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## The Burden of Pneumonia in Children of India and Prospects for Pneumonia Control during Covid 19



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HUMAN

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### ABSTRACT

**Background:** Bacterial pneumonia remains one of the leading causes of illness and death. National and international guidelines dealing with pneumonia have been developed sometime in recent years, with the aim of improving the care and outcomes of pneumonia. This article addresses many of those managerial issues in the context of a change in the management of precise patient organizations. The importance of risk planning and emergency department management is mentioned. Similarly, response to treatment and follow-up control is evaluated. Background evidence of gift work, future guidelines for pneumonia control with the advent of the latest biomarkers, and the impact of active pneumonia vaccines are discussed.



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## INTRODUCTION

Pneumonia continues to be a number one explanation for kid mortality worldwide, with Asian nation accounting for 2 hundredth of all deaths and also the burden of childhood respiratory disorder than the other country.<sup>1</sup> At The Lancet kid & Adolescent Health, Brian Wahl and colleagues<sup>2</sup> reportable the primary. A comprehensive assessment of the incidence of respiratory disorder in specific kid populations in Asian nation employing a risk-based modelling. By citing the result of temporary changes within the prevalence of well-known cases of respiratory disorder like deficiency disease, incomplete vaccinations, and exposure to indoor pollution wherever they occur, the authors estimate changes in respiratory disorder over time. Wahl and colleagues obtained individual-level information from the National Family Health Survey in Asian nation to model the quantity of youngsters with every combination of risk factors, so hard the interaction between risk factors, that could be a new a part of the study compared to previous models. UN agency have thought of the prevalence of risk factors to be freelance.<sup>2</sup> necessary insights gained from this study on national and sub-pneumonia rates could inform data-driven interventions to handle respiratory disorder.<sup>2</sup> At the national level, associate degree calculable variety of cases of respiratory disorder in Indian HIV-negative youngsters starting from eighty three million eight million cases (95% uncertainty [UI] fourteen 0–300 · eight) in 2000 to forty nine 8 million cases (9·1–174·2) in 2015. State-level estimates highlight the nice diversity of events and progress within the reduction that exists between the provinces. In state and Madhya Pradesh, over half all youngsters underneath the age of five were diagnosed with respiratory disorder in 2015 (565 cases per a thousand youngsters [95% UI 94-2047] in Uttar Pradesh; 563 cases with a thousand youngsters [88] -2084] in Madhya Pradesh). In distinction Kerala and state districts have terribly low rates of respiratory disorder (137 cases per a thousand youngsters in Kerala and 169 cases per a thousand youngsters in Tamil Nadu). In Kerala and state between 2000 and 2015, might introduce ways to attain comparable weight reduction in different provinces and countries.

With the health care system in Asian nation ruled primarily by thirty six provinces and union areas, sub-national policies and investments area unit essential to health outcomes. Kerala and state area unit among the very best health prices per person in Asian nation, though these provinces aren't the richest. The quantity of health care employees per a hundred, 000 individuals in 2001, was considerably higher in Kerala (394) and state (223) than in state (110) and state (135).<sup>3</sup> additionally, diversity of public health services among rural areas and

concrete area unit are terribly low in Kerala and state. In distinction, kid mortality varies considerably between the agricultural and concrete areas of state and state. Access to health care additionally affects people's probabilities of seeking respiratory disorder. Specifically, ninetieth {of individuals of individuals} in rural Kerala obtain respiratory disorder treatment compared to hr of rural people in state.<sup>4</sup> power immunizing agent for Haemophilus influenzae B, the leading explanation for microorganism respiratory disorder and infectious disease, introduced in Kerala and state earlier. Nationwide enlargement at the tip of 2015.

In 2010, pneumococcal pneumonia accounted for 30% of all pneumonia deaths in India.<sup>5</sup> In 2017, the Indian Department of Health and Family Welfare allocated national funding to provide a vaccine for pneumococcal conjugate, with significant distribution in the provinces and a heavy burden of pneumonia. The use of the Wahl-based approach and its partners in regional-level data on the risk factors for pneumonia will make it easier to prioritize between provinces.

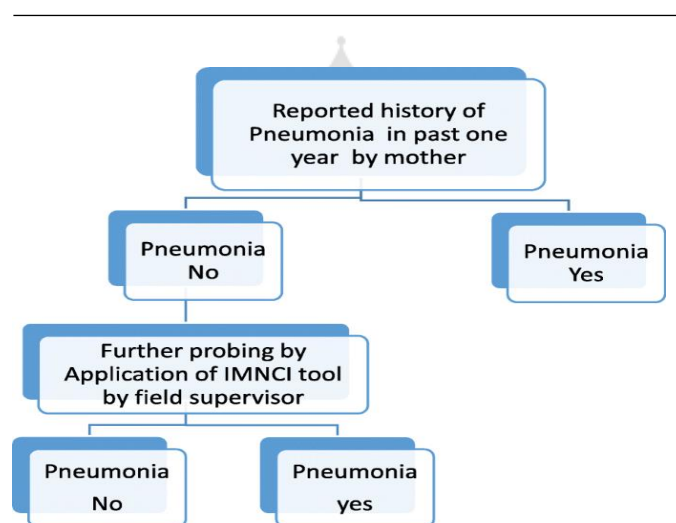


Figure 1. Cluster of pneumonia<sup>16</sup>

Currently, India has the largest number of children (under the age of 14) in the world. For these children to be able to have a healthy and productive life, it is important to reduce the challenge of pneumonia by using different preventive measures. A number of policies, including improving nutrition and reducing pollution, which can reduce the incidence of pneumonia, are also in line with the UN Sustainable Development Goals and have implications for other diseases. For example, child malnutrition is seen as a risk factor for

many diseases such as HIV, tuberculosis, and malaria.<sup>6</sup> Therefore, Indian Government programs such as the Integrated Child Development Service program, the National Health Mission, and Village Health Sanitation and the Food Committee Nutritious food will also contribute to reducing the burden of pneumonia.<sup>7</sup> Another national program, Pradhan Mantri Ujjwala Yojana,<sup>8</sup> which aims to remove contaminated cooking oil from Indian homes with cooking gas, will also reduce household pollution, which is key risk of pneumonia.

