STRENGTHENING COMMUNITY AND PRIMARY HEALTH SYSTEMS FOR TB

A consultation on childhood TB integration

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LIST OF ACRONYMS

CHW	community health worker
CPT	co-trimoxazole preventive therapy
EPI	expanded programme on immunisation
EMR	Electronic medical records
FDC	fixed dose combination
GAVI	Global Alliance for Vaccines and Immunization
GF(ATM)	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GFF	global financing facility
HCW	healthcare worker
HR(D)	human resources (development)
HSS	health systems strengthening
iCCM	integrated community case management
IMCI	integrated management of childhood illnesses
IPT	isoniazid preventive therapy
HIV	human immunodeficiency virus
KNCV	KNCV Tuberculosis Foundation
M&E	monitoring and evaluation
MDG	millennium development goal
M(N)CH	maternal, (newborn) and child health
MOH	Ministry of Health
NCD	non-communicable diseases
NGO	non-governmental organisation
NSP	national strategic plan
NTP	National Tuberculosis Control Programme
OR	operational research
PHC	primary health care
PMTCT	prevention of mother-to-child transmission
PPP	public-private partnership
PTB	pulmonary tuberculosis
SAM	severe acute malnutrition
SDG	Sustainable Development Goal
TB	tuberculosis
TWG	technical working group
UHC	Universal Health Coverage
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
US	United States
WHO	World Health Organization

SUMMARY

An estimated one million children between the age of 0-14 fall ill with tuberculosis (TB) every year, over 67 million children are infected and might develop active disease at any time. And yet TB, while preventable and curable, remains a neglected disease especially when it comes to children. It affects children, families, communities, and continues to contribute to as well as highlight inequities.

In 2013, the WHO with key partners launched the Roadmap for Childhood TB, outlining ten key actions to improve outcomes for children affected by TB, including improved data, development of child-friendly tools for diagnosis and treatment, engagement of key stakeholders at all levels of the system, and the development of integrated family- and community-centred strategies to provide comprehensive and effective services at the community level. A consultation on childhood TB integration took place in New York on June 1 and 2, 2016 to stimulate further the dialogue between traditional TB stakeholders and those that have not been as involved in childhood TB but are instrumental for moving the agenda for childhood TB forward. The meeting represented an important step forward in addressing TB as part of broader efforts to end preventable maternal and child deaths and strengthen comprehensive primary care systems.

Participants agreed that there are overall challenges, many of them related to health systems, faced by the TB, HIV, nutrition and MNCH communities that hinder the successful implementation of high impact interventions and the building of functional and effective primary care programs. Attempts to link better with maternal and child health initiatives are not unique to TB, and have much in common with those by other communities such as for HIV and nutrition. There are ample opportunities for engagement, calling for increased commitment and leadership of all stakeholders and better collaboration and coordination of efforts.

Key messages and actions

TB remains invisible on the broader agenda of ending preventable maternal and child deaths

- Strategically address ample opportunities for childhood TB offered in the current global environment and the era of the SDGs and the End TB Strategy.
- Ensure high level global and national leadership and champions to drive the agenda
- Increase and broaden the critical mass of people engaged in advocacy, awareness, and implementation.
- Include childhood TB in global policy documents and guidance pertaining to child survival/maternal and child health.

Integration is only a means – it is about saving lives of children

- Harmonise the various terms and meanings of integration to reach a common understanding.
- Join the effort
  - to improve maternal and child health and survival by ensuring equitable access and care for children and their families affected by TB
  - to deliver comprehensive care.

TB Alliance/Louder Than TB Campaign. www.louderthantb.org

Strengthening the community and primary health centre platforms is essential and could avert up to 77% of maternal, newborn and child deaths

- Move away from vertical programming through better harmonisation and coordination of all stakeholders engaging at the primary care level to streamline and facilitate work of HCWs to serve their communities more efficiently.
- Make use of existing platforms, strategies and tools for maternal and child health, HIV and nutrition to address TB at the primary care level routinely and comprehensively, focusing on education, contact screening, risk assessment, and treatment support.
- Strengthen linkages between community providers and facilities as well as referral systems between all levels.

The current funding environment contributes to fragmentation and verticalisation

- Ensure funding allows for integrated approaches and systems strengthening
- Include childhood TB, integration and strengthening of primary care in TB National Strategic Plans as well as maternal and child health strategies to promote resource mobilisation
- Make an investment case for TB - What is the cost of NOT addressing TB in children?

Good quality, reliable data are key

- Strengthen global and national childhood TB estimates to raise awareness and mobilise resources
- Use national and sub-national data to inform programme planning
- Better understand the changing epidemiology of key diseases such as pneumonia and the impact on 'unmasking' conditions such as TB
- Generate and disseminate operational data to show the impact of integrated care on childhood TB as well as other child health outcomes (HIV, pneumonia, malnutrition)

- Understand which interventions will contribute to sustained impact beyond effectiveness

Clear policies and guidance are needed but leadership for implementation is crucial

- Ensure implementation of policies, scale-up of successful pilots and high impact interventions.
- Define milestones and benchmarks.
- Set clear roles and responsibilities for all stakeholders engaged

Proposed priorities for intervention at the primary care level include

- Incorporate TB in key messages for maternal and child health for communities, clients, health care workers to raise awareness and increase demand and care seeking.
- Undertake routine screening of TB contacts at the household/community level, which will lead to identification a large portion of cases of childhood TB as well as children and other household members eligible for preventive therapy.
- Ensure routine risk assessment and referral among sick children (TB/HIV adapted iCCM at the community level, IMCI at primary care facilities), especially those with respiratory symptoms, HIV, malnutrition, which will improve early case finding.
- Decentralise diagnostic capacity for childhood TB to all facilities that can initiate TB treatment, which will ensure children referred from primary care can be managed and impact case finding.
- Ensure that generic training materials and management tools for iCCM in high TB and HIV burden settings are available. WHO is developing and piloting additional tools for TB integration with MNCH
- **Important:** Document and share lessons learnt, best practices, cost and impact to inform scale-up.

