TACTIC: TEST, AVOID, CURE TB IN CHILDREN

A survey of paediatric tuberculosis policies in 14 countries

October 2024

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The MSF Access Campaign was launched in 1999, on the heels of MSF being awarded the Nobel Peace Prize. Rooted in MSF's medical operations, MSF Access Campaign analyses and advocates for access to lifesaving medicines, diagnostic tests, and vaccines for people in MSF programmes and beyond.
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Front cover photo:
MSF's Dr Trisha Thadhani conducts a medical evaluation at an active case finding site for TB in Tondo, Manila, Philippines. March 2023. © Ezra Acayan

Back cover photo:
Fatima Gurezova, 28, and her children, at their home in Varzob district of Tajikistan. After being diagnosed with TB, they underwent treatment with medical, nutritional and psychological support from MSF teams. May 2024. © MSF

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EXECUTIVE SUMMARY

The World Health Organization (WHO) estimates that 1.25 million children and young adolescents (0-14 years) fall ill with tuberculosis (TB) each year, but that only half of these children are diagnosed and reported to national TB programmes (NTPs).[1] In 2023, world leaders once again pledged to close this gap at a second United Nations High-Level Meeting on TB, with a new global Roadmap towards ending TB among children and adolescents launched by WHO later that year.[2]

In 2022, WHO revised its guidance for the management of paediatric TB to be in line with the most recent scientific evidence. If adopted and then implemented, these guidelines could drastically improve the diagnosis and quality of care for children with latent TB infection and both drug susceptible (DS-) and drug-resistant forms of TB disease (DR-TB).

Two years after their release, this policy survey assesses the adoption of the WHO guidelines into national policy frameworks, progress towards their implementation, and challenges being faced by NTPs in this process. This report summarises data from across 14 countries with a high burden of TB, TB/HIV co-infection and/or multidrug-resistant TB (MDR-TB), and in which MSF provides TB care, focusing on the following themes.

- **Diagnosis**

  Diagnosing TB in children is challenging because the laboratory tests that are currently available are not adapted to the needs of children. It is encouraging, therefore, to see that many countries surveyed now allow treatment initiation based on clinical evaluation without bacteriological confirmation of TB. Many countries are also making use of stool-based testing to give clinicians an alternative to testing sputum, gastric or nasopharyngeal aspirates, which are difficult to obtain from small children. However, there is limited implementation of these recommendations. Furthermore, fewer countries have adopted the evidence-based treatment decision algorithms recommended by WHO, which are the key to increasing the number of children diagnosed with TB in the absence of bacteriological confirmation. With diagnosis being the first hurdle to ensuring that more children with TB can access the treatment they need, this requires urgent attention from national policymakers as well as their international partners.

- **Prevention**

  TB preventive treatment (TPT) stops children who have been infected with TB (*Mycobacterium tuberculosis*) from developing TB disease, preventing harm and saving long-term healthcare costs. This makes it a particularly valuable tool in protecting the most vulnerable children, including children living with HIV and children under the age of 5 who are close contacts of an adult with TB disease. It is encouraging to see that all surveyed countries include at least one shorter TPT regimen in national guidelines for under-5s. However, children living with HIV are still excluded from these easier-to-complete regimens in many countries, and only a few countries are procuring multiple shorter TPT regimens, limiting options for patients, particularly the youngest children, and increasing vulnerability to procurement challenges. Regardless of the policy landscape, it is also clear that very few children are accessing any form of TPT, which underlines the urgent work that is needed by both TB and HIV services to overcome persistent implementation barriers.

- **Treatment of drug-susceptible TB**

  The 2022 WHO guidelines included important revisions that allow children with non-severe forms of drug-susceptible TB (DS-TB) to be treated with a regimen of antibiotics that is much shorter in duration. These shorter regimens significantly reduce the burden of treatment on individual children and their caregivers, while also helping to reduce pressure on health services. While some countries include these shorter regimens in updated national guidelines, progress remains slow. Even more concerningly, a number of countries are failing to procure paediatric formulations of key anti-TB medicines, forcing children to take adult medicines that are difficult to swallow and can lead to incorrect dosages, with a greater risk of severe side effects, drug resistance and treatment failure.

- **Treatment of drug-resistant TB**

  The combination of scientific progress and persistent advocacy by MSF and other civil society organisations has led to the introduction of all-oral treatment regimens for rifampicin- and multidrug-resistant TB (RR-/MDR-TB) including for children. Some shorter regimens are already recommended for adolescents over the age of 14. Newer medicines bedaquiline and delamanid are now also recommended for children of all ages, which opens the way for all-oral shorter regimens containing the latest medicines for the youngest children, including those recently recommended by WHO in June 2024 via a rapid communication. While it is encouraging to see most surveyed countries adopt

policies to make use of these advances, young children in a small subset of countries are being left behind. The introduction of newer anti-TB medicines and paediatric formulations is critical to enabling countries to move away from the use of amikacin, an injectable antibiotic known to cause severe side effects including permanent hearing loss. If bureaucratic and funding barriers to the introduction of newer regimens are not overcome, too many children with TB will continue to be exposed to outdated treatments that should be consigned to history.

A dashboard illustrating the alignment of individual countries against WHO guidelines can be found on the following pages. When reviewing the dashboard, it is important to recognise that the survey primarily focuses on policy alignment and uses a range of proxy indicators to get an initial insight into the degree of policy implementation, including the availability of training materials, documentation and procurement at the level of the NTP. Nonetheless, the report cannot speak to the level of implementation in healthcare facilities across different regions or levels of the health system, how many children with TB are being correctly diagnosed and treated, or their overall quality of care. WHO data consistently highlights how many children still miss out on this care, even in countries with strong policy landscapes.[1]

The survey does, however, highlight that too many countries are facing major challenges at the first hurdle of updating national TB guidelines. Closing the vast gaps in case finding and treatment for children with TB will require a huge amount of work alongside increased funding, but it cannot begin without policy reform. The data presented in this report offers an important insight into where children are being left behind, and supports NTPs, ministries of health, funders and international partners to develop national paediatric TB roadmaps to fix this.

RECOMMENDATIONS

National policymakers

- Update national guidelines, or adopt draft guidelines, to be in line with WHO paediatric TB recommendations, and report progress by World TB Day 2025 (24 March).
- Develop paediatric TB roadmaps, setting out specific plans and timelines to increase access to TB prevention, diagnosis and treatment in line with UN High-Level Meeting commitments.
- Integrate the expansion of paediatric TB case finding, prevention, and DS- and DR-TB treatment into national budgets and donor funding requests.
- Work with technical partners to address barriers to policy reform, procurement and implementation, pursuing operational research where implementation is not yet feasible.
- Prioritise paediatric TB within national strategic plans, monitoring and accountability processes.

International funders and technical support agencies

- Encourage the inclusion of paediatric TB interventions within funding requests.
- Provide targeted funding to support policy update and implementation outside of traditional funding cycles.
- Prioritise inclusion of paediatric populations in research funding, programmatic funding and programme reviews.

Civil society and affected communities

- Utilise policy survey findings to advocate for the development of national paediatric TB roadmaps, policy updates and implementation.
- Monitor implementation of policies at health facility level and hold leaders accountable.
- Advocate for children with TB in existing governance forums, including country coordinating mechanisms and multisectoral accountability frameworks.

