


## AFRICAN STRATEGIES FOR HEALTH



# THE POLICY AND PRACTICE DIVIDE FOR CHILDHOOD TUBERCULOSIS IN AFRICA: A LANDSCAPE ANALYSIS

Rui Pires

Childhood tuberculosis (TB) is a serious, yet historically neglected epidemic affecting children globally. Children, especially those living in poor socio-economic conditions, form an important epidemiological group and account for a notable proportion of the morbidity caused by TB. The African region has the most severe TB burden relative to population, with 281 cases per every 100,000 people, double the global average of 133.<sup>1</sup> In many high-incidence countries, childhood TB is expected to account for 10-20% of all TB cases.<sup>2</sup> The World Health Organization (WHO) estimates that in 2014, there were one million new cases of TB (10.4% of all case notifications) and 140,000 deaths among children globally.<sup>1</sup>

However, these figures are underestimates and the global scope of the childhood TB burden is not fully known. The WHO approximates that at least 34% of children with tuberculosis remain unidentified and therefore undiagnosed and untreated.<sup>3</sup> Of the estimated one million new cases in 2014, less than 400,000 were actually reported to the WHO.<sup>1</sup> Diagnostic challenges and the fact that many children with TB typically are from poor families with limited access to health services contribute to low identification of childhood TB. Misdiagnosis is common due to clinical overlap of symptoms with other childhood diseases, such as pneumonia, lack of

## Key Messages

- The **policy agenda for childhood TB has progressed** significantly since 2013.
- **Implementation of strategies in practice lags:** providers lack the capacity to diagnose and treat TB; pediatric formulations are often not available at the point of care; contact tracing and preventive therapy are not consistently implemented; and gaps in data quality preclude their use for decision-making.
- **To close the divide between policy and practice,** countries must adopt and enforce global policies that increase prevention, identification, and treatment by:
  - **Prioritizing high impact interventions through strengthened partnerships** with maternal and child health, nutrition, and HIV programs.
  - **Strengthening systems** for improved diagnostic capacity, supply chain management, and data use.
  - **Conducting operational research** to improve service delivery.

1. World Health Organization. Global Tuberculosis Report 2015, Geneva: WHO, 2015.  
2. World Health Organization. Roadmap for childhood tuberculosis: toward zero deaths. Geneva: WHO, 2013.  
3. Cruz, A., & Starke, J. (2014). What's in a number? Accurate estimates of childhood tuberculosis. The Lancet Global Health, 2(8), 432-433. Retrieved July 12, 2015, from [http://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(14\)70269-4/abstract](http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(14)70269-4/abstract).

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This analysis highlights an important divide between policy advancements and implementation realities, and suggests the urgent adoption of proven, efficient, and operationally feasible interventions to address this gap. Findings from this analysis can inform advocacy efforts and help to define strategic opportunities to strengthen childhood TB programming in the region.

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accurate diagnostic tests for TB in children, and poor recording and reporting practices. Often, TB screening is not being systematically implemented or documented for the most at-risk child populations, including household contacts of adult TB patients, children living with HIV, and children who are malnourished. Additionally, these children typically present at primary care facilities where TB symptoms and burden among children are not regularly recognized by health workers. Other key challenges include the misperception of childhood TB as a low public health priority, overshadowed by infectious adult TB and a lack of advocacy from the TB and child health communities. Furthermore, despite updated guidelines for TB, many countries are still relying on bacteriological confirmation before commencing treatment, which is often not possible to obtain.

In recent years, however, significant progress has been made at global and country levels in terms of increased political will and commitment to addressing childhood TB. Yet despite international endorsement and the development of national policies and guidelines, there remains a significant gap between policy and practice. The level of emphasis for childhood TB within national programs is still unclear. The absence of information—both epidemiological and programmatic—may create a bottleneck for activity planning or garnering necessary political and financial support for program initiation.

The 2015 *Framework for Childhood TB in National TB Programs (NTP) in the African Region*<sup>4</sup> aims to facilitate the implementation of childhood TB guidelines and improve the management of TB in children and child contacts of adult TB cases. The Framework is aligned with the global *Roadmap for Childhood Tuberculosis*<sup>5</sup> and with objectives aimed at achieving TB outcomes that contribute to regional child health goals for morbidity and mortality reduction. It provides guidance on recommended approaches, including the development of context-specific interventions, and highlights the opportunities and synergies in integration of diagnosis, treatment, and prevention of childhood TB within maternal and child health (MCH) services. The Framework also seeks to strengthen the

monitoring and evaluation of childhood TB activities required to assess progress and support decision-making.

The United States Agency for International Development's (USAID) African Strategies for Health (ASH) project undertook this childhood TB landscape analysis, to expand and centralize available information on childhood TB in the African region. The landscape analysis presents the status of childhood TB programming in 12 priority countries, including successes, gaps, and challenges to addressing this issue.