Next steps for key Stakeholders

Anyone: Get Louder than TB, Every breath counts! There are many opportunities to support these global advocacy campaigns to raise awareness around child lung health and childhood TB.

National Governments: Collect and analyse local data and engage all stakeholders, including those focusing on child survival platforms, to create a comprehensive joint action plan address TB.

UN organisations: Increase the visibility of TB and provide leadership and guidance across departments and programmes. Ensure childhood TB is appropriately included in the implementation of the SDGs and End TB Strategy. Promote the roll-out of high impact interventions for TB.

NGOs: Leverage existing platforms to identify entry points and address childhood TB, share lessons learned and use them to increase advocacy and show impact.

Researchers: Support implementation research to understand what, why and how interventions work in real world settings and test approaches to improve them. Perform operational research using programmatic data to inform decision-making. Build new research networks to show the impact of TB integration on other child health outcomes.

Funding agencies: Bring the discussion on childhood TB to the level of decision makers and explore opportunities to revise strategies across program areas.

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BACKGROUND


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The Sustainable Development Goals (SDGs) call for ending preventable maternal and child deaths, and, as outlined in the UN Secretary General's Global Strategy for Women's Children's and Adolescent's Health, efforts to reach this target need to include ending the epidemics of Tuberculosis (TB) and HIV. TB can be prevented and cured, yet at least 210,000 of the estimated 1 million children that fall ill with TB every year die of the disease.[1] The majority of childhood TB cases remain undiagnosed, because they don't access care or because TB is not considered as a cause of morbidity. In addition, every year an estimated 7.5 million children between 0-14 years are newly infected with TB.[2] Without routine access to preventive therapy, these children form an ever-growing pool for future disease in years to come - by the end of 2014, an estimated 67 million healthy children were infected with TB. Systematic screening of contacts and high-risk groups for TB and integrated, patient-centred care are important components of the World Health Organisation's (WHO) End TB strategy since without the successful detection and treatment of TB infection and disease in children, elimination strategies are unlikely to succeed.

The strengthening of health systems and the move from vertical, disease-specific programs to integrated approaches are key to addressing childhood TB. This is especially important at the community and primary care level, where children and their families affected by TB live and access care, and where increased efforts are underway to provide preventive and curative services for women and children. Recognising this need, WHO, UNICEF and other partners in 2013 endorsed the Roadmap for Childhood Tuberculosis[3], developed by the WHO/Stop TB Partnership childhood TB Subgroup. To bring on board key stakeholders that traditionally have not engaged in childhood TB, and to continue the dialogue on how to mainstream childhood TB within the continuum of care for women and children, UNICEF, in collaboration with WHO and TB Alliance, organised a consultation in New York on June 1 and 2, 2016.

OBJECTIVES

- To contribute to the understanding of integrating childhood TB in the scale-up of community and primary care systems for maternal and child health
- To identify opportunities and knowledge gaps
- To learn from country experiences and reflect on key health system functions involved

1 WHO Global Tuberculosis Report 2016.

2 Dodd et al. Burden of childhood tuberculosis in 22 high-burden countries: a mathematical modelling study. Lancet Global Health 2014

3 Towards Zero Deaths – Roadmap for Childhood Tuberculosis http://apps.who.int/iris/bitstream/10665/89506/1/9789241506137_eng.pdf

PARTICIPANTS

Seventy-four experts from different countries and regions, representing country governments, UN organisations, international NGOs, donor organisations, academic institutions, and researchers participated in the meeting. Together, they combined expertise in TB, HIV, maternal and child health, nutrition, health systems strengthening, governance, health financing, human resources, health financing, procurement and drug-supply as well as service delivery.

DISCUSSIONS AND OUTCOMES

Seven topic areas were addressed in interactive sessions including presentations and group discussions.

Perspectives on childhood TB

The consultation started by defining the problem and key challenges in successfully preventing, diagnosing, and treating childhood TB, its inter-relationship with common childhood illnesses, and then reflecting on how some of these challenges relate to the broader MNCH and community health systems strengthening efforts.

"IMPROVING CHILD SURVIVAL TAKES MORE THAN ALGORITHMS, IT TAKES A SYSTEM"

Stefan Peterson, Associate Chief of Health, UNICEF

TB is a neglected disease that contributes to inequities, affecting most vulnerable populations, including children. Improving estimates and knowing the global burden of childhood TB, the number of children exposed, infected and diseased, is crucial for advocacy and targeting resources. The Roadmap for Childhood Tuberculosis identifies key actions to address childhood TB, necessitating marshalling global and local expertise and leadership beyond the TB space. Some of the key challenges with childhood TB include lack of awareness and access to prevention, diagnosis, treatment and care, resulting in under- and misdiagnosis. TB as cause or co-morbidity of common childhood illnesses such as severe acute malnutrition and pneumonia is not that well recognised. While advocacy for improved, child-friendly TB diagnostic tools and treatments needs to increase, we also need to develop capacity, share evidence on proven interventions (such as household contact screening, preventive therapy and use of new fixed dose combinations for treatment) and strengthen the systems needed to provide a continuum of care for children and their families affected by TB. Such systems must have a strong foundation at the community and primary care level, through integrated family and child-centred strategies that provide comprehensive services, adapted to local context and epidemiology. To make the case for childhood TB in the broader MNCH agenda in the era of the SDGs, discussions need to move beyond those already engaged in TB and involve additional key stakeholders. The identification of common challenges, opportunities and benefits will help to define the way forward to improve overall child health and survival.

