TB CARE I is dedicated to eliminating tuberculosis; read how we are working towards this goal by enhancing support for Childhood TB through training, diagnostics, operations research and more...

Above - Children, Uganda
Below - Children, Nigeria (Photos by Tristan Bayly)
The Challenge

At least half a million children become ill with tuberculosis (TB) each year, but the actual extent of childhood TB is unknown. Of the 8.6 million annual incident cases in the world, new estimates suggest that up to 1 million cases (11 out of every 100) are in children 0-14 years of age. It is also thought that each year as many as 32,000 children worldwide become sick with multi-drug resistant TB (MDR-TB)\(^1\).

In most countries, the number of children being reported by the National Tuberculosis Program (NTP) is far below what is estimated. The number of patients reported depends on the intensity of the epidemic, the age structure of the population, the alertness and knowledge of nurses and doctors in diagnosing childhood TB, the available diagnostic tools, the extent of routine contact investigation and the functioning of the administrative case reporting system.

Children can develop TB disease at any age, but most commonly it is between 1 and 4 years old, when their immune system is still under development and when they are still spending a lot of time in the proximity of adults. Infants and young children are also more at risk of developing severe disseminated disease (where TB spreads from the lungs to other parts of the body) associated with high mortality, such as TB meningitis and miliary TB.

The diagnosis of TB in children is often missed or overlooked due to non-specific symptoms and other difficulties, such as obtaining sputum from young children.

As with adults, children with TB illness are often poor and live in vulnerable communities that lack access to health care. Health care providers may initially misdiagnose a child with TB as suffering from malnutrition or having pneumonia before the correct diagnosis of TB is made and the child is started on treatment.

In households and other settings where an adult has active TB, children under five can be protected from developing TB disease with daily Isoniazid Preventive Treatment (IPT).

Childhood TB activities are rarely included in strategic plans or budgeted by Ministries of Health (MoH). Many patients with TB, including children, are diagnosed in the private sector and are not reported to the MoH.
TB CARE I Activities

TB CARE I recognizes the diagnosis and treatment of TB in children as a major challenge. In the third year of the program, TB CARE I has been working in Afghanistan, Cambodia, Ethiopia, Ghana, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Mozambique, Namibia, Nigeria, Tajikistan, South Sudan, Viet Nam and Zimbabwe (79% of TB CARE I countries) to improve the management of TB in children.

TB CARE I has the following three ways of monitoring progress:
- Childhood TB is an integral part of the NTP strategic plan and regular activities
- The number of TB cases (all forms) diagnosed in children aged 0-14 years
- The number of children younger than 5 years (Contacts of Sputum Smear Positive (SS+) adults) that were put on IPT.

From 2010 (baseline) to 2012 (Year 2), 53% more children (aged 0-14) were diagnosed across all TB CARE I countries (75,620). TB CARE I activities that may have contributed to this increase are highlighted below.

Strategic Planning & Guidelines

Among the 11 countries where TB CARE I has made investments to address TB in children, 10 countries have made pediatric TB an integral part of the national strategic plan and regular activities in the third year of the program, compared to only six countries in the second. Specifically, the development of guidelines and training materials has proven to be effective in helping countries get to the next level of diagnosing childhood TB. TB CARE I is helping NTPs in seven countries to develop pediatric TB guidelines and other documents that will support the implementation of interventions for children with TB.

In Kyrgyzstan, the treatment of children with drug resistant TB was neglected for years, but was brought to the attention of decision makers by the efforts of TB CARE I specialists. As a result, ‘Guidelines on the Management of DR-TB’ in children were developed and approved by the Ministry of Health in December 2012 and subsequently introduced nationwide by TB CARE I-supported trainings.

In Nigeria, the childhood TB guidelines were updated within the national health workers’ manual and a roadmap for addressing challenges of childhood TB was developed, along with a desk guide for the diagnosis and management of childhood TB.

