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Research project to strenghen paediatric tuberculosis services for enhanced early detection

PRESS RELEASE
TB-Speed Research Project
National Symposium for the Restitution of Results
Phnom Penh, Cambodia
July 5 and 6, 2022

The Institut Pasteur du Cambodge and the Cambodian National Tuberculosis Program, together with the TB-Speed consortium are organizing a national restitution symposium of the TB-Speed Project results in Phnom Penh, Cambodia, on July 5 and 6, 2022, in the presence of His Excellency the Professor MAM Bunheng, Minister of Health.

This research project, which aims to reduce TB mortality in children by improving diagnosis, was deployed between 2017 and 2022 in seven limited-resources countries with a high incidence of tuberculosis: Cambodia, Cameroon, Côte d'Ivoire, Mozambique, Sierra Leone, Uganda and Zambia. The TB-Speed Research project is funded by Unitaid, Initiative-Expertise France and ANRS | Emerging infectious diseases.

In Cambodia, the national symposium for the restitution of project results will bring together project partners, main stakeholders, TB-Speed scientific committee members, representatives of the World Health Organization (WHO), key actors in the fight against tuberculosis along with the team of the National Tuberculosis Program of Cambodia.

Tuberculosis affects approximately 10 million people per year worldwide, including one million children. Less than half of all childhood TB cases are reported to WHO, as the diagnosis of TB in children is difficult. Each year, approximately 250,000 children worldwide die from tuberculosis and, in the majority of cases, these deaths occur in children who were not put on treatment because they were not diagnosed. Although Cambodia has made remarkable progress in the fight against TB, reducing by over 25% the incidence of TB between 2015 and 2020, there are still over 45,000 TB cases per year, of which 22% are under 14 years old.

Improving the diagnosis of tuberculosis in children is therefore a priority research issue. There are several obstacles to the diagnosis of tuberculosis in children: the available diagnostic tools such as molecular tests (Xpert® MTB/RIF Ultra, Cepheid, USA) are less efficient in children than in adults because children often present forms of tuberculosis with few bacteria; the diagnosis of tuberculosis relies on the examination of sputum, which is very challenging to collect in children, and alternative methods such as gastric aspirate are difficult to implement in resource-limited settings. This explains why the majority of children treated for TB are treated on the basis of a presumptive diagnosis without microbiological confirmation. However, the clinical signs of TB are not very specific, especially in children who are immunocompromised, such as children living with HIV or malnourished children. In addition, these children are particularly vulnerable to the disease

and have an increased risk of mortality. Finally, because of these diagnostic difficulties, the management of tuberculosis in children remains centralized at the referral hospitals, while the majority of sick children first go to the primary health centers.

In this context, the TB-Speed project aimed to contribute to the reduction of child mortality by increasing the number of children diagnosed with tuberculosis and treated, by working on two main research axes: decentralization of an innovative diagnostic approach of tuberculosis at district hospital and primary health center levels and improvement of diagnosis of the most vulnerable children, i.e., those who are malnourished, living with HIV, or with severe pneumonia.
The project conducted five research studies among children with suspected TB. It involved strengthening the diagnostic capacity for childhood TB in 16 referral hospitals, 12 district hospitals and 48 primary health centers through staff training, the installation of GeneXpert machines for the molecular diagnosis of TB, the deployment of equipment and materials for the collection of alternative specimens to sputum, such as nasopharyngeal aspirates and stool specimens, the digitization of X-ray imaging at hospital level, and the implementation of quality control systems. Through its technical development component, the project improved methods for collecting and processing nasopharyngeal and stool specimens to facilitate their use at the primary health center level for molecular TB diagnosis.

The results of the TB-Speed Decentralization Study in Cambodia, Cameroon, Côte d'Ivoire, Mozambique, Sierra Leone and Uganda will be essential to assess the impact of decentralization and the strengthening of TB diagnostic capacity on the number of children treated, and the acceptability of these interventions by health workers and children's families. They will be discussed with representatives of national programs in order to make the best recommendations for the implementation of large-scale decentralization programs in these countries. Some preliminary results of the project have already been shared with the scientific community and contributed to the revisions of the WHO Technical Guide and Operational Manual for TB published in March 2022.
The TB-Speed HIV and SAM studies have developed and evaluated diagnostic algorithms to guide diagnosis and rapid treatment decisions in children living with HIV or with severe acute malnutrition. Through its technical development component, the project improved methods for collecting and processing nasopharyngeal and stool specimens to facilitate their use at the primary health center level for molecular TB diagnosis.

A total of 7358 children were included in all TB-Speed studies. The project also assessed the cost and cost-effectiveness impact of the different interventions evaluated according to the health care systems and epidemiology of the countries.

The final results of the project have been presented in the International Restitution in Maputo, Mozambique on June 9 and 10. It was the opportunity to discuss, with international partners and key actors in the fight against tuberculosis, the use of the project results in terms of health policy changes for the diagnosis of tuberculosis in children and the scaling up of the project. The proposals resulting from these international discussions will be an essential prerequisite for a similar work during the national restitution, in the presence of the main national partners and actors in the fight against tuberculosis.

Scientific valorization of the project results is on track involving young and senior researchers from the seven countries involved in the project to build scientific capacity.

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