Indeed, many of the key actions of the childhood TB roadmap overlap with current focus areas of the MNCH sector. Similar to TB, the MNCH policy agenda has progressed, but the implementation of strategies lags behind.

USAID's "Acting on the Call: Ending Preventable Child and Maternal Deaths" has yielded significant results and a single roadmap to 2020 is now guiding activities through an equity-based approach. This roadmap does however does not specifically address TB. Global Public-Private partnerships such as "Survive & Thrive" play an important role in supporting these efforts by aligning and leveraging resources. Improved data systems allow for better monitoring of results to guide programming. In order for countries to deliver effective quality care, health financing needs to change, become less donor dependent and more equitable. It is clear that TB has to become part of these broader partnerships and efforts where high impact interventions need to be prioritised, behaviours accelerated, and systems strengthened for improved diagnostic capacity, service delivery, supply chain management, and data collection and use.

Box 1: Key questions to advance TB integration at the community level

- What package of interventions should be supported?
- How can the frontline system be strengthened to deliver TB services?
- What is the marginal cost of integrating TB?
- What is the added value of integrating TB?
- What would be a sustainable financing pathway for a health system that delivers TB services?

Focusing on and strengthening the community and primary health platforms is key and could avert up to 77% of maternal, newborn and child deaths.[4] One important aspect to consider as we move ahead is that changing epidemiology and the increase of NCDs will affect the long-term MNCH focus on reducing mortality. GAVI and the Global Fund have played an important role in this epidemiological shift. The impact of the roll-out of pneumococcal vaccine on pneumonia morbidity and mortality for example will likely 'unmask' other conditions such as TB, and we need to measure and better understand these trends and shifts in order to respond appropriately.

In order for childhood TB to become part of a package of core interventions at the community and primary care level, the health system must be prepared, willing and able to deliver (Box 1). Frontline health workers are crucial links connecting the communities they serve and the health system. Challenges to strengthen this system include supervision, financing, availability of essential commodities, referral systems, skills and motivation for frontline health workers, ensuring quality of care and rational use of medicines, private sector engagement and social accountability. Disease-specific funding can and should be used to strengthen the overall community system as shown under the UNICEF-Global Fund agreement on the alignment of MNCH interventions.

Box 2: What are the common problems we are trying to solve?

1. Limited care seeking behaviour
2. Missed opportunities for prevention, case finding and treatment
3. Insufficient data availability and use
4. Weak health systems
5. Limited partnerships and engagement with stakeholders and initiatives
6. Vertical, unsustainable financing

Exploring perspectives and priorities of different stakeholders highlights how a number of key problems that need to be solved with regard to childhood TB are of common interest, calling for leadership, coordination and collaboration (see Box 2).

4 Black RE et al. Lancet 2016. Reproductive maternal, newborn, and child health: key messages from Disease Control Priorities 3rd Edition. http://dx.doi.org/10.1016/S0140-6736(16)00738-8

Country discussions on integration

Integration is a strategy to improve prevention, diagnosis and care for children affected by TB. When thinking about integration, we automatically focus on interventions and service delivery using different platforms: yet, it takes an entire health system to implement an integrated intervention. A systems thinking approach helps to reflect upon the broader context and functions that need to be aligned to achieve the goal of comprehensive child health care that includes TB.

Integration means "bringing parts together" by adding on or merging elements, but different stakeholders interpret integration differently (Box 3). Different dimensions of integration are clinical, professional, organisational, systemic, functional, normative, horizontal and vertical integration.[5] The level or extent of integration may evolve from no integration or segregated action, to partial integration, or linked or coordinated action, to full integration, and it can be assessed at the various levels of the health system. Factors that may influence integration are: the nature of the problem (is childhood TB perceived as a problem affecting child health?), the intervention (are childhood TB interventions perceived as compatible with existing services?), the adopting system (what is the receptivity and capacity of health actors to adopt and assimilate childhood TB?), health system characteristics (how did key health system functions of governance, health financing, health information, health workforce, logistics and supplies, and service delivery adapt to absorb childhood TB?) and the broad context (what environmental elements facilitated or hindered the adoption of childhood TB?). Integration is a strategy of health system strengthening, implying a systems thinking approach that views effects of interventions on the wider dynamic system as a whole.

Box 3: Examples of different meanings of integration:

- **Patient:** receiving comprehensive care and continuity of care
- **Care provider:** managing co-morbidities, collaborating with various providers and services, considering the expectations of the user
- **Health manager:** linking or expanding services, helping various providers working together, ensuring and supervising various skills, balancing supply needs and budgets
- **Policy maker:** adapting policies for coherence to improve health, cost and care
- **Donor:** promoting/supporting cost-efficient and sustainable interventions

Benefits of integration include achieving comprehensive care, improving quality, equitable access, coverage, and sustainability. Risks include losing specific attention and resources and the need for long-term planning and funding. Evidence and lessons learned show that not everything has to be integrated; that integration needs to be goal-oriented; and that it requires strong leadership and flexibility to adapt during the change process. Thus, we need to recognize that integration requires a systems perspective and that it is a process. For childhood TB that might mean that disease-specific capacity and care are required, but predominantly at higher levels of care, while integration at the primary care level serves to improve awareness and access.

Case studies from Malawi and Uganda illustrate experiences and perspectives on childhood TB integration at the primary care level from different stakeholders at country level. They help to identify influencing factors, challenges, and opportunities as well technical support needs and research priorities, resulting in a country action plan to move forward.