To access country factsheets, annexes, technical briefings on the themes discussed in this report and other advocacy materials, visit https://msfaccess.org/tactic-test-avoid-cure-tb-children

SURVEY DASHBOARD

The Philippines	Sierra Leone	Somalia	South Sudan	Uganda *Guidelines are being updated*

LEGEND

YES		NO
YES, and supporting materials and training are available	YES, but supporting materials and training are not available	NO
YES, and supporting materials and training are available	YES, but supporting materials and training are not available	NO
YES, and supporting materials and training are available	NO	Not applicable when Xpert MTB/RIF Ultra test on stool specimens are included in the national guidelines
YES, and all appropriate formulations to administer that regimen in children are available	YES, but not all appropriate formulations to administer that regimen in children are available	NO
YES, and all appropriate formulations to administer that regimen in children are available	YES, but not all appropriate formulations to administer that regimen in children are available	NO
YES		NO
YES	NO, but the country is doing operational research	NO
YES		NO
YES		NO
YES		NO
YES, injectables not recommended		NO
YES	Only Bdq or Dlm procured	NO
YES, paediatric formulations of all other medicines required for DR-TB regimens are procured*		NO, paediatric formulations of all other medicines required for DR-TB regimens are not procured

* The medicines required are levofloxacin 100mg dispersible tablet (dt), moxifloxacin 100mg dt, linezolid 150mg dt, clofazimine 50mg dt, cycloserine 125mg mini capsule, with moxifloxacin and levofloxacin interchangeable in currently recommended DR-TB regimens.

INTRODUCTION

Every 3 minutes, a child dies of tuberculosis (TB).[1] The World Health Organization (WHO) estimates that 1.25 million children and young adolescents (0-14 years old) fall ill with TB each year, but that only half of these children are diagnosed and reported to national TB programmes (NTPs).[1] The statistics are even worse for children under the age of 5 (up to 60% of whom are missed) and those with drug-resistant forms of the disease (with less than 20% of children with multidrug-resistant TB (MDR-TB) being offered appropriate treatment).[1]

Diagnosing paediatric TB is more challenging than diagnosing TB in adults because children are often unable to produce sputum, have lower levels of bacteria in their lungs than adults, which current tests often fail to detect, and are more likely to suffer from extrapulmonary TB than adults. Historically, both prevention and treatment regimens were longwinded and made even more challenging because medicines were unavailable in paediatric formulations, forcing treatment providers and caregivers to crush up adult pills to achieve roughly the right dosage.

The situation has improved significantly in recent years, with paediatric formulations now being available for all the medicines recommended by WHO to prevent and treat TB in children. While better tests are still urgently needed, new treatment decision algorithms using clinical symptoms, X-ray findings and stool sample testing mean fewer children should go undiagnosed each year. Newer TB medicines are now also recommended for children of all ages, ensuring that all children with DR-TB can be treated with all-oral regimens.

Having updated individual recommendations, as new data on the management of paediatric TB were published over the last five years, WHO issued new, consolidated guidelines on preventing, diagnosing and treating paediatric TB in 2022 (new WHO guidelines).[3] This was followed by a new WHO Roadmap Towards Ending TB in Children and Adolescents in 2023, which urges governments to adopt and implement these new guidelines as soon as possible.[4]

In the same year, MSF launched a new initiative to "Test, Avoid, Cure Tuberculosis in Children" (TACTiC), providing pilot data to implement the new guidelines in MSF programmes in over a dozen countries in Africa and Asia. In addition to this, the initiative aims to demonstrate the validity and feasibility of the recommendations in different country contexts and advocate for their widespread implementation across national health systems. To aid this effort, a policy survey was conducted to assess the adoption of the WHO guidelines into national policy frameworks in 14 countries with a high burden of TB, TB/HIV co-infection and/or MDR-TB, and in which MSF provides TB care, as well as their level of implementation and any challenges being faced by NTPs in this process.

This report summarises findings from the policy survey, presenting data from across 14 countries. Following a summary of the methodology used to collect data, a dashboard provides a snapshot of key findings. These are then explored in further detail across four thematic chapters, covering diagnosis, prevention, and treatment of drug-susceptible (DS-) and drug-resistant (DR-) TB, respectively. The conclusion sets out key recommendations for governments, funders, and international stakeholders, and provides links to resources for advocacy.

The survey's key findings demonstrate ongoing gaps in policy adoption, which need to be addressed in order to meet targets agreed by world leaders during last year's United Nations High-Level Meeting on TB. This is supplemented with initial insights into the implementation of these policies, which continues to lag even further behind. Case studies and field reports from MSF programmes are presented throughout the report and underline the urgency of accelerating policy reforms and the implementation thereof, as well as the persistent need to develop new, more effective, and affordable diagnostic tools for children with TB.

In addition to the dashboard presented in this report, individual country factsheets and raw data can be accessed in online annexes to this report.

METHODOLOGY

The survey assessed the alignment of national policies and guidelines with WHO recommendations on preventing, diagnosing and treating TB in children, as well as the availability of key tools to aid implementation at the NTP, and challenges experienced during implementation efforts. The survey focused on the national health systems of 14 countries with a high burden of TB, TB/HIV co-infection and/or MDR-TB and in which MSF provides TB care. They are: Afghanistan, Central African Republic, Democratic Republic of the Congo, Guinea, India, Mozambique, Niger, Nigeria, Pakistan, the Philippines, Sierra Leone, Somalia, South Sudan and Uganda.

Data was collected through a questionnaire developed by MSF technical staff, including eight questions about policy content and 11 questions about the availability of key tools at the NTP required for their implementation, including training materials and the procurement of age-appropriate formulations of TB medicines. Data collection took place between October 2023 and May 2024.

MSF teams pre-filled responses to policy questions based on documents that were publicly available or shared by the NTP. Where NTPs were in the process of updating guidelines and these drafts were shared with the MSF teams, data presented in this report is based on draft policies. This is noted in the dashboard.

NTPs were then asked to validate these findings and respond to non-policy questions via email or in-person interviews. Data could not be validated in one of the countries surveyed for two indicators. This is indicated in the dashboard, with denominators adjusted in the analysis accordingly.

Filled questionnaires were reviewed for completeness and consistency by MSF technical staff. Where additional information or clarification was needed, MSF country teams and NTPs were consulted. Implementation questions could not be validated separately and are reported as responded to by NTPs.

In addition, a short case study was developed with MSF teams working in Poland to highlight the challenges faced in improving paediatric TB care in high-income countries. The findings are not represented in the dashboard but presented in a standalone section.

Limitations include the limited set of countries and number of questions covered. Furthermore, the questionnaire uses proxy indicators to get an insight into the degree of policy implementation, such as the availability of training materials, documentation, and procurement at the NTP. It is important to recognise that this data could not be validated and does not indicate the level of implementation in healthcare facilities across different regions or levels of the health system, how many children with TB are correctly diagnosed and treated, or the overall quality of care.

