



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

## UMP. 655

**Prevalence of Nasopharyngeal Isolates and their Clinical Impact on Young Children with Asthma**

A. Alsuwaidi<sup>1,\*</sup>, A. Alkalbani<sup>2</sup>, A. Alblooshi<sup>3</sup>, J. George<sup>3</sup>, S. Kamal<sup>4</sup>, H. Narchi<sup>3</sup>, A.-K. Souid<sup>1</sup>

<sup>1</sup> UAE University, College of Medicine & Health Sciences, Al Ain, United Arab Emirates

<sup>2</sup> Tawam Hospital, Abu Dhabi Health Services Company (SEHA), Al Ain, United Arab Emirates

<sup>3</sup> United Arab Emirates University, Al Ain, United Arab Emirates

<sup>4</sup> Ambulatory Healthcare Services, SEHA, Abu Dhabi, United Arab Emirates

**Background:** Respiratory infections have significant effects on childhood asthma. We studied here the nasopharyngeal colonization in children with asthma to determine the prevalence of pathogens and their contribution to respiratory symptoms and airway resistance during winter.

**Methods & Materials:** From December-2016 to March-2017, 50 nasopharyngeal specimens were collected from 18 patients (age,  $5.0 \pm 1.1$ y) with asthma and nine specimens from nine control children (age,  $4.9 \pm 1.0$ y). Samples were tested for 19 viruses and seven bacteria, using multiplex RT-PCR. Respiratory disease markers included the Global Asthma Network Questionnaire, the Common-Cold Questionnaire, the Global Initiative of Asthma (GINA) assessment of asthma control, and the airway resistance at 5 Hz (R5) by forced-oscillation technique.

**Results:** The most commonly isolated organisms were *Streptococcus pneumoniae*, *Haemophilus influenzae* and rhinovirus. The majority of patients had multiple isolates (median, 3.5; range, 1-5), which changed during the study period. Types of isolates were four bacteria (*Streptococcus pneumoniae*, *Haemophilus influenzae*, *bordetella pertussis*, and *bordetella parapertussis*) and eight viruses (rhinovirus, enterovirus, metapneumovirus, adenovirus, coronaviruses, and parainfluenza viruses). Similar isolates, including influenza A-H3 virus and bocavirus, were detected in the controls. Of the nine patients with 'wheezing disturbing sleep  $\geq 1$  per week', six had rhinovirus, two had coronaviruses, and one had no detectable viruses. Patients with mild common-cold symptoms had significantly higher R5 z-score ( $p = 0.025$ ).

**Conclusion:** Multiple respiratory pathogens were isolated from the majority of patients with asthma, which appeared to contribute to disease symptoms and airway resistance. Thus, children's exposure to respiratory pathogens should be minimized, especially during winter. This approach may lower the need for escalation of asthma therapy.

<https://doi.org/10.1016/j.ijid.2018.04.4167>



## UMP. 656

**Community Acquired Pneumonia Etiology Study (CAPES): Experience of over 4000 cases from a single centre in India**

J.L. Mathew<sup>1,\*</sup>, S. Singhi<sup>1</sup>, P. Ray<sup>2</sup>, M. Chadha<sup>3</sup>, V. Gautam<sup>2</sup>, B. Ravi Kumar<sup>4</sup>, A. Nilsson<sup>5</sup>

<sup>1</sup> PostGraduate Institute of Medical Education and Research, Advanced Pediatrics Centre, Chandigarh, India

<sup>2</sup> Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, Medical Microbiology, Chandigarh, India

<sup>3</sup> National Institute of Virology Pune India, Influenza, Pune, India

<sup>4</sup> Xcyton, Bangalore, India

<sup>5</sup> Karolinska Institutet, Stockholm, Sweden

**Background:** India has the largest burden of childhood community acquired pneumonia (CAP), but lacks well-designed studies reporting microbial etiology. The Community Acquired Pneumonia Etiology Study (CAPES) was undertaken for this knowledge gap.

**Methods & Materials:** Children (1-144 mo) with CAP < 7 days diagnosed by WHO IMNCI criteria, were enrolled through community and hospital-based surveillance during April 2011 to December 2014. All underwent blood and nasopharyngeal aspirate (NPA) bacterial culture. Multiplex Viral PCR in NPA was performed retrospectively in 40% cases representative of the whole cohort.

**Results:** A total of 4045 children were enrolled; 13.1% had very severe pneumonia, 54.3% severe pneumonia and 32.6% non-severe pneumonia. Blood culture yielded pathogens in 2.0%; Gram negative bacilli predominated (*Klebsiella pneumoniae* 12, *Pseudomonas aeruginosa* 6, *Acinetobacter baumannii* 6, *Salmonella typhi* 3, others 4), followed by *S. aureus* (22), *S. pneumoniae* (12), *H. influenzae* 5, and others (one each of 11 organisms). NPA culture yielded potential pathogens in 15.0% cases: *S. pneumoniae* (522), *H. influenzae* (51), *S. aureus* (27), *Pseudomonas aeruginosa* (4) and others (5). Blood and NPA cultures were discordant in most cases. Multiplex PCR in 1731 (42.8%) cases revealed viruses in 805 (46.5%): RSV (423), Rhinovirus (143), parainfluenza virus (65), human metapneumovirus (47), coronavirus (24), influenza virus (19), others (33) and combinations (51). Attributing etiology based on bacteremia or NPA viruses associated with pneumonia (RSV, PIV, HMPV or Influenza) confirmed etiology in 636 (15.7%) cases. Inclusion of NPA bacteria in those negative for bacteremia or pathogenic viruses, yielded etiology in another 423 (10.5%) cases. Inclusion of non-pneumonia viruses in the remainder provided potential etiology in an additional 196 (4.5%) cases. Overall, etiology was bacterial in 505 (12.5%), viral in 750 (18.5%) and indeterminate in the remainder. There were no obvious differences in etiology pattern with respect to age groups, pneumonia severity, symptoms, duration of symptoms, and presence of risk factors. However, those with wheezing were more likely to have viruses (especially RSV). Demographic parameters and clinical symptoms also did not differ among the different pathogens.

**Conclusion:** RSV, Gram negative bacteria, and *Staphylococcus aureus* are the dominant pathogens in childhood CAP in India.

<https://doi.org/10.1016/j.ijid.2018.04.4168>