Successes include an enabling environment in both countries, evidenced by strategic plans that incorporate childhood TB; progress with integration of paediatric TB and HIV programmes; collaboration with partners on piloting projects addressing childhood TB diagnosis, management and prevention at community and primary care levels; and existence of a dedicated childhood TB working group at national level in Uganda. Common

5 Valentijn PP, Schepman SM, Opheij W, Bruijnzeels MA. Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. Int J Integr Care [Internet]. 2013;13(1).

challenges identified in both countries included vertical programming; a lack of knowledge and confidence of HCWs, leading to a low index of suspicion of TB in children; poor implementation of contact tracing; poorly functioning referral systems; donor-dependency and limited flexibility in funding programmes/projects; limited decentralisation resulting in limited access to childhood TB services; and challenges with sample transport. Requirements for moving forward with childhood TB integration, common for both countries, are summarised in table 1, the case studies are available online.

Table 1: Common needs to move childhood TB integration forward, by health system function, identified in the case studies

Policy & Governance	Strong leadership
Financing	Resource mobilisation
Health workforce	Capacity building of HCWs at all levels Supportive supervision and supervision tools
Information systems	Integrated reporting tools Strengthening childhood TB R&R within the NTP and in other programmes
Supplies/ drugs	Uninterrupted supplies/drugs
Planning & management	Coordinated framework with guide on implementation of integration Decentralisation of TB services (diagnosis, treatment, prevention)
Demand creation & healthy behaviour	Community awareness Development of IEC materials on childhood TB
Clinical/ services integration	Strengthen referral system Strengthen contact tracing for case detection and preventive therapy TB symptom and contact screening at all entry points with referral (including nutrition)

Reflecting on the meaning of childhood TB integration highlights the need for a system approach to provide comprehensive and client-centred care (Box 4).

Box 4: What does integration of childhood TB mean?

HCW awareness and capacity
- All HCWs empowered to routinely and systematically address TB

Client-centred care
- Increased demand and access to comprehensive, quality child health services

Coordinated planning
- High level commitment, coordination between programs, sectors, stakeholders at all levels, shared accountability

Negotiation
- Integration requires compromises and prioritisation and should lead to strengthening the overall system

Sustainable financing
- Coordination and harmonisation of donor and country interest and investments with increased flexibility and the opportunity to move from disease-specific to system-focus

Integrating Childhood TB Interventions into Service Delivery

TB burden and health system context are key considerations when planning childhood TB interventions, especially at primary care level.

Global estimates point to the large gap of undiagnosed children with TB (over 60% of the 1 million estimated annual cases of childhood TB) as well as the large number of exposed children in need for preventive therapy (67 million children 0-14 years of age by the end of 2014).[6] One of the highest impact interventions for closing the detection gap is the routine screening of routine screening of members of TB affected households, leading to the identification of a large proportion of children with TB as well as those household members who would most benefit from preventive therapy.

Box 5: Programmatic considerations:

- What is the local epidemiology of TB at national and sub-national level?
- How to ensure that child household contacts of adult TB patients are routinely evaluated?
- What other groups of children should be screened for TB? Where will the yield be high?
- Who will do the TB evaluations? What will the evaluation consist of? What is the capacity needed?
- Will the interventions be different in rural or urban settings?

At country level, assessing the burden and diagnostic gap nationally as well as sub-nationally can inform the strategy to find the missing children with TB. For example, the potential yield of household contact screening can be estimated in a simple way, using national or sub-national TB and population data as well as existing risk estimates.[7] These exercises can inform planning and budgeting. Services and TB burden are not evenly distributed within countries, thus requiring careful consideration of where active screening for TB should be prioritised (e.g. outpatient clinics versus hospital settings) in order to ensure access for the most vulnerable living in the most remote areas. (Box 5)

Once burden and distribution of cases are understood, the existing structure of services at the district level need to be considered when planning childhood TB interventions, with attention to differences between urban and rural settings. Population and poverty distribution have implications for the health system structure, availability of MNCH services and their accessibility. The district health system delivers care through different entry points such as outreach, village clinics, health posts, dispensaries, health centres, and hospitals. In addition there are private/non-governmental health providers. The burden of disease and the distance to these various health services have implications for the kind of TB interventions that can be provided: how much diagnostic and treatment capacity can be decentralised, while ensuring risk assessment and referral at the lowest levels of care. In addition, it is important to consider options for health system strengthening given the geography of the various system elements, and its implications for deployment of personnel, supervision, supply chain, and reporting mechanisms.

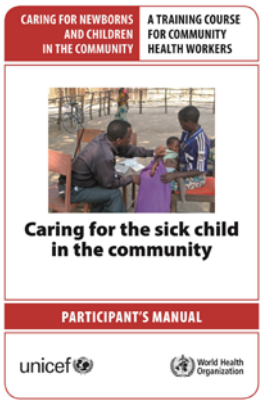
An opportunity for TB risk assessment at the community level: TB/HIV adapted integrated community case management (iCCM)

Integrated community case management (iCCM), involves treatment of childhood malaria, pneumonia, and diarrhoea by a CHW at community level. Over 22 countries in Africa, many with support from the Global Fund, are currently scaling up iCCM. Generic materials for training and management can be adapted to local context

6 WHO Global TB Report 2016 Dodd et al. Global burden of drug-resistant tuberculosis in children: a mathematical modelling study. Lancet Infect Dis. 2016

7 Yuen CM, Jenkins HE, Chang R, Mpunga J, Becerra MC. Two methods for setting child-focused tuberculosis care targets. Public Health Action. 2016 Jun 21;6(2):83-96. doi: 10.5588/pha.16.0022.

and can include additional services around malnutrition, sepsis, and preventive care. ICCM programming requirements include coordination and policy setting, costing and financing, human resources, procurement and supply chain management, service delivery and referral, communication and social mobilisation, supervision and quality assurance, as well as monitoring and evaluation. The benefits of iCCM include:



- Increased access for parents and caregivers seeking treatment for sick children;
- Encouragement of timely care seeking for three common illnesses (pneumonia, diarrhoea, malaria);
- Reduction of inappropriate (use of) medicines
- Optimisation of resources;
- Reduction of the potential for drug resistance;
- Promotion of resilient and sustainable community health systems.