Eight-year-old Zainidin, who is currently being treated for TB, makes his mother, Surayo, laugh outside their home. Tajikistan, July 2021. © Jasňa Riegerová/MSF

CHAPTER 1 | DIAGNOSIS

KEY FINDINGS

- **9 out of 14 countries'** policies indicate that DS-TB treatment for children can be initiated without bacteriological confirmation or chest X-Ray.
- **5 out of 14 countries'** policies include treatment decision algorithms recommended by 2022 WHO guidelines, and **4 out of 5 of these countries** have materials available at the NTP to support the implementation of these.
- **10 out of 13 countries'** policies recommend the use of the Xpert MTB/RIF Ultra assay on stool specimens as a diagnostic tool for pulmonary TB and rifampicin resistance in children, and **8 out of 10 of these countries** have materials available at the NTP to support the implementation of this recommendation.[i]
- **1 out of 3 countries** that do not yet include stool-based testing for TB in children in national guidelines is conducting operational research on this.

BACKGROUND

Today, children who fall ill with TB have less than a 1-in-2 chance of being diagnosed and offered treatment. Without proper diagnosis, TB is often fatal and around 96% of children who die from TB are never started on treatment.[5]

Diagnosing TB in children is challenging because the laboratory tests that are currently available are not adapted to the needs of children.[6] Sputum is the most common specimen used to test for TB, which children find very difficult to cough up. Historically, the only alternatives were nasopharyngeal or gastric aspirates, which have to be collected through invasive and complex medical procedures. However, beyond the difficulties of specimen collection, the most important challenge stems from the fact that children often have lower levels of bacteria in the lungs than adults, which means tests often fail to detect TB even if a specimen is available for testing.

The new WHO guidelines, issued in 2022, include a number of important updates on how to optimise TB diagnosis in children that could dramatically increase the number of children accessing lifesaving TB treatment, if adopted and implemented.[3]

Sputum is the most common specimen used to test for TB, which children find very difficult to cough up. Historically, the only alternatives were nasopharyngeal or gastric aspirates, which have to be collected through invasive and complex medical procedures. However, beyond the difficulties of specimen collection, the most important challenge stems from the fact that children often have lower levels of bacteria in the lungs than adults, which means tests often fail to detect TB even if a specimen is available for testing.

NEW TREATMENT DECISION ALGORITHMS

The new WHO guidelines urge healthcare workers to start children on TB treatment if their symptoms are strongly indicative of TB disease, even if bacteriological tests are unavailable, inconclusive or negative. This change in guidance means children can access treatment even when current diagnostic tools fail them, which is critical when the disease can progress quickly and with deadly consequences.

[i] Denominator adjusted as no data available for one of the surveyed countries.

Gull Sima, 2, undergoing clinical examination at the MSF DR-TB hospital in Kandahar, Afghanistan. March 2022. © Lynzy Billing

Symptoms suggestive of pulmonary TB include poor weight gain, prolonged fever and cough. If a child presents with these symptoms, among others, the WHO guidance offers two treatment decision-making algorithms to help healthcare workers assess their relative risk of TB, depending on if they have access to chest X-rays or not.

Encouragingly, the majority of countries have updated national guidelines to ensure clinicians can enrol children on treatment in the absence of bacteriological confirmation or testing if their symptoms are strongly indicative of TB disease. Given the inadequacy of current testing tools, this change is crucial for ensuring that children who are very likely to have TB can access treatment before it is too late.

Despite this change, few countries have adopted the WHO-recommended treatment decision algorithms into their national guidelines. The treatment decision algorithms recommended by WHO are data driven, meaning they are the most evidence-based way of determining if a child would benefit from TB treatment in the absence of a confirmatory laboratory test result. To ensure fewer children with TB are missed, countries should adopt these treatment decision algorithms as a matter of urgency.

STOOL-BASED TESTING

While children can now be enrolled on treatment without confirmatory tests, bacteriological confirmation of TB should still be sought wherever possible, including to identify if a child has a drug-resistant form of the disease.

The new guidelines recommend using a more sensitive version of the GeneXpert test (GeneXpert MTB/RIF Ultra). Importantly, the new guidelines also expand the types of samples that can be used to run these tests in children by adding stool, which is much easier to collect from children than sputum or gastric and nasopharyngeal aspirates. Despite the tests still not being very sensitive, this at least gives healthcare workers another specimen option when testing for TB.

Many countries have updated national guidelines to reflect this change in WHO recommendations, with only three countries not yet giving doctors the option of testing stool samples for TB. The majority of countries that have updated guidelines have also produced supporting and training materials, increasing the likelihood of this policy being implemented.

However, even among the countries that do recommend stool sample testing, NTPs identified a range of implementation barriers. These include insufficient funds for training healthcare workers,

persistent difficulties in collecting and transporting stool samples, supply chain barriers and the high price of purchasing the necessary Xpert cartridges.

CONCLUSION

Diagnosis is the first critical step in preventing a child dying from TB. Governments will need to almost double the number of children diagnosed and enrolled on TB treatment if they are to deliver on their commitment to achieve 90% coverage of quality-assured diagnosis and treatment by 2027 in children and young adolescents.[2]

The WHO-recommended treatment decision algorithms and addition of stool-based testing help to overcome some of the barriers to diagnosing TB in children. The survey findings presented above are encouraging in that the majority of countries are making a proactive effort to update national policy frameworks.

However, increasing the number of children with TB who are diagnosed and enrolled on treatment will rely on the full implementation of these guidelines. The survey also highlights the growing gap between countries, and the risk that thousands of children living in countries with outdated policies will be left behind.

More broadly, while further work is needed to ensure we are making the most of all the tools available, it is also clear that current tests are simply inadequate. The continued shortcomings of even the most advanced diagnostic approaches underline the importance of further investment in research and development for better tests to diagnose TB in children.

Diagnosing children with TB in Sierra Leone

Four-year-old Anthony Sesay was diagnosed with DS-TB using the WHO treatment decision algorithms and completed his treatment in November 2023. Here his grandmother describes Anthony's TB diagnosis and treatment at an MSF-supported health facility:

"I knew he was sick when his body started getting hot and then he started coughing. He was doing this for a while, and he kept getting worse. One day, a health worker passing by my house asked me why I was so upset as they all know me to be someone who always smiles. He told me to take Anthony to the clinic the next day to be checked.

I was at home when the health worker called me to come to the clinic to collect medicines for Anthony as he had TB. When they told me that he had TB I was not happy. As a grandmother I want to see my grandson healthy, laughing and playing.

While he was under treatment, I would take him to the clinic regularly. Sometimes nurses in the clinic give toys, colouring pencils and paper to the children so they can have some fun. Anthony loves to draw. Now Anthony is okay, he is not like he was a few months ago when he was sick. Now when I look at Anthony, I am happy."

MSF supports 15 MoH TB directly observed therapy (DOT) short course sites hosted within primary healthcare facilities (Peripheral Health Units - PHUs) throughout the Bombali district in Sierra Leone. MSF teams regularly visit the MoH teams working at the DOT sites to support with on-the-job training and guidance when confronted with particularly complex medical cases. Staff at the DOT sites have been trained to identify children with TB based on presumptive symptoms and using the new WHO treatment decision algorithms. Sputum or stool samples collected from children with presumptive TB are tested with Xpert MTB/RIF Ultra at the MSF-supported TB laboratory within the Makeni Regional Hospital. Testing is supported by an extended sample transportation system implemented by MSF to transport samples with motorbikes from the DOT sites to the regional hospital. Children with a positive Xpert test and children clinically diagnosed using the WHO treatment decision algorithm are then started on treatment. Thanks to this new diagnostic approach rolled out by MoH with MSF's support in 2022, more children are now diagnosed at DOT sites and provided with the medical care they need.

