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Fatima Mir

Aga Khan University, fatima.mir@aku.edu

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## Letter

# Silent epidemic of childhood bronchiectasis in Pakistan: An infectious disease physician's perspective

Fatima Mir\*

Associate Professor, Department of Paediatrics and Child Health, the Aga Khan University, Karachi, Sindh 74800, Pakistan



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Resource-poor countries like Pakistan, which have a high burden of childhood pneumonia and under 5 pneumonia mortality, are still grappling with lifelong consequences of pneumonia, like paediatric bronchiectasis [1,2]. Infants and young children cannot use diagnostic and prognostic resources (laboratories, radiology) available to adults with chronic lung disease in Pakistan with ease. They require additional support such as sedation during procedures, age-appropriate laboratory cut-offs, child-friendly spirometry, and molecular tests for relevant primary disorders (cystic fibrosis/inherited or acquired immune deficiency/Kartageners Syndrome). Diagnostic limitations have contributed to an under-estimation of the burden of childhood bronchiectasis in Pakistan [3]. A national registry of bronchiectasis (adult and paediatric) is also lacking [4], which could benefit patients and streamline the need for specialised treatments or transplantation.

Pakistan lacks a sufficient number of paediatric pulmonologists and has very few paediatric respiratory therapists at present. As a paediatric infectious disease physician, I began receiving referrals for children with bronchiectasis and impending respiratory failure in 2014. Families were mostly in denial about why their children were chronically unwell. They were not aware of the importance of efficient and regular pulmonary hygiene, or the different care required in well versus sick days. Aggressive management at a possibly too-late timepoint was difficult to implement. Parents would not consent to necessary interventions like indwelling intravenous lines, feeding tubes and/or diagnostic bronchoalveolar lavage as they were perceived as too invasive. Providing broad spectrum antibiotics through peripheral lines and nutritional rehabilitation by mouth to a sick child with respiratory distress was invariably unproductive. There was also no capacity to supervise home bilevel positive airway pressure and end of life care to children with air-hunger at that time. Each missing link in the chain of care in Pakistan (affordable diagnostics, patient and parent education, effective nutritional rehabilitation,

optimised pulmonary hygiene, management of chronic pulmonary colonisation and acute pulmonary exacerbations, social support for affected children and their families, monitoring of quality of life, and access to end of life care and palliative services) is already a recognised research priority [5].

Over time, a team of in-house experts (respiratory therapist, general paediatrician with respiratory interest, geneticist, infectious disease physician, gastroenterologist/nutritionist, endocrinologist, intensivist, adult pulmonologist, microbiologist) have come together at the Aga Khan University (AKU) Karachi and treated multiple children with bronchiectasis. We now understand that the 250 plus children with Bronchiectasis seen at AKU are not accounted for by cystic fibrosis alone. Although there is a fair share of post tuberculosis and inherited immune deficiency, there are also many without pre-existing conditions and a history of recurrent pneumonia alone.

Given the paucity of paediatric pulmonologists in the country, chronic lung infections are generally dealt with by general paediatricians, who may not be optimally equipped to escalate care, or by a small number of paediatric infectious disease physicians. Training programs in paediatric infectious disease, critical care, endocrinology, and now Respiratory Therapy at AKU are new sources of hope as they are beginning to create a group of experts who can formalise team approach, develop and disseminate customised guidelines for care in Pakistan of children with bronchiectasis using academic forums like Pakistan Paediatric Association.

Our roadmap for formalising care of children with bronchiectasis includes creating a paediatric bronchiectasis registry at AKU which will not only provide a base for effective indigenous research output but also allow development of a Paediatric Respiratory Care Program through a Karachi-based childrens' hospitals sisterhood (AKU/ National Institute of Child Health/The Indus Hospital Network). We hope this can provide a proof of concept for similar private-public health institution partnerships across the country, committed to improving survival and quality of life for children and parents dealing with childhood bronchiectasis.

## Contributors

FM confirms sole responsibility for the conception and preparation of this commissioned letter for the Health Inequalities Series.

\* Corresponding author.

E-mail address: [fatima.mir@aku.edu](mailto:fatima.mir@aku.edu)

### Declaration of Competing Interests

No conflicts of interest to declare.

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