Key challenges include weak supply chain systems, health workforce issues, demand generation and vertical funding streams.

Building on the ongoing efforts to strengthen community child care, WHO and UNICEF in 2014 revised generic iCCM materials to include risk assessment for TB and HIV, carefully considering the capacity of CHWs, the need to maintain quality and to limit the interventions to one very clear question with a yes/no answer. For this reason, TB and HIV interventions such as IPT, CPT, and treatment follow-up are not currently included in the generic iCCM package. Save the Children piloted the TB/HIV adapted iCCM materials in Malawi in 2015/16 with some promising results. However, the pilot also highlighted some of the TB-specific and broader health system challenges that will need to be addressed as part of the implementation of these adapted materials (Box 6).

Box 6: TB/HIV adapted iCCM in Malawi

The national iCCM training materials and management tools were adapted, and 23 healthcare workers were trained in Blantyre district. Over a period of 9 months 10794 children were seen by the CHWs. 426 of them were identified to be at risk of HIV, 9 of them were subsequently diagnosed with HIV.

Over the same period, 32 incident adult TB cases were identified in the catchment area by the HSAs trained in the adapted materials. Through iCCM, the HSAs identified 17 sick children under the age of five with a household TB contact (=risk of TB), in addition to 6 children identified through facility-led contact screening activities. Data on how many of the children actually had TB are pending.

Challenges experienced during the pilot included:

- Difficult referral for TB diagnosis due to the limited number of TB registration facilities;
- Lack of diagnostic capacity for childhood TB at registration sites;
- Lack of privacy at village clinics preventing disclosure of TB or HIV status; and
- TB and HIV indicators are not included in children's health passports, hindering documentation

Results of the pilot informed the decision at the Malawi MoH to nationally scale-up TB/HIV adapted iCCM, and attend to the challenges related to referral and diagnosis.

During a group exercise, possibilities for decentralisation of childhood TB interventions and their integration into existing platforms at the primary level were identified, taking into account how TB burden impacts setting priorities and identifying benefits and key considerations. There are many and entry points to harmonise better currently NTP-led, vertical TB activities at the community level with those of other programmes. This will streamline and facilitate work of HCWs to serve their communities more efficiently.

Participants agreed that existing community and facility-level primary care platforms offer ample opportunities to address TB as part of basically all routine services targeting women and children. These include ANC, iCCM/IMCI, immunisation, growth monitoring and nutrition programmes (malnutrition ward, therapeutic and supple-

Box 7: Key considerations around integrating childhood TB at the primary care level

- Political will and leadership
- Collaboration and coordination between programmes/ stakeholders at all levels
- Joint implementation plans, harmonisation of guidelines, training, supervision (incl. resources to develop and implement these)
- Joint financing for primary care
- Understanding of stigma, and underlying beliefs and barriers, health seeking behaviour, priorities at the community level
- Understanding issues of workload, turnover, confidence, at quality maintenance at the Frontline HCW level
- Understanding the TB burden: local epidemiology to facilitate target setting, identification of priority interventions, and identification of key populations
- Measuring and documentation of impact and cost effectiveness of different interventions
- The establishment of referral and cross referral systems, including feasible transport options (for patients and /or specimens)
- The engagement of specialists for mentoring and supervision

mentary feeding centres), and HIV care but also specific outreach activities and campaigns to raise awareness and increase demand.

Recording and reporting tools, including pregnancy registries and child health cards, offer an opportunity to include TB. TB interventions feasible at the primary care level include general education and awareness, screening and risk assessment, initiation of IPT as well as disbursement of drugs during follow-up, and treatment support. The potential benefits are clear: increased awareness, demand and access, earlier diagnosis and treatment, improved adherence and outcomes. Decentralised care will also reduce costs for families. Careful consideration has to go into the planning and implementation of integrated childhood TB services. Evidently, many of these considerations relate to general issues around systems strengthening (Box 7).

While countries will have to identify context-specific opportunities, entry points and priorities, global leadership and guidance are needed as well as the development of adaptable generic tools such as those for iCCM.