Anthony drawing with colour pencils outside a directly observed therapy (DOT) site in Sierra Leone's Bombali district. © Mary Dumbuya/MSF.

CHAPTER 2 | PREVENTION

KEY FINDINGS

- **14 out of 14 countries'** national policies recommend a shorter TPT regimen as an option for children under the age of 5 who are household contacts.
- **11 out of 14 countries'** national policies recommend a shorter TPT regimen as an option for children and adolescents living with HIV.
- **14 out of 14 countries'** national policies allow for TPT initiation without performing a test for TB infection (TST or IGRA) for children and adolescents living with HIV and children under the age of 5 who are contacts of a person with confirmed TB.

BACKGROUND

People may not immediately fall ill after being exposed to and infected with TB, with the infection persisting in a symptomless form. TB preventive treatment (TPT) is a safe and effective course of antibiotics that prevents people who have been infected from developing TB disease and transmitting it on to others. Around 7.5 million children and young adolescents under the age of 15 are thought to be infected with TB each year.[5] Compared to the adult population, children under the age of 5 and those living with HIV are at much higher risk of developing active TB disease, often within 12 months of infection.[7]

For this reason, all children who have been in close contact with an adult who has bacteriologically confirmed TB, and all children and adolescents living with HIV, should be offered TPT after ruling out active TB disease. Systematic screening for symptoms of TB among people living with HIV and the close contacts of people with confirmed TB disease, followed by access to TPT for those likely to have TB infection, are essential and lifesaving interventions.

Historically, the most widely recommended TPT regimens were either 6 or 9 months of isoniazid preventive treatment (IPT), which were especially challenging for children and young adolescents to complete. Shorter preventive treatment options, first recommended in 2018, have improved acceptability for patients and caregivers, reduced loss to follow-up and helped minimise resource implications for healthcare providers.

WHO guidelines now recommend a number of shorter regimens suitable for children under the age of 5 and children living with HIV, including 3 months of isoniazid plus rifapentine once weekly (3HP) and 3 months of isoniazid plus rifampicin daily (3HR).[3] Alternative regimens of 4 months of rifampicin (4R – all ages) and 1 month of daily isoniazid plus rifapentine (1HP – age 13 years and over) may also be offered.

If adopted in national policies and implemented fully, the revised WHO guidelines could dramatically increase the number of children accessing lifesaving TPT.

SHORTER TB PREVENTION REGIMENS FOR CHILDREN UNDER THE AGE OF FIVE

For children under the age of 5, the national policies of all surveyed countries included at least one shorter regimen. Almost all countries included 3HR in their guidelines, with a smaller number of countries also including 3HP as an option.

The less widespread uptake of 3HP into national policies compared to 3HR may be due to a range of factors, including that 3HP was previously more expensive, the lack of a paediatric fixed-dose combination (FDC) and, until recently, the lack of a paediatric formulation of rifapentine, as well as changes in the supply system. WHO dosing guidance on 3HP at the time of data collection for the survey also advised that the regimen should only be offered to children over the age of 2.

However, revised guidance published in September 2024 removed this age limit, giving NTPs an opportunity to expand TPT options to all age groups, including the youngest children, removing a potential barrier to scale up and to supply chain challenges.[8]

SHORTER TB PREVENTION REGIMENS FOR CHILDREN AND ADOLESCENTS LIVING WITH HIV

For children and young adolescents living with HIV, the policy landscape is somewhat weaker. Three countries continue to recommend the longer IPT regimen only, stopping short of updating their guidelines to include shorter options that have clear advantages over IPT. Of the 11 countries that include shorter regimens in their guidelines, seven include both 3HP and 3HR.

When offered to people living with HIV, 3HR requires dosing changes of dolutegravir, which is the cornerstone of antiretroviral (ARV) treatment, and thus requires close collaboration with HIV services. It is also important to note that the 3HR formulation is used in the treatment of TB disease, so is widely available in countries, though access for TPT can be compromised in the event of supply chain issues.

As 3HP does not require any dose adjustments to dolutegravir-based ARV regimens, introducing this regimen into national policies would be a critical step in increasing access to and completion of TPT among children and adolescents living with HIV. The same applies to the shortened 1HP regimen, which can be offered to young adolescents over the age of 13.

PROCUREMENT OF SHORTER TPT REGIMENS

Encouragingly, countries surveyed were procuring the medicines needed to offer at least one of the shorter TPT regimens for children.

Of the NTPs surveyed, 12 confirmed that they are procuring the 3HR FDC (50/75mg), which has been on the market for well over 5 years and can be used as part of both the TPT and DS-TB regimens. In comparison, just eight countries procure the 3HP FDC (300mg/300mg), which can only be offered to adolescents over the age of 14. Paediatric formulations of rifapentine and isoniazid can now be procured individually to offer 3HP to younger children, but no data was collected on this as part of this survey as paediatric formulations of rifapentine have only become available very recently. Eight countries also procure the paediatric formulations for the 6- and 9-month isoniazid regimens.

Importantly, this survey did not assess actual implementation of either regimen in-country. Major implementation barriers remain even for countries that have updated their guidelines, including training challenges, previously high prices of some formulations and insufficient stock to cover needs for TPT as well as treatment for all age groups.

Given the availability of shorter regimens and their benefits for healthcare resource management and greater resilience to supply chain issues, NTPs should prioritise including the full range of shorter regimens in guidelines, procurement and implementation as a matter of urgency.

INITIATING TPT WITHOUT PRIOR TESTING FOR TB INFECTION IN CHILDREN UNDER 5 AND CHILDREN LIVING WITH HIV

WHO guidance states that TPT can be offered to individuals who are at higher risk of TB disease without prior performance of a tuberculin skin test (TST) or interferon-gamma release assay (IGRA) to test for TB infection. This includes children under the age of 5 who are close contacts of an adult with bacteriologically confirmed TB (regardless of HIV status) and all children and adolescents living with HIV (regardless of age).

It is welcome to see that all countries surveyed allow for TPT initiation without prior testing in children living with HIV and children below the age of 5. WHO data on the number of children accessing these treatments underlines, however, the ongoing gap between policy and practice.[9]

CONCLUSION

While national policies continue to have some gaps, it is encouraging to see that most countries surveyed have updated their national guidelines on TB prevention and treatment in line with WHO recommendations.

This contrasts with WHO data, which shows that just 2.2 million children under the age of 5 accessed TPT between 2018 and 2022, compared to a global target of 4 million.[9] This highlights the major implementation barriers hampering the rollout of newer TPT regimens and stopping hundreds of thousands of children from receiving these lifesaving treatments.