The analysis highlights an important divide between policy advancements and implementation realities, and suggests the urgent adoption of proven, efficient, and operationally feasible interventions to address this gap. Findings from this analysis can inform advocacy efforts and help to define strategic opportunities for NTP managers, implementing partners, and other stakeholders to strengthen childhood TB programming in the region.

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4. WHO/AFRO. Framework for Childhood TB in National TB Programs in the African Region. 2015.

5. World Health Organization. WHO Roadmap for Childhood TB: Towards Zero Deaths. Geneva: WHO, 2013.

## METHODOLOGY

Activities undertaken in this landscape analysis include an in-depth desk review of relevant documents and literature, key informant interviews, and survey administration. Data collection took place between March 2014 and July 2015.

### Selection of priority countries and themes

#### Thematic areas of focus

- National intent to focus on childhood TB
- Data use and quality
- Availability and implementation of resources
- Identification of priorities
- Programmatic challenges

Study countries were selected based on USAID presence and priority, national TB burden, and availability of information. The 12 countries selected include Botswana, Democratic Republic of the Congo (DRC), Ethiopia, Kenya, Malawi, Mozambique, Nigeria, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. Eight of these 12 countries are classified by WHO as TB high-burden countries.

All activities sought to identify the status of country-level childhood TB programming, and were guided by the following

thematic areas of focus: national intent to focus on childhood TB, data use and quality, availability and implementation of resources, identification of priorities, and programmatic challenges.

### Literature and document review

An initial literature review of 51 peer reviewed journal articles sought to identify research activities aimed at strengthening service provision for childhood TB. Search terms on EBSCO included “Childhood”, “Tuberculosis”, and “Africa”, with date parameters of 2005 to present.

Sources for the document review were drawn from a variety of locations. The study team initially reviewed National Strategic Plans (NSP) and Guidelines posted on WHO’s public website, and verified with USAID country backstops on the most recently updated versions. USAID supplied available program and epidemiological reviews. Global Fund (GF) documents for recipient countries were downloaded from the organization’s public website.<sup>6</sup> Implementing organizations supplied country-specific project reports, where applicable. Finally, the study team drew on posters developed by NTP Managers for the Regional Childhood TB Meeting co-organized by WHO’s Regional Office for Africa (AFRO) and USAID’s

6. At the time of the review, GF Concept Notes had not been approved, so the study team did not have access to financial and other information.

Table 1. Key documents reviewed

	National Strategic Plan	Treatment guidelines	Program review reports	Epidemiological assessments	Global Fund requests	TB Care & Track TB reports	NTP posters
Botswana	✓	✓	✗	✓	✓	✓	✓
DRC	✓	✓	✓	✓	✓	✗	✓
Ethiopia	✓	✓	✓	✓	✓	✓	✗
Kenya	✓	✓	✓	✓	✓	✓	✗
Malawi	✓	✓	✓	✓	✓	✓	✓
Mozambique	✓	✓	✓	✓	✓	✓	✗
Nigeria	✓	✓	✓	✓	✓	✓	✓
South Africa	✓	✓	✓	✗	✗	✗	✓
Tanzania	✓	✓	✓	✓	✓	✓	✗
Uganda	✓	✓	✓	✗	✓	✓	✓
Zambia	✓	✓	✗	✓	✓	✓	✓
Zimbabwe	✓	✓	✓	✓	✓	✓	✓
Proportion of countries	100%	100%	83.3%	83.3%	91.7%	83.3%	66.7%



Africa Bureau, held in Johannesburg, South Africa in April 2015. The study team systematically extracted data from these documents based on the identified thematic areas, which were confirmed during key informant interviews. Table 1 outlines key documents reviewed by country.

### *Key informant interviews*

The first wave of structured key informant interviews took place with USAID country focal points, primarily based in Washington, DC. The study team's representative at USAID developed the list of key informants and assisted the rest of the team in creating a questionnaire guided by the study's thematic areas.

The second wave of key informant interviews took place at the 45th Union World Conference on TB and Lung Health in Barcelona, Spain in November 2014. The study team used the same questionnaire to conduct interviews with field staff from USAID, Management Sciences for Health (MSH), and NTPs. In total, 18 key informant interviews were conducted, representing 11 of the 12 priority countries.

### *NTP managers' survey*

The study team collaborated with the Centers for Disease Control and Prevention (CDC) and USAID Africa and Global Health Bureaus to develop a survey, which was distributed electronically by WHO/AFRO to 27 NTP Managers across Africa. Of the 12 priority countries, representatives from five responded to the survey.



Pinky Patel

## RESULTS

Data drawn from the aforementioned document review, interviews, and survey were collated and are presented together in the following section. It is important to note that not all respondents or documents addressed all questions and thematic areas of focus. The number of responding countries is presented with all data points.