In Indonesia, National Pediatric TB guidelines were updated with TB CARE I support in line with the Revised WHO Guidelines for TB in Children (2014) and WHO’s “Rapid Advice” document.

Training

TB CARE I’s largest effort has been the development of childhood TB training materials and the training of healthcare workers. Thirteen country projects (Afghanistan, Cambodia, Ethiopia, Ghana, Indonesia, Kazakhstan, Kenya, Mozambique, Namibia, Nigeria, Tajikistan, Viet Nam and Zambia) have childhood TB training activities that cover updated country-specific pediatric TB guidelines and approaches, including new diagnostic algorithms.

Childhood TB Subgroup

TB CARE I plays a leading role in the STOP TB Partnership’s Childhood TB Subgroup. The Subgroup, under the overall auspices of the DOTS Expansion Working Group, was established in 2003 to promote research, policy development, the formulation and implementation of guidelines, the mobilization of human and financial resources, and collaboration with partners working in relevant fields (including maternal and child health, immunization and HIV) to achieve the goal of reducing the number of children dying from TB.
Diagnostics

Cambodia: TB CARE I has been helping the NTP to implement a new diagnostic algorithm for childhood TB through policy development, training and supportive supervision. Since the implementation of the new algorithm and in combination with comprehensive chest radiography training, the proportion of children diagnosed with pulmonary TB disease has increased from 4% to 22%. This is a clear indication that the approach is working to diagnose more pulmonary pediatric TB patients. During the past year, 19,335 children were referred from health centers to hospitals for diagnosis in the 27 districts supported by TB CARE I, 2,889 (15%) of whom were diagnosed with TB and started on treatment.

Viet Nam: The new strategy on childhood TB management, emphasizes that general doctors and nurses (rather than specialist pediatricians) identify children with presumed TB, diagnose and treat them – instead of referring them to often far-away hospitals. The new approach has been piloted successfully in 4 provinces with a total of 35 districts and 611 communities; 1,480 health care staff were trained on the implementation of the new strategy. In three quarters (from October 2012-June 2013), 2,808 children having close contact with SS+ patients were screened and registered, of which 213 (8%) were diagnosed with TB. With the success of this new strategy, the NTP has decided to use funds from the Global Fund to expand this strategy to 21 provinces for the period 2013-2014 (3 provinces in 2013 and 18 provinces in 2014).

Other Activities

TB CARE I also supports childhood TB activities through the procurement of Isoniazid (INH) and Tuberculin in Cambodia, Mozambique and Zimbabwe, engagement of children in TB communication efforts in the Dominican Republic, support for the management of the pediatric drug supply in Kenya and the engagement of pediatric professional organizations in Nigeria.
The coalition implementing TB CARE I led the development of both the original and subsequent revisions of the **International Standards of TB Care** (ISTC) which was last updated in March 2014. The ISTC describes the standard minimum levels of care that all practitioners should seek to achieve in managing patients who have, or are presumed to have TB.

**Standard 6** of the ISTC states: “For all children suspected of having intrathoracic (i.e., pulmonary, pleural, and mediastinal or hilar lymph node) tuberculosis, bacteriological confirmation should be sought through examination of respiratory secretions (expectorated sputum, induced sputum, gastric lavage) for smear microscopy, an Xpert MTB/RIF test, and/or culture”.

**Standard 19** of the ISTC states: “Children <5 years of age and persons of any age with HIV infection who are close contacts of a person with infectious tuberculosis, and who, after careful evaluation, do not have active tuberculosis, should be treated for presumed latent tuberculosis infection with isoniazid for at least six months”.

**Operations Research**

Three TB CARE I country projects (Indonesia, Nigeria and Viet Nam) are implementing operations research projects focused on Childhood TB:

**Indonesia:** A score chart has been introduced in primary health care settings in Jakarta for the diagnosis of Childhood TB. The study is assessing the performance of the score chart compared to regular diagnosis by a pediatrician.