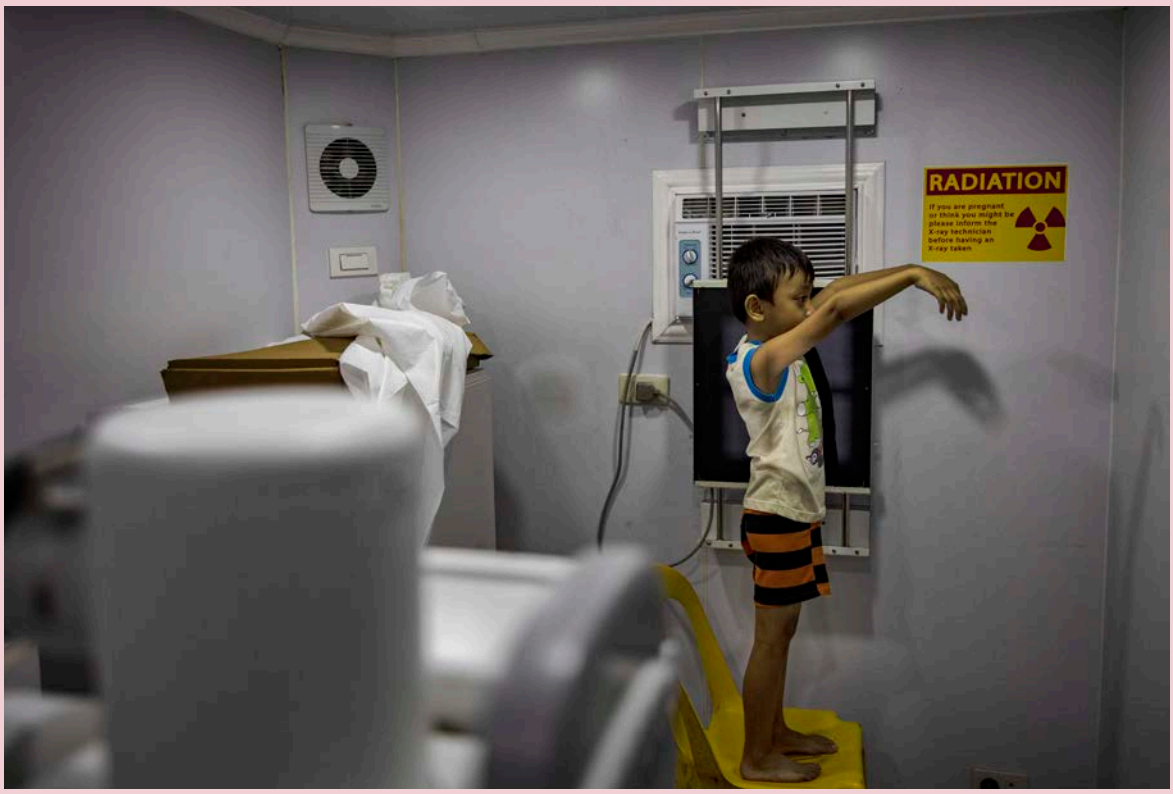
It is also important to recognise that TPT is only part of the picture. Improved access to health care, robust contact tracing, strengthened infection prevention and control, and action to address risk factors such as malnutrition, are all critical to preventing children from developing and dying from TB.

Preventing paediatric TB in the Philippines

The MSF project in Manila, the Philippines, screens around 100 persons per day in the densely populated Tondo district using a mobile X-ray truck and computer aided diagnosis (CAD) to analyse X-ray images. Sputum samples of people older than 15 years of age who have signs and symptoms suggestive of TB are collected and sent to a laboratory in one of the district's health centres for GeneXpert testing. People confirmed with active TB are then referred to one of the health centres in the district for treatment. Children under the age of 15 who are household contacts of a person with TB are also screened with chest X-ray. Children under the age of 5 do not routinely receive a chest X-ray but the TB doctor on-site can prescribe one. All household contacts of people diagnosed with TB who do not have signs and symptoms of TB are offered preventive treatment with WHO-recommended shorter regimens that are suitable for children, including 3HP and 3HR.

Here is Dr Jeannette Begaso, medical doctor at the Atang Dela Rama Health Center in the Tondo district, on the project's approach:

"When an adult presents with TB at our health centre for treatment, we also ask if any family members have been in close contact so that we can screen them for TB. Once we have ruled out TB, we provide them with TB preventive treatment using 3HR or 3HP as recommended by WHO. However, our main challenge is that parents with TB face stigma in their community and often do not tell us that they have children in their household, who we then cannot reach to provide lifesaving preventive treatment."



Clark, 5, gets a chest X-ray in a mobile X-ray truck in Tondo, Manila, the Philippines. © Ezra Acayan.

CHAPTER 3 | TREATMENT OF DRUG-SUSCEPTIBLE TB

KEY FINDINGS

- **10 out of 14 countries'** national policies recommend the 4-month treatment regimen for children and adolescents between 3 months and 16 years of age with non-severe DS-TB.
- **0 out of 4 countries'** that do not include the 4-month regimen in national policies are conducting operational research.
- **10 out of 14 countries** have access to all critical drug formulations for the treatment of children with DS-TB at country level.

BACKGROUND

TB is a complex infection, with treatment consisting of a course of multiple antibiotics over several months to achieve cure and prevent relapse and drug resistance. This makes treatment challenging to complete for all people with TB, especially children.

The new WHO guidelines, issued in 2022, include a number of important updates that could, if implemented, improve the quality of care for children with DS-TB, support more children to successfully complete treatment, and reduce the burden on individual patients, their families and the health system as a whole.[3] This is particularly the case for vulnerable and marginalised groups who face additional barriers to accessing health care consistently for multiple months.

SHORTER REGIMENS

Historically, children with drug-susceptible forms of TB were treated with a 6-month regimen of antibiotics. However, the 2022 SHINE trial showed that a shorter 4-month regimen worked as well as the 6-month regimen for children with non-severe forms of TB.[10] As a result, the new WHO guidelines recommend this regimen, composed of 2 months of isoniazid, rifampicin and pyrazinamide, with or without ethambutol, followed by 2 months of isoniazid and rifampicin (2HRZ(E)/2HR), for all children and adolescents aged between 3 months and 16 years with non-severe TB and no suspicion or evidence of drug resistance.[3]

It is encouraging to see that many of the surveyed countries have updated their national guidelines to reflect this change. However, MSF programmes and partners report ongoing implementation barriers, including training medical staff and perceived challenges in distinguishing severe from non-severe disease, including the false assumption that a chest X-ray is essential to doing this.[11]

With shorter regimens reducing the burden of treatment on children, their caregivers, and the broader health system, overcoming these barriers should be an urgent priority, particularly in settings where maintaining consistent access to treatment for 6 months is challenging. Operational research remains a valuable way of testing the policy in the local context and proactively identifying potential barriers to rollout.

PROCUREMENT

Providing treatment to children with TB has also been made easier through the introduction of paediatric formulations of key medicines. FDCs, which provide all the medicines needed in a single dispersible tablet, dramatically reduce the pill burden and challenges of completing TB treatment for children and their caregivers.

Increasing access to FDCs can also simplify in-country supply chains and reduce the risk of drug resistance developing, particularly where families are having to purchase medicines out of pocket and may be sold just one medicine or an insufficient number of different loose antibiotics if they cannot afford the full regimen up front.

The majority of surveyed countries report procuring paediatric formulations of the key medicines required to treat DS-TB in children. This is especially encouraging because the same FDCs can be used for both the 4- and 6-month treatment regimens, allowing for a smooth transition from a supply chain standpoint. It also underlines, however, that children living in the small subset of countries not procuring all required paediatric formulations are being left behind in the TB response. This is unacceptable.

