# Etiology of clinical community-acquired pneumonia in Swedish children aged 1-59 months with high pneumococcal vaccine coverage – The TREND Study

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## Conclusions

Defining CAP in children is challenging. The WHO definition of clinical CAP is not suitable for use in children immunized with PCV in high-resource settings, as it would result in inappropriate antibiotic prescription.

## Background

Immunization with pneumococcal conjugate vaccines (PCV) has decreased the burden of community-acquired pneumonia (CAP) in children and led to a shift in CAP etiology.

There is a need for new studies on CAP etiology to improve our understanding of the disease and guide the antimicrobial treatment.

## Methods

The Trial of Respiratory infections in children for ENhanced Diagnostics (TREND) etiology study was a prospective observational study at a pediatric hospital in Stockholm, Sweden, enrolling children aged 1-59 months with clinical CAP according to the World Health Organization (WHO) criteria.

Children with rhonchi and indrawings received inhalation with a bronchodilator and were then reevaluated. C-reactive protein and nasopharyngeal aspirates for real-time PCR were collected from all children.

Etiology was defined according to an a priori defined algorithm.

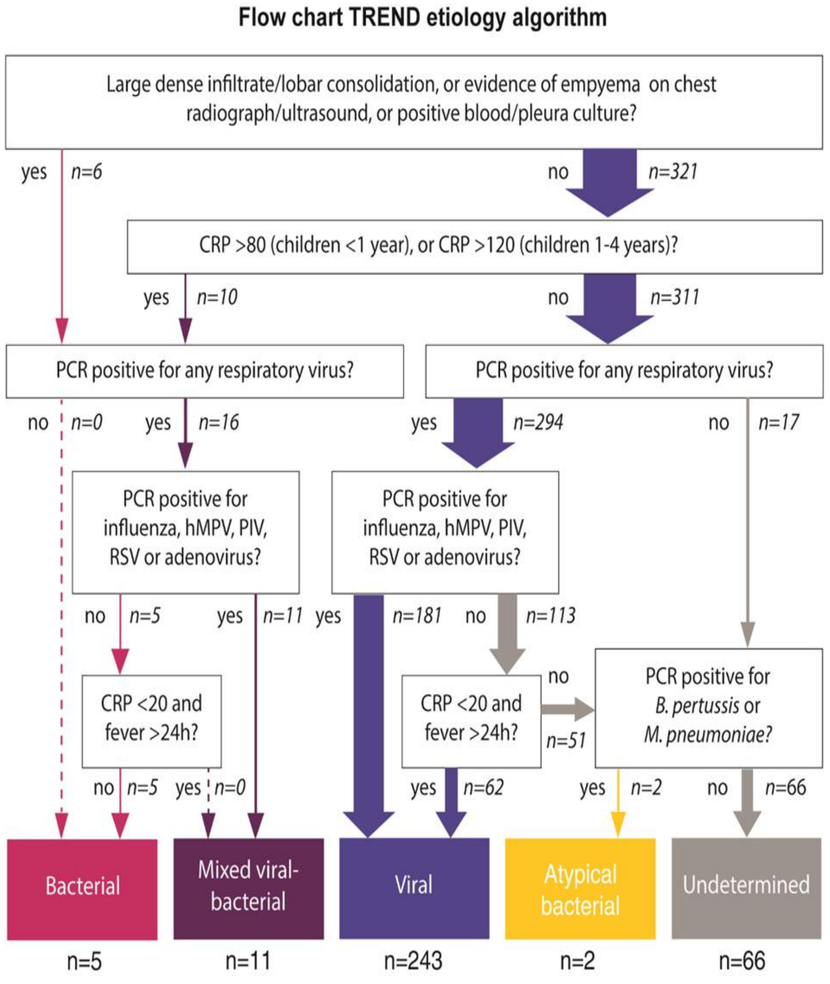


Figure 1: Flowchart of the TREND etiology algorithm.

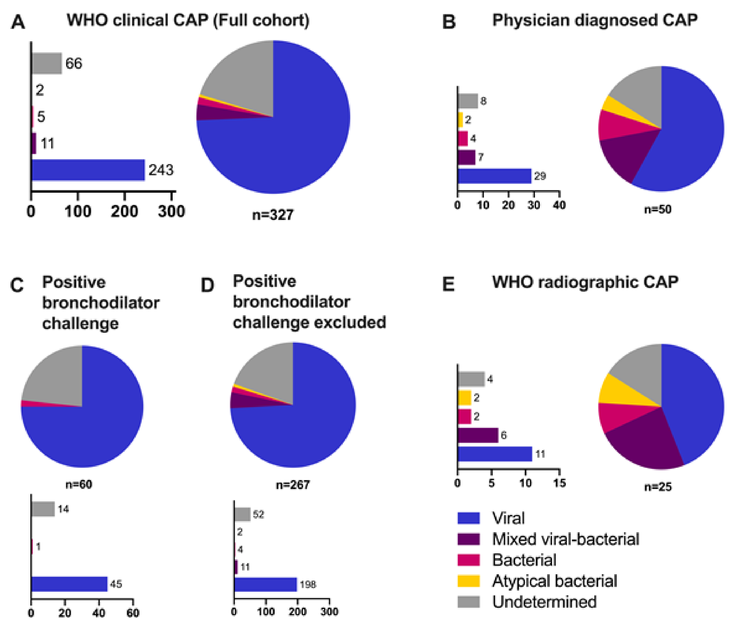


Figure 2: Etiology classification of children with clinical CAP in the TREND study in A) the full cohort based on WHO criteria (n=327), B) children with physician-diagnosed CAP (ICD-10 code of J10.0, J11.0 or J12-J18) (n=50), children C) with (n=60) or D) without (n=267) positive bronchodilator challenge and E) children with radiographic CAP (n=25).

## Results

327 children were included. The novel TREND etiology algorithm classified 243 (74%) as viral, 11 (3%) as mixed viral-bacterial, five (2%) as bacterial, two (0.6%) as atypical bacterial, 66 (20%) as undetermined. Sensitivity analyses had no significant impact on the results.

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