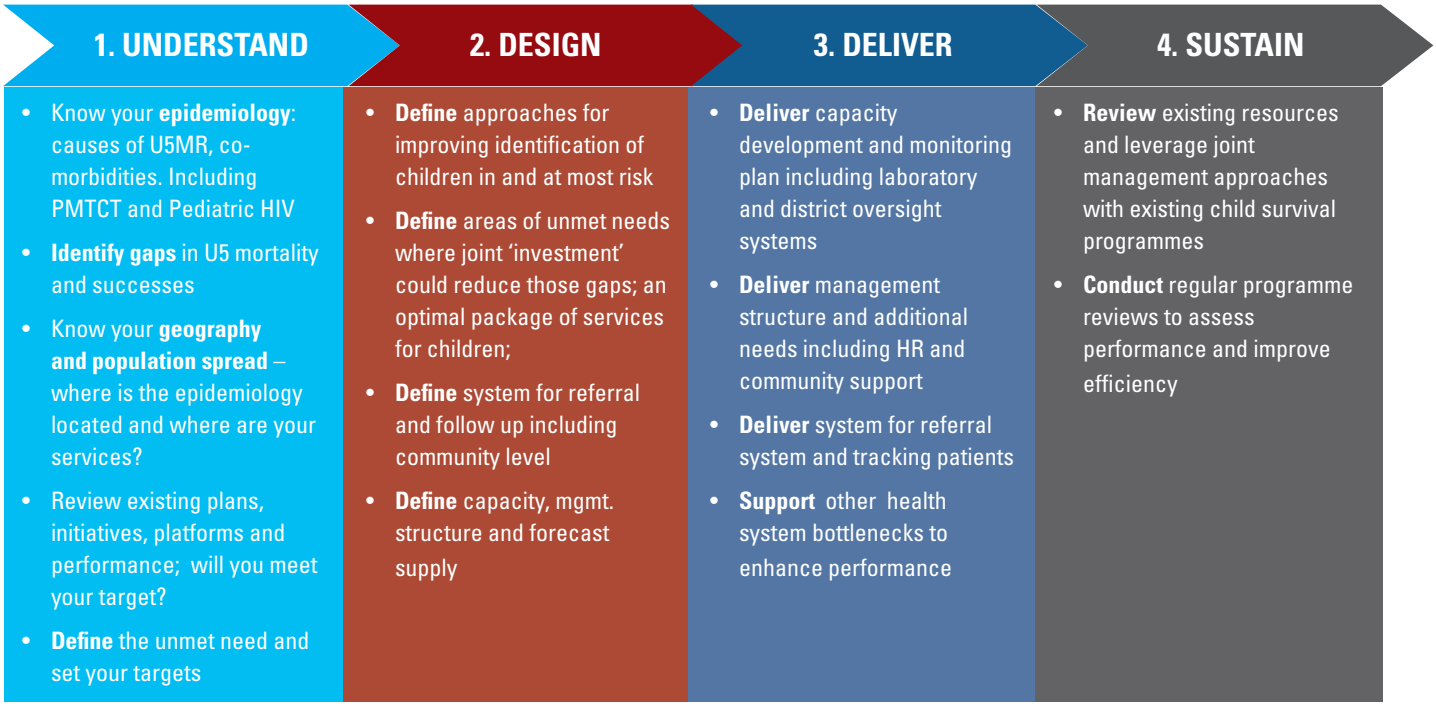
Learning from others and identifying common features

Other traditionally vertical programmes such as HIV and severe malnutrition are increasing efforts to integrate with MNCH, and there are lessons to be learnt and common factors that should guide the way forward. There is also the known risk of co-morbidity of TB, HIV and malnutrition, which calls for better collaboration between these disease programs.

In 2013, leaders from HIV and MNCH launched the Double Dividend, a programming framework towards better alignment of MNCH services and goals and paediatric HIV platforms to increase early and timely infant and child diagnosis and linkages to care for HIV, defining targeted, smart joint investments. A four-step framework for action was proposed: understand, design, deliver, sustain (Figure 1). High yield sites for increasing HIV case detection were identified and recommended for integrated interventions, including inpatient wards, nutrition wards, immunisation clinics. Points for discussion between HIV and MNCH stakeholders included

- Convergence points (e.g. geographical locations that have high priorities or unmet needs for both MNCH and paediatric HIV);
- Ultimate impact/benefits following integration;
- Potential risks following integration in specific entry points (EPI, nutrition, etc.);
- Strategic partnerships and
- Required operational steps (including country guidance).

Figure 1: The Double Dividend: Four-step framework for action



Adapted from the UNAIDS "Investing for Results. Results for People. A People-centered Investment Tool toward Ending AIDS" (2012) Guidance 2012. UNAIDS/PCB (30)12. CRP.4

Despite a clear and rational action framework, acceptance, adoption and uptake of the Double Dividend advances slowly. This only highlights how leadership and a good common policy are critical requirements for making integrated care happen.

Another example are efforts to integrate management of severe acute malnutrition (SAM) with MNCH. Concerns around SAM management include low coverage and slow scale up partly due to lack of ownership of national governments, limited capacities within existing systems, vertical support, limited/short term/external financial support and limited service delivery at community level. As a result, less than 20% of children with SAM globally access treatment. A working group guiding the integration of nutrition into iCCM aims to consolidate, reinforce and promote existing nutrition components of iCCM, explore options to strengthen integration of nutrition into iCCM, and advocate for the development of nutrition within iCCM both in policy and practice.

The examples from HIV and SAM in the context of the discussions aroundTB highlight how different constituencies target similar platforms to improve service delivery and reach more patients: the community and existing strategies such as iCCM, EPI and other service platform that promise high yield. Many of the experiences and key lessons learnt from integration efforts are completely unrelated to the specific health condition that is targeted (Box 8). Questions arise how these different initiatives and the dialogue between partners can be streamlined rather than taking place individually, to develop a joint approach with all partners towards comprehensive care, especially at the community level.

Box 8: Key lessons and experiences from the integration process

1. Understand the context
2. Lead towards goals
3. Design carefully
4. Think systems
5. Consider the continuum of care
6. Manage the change process

Childhood TB integration at the national, district, and community level

Different levels of the health system need to align to enable integrated childhood TB services. Changes need to happen at national, district and community level with respect to governance and leadership; financing for health; health information; health workforce management; expanded partnerships; supply chain management; training, training materials and job aids; and referral and counter referral. Table 2 summarises selected priority actions at each level for these different health system components.