CONCLUSION

The WHO-recommended shorter 4-month treatment regimen is much easier to complete for children with DS-TB, especially when provided through paediatric FDCs. However, outdated policies are stopping children from accessing this lifeline in a small subset of countries, while others are still unable to benefit from revised policies due to lack of ordering, or other procurement challenges. Revising these policies and addressing these implementation barriers should be a priority to ensure countries make the most of scientific advances and meet international commitments and targets.[2,12]

Yandeh Sillah and her 1-year-old daughter, Kaday Kamara, at a directly observed therapy (DOT) site in Bombali District, Sierra Leone. Kaday was diagnosed with DS-TB and is receiving treatment at the MSF-supported DOT site. © Mohamed Saidu Bah/MSF

TB MEDICINE FORMULATIONS 101

The antibiotics used to treat different forms of TB come in a range of different formulations, including different combinations of active ingredients, different dosages, and different administration modalities. This report refers to a range of different formulations, all of which have implications for the children who have them prescribed as part of their treatment:

Adult formulations are medicines, usually in tablet form, that include a high dosage of a single active ingredient, designed to be taken by adults. When children are prescribed adult formulations, their caregivers need to crush the tablets and mix part of them into food or drink. This can make them unpalatable and creates the risk of children receiving either too little or too much of the active ingredient.

Paediatric formulations are the same medicines but in much smaller dosages, so that they can be given to children without needing to crush tablets and estimate dosages for their weight. This makes them safer and more effective. Paediatric formulations can come in tablet, capsule or dispersible form. There are a number of medicines available in paediatric formulations but not all should be considered child-friendly because they are difficult for small children to swallow or have a bitter taste, including certain formulations of clofazimine, moxifloxacin, and cycloserine. There are also variations between suppliers, for example with levofloxacin, where some formulations are reported to have palatability issues.[13]

Child-friendly formulations are paediatric formulations that have been designed to be easier for children to take. This includes syrups that are increasingly being substituted by easier-to-handle dispersible tablets, both flavoured to mask the bitter taste of the medicine. Child-friendly formulations dramatically increase the acceptability of treatment by children and their caregivers, and thus reduce the risk of children stopping treatment early.

Paediatric fixed-dose combinations (FDCs) are formulations that include more than one of the antibiotics needed to treat TB. By combining these TB active ingredients at the paediatric dosages into a single tablet, the pill burden is significantly reduced. This makes it easier for children to complete treatment, reducing the burden on their caregivers and the risk of stopping treatment. Currently available paediatric TB FDCs are all considered child-friendly as they are also dispersible and flavoured.

The risk of poor outcomes, including drug resistance, treatment failure and death, is dramatically increased when children receive the wrong dose or stop treatment early because of how difficult it is to take the medicines. Paediatric formulations should therefore be the bare minimum for all children, with child-friendly formulations offered wherever possible, including as FDCs. A full list of the different paediatric formulations and their characteristics is provided in an annex.

Paediatric formulations are now available for all TB medicines that are recommended by WHO, and many are available in child-friendly formulations and as FDCs. However, this took many years of advocacy by civil society groups, including MSF. This is in part because clinical trials often do not study the safety and effectiveness of new pharmaceuticals in children, requiring additional studies before they can be recommended, and in part because manufacturers view the paediatric TB market to be too small to warrant investing in the development of alternative formulations.

The current price of paediatric TB medicines also remains a barrier, particularly for regimens containing newer MDR-TB medicines such as bedaquiline and delamanid. Most paediatric regimens are more expensive than their adult counterparts.[14]

As a result of delays in development and ongoing pricing barriers, the standard of care received by children with TB often lags decades behind that received by adults, despite their higher vulnerability. This is unacceptable, and MSF urges drug developers and funders to include children in clinical trials as soon as possible. Meanwhile, ensuring that more children with TB are diagnosed and access existing paediatric and child-friendly formulations will give manufacturers the confidence to continue making these formulations available and help reduce prices.

CHAPTER 4 | TREATMENT OF DRUG-RESISTANT TB

KEY FINDINGS

- **9 out of 14 countries'** national policies recommend the use of bedaquiline for children with MDR/RR-TB of all ages, with **8 of these** also procuring paediatric formulations of the medicine.
- **11 out of 14 countries'** national policies recommend the use of delamanid for children with MDR/RR-TB of all ages[ii] with **8 countries** procuring paediatric formulations of the medicine.
- **2 out of 14 countries'** national policies still recommend injectable-containing regimens as a routine treatment option for children with MDR/RR-TB.

BACKGROUND

Between 25,000 and 32,000 children and young adolescents are estimated to develop rifampicin- or multidrug-resistant TB (MDR/RR-TB) each year.[15] However, only 10-20% of them have access to appropriate care.[1]

The development of new all-oral treatment regimens has significantly improved the chances of cure for people with MDR-TB. The new WHO guidelines, issued in 2022, include a number of important updates that could dramatically improve treatment outcomes if children can access these new MDR-TB treatments.[3]

BEDAQUILINE AND DELAMANID

Bedaquiline and delamanid first came to market in 2012 and 2014 respectively, transforming treatment outcomes for adults with MDR-TB. Bedaquiline has become the cornerstone of both longer and shorter all-oral treatment regimens for MDR-TB, while delamanid is crucial to longer all-oral MDR-TB regimens for people with fluoroquinolone resistance.[3]

Unfortunately, the original trials to develop these medicines did not include children and so further research was needed to establish if and how they could be used to treat paediatric MDR-TB. Over the last 8 years, WHO has gradually amended its guidelines to expand the age groups eligible for bedaquiline- and delamanid-containing regimens, as new evidence has been generated.[16,17,18] However, until 2022, delamanid-containing regimens were recommended only for children aged 3 and over, and bedaquiline-containing regimens for children aged 6 and over, preventing the youngest from accessing all-oral and shortened 9-month regimens. The 2022 WHO guideline revision extended these recommendations to all eligible children with MDR-TB, regardless of age, which finally addresses the needs of the youngest and most vulnerable children. With the most recent WHO rapid communication, published in 2024, children of all ages can benefit from these new drugs as part of shorter all-oral regimens.[3,19,iii]

While it is encouraging to see a number of surveyed countries revising guidelines to enable the most vulnerable young children to access bedaquiline and delamanid, too many national TB guidelines have retained outdated age or weight restrictions.

[ii] In India, current use of delamanid is restricted to children who weigh more than 10kg, awaiting registration of delamanid for all age groups.

[iii] In 2022, WHO also recommended the first 6-month regimen to treat MDR-TB, containing bedaquiline alongside pretomanid, the newest anti-TB medicine. The BPaLM regimen has however been restricted to young adolescents aged 14 and over, due to concerns about potential toxicity to younger children. This means that young children with MDR-TB were restricted to the 9-month and 18-month all-oral regimens containing bedaquiline and delamanid only.

Vaishnavi, 7 years old and living with DR-TB, held by her mother Vishaka, interacts with MSF nurse Prachi in Mumbai, India. February 2022. © Prem Hessenkamp

In some countries, the currently limited clinical data for regulatory purposes on the use of these medicines in children falls short of national requirements that inform national guidelines, importation and procurement.

Given the methodological challenges of generating data on young children with TB, as well as the urgent need to offer them better treatment options, NTPs must work with relevant ministries, technical agencies and partners to overcome these barriers as a matter of urgency. WHO recommendations on the use of bedaquiline and delamanid in the youngest age groups should be considered to fill the gap of available data for national regulatory purposes, where this constitutes a barrier to access.