**Nigeria:** Studies are underway to assess the effectiveness of an intervention to increase TB screening and referral behavior of local Quranic school pupils in Kano, North-Western Nigeria. The project is also examining whether TB among pediatric contacts of TB patients can be diagnosed as successfully by general healthcare workers as by physicians.

**Viet Nam:** TB CARE I has developed protocols to identify obstacles for women and children in accessing MDR-TB care. The MoH is also exploring the feasibility and acceptability of the provision of IPT to children at the communal level. The results of these studies are expected in the 4th year of the program.
The Global Health Bureau, Office of Health, Infectious Disease and Nutrition (HIDN), US Agency for International Development, financially supports this publication through TB CARE I under the terms of Agreement No. AID-OAA-A-10-00020. This publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of TB CARE I and do not necessarily reflect the views of USAID or the United States Government.

TB CARE will contribute to three USAID target areas:

- Sustain or exceed 84% case detection rate and 87% treatment success rate
- Treat successfully 2.55 million new sputum-smear positive TB cases
- Diagnose and treat 57,200 new cases of multi-drug resistant TB (MDR-TB)

By focusing on eight priority technical areas:

- Universal and Early Access
- Laboratories
- Infection Control (IC)
- Programmatic Management of Drug Resistant TB (PMDT)
- TB/HIV
- Health Systems Strengthening
- Monitoring & Evaluation (M&E), Operations Research (OR) and Surveillance
- Drug Supply and Management

And four over-arching elements:

- Collaboration and Coordination
- Access to TB services for all people
- Responsible and Responsive Management Practices
- Evidence based M&E

Content, Design & Layout - Tristan Bayly

Contact Details
E-mail pmu@tbcare1.org
Phone +31-70-7508447
Website www.tbcare1.org
Twitter @TBCARE1

The Guidance for National Tuberculosis Programmes on the Management of Tuberculosis in Children (Second Edition)

This document complements existing national and international guidelines and standards for managing TB, many of which include guidance on children. It fills the gaps in the existing materials and provides current recommendations based on the best available evidence.

Guidance for National Tuberculosis and HIV Programmes on the Management of Tuberculosis in HIV-infected Children: Recommendations for a Public Health Approach

This guide is designed to aid health care workers working in district and regional hospitals in resource-limited settings in preventing, diagnosing and treating TB in HIV-infected children. The guidance document aims to address the common management problems.

Roadmap for Childhood Tuberculosis: Towards Zero Deaths

Reaching the goal of zero TB deaths among children worldwide requires sustained advocacy, greater commitment, mobilization of increased resources and a joint effort by all stakeholders involved in providing health care for children and in TB control. This roadmap indicates key actions and the enhanced investment urgently needed to tackle childhood TB.

Improving the Estimates of Childhood TB Disease Burden and Assessing Childhood TB Activities at Country Level

The results of a project which assessed the availability of childhood TB surveillance data, and used these data to prepare global estimates of childhood TB. It also provides a snapshot of the stakeholders involved and the challenges faced regarding the implementation of childhood TB activities at country level.

Desk-guide for Diagnosis and Management of TB in Children

This guide is aimed at health workers who manage sick children in first level health facilities or outpatient settings at any level of care, as well as NTP workers who manage or supervise pediatric care. It aims to improve early and accurate case detection of children with TB, the management and outcome of children with TB and child contact screening and management.

Recommendations for Investigating Contacts of Persons with Infectious Tuberculosis in Low- and Middle-income Countries

This WHO policy document guides NTP staff and all agencies and organizations involved in TB prevention, care and control to establish strategies for sound TB contact investigation practices. Children under five are highlighted as a priority for contact investigations.

American Thoracic Society (ATS), FHI 360, International Union Against Tuberculosis and Lung Disease (The Union), Japan Anti-Tuberculosis Association (JATA), KNCV Tuberculosis Foundation, Management Sciences for Health (MSH), World Health Organization (WHO).