Table 2: Priority actions required at national, district and community levels for each health system component

	NATIONAL	DISTRICT	COMMUNITY
Governance and Leadership	• High level political commitment and policies	• Coordination with stakeholders and joint planning	• Empower community leaders to hold other levels accountable • Establish/strengthen committee at local level and work with CHWs
Health Information	• Few defined indicators for action • Improved data use and analysis for decision making	• Human resources for data analysis	• Empowering communities to use information • Patient level record keeping
Finance	• Sufficient funding allocation • Move away from vertical funding • Less dependence on donor funding	• Buy in by the political leaders (Mayors and governors)	• CHWs to become part of the formal health system, being paid/incentives • Include TB in benefits packages for UHC
Health Workforce management	• Revise/update the roles/ responsibilities/tasks of HCWs at all levels • Need for clear policies on task shifting • Robust HCW retention strategy	• Leadership mechanisms (district management teams) that recognise how the healthcare workforce should be organised • Quality improvement mechanisms	• Review the incentive package for CHWs at the community level • Institutionalise the position of CHWs as part of the frontline healthcare system • Ensure capacity of HCWs providing primary/outreach services
Supply Chain Management	• Quantification • Evaluating policies around drug access	• Ensure reporting at national system and that distribution channels reflect this	• Ensure drug availability where children are accessing care • Integrated reporting and recording systems that are linked across levels (EMR)
Expanded Partnerships	• Coordination of partners/ planning/regulations • Establish strategic/smart partnerships	• Bring key stakeholders together • Define roles/ responsibilities	• Social mobilisation with partners coordinating with district and national level
Referral	• Determine the level of care that can be provided at each level and ensure appropriate referrals • Create common referral pathway for all diseases	• Ensure that district level hospitals can manage all referrals • Communication across levels	• Empower communities to manage TB and other conditions (cross-referral) • Introduce simple and user-friendly referral documents
Training	• Pre-service training • Distance training	• District level mentors to support healthcare workers • Integrated training materials	• Innovative training methods (contextual) • Ensure access to the materials

The process of decentralizing and integrating service delivery, in this case for children affected by TB, affects all components of the health care system, at all levels. Understanding this as well as knowing some of the key actions that need to take place early in the process can guide planning and implementation.

Financing childhood TB integration

A panel representing different donor organisations including the Global Fund, USAID, Elma Philanthropies, the Global Financing Facility, as well as government representation from the Uganda MoH discussed how the current funding environment can support integrated service delivery for childhood TB, while strengthening primary and community care. Key messages included:

- Currently, about 40% of GF investment contributes to HSS, and individual countries usually dedicate 8-10% of their budgets to HSS. About 6% of TB investment goes to childhood TB. Health systems strengthening is part of the new 4 pillar strategy of the Global Fund (Build resilient and sustainable systems for health). MNCH can be part of all GF applications. An opportunity to strengthen support for childhood TB integration and community systems strengthening could arise if included in countries' TB National Strategic plans which will be funded by the GF in the future instead of separate applications. TB/HIV adapted iCCM as part of the ongoing roll out of iCCM is a very promising example.
- Integration does not necessarily appeal as a request for funding, especially for private philanthropic organisations. It is more important to focus on the outcomes that can be achieved through integration - what is the return in investment and how does addressing TB ultimately reduce morbidity and mortality among children? Funding for childhood TB per se is not a priority of many organisations. Out of the box thinking might therefore be needed, presenting a range of policy options, possibly linking TB with other communicable diseases, especially re-emphasising the linkages between paediatric HIV and TB. Another example could be investment in health information systems that would benefit several disease areas.

- The Global Financing Facility (GFF) is a multi-stakeholder partnership that supports country-led efforts to improve the health of women, children, and adolescents. The financing, based on countries' investment plans, aims to secure universal access to essential RMNCAH services supporting programmes that will contribute to saving lives of children with a focus on cross-cutting issues. It is supposed to serves as an entry point for the Universal Health Care (UHC) agenda. The environment for addressing TB in this context seems right, TB should be part of essential services, and be included in basic benefits packages under UHC. But global and national leadership and champions are needed to drive the agenda and increase the visibility of TB in the context of MNCH. Rather than using the integration terminology, the focus should be around saving lives of children.

- USAID is funding implementation of disease specific strategies, specifically where there are gaps – and there is a need to demonstrate impact and results. Gaps remain that limit impact and require engagement of other partners, the private sector, but also data to understand reasons. Research is needed to look into which interventions will contribute to sustained impact rather than just focusing on and showing effectiveness. Capacity building is crucial as is quality of care, in particular at the lower levels of the health care system. At the global level, there is a need to increase our skills in building investment cases.
- Uganda is working on increasing domestic funding and setting long-term goals. It is moving from input-based financing to outcome-based financing. As part of an exercise to increase absorption of Global Fund funding, Uganda has mapped redundancies and inefficiencies, and defined how to move forward. Government and stakeholders need to decide where to allocate available resources and highlight the gaps. Very strong leadership at the highest level is required to distribute resources and align services. Strengthening overall programs will also strengthen the response to TB.

Combined, these messages provide opportunities and some opportunities on how to approach resource mobilisation for childhood TB.

Moving forward – actions for key stakeholders

Concerted action is needed by all stakeholders to advance the agenda for children affected by TB. This includes leadership and commitment at the highest level to make TB visible as part of the MNCH agenda, provision of the necessary evidence, mobilisation of resources, provision of guidance, and support for implementation.