STOPPING THE USE OF INJECTABLES

Prior to the introduction of bedaquiline and delamanid, injectable aminoglycosides were often an unavoidable component of MDR-TB regimens. These injectable antibiotics are painful to administer and associated with severe side effects, including permanent hearing loss, which can be difficult to monitor and is particularly devastating for children.[20,21,22,23]

While the injectable antibiotic amikacin may still be needed in last resort treatment regimens for children with complicated forms of MDR-TB, the new WHO guidance means that these antibiotics should no longer be recommended as part of routine care for children with MDR-TB of any age.[24]

Only two countries still include amikacin as part of the routine MDR-TB treatment regimen for children. In both countries, this is directly linked to national guidelines not recommending bedaquiline and delamanid, which act as replacements for amikacin in newer regimens.

Given the risk of long-term and life altering side effects from amikacin-based treatments, governments must urgently work to address barriers to accessing bedaquiline and delamanid for all children with MDR-TB.

PROCUREMENT

It is encouraging to see that the vast majority of countries are at least beginning to make use of paediatric and child-friendly formulations of DR-TB medicines, including countries struggling with severe resource constraints.

While national guidelines may have been updated to reflect new WHO recommendations and NTPs are procuring key medicines, MSF teams report that many healthcare workers still cannot access these medicines consistently. Challenges include a lack of specific funds for procuring sufficient amounts of these medicines in domestic and donor budgets, import challenges and local supply chain hurdles.

Perhaps unsurprisingly, countries that fall short of global standards in their national guidelines are also failing to procure these child-friendly formulations. However, even with up-to-date guidelines, insufficient access to MDR-TB diagnosis for children has meant that in some countries the few medicines that are procured are not used before they reach their expiration date, which has made it challenging for NTPs to purchase these medicines again.

Paediatric and child-friendly formulations are a lifeline for children with MDR-TB and their caregivers, and governments must take urgent steps to ensure their youngest citizens do not miss out on these scientific advances. The recent rejection of Johnson & Johnson's secondary patent for the paediatric formulation of bedaquiline by the Indian Patent Office offers hope that more children will be able to access more affordable, generic formulations of the medicine.[25]

CONCLUSION

In 2018, world leaders committed to successfully treating 115,000 children with MDR-TB between 2018 and 2022 but missed that target by almost 90%.[1] The decade-long delay in establishing the safety and efficacy of the newest anti-TB medicines for children with TB is further testament to how frequently children with MDR-TB are being left behind.

The updated WHO guidelines create an opportunity to right this wrong, enabling healthcare workers to offer shorter, all-oral MDR-TB regimens using paediatric and/or child-friendly formulations. Countries that have yet to adopt these guidelines into national frameworks must do so quickly, with all countries accelerating implementation efforts. This would dramatically improve the quality of care and outcomes of thousands of children with DR-TB and reduce pressure on their caregivers and the health system.

Treating children with DR-TB in Afghanistan

MSF has been running a 22-bed MDR-TB diagnosis and treatment site in Afghanistan's Kandahar Province since 2016. Through a unique patient-centred model of care, MSF has been collaborating with the Ministry of Public Health to diagnose and treat people with MDR-TB. In 2019, the MSF team introduced a bedaquiline-based 9-month all-oral regimen as the treatment of choice for eligible children and young adolescents under the age of 14.[26] In 2023, MSF also introduced a bedaquiline-based 6-month oral regimen for treating MDR-TB in people older than 14. The bedaquiline-based all-oral regimens have lower toxicity and pill burden than other regimens, and therefore improve treatment adherence.

Here's Dr Sadiqullah Ishaq, medical supervisor in the TB hospital in Kandahar, Afghanistan, on the experience of using bedaquiline-based regimens:

"We have had a very good experience with the use of bedaquiline in children. The tolerance is good, its administration is easy, but the only small inconvenience is its 3-times-a-week use, which can sometimes be difficult for the patient's caretakers to remember. This is a great drug in the current TB regimens (short 9 months or shorter 6 months), and fortunately we have not seen any side effects of its use in children."

Dr Sadiqullah Ishaq, medical supervisor in the MSF TB hospital in Kandahar, Afghanistan, attends to a patient. © MSF.

MANAGING CHILDHOOD TB IN POLAND

Many high-income countries with a low burden of TB continue to grapple with the TB epidemic, particularly because the disease affects marginalised and vulnerable groups most severely. Often lacking a standalone national TB programme to drive the implementation of new guidelines, the policy landscape in these countries offers an important insight into how thousands of children with TB risk being left behind despite living in high-resource settings.

This includes Poland, where MSF has been working with the Ministry of Health and WHO EURO to ensure continuity of TB care for Ukrainian refugees since 2022. The project has also implemented a patient-centred model of care, which is ambulatory instead of hospital-based and has integrated psychosocial support, while extending provision of care also to Polish citizens affected by TB.

In 2023, according to the Polish National TB Institute, 45 children younger than 14 years of age were diagnosed with TB in Poland and 60 between 15 and 19 years old. Among them were seven children with MDR-TB (three younger than 14, and four older than 14). Most of the MDR-TB cases in children were among those not born in Poland; therefore, these children face additional barriers to accessing health care.

Diagnosis

Poland is in the process of updating its guidelines for TB diagnosis in children to adopt rapid molecular testing, including of stool samples. Molecular testing has been progressively introduced in a systematic way on all samples, including stool, in the Mazovian Centre for Lung Diseases and TB Treatment in Otwock, near Warsaw. This remains rare in other healthcare facilities, though all TB samples are sent to the National Reference Laboratory for culture and further molecular tests. While treatment initiation is possible without bacteriological confirmation, more stringent criteria are applied than those advised by WHO's newest guidance, including screening for additional symptoms.

Prevention

A positive TB infection test is not a prerequisite to providing TPT to children living with HIV or those who are household contacts under the age of 5, provided active TB disease has been ruled out. While two shorter regimens are recommended in Poland (4R and 3HR), regimens containing rifapentine remain unavailable in the country (see below). Furthermore, TPT is not fully reimbursed by the national health insurance system, forcing patients to pay for these medicines out of pocket.

Treatment for DS- and DR-TB

While WHO guidelines include a shorter, 4-month regimen for children with non-severe forms of DS-TB, the standard treatment protocol in Poland remains a 6-month course (2RHZE/4RH).

Children with DR-TB are generally treated with an all-oral treatment regimen regardless of age, though access to clofazimine has at times been problematic. For children with MDR-TB over the age of 14 and who are eligible for the shortened all-oral BPaLM regimen, access is only possible through a drug donation programme facilitated by MSF and WHO at the Mazovian Centre for Lung Diseases and TB Treatment.

Procurement

Most paediatric formulations of anti-TB medicines remain inaccessible for children with TB in Poland. This is because rifapentine, paediatric DS-TB fixed-dose combinations and all DR-TB dispersible formulations (except bedaquiline and delamanid) have never been registered with the European Medicines Agency or the National Regulatory Authority. This means they cannot be imported, bought or sold in Poland under the standard procurement rules.

Poland is unfortunately not the only country experiencing challenges with access to the best standards of diagnosis, prevention and treatment, with children in many high-income countries across the EU and beyond facing similar barriers.

CONCLUSION

Children with TB are being left behind in the global effort to end TB, with many countries failing at the first hurdle of updating national policy guidelines in line with evidence-based guidance from WHO.