### National Intent to Focus on Childhood TB

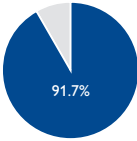
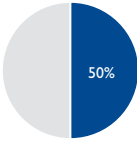
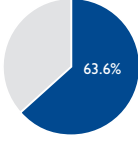
Countries' intent to focus on childhood TB was assessed through qualitative review of political will and national level leadership and advocacy.<sup>7</sup>

#### Political will

Over 90 percent (91.7%, 11/12) of the priority countries explicitly address childhood TB in their most recent NSP, while just half (50%, 6/12) have childhood TB activities listed as a separate line item in the NSP budget (Table 2). The amount budgeted for childhood TB ranges from 0.38-1.95 percent of the overall national TB budget items.

7. Proxies for measurement were selected based on key elements of WHO's Roadmap for Childhood Tuberculosis and of the Stop TB Strategy. Priority actions in these strategies include political commitment to incorporate the needs of children in policy development and to finance related activities, and the appointment of focal persons and engagement of key stakeholders.

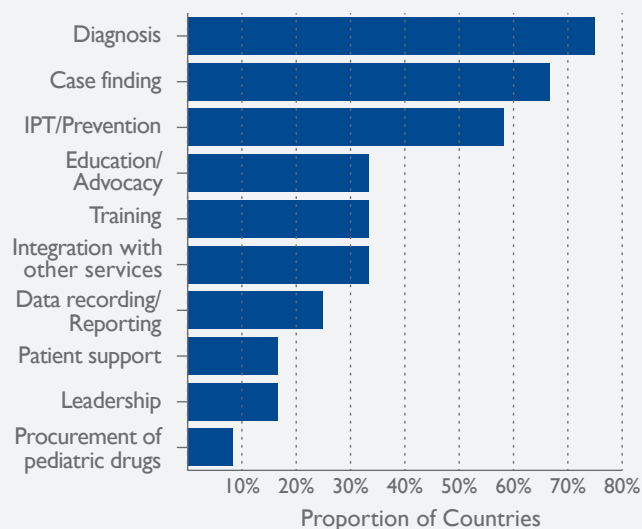
Table 2. Summary of political will

			
	Included in NSP	Included in NSP budget	Included in GF request
Botswana	✓	✓	✗
DRC	✓	✓	✗
Ethiopia	✓	✓	✓
Kenya	✓	✓	✓
Malawi	✓	✗	✓
Mozambique	✓	✗	✓
Nigeria	✓	✗	✗
South Africa	✓	✗	NA
Tanzania	✓	✓	✓
Uganda	✓	✗	✓
Zambia	✓	✓	✗
Zimbabwe	✗	✗	✓
Proportion of countries	91.7%	50%	63.6%

GF Concept Notes address gaps in the national plan through support of accelerating case detection and treatment, introducing new tools, and providing patient support and education initiatives. Of the priority countries with GF grants for TB programming, about 64 percent (7/11) included childhood TB in their Round 9, Round 10, and/or Transitional Funding Mechanism budgets.

Childhood TB activities included in the NSPs and GF Concept Notes cover a variety of areas, with the most frequent being diagnosis (75%, 9/12), case finding (66.7%, 8/12), and isoniazid preventive therapy (IPT)/prevention (58.3%, 7/12). Figure 1 captures the distribution of key categories of activities included in these national plans.

Figure 1. Childhood TB activities included in NSPs and/or GF Concept Notes (n=12)



### Leadership and advocacy

About 82 percent (9/11) of countries with available information reported a locus of leadership for childhood TB at the national level. About 73 percent (8/11) of those countries were able to further identify specific “champions” that provide leadership and advocacy for increased focus on childhood TB in their countries. Identified champions include representatives from the NTP, CDC, pediatricians, professional societies, universities, and technical working group (TWG) members.

Of nine respondents, seven (77.8%, 7/9) indicated having an established childhood TB TWG, with 71.4 percent (5/7) of those confirmed to be active. Included in this count is one country that has a childhood TB task force embedded within the main TB TWG. Another country reported the intention to launch a TWG in the future, and two others recognized the lack of a childhood TB TWG as a serious gap and challenge to the implementation of strategic childhood TB activities.

### Data Use and Quality

The WHO recommends that every case of childhood TB be registered with the NTP, and reported by age (0-4 and 5-14 years), disease type, HIV status (including use of cotrimoxazole preventive therapy and antiretroviral therapy if the child is HIV-positive) and treatment outcome. This collected data aims to provide a better understanding of the true burden of childhood TB in a given country, which can lead to improved advocacy and action.<sup>8</sup> It should be noted, however, that WHO requests from countries and reports on only the number of notified cases, and not on any of the other indicators listed above. In this study, the rate of reporting and use of quality child-focused data varied across participating countries.

