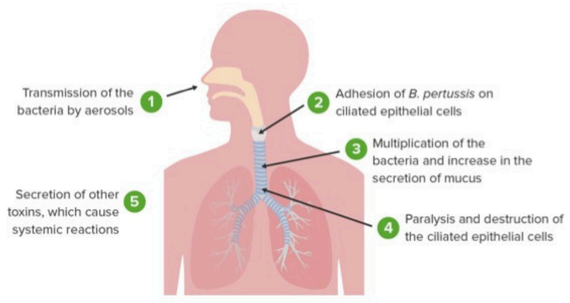
1785

Novel murine model reveals an early role for pertussis toxin in disrupting neonatal immunity to Bordetella pertussis

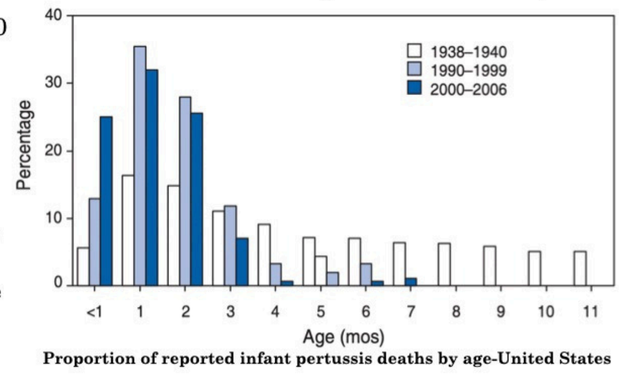
Introduction: *Bordetella pertussis causes "whooping cough"*

- Gram-negative
- Causes respiratory disease
- Attach to cilia of respiratory epithelial cells
- Bacterial factors delay immune cell action, leading to inflammation and disease



Introduction: *High incidence and mortality in newborns*

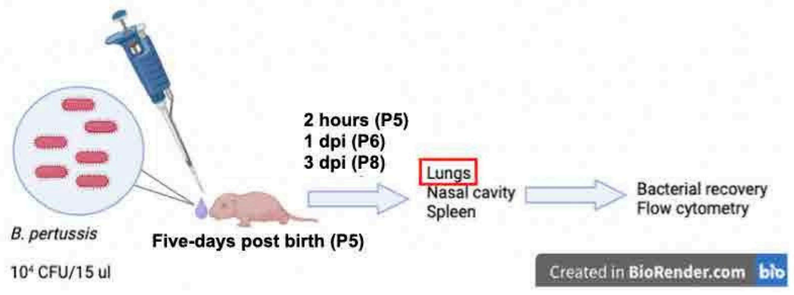
- Incidence for persons >20 years is 1.4 per 100,000
- Incidence for infants <6 months is 72.3 per 100,000
- Infants under **3 months** suffer the most complications and severe disease related to *B. pertussis*



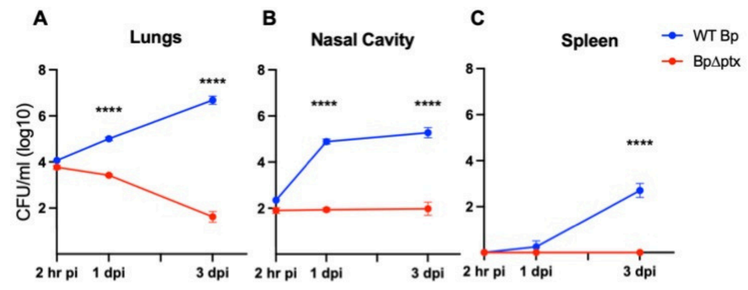
Proportion of reported infant pertussis deaths by age-United States

Source: Prevention of pertussis, tetanus, and diphtheria among pregnant and postpartum women and their infants. Recommendations of the Advisory Committee on Immunization Practices (ACIP)

Development of a novel neonatal *B. pertussis* infection model



Pertussis toxin disrupts neonatal control and immune responses in the lung

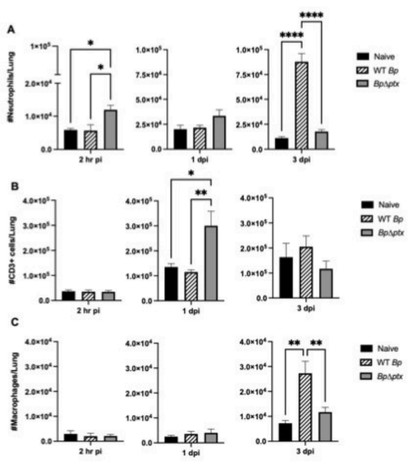


Pertussis toxin disrupts neonatal control of *B. pertussis* in the lungs

Pertussis toxin disrupts neonatal control and immune responses in the lung

- Pups inoculated with *BpΔptx* had significantly higher neutrophil counts at 2 hours and T cells at 1 dpi
- Pups inoculated with WT *Bp* had significantly higher neutrophils and macrophages at 3 dpi

Pertussis toxin disrupts early accumulation of neutrophils and T cells



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November 15, 2023

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