

## Tuberculosis transmission among children and adolescents

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The situation caused by the COVID-19 pandemic in the world has reversed the progress that had been made in tuberculosis control. In 2021, the estimated number of deaths from tuberculosis was more than double the number caused by HIV/AIDS. According to the World Health Organization (WHO) 2022 report, the reduction in the number of tuberculosis notifications in 2020 and 2021 suggests that the number of people with undiagnosed and untreated tuberculosis has increased, resulting in more tuberculosis deaths and greater community transmission.<sup>1</sup>

Facing the challenges of tuberculosis management in childhood and adolescence requires knowing and addressing the problem from all its aspects. In this sense, the article published in this issue of *Archivos Argentinos de Pediatría* about a population of schoolchildren exposed to tuberculosis provides valuable information, focusing on a particular aspect of the control of tuberculosis in the community.

The study by Blumenfeld et al. assesses the transmission of *Mycobacterium tuberculosis* among children and adolescents in schools located in an area of the City of Buenos Aires with a high burden of tuberculosis, and points out the difficulties in the acceptance of diagnostic tests and adherence to preventive management.<sup>2</sup> Schools are settings where everyday shared space and proximity

facilitate the transmission of tuberculosis. Preventing the spread of tuberculosis in schools is part of the comprehensive care that should be provided during childhood and adolescence.

The recommendation is to have household contacts and other close contacts of persons with pulmonary tuberculosis screened for tuberculosis. Contact tracing is the systematic procedure for locating individuals who are ill or infected with tuberculosis among those who have spent time with someone who has infectious tuberculosis. It consists of the identification, clinical assessment, diagnostic testing, and provision of appropriate tuberculosis treatment for cases with tuberculosis disease or preventive treatment for those without active tuberculosis.<sup>3</sup>

Contacts sharing the household with the infectious case should be tested as a priority. Persons who share the same room with the tuberculosis patient for 1 or more nights, for extended periods of the day, in the past 3 months since the identification of the case, or since the onset of symptoms are also considered at risk for infection. Frequent contacts who share their work or school environment on a daily basis should be included in this group, especially if the index case has positive microbiological tests, many respiratory symptoms and/or extensive or cavitated lesions on the chest X-ray.<sup>4,5</sup>

To rapidly detect those contacts who are a

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priority for therapeutic management, the WHO recommends identifying those who may have tuberculosis disease and any of the following symptoms: cough for more than 2 weeks, fever for more than 2 weeks, weight loss or lack of weight gain in the past 3 months, and/or pathological chest X-ray. For patients with respiratory symptoms who can cough effectively, a sputum microbiology test (sputum smear or rapid molecular diagnostic techniques, such as Xpert MTB) is also indicated.<sup>4</sup>

The tuberculin test should not be used to screen for tuberculosis disease because it does not distinguish tuberculosis infection from tuberculosis disease and may also yield false-negative results.<sup>4</sup>

The gap between detected and estimated tuberculosis cases is a serious health problem, and children and young adolescents are the groups in whom the disparity is greatest. Major challenges to address this situation include reducing missed opportunities for tuberculosis prevention and increasing tuberculosis detection in the pediatric population.<sup>6</sup>

Active case-finding and preventive treatment (chemoprophylaxis) of those at risk for tuberculosis is critical, as children with *M. tuberculosis* infection may become future cases of tuberculosis disease. The effectiveness of tuberculosis preventive management to avoid the development of tuberculosis disease in children and adolescents with tuberculosis infection has been estimated at 91%.<sup>7</sup> Children younger than 5 years, immunocompromised children, and those recently infected are the contacts who benefit the most from chemoprophylaxis.

On average, 5–10% of people with tuberculosis infection develop tuberculosis disease during their lifetime. The risk for developing tuberculosis disease after infection increases at pediatric ages, especially among young children and people with conditions such as HIV, in whom disease progression is also more rapid.

Recommendations on the management of pediatric and adolescent contacts<sup>3-5</sup> are specific, stating that once tuberculosis disease has been ruled out, preventive treatment is indicated for at-risk groups:

- Children under 5 years of age, regardless of tuberculin test (PPD) result.

- HIV-positive and other immunocompromised persons of any age, regardless of tuberculin test (PPD) result.
- Contacts older than 5 years with tuberculosis infection (positive PPD or tuberculin conversion).

The study conducted by Blumenfeld et al. highlights the need to facilitate the performance of infection detection tests, chest X-rays, and contact tracing, since a significant number of loss to follow-up and lack of adherence to the indication of preventive management were detected.

Tuberculosis is a prevalent disease among poor and vulnerable communities, which contributes to the greater impoverishment and vulnerability of these populations.<sup>6</sup>

It is essential to strengthen the actions taken to provide timely and effective tuberculosis preventive management to all contacts at risk of developing the disease. Contributions such as the one provided by Blumenfeld and his team allow, as stated in their article, to obtain information to guide strategies. ■

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