TB stakeholders must come together to address this status quo. NTPs should lead these efforts with the engagement of TB civil society and affected community groups, with funding, support and technical assistance from partners.

A first step in this process is the development of national roadmaps on paediatric TB, setting out concrete plans to update national guidelines as well as how NTPs will work to address implementation barriers to increase access to diagnosis, prevention and treatment for all children affected by TB.

To access the survey raw data, country factsheets, technical briefings on the themes discussed in this report and other advocacy materials, visit https://msfaccess.org/tactic-test-avoid-cure-tb-children.

RECOMMENDATIONS

NATIONAL POLICYMAKERS

- Update national guidelines, or adopt draft guidelines, to be in line with WHO paediatric TB recommendations, and report progress by World TB Day 2025 (24 March).
- Develop paediatric TB roadmaps, setting out specific plans and timelines to increase access to TB prevention, diagnosis and treatment in line with UN High-Level Meeting commitments.
- Integrate the expansion of paediatric TB case finding, prevention and DS- and DR-TB treatment into national budgets and donor funding requests.
- Work with technical partners to address barriers to policy reform, procurement and implementation, pursuing operational research where implementation is not yet feasible.
- Prioritise paediatric TB within national strategic plans, monitoring and accountability processes.

INTERNATIONAL FUNDERS AND TECHNICAL SUPPORT AGENCIES

- Encourage the inclusion of paediatric TB interventions within funding requests.
- Provide targeted funding to support policy update and implementation outside of traditional funding cycles.
- Prioritise inclusion of paediatric populations in research funding, programmatic funding, and programme reviews.

CIVIL SOCIETY AND AFFECTED COMMUNITIES

- Utilise policy survey findings to advocate for the development of national paediatric TB roadmaps, and policy updates and implementation.
- Monitor implementation of policies at health facility level and hold leaders accountable.
- Advocate for children with TB in existing governance forums, including country coordinating mechanisms and multisectoral accountability frameworks.

ANNEX – PAEDIATRIC TB FORMULATIONS

The medicines used to prevent and treat TB come in a range of different formulations, including different combinations of active ingredients, different dosages, and different administration modalities.

The full policy survey report sets out the different characteristics of paediatric, child-friendly and fixed dose combination formulations and their respective advantages and disadvantages.

A list of quality-assured formulations that fall into each of these categories as of September 2024 is presented below. A formulation is defined as being "quality-assured" when it has either WHO prequalification status, or Global Fund ERP status, or approval by a WHO-Listed Authority.[27,28,29] For further information, including prices, consult the product catalogue of the Stop TB Partnership's Global Drug Facility: https://www.stoptb.org/global-drug-facility-gdf/gdf-product-catalog

Child-friendly DS-TB fixed-dose combinations

rifampicin/isoniazid 75mg/50mg dispersible tablet from Macleods (India), Lupin (India)

rifampicin/isoniazid/pyrazinamide 75mg/50mg/150mg dispersible tablet from Macleods, Lupin

Child-friendly single formulations for DS-TB, DR-TB and TPT

bedaquiline 20mg dispersible tablet from Johnson & Johnson (USA)

cycloserine 125mg capsule from Macleods

delamanid 25mg dispersible tablet from Otsuka (Japan)

ethambutol 50mg dispersible tablet from Micro Labs (India)

ethambutol 100mg dispersible tablet from Macleods, Micro Labs

ethionamide 125mg dispersible tablet from Macleods, Micro Labs

isoniazid 50mg dispersible tablet from Micro Labs

isoniazid 100mg dispersible tablet from Macleods, Micro Labs

levofloxacin 100mg dispersible tablet from Macleods, Micro Labs

linezolid 150mg dispersible tablet from Macleods, Micro Labs

pyrazinamide 150mg dispersible tablet from Macleods, Micro Labs

rifapentine, 150 mg, dispersible tablet from Lupin

Paediatric TB formulations that are not child-friendly

clofazimine 50mg soft capsule from Novartis (Switzerland)

clofazimine 50mg tablet from Macleods

moxifloxacin 100mg dispersible tablet from Macleods, Micro Labs

Note that there are some variations across suppliers, with some medicines being available in both child-friendly and paediatric-only formulations depending on the supplier.

GLOSSARY

Antiretroviral (ARV) treatment	ARVs are medicines used to treat people living with HIV. The standard of care is a combination of medicines that target different steps in the virus life cycle to prevent it from replicating and prevent the development of drug resistance. ARV treatment dramatically reduces morbidity and mortality among people living with HIV and improves their quality of life.
Drug-susceptible tuberculosis (DS-TB)	DS-TB is TB disease caused by bacterium that is not resistant to isoniazid, rifampicin, ethambutol and pyrazinamide.
Drug-resistant tuberculosis (DR-TB)	DR-TB is a broad term that encompasses all forms of TB caused by bacterium with resistance against antibiotics used to treat TB, including resistance to isoniazid or rifampicin and multidrug- or extensively resistant strains.
Extrapulmonary TB	Extrapulmonary TB is TB disease affecting areas outside of the lungs, including the lymph nodes, abdomen and skin, joints and bones. It is more difficult to diagnose and treat.
Fixed-dose combination (FDC)	FDCs are a combination of more than one medicine in a single tablet or dispersible tablet. This reduces the pill burden of treatment, early treatment cessation and the risk of resistance.
Interferon-gamma release assay (IGRA)	An IGRA is a test used to detect TB infection.
Human immunodeficiency virus (HIV)	HIV is the virus that causes acquired immunodeficiency syndrome (AIDS). When a person becomes infected with HIV, the virus attacks and weakens their immune system, making them more vulnerable to infectious diseases like TB. HIV is not currently curable but can be treated effectively with ARV treatment.
Multidrug-resistant tuberculosis (MDR-TB)	MDR-TB is TB caused by bacterium resistant to at least isoniazid and rifampicin, the two antibiotics most commonly used to treat DS-TB.
National tuberculosis programme (NTP)	An NTP is a country's programme that manages domestic TB response. NTPs are usually part of the Ministry of Health, writing policies, setting budgets, managing implementation, and monitoring progress. Their formal name varies from country to country.
Pulmonary TB	Pulmonary TB is the most common form of TB disease, affecting primarily the lungs.
Rifampicin-resistant tuberculosis (RR-TB)	RR-TB is TB caused by bacterium resistant to rifampicin, one of the most powerful antibiotics used to treat TB disease.
Tuberculosis disease	Tuberculosis disease is what happens when the TB bacterium overwhelms a person's immune system, causing symptoms that can result in disability and death. TB disease is infectious and can be passed on to close contacts through the air.
Tuberculosis infection	Tuberculosis infection (or latent TB) occurs when a person has been infected with the TB bacterium, but an effective immune response keeps the bacterium dormant. A person with TB infection (or latent TB) has no clinical symptoms and is not infectious but may develop TB disease at a later date.
Tuberculosis preventive treatment (TPT)	TPT is a course of antibiotics that clears a TB infection before it can develop into TB disease. This prevents the long-term harm of disease and prevents onward transmission.
Tuberculin skin test (TST)	TST is a test used to detect TB infection.
World Health Organization (WHO)	WHO is the UN agency responsible for global human health. WHO produces evidence-based recommendations on the management of TB, monitors global epidemiological trends and provides technical assistance to high TB burden countries.

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