Table 3

CONSTITUENCY	ACTION POINTS
National Governments	• Ensure high level leadership to enhance integration and reduce bottlenecks • Improve coordination, structures and mechanisms at MoH level, decentralised level and with partners – to ensure maximum results for TB and MNCH, to be able to implement, to strengthen decentralisation at PHC level. • Build on and strengthen existing efforts, platforms to strengthen primary care delivery. • Collect, analyse, understand the local data and situation around childhood TB for planning, priority setting, management • Target efforts to scale-up TB/HIV adapted iCCM in high burden countries and strengthen referral systems for all children. 1. Mobilise domestic and external funding for scale-up (including GF and GFF), 2. Adapt national iCCM materials, 3. Phased scale up, 4. Document and share lessons learnt • Investment in skill building among HCWs, including retainment strategies such as appropriate remuneration
UN Agencies	• Lead by example and revise/work on its own policies/strategies for integration • Increase advocacy/visibility around TB, and TB in the context of maternal and child health (incl. HIV and nutrition) • Convene stakeholders and facilitate communication and collaboration (at global, regional, country level) • Ensure that TB is included in relevant global strategies and their implementation, such as the Global Strategy for Women's Children's and Adolescents Health, the End TB Strategy etc.) • Revise relevant global guidance and guidelines to include TB • Provide guidance, algorithms, training materials for Health Workers at all levels • Facilitate research at country level to generate evidence and guide policy • Improve data monitoring • Develop guidance to countries for planning integration (framework) • Promote TB/HIV iCCM, strengthen TB in IMCI • Strengthen engagement with other programs and sectors such as nutrition, immunisation • Support countries in understanding/articulating strategies in order to mobilise resources, for example plan for SDGs (investment cases), next round Global Fund (NSPs)
Funding agencies	• Bring the discussion to the level of decision makers • Explore opportunities to revise strategies related to MNCH/child survival, include TB, strengthen integration (e.g. incoming US Administration) • Motivate countries' NTPs to include/strengthen childhood TB, TB/HIV, TB/HIV iCCM, integration and strengthening of primary care into National Strategic Plans • Look to partners to gather more evidence from OR, M&E, to promote the inclusion of childhood TB
NGOs	• Increase advocacy • Perform assessments (for example use of the KNCV childhood TB benchmarking tool) • Share experiences and lessons learned • Leverage various platforms to engage other stakeholders • Leverage existing non-TB platforms for TB integration • Generate impact statements and investment cases to engage stakeholders
Researchers	• Conduct operational research using programmatic data for decision-making and understand the impact and cost of integration as well as the cost of inaction. Budget research in applications for funding • Strengthen linkages with other researchers working in nutrition, pneumonia, child health, etc. and identify joint outcome measures [Can integration that strengthens one effort, e.g. childhood TB case finding, impact outcome measures for other programs, e.g. malnutrition outcomes?] • Conduct implementation research to understand what why and how interventions work in real world settings and to test approaches to improve them, e.g., study the difference between well-functioning and not well-functioning integrated programs • Strengthen data systems and use

RESOURCES

Towards Zero Deaths – Roadmap for Childhood Tuberculosis
http://apps.who.int/iris/bitstream/10665/89506/1/9789241506137_eng.pdf

World Health Organization. Global Tuberculosis Report 2016. http://www.who.int/tb/publications/global_report/en/

Integration of childhood TB into maternal and child health, HIV and nutrition services. A case study from Malawi. http://www.unicef.org/health/files/2016SEP19_FINAL_Casestudy_childhood_TB_Malawi.pdf

Integration of childhood TB into maternal and child health, HIV and nutrition services. A case study from Uganda. http://www.unicef.org/health/files/2016SEP19_FINAL_Casestudy_childhood_TB_Uganda.pdf

Dodd PJ, Sismanidis C, Seddon JA. **Global burden of drug-resistant tuberculosis in children: a mathematical modelling study.** Lancet Infect Dis. 2016
Publication with recent estimates on the total burden of children aged 0-14 with TB, MDR TB and TB infection.

Yuen CM, Jenkins HE, Chang R, Mpunga J, Becerra MC. **Two methods for setting child-focused tuberculosis care targets.** Public Health Action. 2016 Jun 21;6(2):83-96. doi: 10.5588/pha.16.0022.
Publication describing methods to produce national and sub-national estimates on the number of children with disease and infected expected to be found through household contact screening.

World Health Organization. **Caring for the sick child in the community, adaptation for high HIV or TB settings.** Community health worker manual, Facilitator notes, Chart booklet, Referral form
http://www.who.int/maternal_child_adolescent/documents/newborn-child-community-care/en/

Childhood TB for healthcare workers: an online course. https://childhoodtb.theunion.org/
The course is designed for healthcare workers at the secondary and primary level of the healthcare system. The content is based on the World Health Organization's (WHO) 2014 Guidance for national tuberculosis programmes on the management of tuberculosis in children, as well as the Union's Desk guide for diagnosis and management of TB in children, and focuses on the clinical management of childhood TB.

KNCV Benchmarking tool for childhood TB policies, practice and planning. https://www.kncvtbc.org/kb/kncv-benchmarking-tool-for-childhood-tb-policies-practice-and-planning/
The benchmarking tool is a self-assessment tool, meant to serve as a basis for discussions, brainstorming, and strategic planning and as a tool for monitoring progress in the realization of childhood TB policies towards alignment with WHO guidelines, in the framework of a TB program.

CORE Group 2013. A Framework for Integrating Childhood Tuberculosis into Community-based Health Care
http://www.coregroup.org/storage/documents/Resources/Tools/Framework_for_Integrating_TB_Final.pdf
This document outlines community-based strategies for integrating childhood TB activities with other maternal and child health care services through existing diagnosis and management algorithms.

The End TB Strategy. Global strategy and targets for tuberculosis prevention, care and control after 2015. WHO, 2014.
http://www.who.int/tb/strategy/en/

Valentijn PP, Schepman SM, Opheij W, Bruijnzeels MA. **Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care.** Int J Integr Care. 2013;13(1).

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