### Disaggregation of data

In reporting TB notification rates, about 90 percent (90.9%, 10/11) of responding countries intentionally disaggregate data beyond under-15 years (Figure 2). Eighty percent (8/10) of that group further disaggregates data by 0-4 and 5-14 years; ten percent (1/10) by 0-4, 5-9, and 10-14 years; and ten percent

8. World Health Organization. WHO Roadmap for Childhood TB: Towards Zero Deaths, Geneva: WHO, 2013.



Warren Zelman

Table 3. Summary of leadership and advocacy

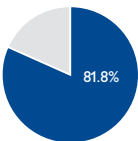
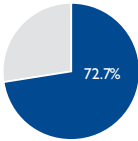
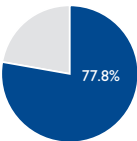
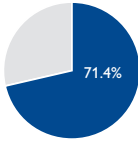
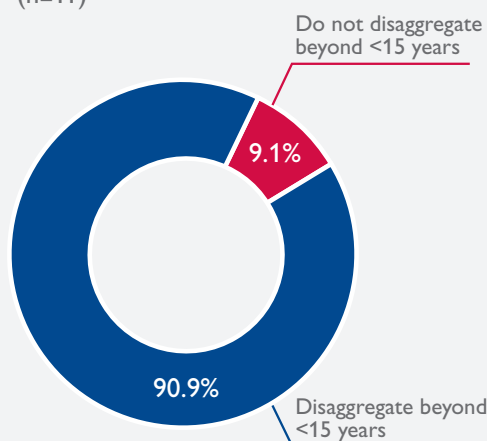
	 Locus of leadership at national level	 Champion(s) for Childhood TB	 TWG exists	 TWG active
Botswana	✓	✓	✗	NA
DRC	✓	✓	✓	✓
Ethiopia	✓	✗	✓	✓
Kenya	✓	✓	✓	✓
Malawi	✗	✗		
Mozambique	✓	✓		
Nigeria	✓	✓	✓	✗
South Africa				
Tanzania	✓	✓	✗	NA
Uganda	✓	✓	✓	✓
Zambia	✗	✗	✓	✗
Zimbabwe	✓	✓	✓	✓
Proportion of countries	81.8%	72.7%	77.8%	71.4%



Figure 2. Disaggregation of data by age (n=11)



(1/10) did not specify the breakdown used. Of eight countries with available data, seven (87.5%) confirmed reporting by TB type, including smear negative, smear positive, and extra pulmonary TB (EPTB).

### Reporting on TB-HIV co-infection

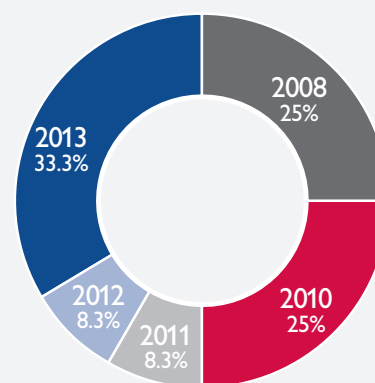
Countries also noted varying levels of recording and reporting to NTPs on TB-HIV co-infection and treatment in children. Of the priority countries, two (16.7%, 2/12) NTPs provided data on the proportion of child TB patients who tested positive for HIV. National Program Review reports revealed that in seven (58.3%, 7/12) countries, HIV testing among TB patients is not routinely done, the data is not reported, or the data is not disaggregated by age. Three countries (25%, 3/12) do not have any information available on TB-HIV co-infection reporting among children.

### Situational assessment of data

Six (85.7%, 6/7) of the seven countries with available data confirmed that either the NTP or another group has performed a situational assessment on their childhood TB data system. Key challenges noted as a result of the assessment in one country include: inappropriate storage of data at the different levels of the health system that make analysis difficult; weak human capacity to maintain and regularly review data; and lack of an outcome registration system. In another country, an assessment revealed inconsistency in the standard of internal surveillance data, suggesting a lack of trust in the data to provide accurate information as a basis for planning. Assessments in two other countries both led to recommendations for electronic case-based recording systems for real time identification of challenges.

As remarked in these assessments, gaps in data reporting and quality can lead to a lack of trust in the data to provide accurate information on the burden of childhood TB, thereby making planning for programming and use of resources a challenge.

Figure 3. Date of last revision to national TB guidelines (n=12)



## Availability and Implementation of Resources

The study team assessed the availability of resources that follow intent to focus on childhood TB, primarily looking at national guidelines, intent to train providers, and the availability of supplies for diagnosis, treatment, and prevention.

### Guidelines

A review of national TB guidelines revealed that all priority countries (100%, 12/12) included discussion of childhood TB in the most recent version of their guidelines. Seventy-five percent (9/12) of countries incorporated childhood TB in the general national TB guidelines, while 25 percent (3/12) have standalone childhood TB guidelines.