The national closure in India from March 24<sup>th</sup> to July 3<sup>rd</sup>, 2020, the fight against COVID-19 disrupted the provision of these services. In addition, the economic effects of the COVID-19 epidemic may delay the rise of the pneumococcal conjugate, which may halt progress in reducing the burden of pneumonia. Future research investigating the cost of pneumonia prevention measures against all other diseases may increase the findings of Wahl and colleagues, and lead to the strengthening of resources needed to strengthen and expand these important interventions.

We declare that there aren't any competitor interests.

## **Epidemiology**

SARS-CoV-2 virus is transmitted by droplets and by direct or indirect contact with infected objects<sup>9</sup>. The exact duration of the virus in the upper extremities is not yet clear, but it was found that ~ 48-72 h in plastic and metal, and ~ 4-8 h in copper and cardboard.<sup>10</sup> Cohabitation with patients with symptoms or symptoms is a major source of childhood infection<sup>11</sup>, but given the frequency of paucisymptomatic forms in crowds of children, children may be a vector of frequent infections in adults and adults. The positivity in reverse transcription polymerase chain reaction (RT-PCR) of SARS-CoV-2 in the new-born and infants for a few weeks, even after a malignant nasopharyngeal swab<sup>12</sup>, may indicate that faces may represent an alternative to viral transmission.

However, since the growth of this virus in wild cultures — and therefore its effectiveness in the wild — has not been demonstrated, further research is needed to determine the possible mechanism of transmission of the virus by fecal. Similarly, mother-to-child transmission has been closely monitored since the onset of the epidemic. The first report of nine women with COVID-19 in their third trimester of pregnancy confirmed the absence of SARS-CoV-2 in amniotic fluid, cord blood, and breast milk.<sup>13</sup> Recently, maternal and child infections have been confirmed in three children (infection rate: 9%) born to a positive mother; one of these

children developed respiratory symptoms within 48 hours of life.<sup>14</sup> However, a larger retrospective group analysis involving 101 infants born to 100 SARS-CoV2 mothers did not show any direct transmission of any of these.<sup>15</sup>

### Pathogenesis of Lung Damage

When SARS-CoV-2 enters the newly infected person's airways, the viral S protein (spike protein) binds in close proximity to the angiotensin-converting enzyme 2 (ACE2) of the transmembrane receptor cell located in the epithelial cell membrane respiratory, especially type II pneumocytes. Next, the ACE2 receptor and SARS-CoV-2 are transported inside the cell and the S-protein is bound to the protease TMPRSS2, attracting the release of viral RNA into the cell and allowing its replication (Figure 1).

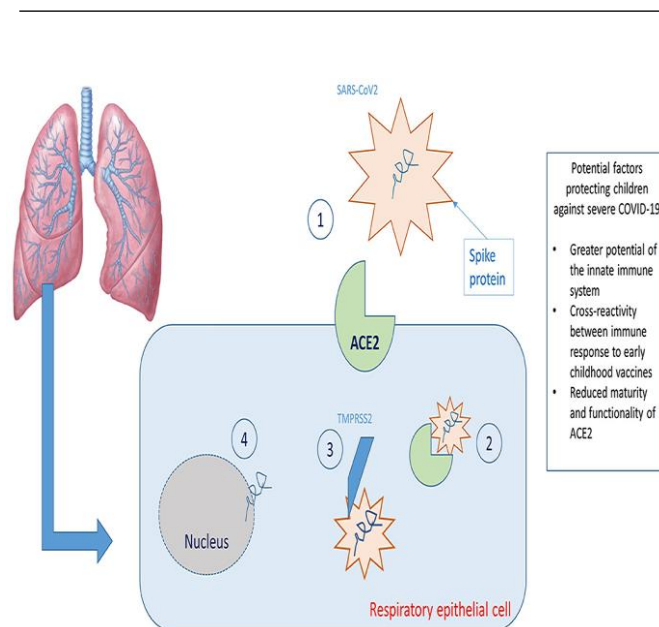


Figure 2. Graphic representation of the virus host interaction<sup>17</sup>

The ACE2 receptor is subsequently bound by the tumor necrosis factor alpha converting enzyme (TACE or ADAM17), a metalloprotease that allows the release of ACE2 ectodomain (defined as soluble ACE2) in the cellular outer space. Soluble ACE2 is enzymatic and appears to be able to combine with SARS-CoV-2. This has led to speculation that administration of combined human ACE2 may reduce secondary inflammation of the SARS-CoV-2<sup>18</sup> action.

## CONCLUSION

This review summarizes the options of COVID-19 in medicine statistics, with a spotlight on respiratory organ involvement. Though the clinical image of COVID-19 in kids is worse than in adults, the progression of the malady continues to be potential and will, therefore, be a applicable treatment. It ought to even be stressed that kids, though paucisymptomatic, square measure necessary pathogens of this malady.

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