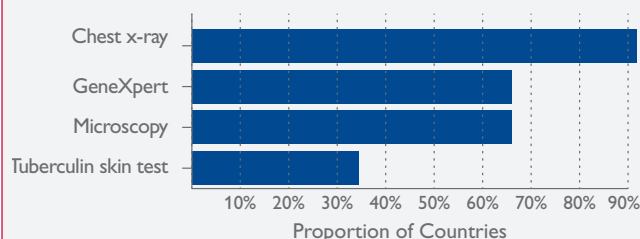
Two thirds of the countries (66.7%, 8/12) last updated their guidelines at some point between 2008 and 2012, and 33.3 percent (4/12) updated them more recently, in 2013 (Figure 3).

In 2014, the WHO released the second edition of its *Guidance for National Tuberculosis Programs on the Management of Tuberculosis in Children* which includes updated recommendations based on best available evidence. A table showing the level of compliance to the WHO's recommendations at the country level, measured by inclusion in countries' most recent national guidelines and policy is included as an Annex on page 12. The table also demonstrates countries' adoption of these recommendations in practice, based on information provided in eight country posters.

### Training of providers

Twenty-five percent (3/12) of the priority countries indicated that training materials and activities that include childhood TB components had been previously rolled out to health workers at various levels of the health system. Another twenty-five percent (3/12) noted that training manuals and modules on childhood TB exist, however funding and other factors have prevented their roll-out and use.

Figure 4. NTP preferred diagnostic tools (n=12)



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Seventy-five percent (9/12) of the priority countries show a future intent to train on childhood TB management, by specifically naming or budgeting for training in the NSP and/or remarking that they are in the process of developing training materials.

### Diagnosis

Over 90 percent (91.7%, 11/12) of programs reported chest x-ray as a preferred tool for diagnosing TB in children, 66.7 percent (8/12) GeneXpert, 66.7 percent (8/12) microscopy, and 33.3 percent (4/12) tuberculin skin test (see Figure 4 above). At this time, respondents were not specifically asked about the availability of or access to these diagnostic tools of choice.

However, many countries later noted that quality and accessibility of diagnostic tools varied at different levels of the health system, and often, the preferred tools were not available at the point of care. About forty-two percent (41.7%, 5/12) of countries remarked that diagnosis was typically made through sputum smear microscopy, however for young children who are unable to produce sputum, other tools were often not available outside of referral hospitals and high levels of care. One country reported that despite the adoption of new technologies, significant financial and geographic barriers remain, in turn leading to low case notification rates.

### Treatment

All countries (100%, 12/12) included in the study mention the use of pediatric fixed-dose combination drugs (FDCs) as the formulations of choice in their national treatment guidelines. Recommended treatment regimens for new childhood TB cases in high HIV prevalence or high isoniazid resistance settings follow WHO 2014 guidelines of 2RHZE/4RH in all countries (100%, 12/12). The dose range of such treatment,

however, varies by country, with two countries' (18.2%, 2/11) regimens in line with the WHO 2014 guidelines, seven (63.6%, 7/11) in line with the interim 2010 guidelines, and two (18.2%, 2/11) in line with the 2007 guidelines.<sup>9</sup> One country did not specify the dosing in its available guidelines.

Program reviews noted inconsistent availability, shortages, or stock-outs of pediatric formulations at the facility level in about half (54.5%, 6/11) of the countries. One country remarked that where pediatric FDCs were available, they only existed in solid form, with no availability of suspensions or syrups for young children. Other challenges noted include a lack of loose ethambutol and a lack of dosing tables to aid providers in prescription for children.

### Prevention

In all countries (100%, 12/12), IPT was recognized as national policy for the prevention of TB in children of household contacts of adult TB patients. Over half of countries (66.7%, 8/12) indicated following WHO dosing recommendations of 10mg/kg of isoniazid (INH) for a period of 6 months. Pediatric INH was recorded as available in all countries (100%, 10/10) with available data.

Despite being recognized as an important directive at the national level, 63.6 percent (7/11) of countries with available data noted limited implementation of IPT due to a lack of availability of pediatric INH at the facility level, low use of management tools, and low knowledge of providers on the provision of IPT. Additionally, low availability and use of IPT registers precludes providers from documenting and reporting, even if they do initiate a child on IPT.

9. WHO 2014 dose range: H 7-15 mg/kg max. 300 mg; R 10-20 mg/kg max. 600 mg; Z 30-40 mg/kg; E 15-25 mg/kg  
WHO 2010 interim dose range: H 10 to 15 mg/kg; R 10-20 mg/kg; Z 30-40 mg/kg; E 15-25 mg/kg  
WHO 2007 dose range: H 4 - 6 mg/kg; R 8 - 12 mg/kg; Z 20 - 30 mg/kg; E 15 - 20mg/kg



## Identification of Priorities

WHO has defined priorities for childhood TB programming in its Roadmap for Childhood Tuberculosis, which include integrating TB with other health services, such as MCH care, HIV care, and nutritional support; as well as improved case detection through community-level contact tracing.<sup>10</sup> These priorities were set as a result of the identification of the most at-risk children as those with household contacts of infectious TB patients, and children who are immunocompromised (living with HIV) or malnourished. In this study, data was collected on the current status and outlook for the future of contact tracing and integrated programming in each priority country.

### Contact tracing

About 92 percent (11/12) of the countries noted the existence of a contact screening register; however 72.7 percent (8/11) of those countries that responded further indicated poor implementation or usage of the registers, or unavailability of the registers at certain levels of the health system. One country (8.3%, 1/12) outlines the use of a contact screening register in its TB guidelines, but has yet to put the recommendation into practice. All study countries (100%, 12/12) recognize this gap and/or include strengthened contact tracing as a priority activity to improve case detection among children in their NSP and/or GF Concept Note moving forward. One country's contact tracing activities were recognized as a key strength in its national program review.

## Integration with HIV programs

About sixty-four percent (7/11) of countries with available data currently implement some degree of collaborative activities between their national TB and HIV programs. Activities most commonly implemented include the incorporation of TB screening for HIV patients in HIV guidelines (100%, 12/12), HIV testing for TB patients in TB guidelines (75%, 9/12), and the existence of national TB-HIV guidelines (66.7%, 8/12) (Figure 5). Of the countries reporting poor or no linkages between TB and HIV programs, identified challenges include capacity building, lack of confidence among health workers to manage co-infection, and supply of and access to appropriate medicines.

### Integration with nutrition programs

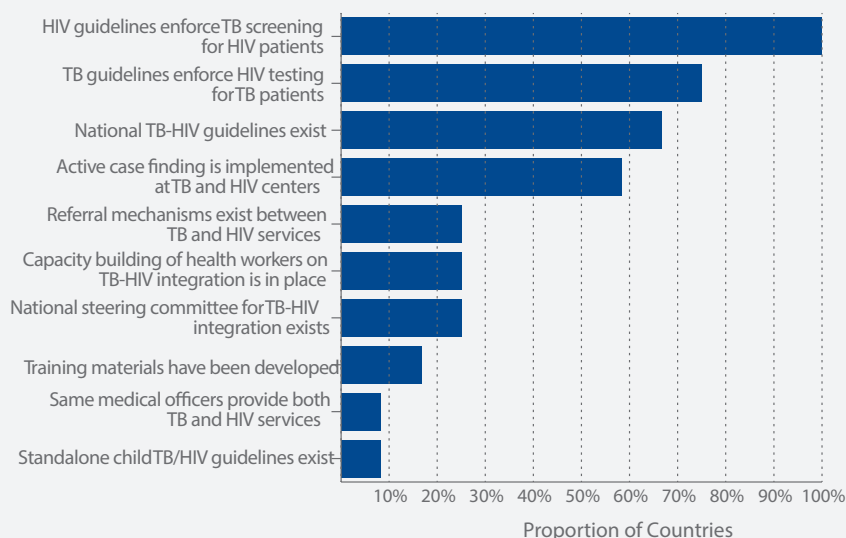
About sixty-four percent (7/11) of countries with available data reference nutrition in their TB treatment guidelines and/or NSP. These guidelines reference nutritional status of a child as criteria for reviewing children suspected of having TB or making a diagnosis, or for monitoring treatment progress and outcomes. Many guidelines also recommend the provision of nutritional support to children diagnosed with TB. One country makes explicit reference to screening severely malnourished children for TB.

### Integration with MCH programs

One country (12.5%, 1/8) of those with available data reported established and active collaboration between TB and MCH services. However, this collaboration is narrowly focused on TB and preventing mother-to-child transmission (PMTCT) of HIV services.

10. World Health Organization. WHO Roadmap for Childhood TB: Towards Zero Deaths, Geneva: WHO, 2013.

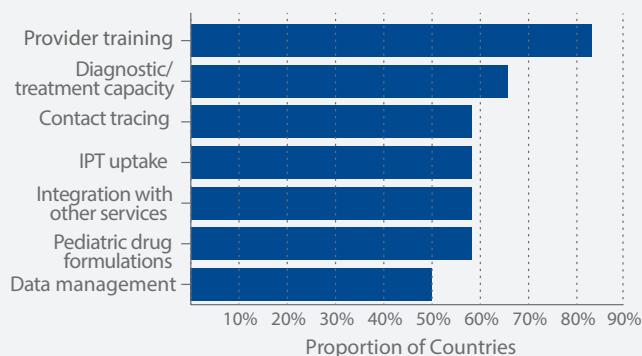
Figure 5. Collaborative TB-HIV activities implemented in selected countries (n=12)



Warren Zeiman



Figure 6. Key perceived challenges among NTP managers (n=12)



The remaining seven countries (100%, 7/7) that provided information in this area recognized the integration of TB and MCH services as an unmet need. Twenty-five percent (2/8) of those countries' GF proposals include developing training materials for TB screening at all key entry points, including antenatal and MCH clinics. In 50 percent (4/8) of those countries, national program reviews indicated integration of services as a priority area moving forward. One country has already prioritized integration by means of establishing a TB/MCH task force and recommending the intensified case finding (ICF) guide for use at all entry points, however significant training of health workers is needed to operationalize this integration.

### Programmatic Challenges

Key perceived challenges in the management of childhood TB were revealed within national program review reports, throughout key informant interviews, and in country posters developed by NTP managers. Identification of challenges were

unprompted, as opposed to being selected from an established list of options.

Figure 6 shows the most common challenges identified in program review reports and by NTP managers, which include training of health workers on the management of TB in children (83.3%, 10/12), diagnostic and treatment capacity (66.7%, 8/12), contact tracing (58.3%, 7/12), IPT uptake (58.3%, 7/12), integration with other services (58.3%, 7/12), pediatric drug formulations (58.3%, 7/12), and data management (50%, 6/12).

Other perceived challenges not shown in Figure 6 include the following: diagnostic tool availability and quality (41.7%, 5/12), community education (41.7%, 5/12), research (33.3%, 4/12), national level leadership (33.3%, 4/12), linkage among facilities and between different levels of the health system (33.3%, 4/12), case detection (16.7%, 2/12), monitoring and supervision (16.7%, 2/12), and provider misperceptions and lack of confidence [to diagnose and treat TB in children] (8.3%, 1/12).

## DISCUSSION

### Progress and Gaps in Expanding Childhood TB Programming

Countries are making rapid progress in setting an agenda for the delivery of childhood TB services. National level interest is reflected through the incorporation of childhood TB in NSPs and GF grants, and the creation of programmatic infrastructure at the national level. Childhood TB notification data is mostly disaggregated by age, sex and TB type. National childhood TB guidelines exist in all study countries, most of which were updated between 2010 and 2013. All countries promote the use of FDCs for treatment. Contact tracing/IPT and TB and HIV integration are well addressed at the policy and guideline level.

Implementation of service delivery lags in many countries. Providers have not been trained at scale. Diagnostic capacity is not well distributed throughout the levels of the health care system, despite the availability of new diagnostic tools such as GeneXpert. Pediatric formulations are often not available at all levels of the system, out of stock, or not available as suspensions. Concerns about data management include inappropriate storage of data, weak human capacity to maintain and regularly review data, lack of an outcome registration system, and a lack of trust in the data. Countries note limited implementation of contact tracing and provision of IPT due to non-availability of INH at the facility level, and low use of management tools such as continuity registers. TB is not well integrated into those services where children routinely access the health care system, including MCH, HIV and nutrition programs.

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Proven, efficient, and feasible high impact interventions that strengthen partnerships with MCH, nutrition, and HIV programs and identify child TB suspects through contact tracing can close the divide between policy and practice.

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## **Closing the Policy and Practice Divide through High Impact Interventions**

High impact interventions that are proven, efficient, and feasible can close the gap between policy and practice. These “low hanging fruit” interventions include:

1. The implementation of contact tracing and prevention/treatment in symptomatic and asymptomatic contacts;
2. Integration of TB services with HIV programs for children with HIV;
3. Integration of TB services in routine MCH platforms; and
4. Systematic screening for TB in children with malnutrition.

Notably, most countries analyzed for this review included activities for case finding, IPT, and prevention in their NSPs and GF Concept Notes, suggesting that these important activities may receive increased focus in the near future. Screening as a systematic strategy for identifying TB in children with severe acute malnutrition is addressed in the guidelines of only one country. Nutrition is addressed in the NSPs and GF Concept Notes in two countries within the context of patient support rather than screening.

### **ABOUT ASH**

African Strategies for Health (ASH) is a five-year project funded by the U.S. Agency for International Development's (USAID) Bureau for Africa and implemented by Management Sciences for Health. ASH improves the health status of populations across Africa through identifying and advocating for best practices, enhancing technical capacity, and engaging African regional institutions to address health issues in a sustainable manner. ASH provides information on trends and developments on the continent to USAID and other development partners to enhance decision-making regarding investments in health.

Grant requests tend to primarily emphasize diagnosis, IPT and case finding activities. Integration, training, and IEC/advocacy activities are also included in some grant requests, while few countries emphasize drug procurement (likely included in the adult procurement orders), programmatic leadership, patient support (nutritional support) and data recording and reporting. Countries may benefit from guidance on key strategic priorities and how best to align NSPs and GF Concept Notes accordingly.

## **Conclusion and Recommendations**

Findings from this landscape analysis suggest strategic areas of focus for NTP managers, key stakeholders, TWGs, and implementing partners to expand childhood TB programming at the regional and national levels:

- Support countries to adopt and enforce WHO recommended childhood TB policies, ensuring that:
  - guidelines are updated to address the process for identifying a child as a TB suspect through the treatment of a diagnosed case; and
  - guidelines include algorithms that are appropriate and relevant for each level of the health system.
- Assist countries to advocate for, prioritize, and implement interventions that are proven, efficient and operationally feasible.
- Promote strengthened partnerships with MCH, nutrition, and HIV programs to enhance detection and adequate treatment of childhood TB.
- Continue to pursue activities aimed at strengthening health systems, including expanding diagnostic capacity, improving drug availability, and strengthening data management.
- Guide key operational research initiatives that can improve service delivery.

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# ANNEX.

## Countries' inclusion of WHO recommendations in national guidelines and practice

Adapted from "WHO guidance for NTPs on the management of tuberculosis in children," second edition, 2014

Compliance with the most recent 2014 WHO recommendations on the management of childhood TB is limited since suggested changes can only be incorporated at the next round of revisions. It therefore will take a few years before countries can effectively adjust their guidelines. The

poster review indicates that countries are affecting changes. The use of GeneXpert, evaluation of household contacts for TB, and the provision of six months of IPT reflect operational implementation despite the delay in adjusting guidelines.

WHO RECOMMENDATION	Proportion of Countries Complying In Guidelines (N=12)	Proportion of Countries Adopting Recommendations in Practice <sup>11</sup> (N=8)
<b>Diagnosis</b>		
Xpert as preferred initial diagnostic test for children suspected of having MDR TB, HIV-associated TB, or meningitis TB; and may be used as initial test for children suspected of having TB or extrapulmonary TB (Rec. 1, 2, 3, 4)	50.0%	100.0%
IGRAs should not replace TST for diagnosis of latent TB in children (Rec. 5)	0.0%	NA
Commercial serodiagnostics should not be used in children suspected of active pulmonary or extrapulmonary TB (Rec. 6)	16.7%	NA
Routine HIV testing for all patients with presumptive and diagnosed TB (Rec. 7)	75.0%	NA
<b>Treatment</b>		
<u>Dosing, as follows:</u> (Rec. 8)	16.7%	12.5%
■ Isoniazid (H) 10mg/kg (7-15mg/kg); max 300mg/day	Additional 50.0% follow dosing of 10mg/kg, but with range of 10-15mg/kg	
■ Rifampicin (R) 15mg/kg (10-20 mg/kg); max 600mg/day	75.0%	12.5%
■ Pyrazinamide (Z) 35mg/kg (30-40mg/kg)	75.0%	12.5%
■ Ethambutol (E) 20mg/kg (15-25mg/kg)	91.7%	12.5%
<u>Treatment regimens, as follows:</u> (Rec. 9, 10, 14)	33.3%	12.5%
■ 2HRZ/4HR for uncomplicated TB disease (including intrathoracic lymph node, tuberculous peripheral lymphadenitis, extensive pulmonary disease)		
■ 2HRZE/4HR for new cases of PTB and EPTB in high HIV-prevalence areas	100.0%	87.5%
■ 2HRZE/10HR for tuberculous meningitis and osteoarticular TB	58.3%	25.0%
No use of streptomycin in first-line treatment regimens (Rec. 13)	50.0%	50.0%
<b>Prevention</b>		
BCG vaccine (except for known HIV+ cases) for all infants in high TB endemic areas	83.3%	62.5%
Clinical evaluation of household contacts for active TB (Rec. 18, 19, 20)	91.7%	100.0%
6 mos IPT (10mg/kg per day, 7-15mg/kg, max 300mg/day) for contacts found not to have active TB (Rec. 21)	58.3%	100.0%
HIV testing and counseling for household contacts of people with TB, including those who are TB-HIV co-infected (Rec. 22, 23, 24)	16.7%	NA
<b>Management</b>		
6 mos IPT (10mg/kg per day, 7-15mg/kg, max 300mg/day) for children living with HIV and unlikely to have TB (Rec. 25)	58.3%	50.0%
<b>Management of MDR TB</b>		
Children with MDR TB may be treated with fluoroquinolone in context of a well-functioning MDR TB program (Rec. 27)	33.3%	NA
<b>Implementation and management by NTP</b>		
Recording and reporting by NTP for all children treated for TB, disaggregated by age (0-4 and 5-14 years) (Rec. 28)	8.3%	75.0%

11. It should be noted that countries were not asked to report on all areas of the guidelines in their posters, thus data on enforcement of guidelines is incomplete. Additionally, the scale of implementation is not clear.