The Global Burden of TB in children and adolescents & progress against the UNGA HLM TB targets

High-level dialogue on paediatric HIV and paediatric TB in children living with HIV, 5-6 November 2020 (Rome5)

Dr Tereza Kasaeva, Director, WHO Global TB Programme
Outline

- Burden of TB in children and adolescents in 2019
- Challenges related to TB/HIV co-infection and TB/HIV high burden countries
- The case detection and prevention gaps
- Progress against UNGA HLM TB targets
- Recent WHO policy recommendations related to TB prevention, diagnosis of TB and treatment of DR-TB providing opportunities
What is new for children and adolescents?

- Countries with electronic case based systems requested to report in age bands 0-4, 5-9, 10-14, 15-19 years (2019)
- Treatment initiation for MDR/RR-TB in children and young adolescents 0-14 years (2018 and 2019)
- Treatment outcomes in children/young ado’s 0-14 years (2018 cohort) – mainly treatment success rate
- Box 5.3 on “Strengthening data collection for children and adolescents with TB” (Chapter 5, TB diagnosis and treatment, pages 79-81)
Global burden estimates (2020 Global TB report)

- 7.5 million children (0–14) infected with TB each year
- 1.2 million children (0–14 years) developed TB in 2019
  - 47% <5 years old
- 10 million Fell ill with TB in 2019
- 1.4 million TB deaths in 2019
- 230 000 child (0-14) TB deaths in 2019
  - 80% in children <5 years
  - 96% of deaths in children who did not access TB treatment
  - 36 000 (16%) deaths among children living with HIV
- 727 000 adolescents (10–19 year-olds) developed TB in 2012
  - (Snow et al., 2016)
- 36 000 (16%) deaths among children living with HIV
  - (Dodd et al., 2017a)
Detailed age-disaggregated reporting

- 10 TB HBCs reported fully age disaggregated notifications: Brazil, China, India, Kenya, Lesotho, Myanmar, Namibia, Philippines, Thailand, Zimbabwe
- These ten countries represent almost 45% of all notifications in the 0-14y age group
- First time to receive data on adolescents aged 10-19 years

New and relapse TB case notification rates by age group for children and adolescents in 10 TB HBCs, 2019
Treatment initiation in children with MDR/RR-TB

- Countries were requested to report on the number of children/young ado’s (0-14y) initiated on second-line treatment for MDR/RR-TB
  - Backdated for 2018, and for 2019
- **165 countries** reported **at least 1 child** started on second-line treatment in 2019
- **6 countries** (India, Russian Federation, South Africa, Ukraine, Pakistan and Kazakhstan) reported **≥100 children** started on second-line treatment (covering 81% of all cases) in 2019

<table>
<thead>
<tr>
<th>Year</th>
<th>MDR/RR-TB (all ages)</th>
<th>MDR/RR-TB (0-14y)</th>
<th>% children among all MDR/RR-TB</th>
<th>% of estimated annual burden*</th>
</tr>
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<tbody>
<tr>
<td>2018</td>
<td>156,205</td>
<td>3,398</td>
<td>2.2%</td>
<td>10.6%</td>
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<tr>
<td>2019</td>
<td>177,099</td>
<td>5,588</td>
<td>3.2%</td>
<td>17.5%</td>
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* Estimated annual burden 32,000 (Dodd, 2016; Jenkins, 2018)

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<tr>
<th>Country</th>
<th>Children with MDR/RR-TB started Rx</th>
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<tbody>
<tr>
<td>India</td>
<td>3,360</td>
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<tr>
<td>Russian Federation</td>
<td>476</td>
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<tr>
<td>South Africa</td>
<td>332</td>
</tr>
<tr>
<td>Ukraine</td>
<td>161</td>
</tr>
<tr>
<td>Pakistan</td>
<td>110</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>100</td>
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TB treatment outcomes in children 0-14y

- 123 (of 215) countries reported treatment success rate in children and young adolescents 0-14y), including 19 (of 30) TB HBCs (N=347 909, 67% of total notifications in 0-14y in 2018)
  - Overall 85% success (similar to adults), range 73-97%
- 99 countries in European and American regions reported all outcomes for children/young ado’s (N=13 185)
  - Relatively high % not evaluated (9.5% versus 6% in adults)

**Graph:**
- Treatment outcomes in children (0-14y) in EUR and AMR regions (%), N=13 185
  - Treatment success: 84.2%
  - Failure: 0.5%
  - Death: 1.9%
  - LTFU: 3.9%
  - Not evaluated: 9.5%

**Bar chart:**
- TB treatment success rate (%) for children (0-14y) in 19 TB HBCs, N=347 909
- Countries with varying success rates, including countries like Bangladesh, Myanmar, Russian Federation.
Trends in provision of TPT to eligible <5 contacts

- Eligible: 1,200,000, 1,300,000, 1,300,000, 1,269,527, 1,308,122
- Preventive treatment provided: 87,242, 161,740, 292,182, 349,495, 433,156
- % receiving preventive treatment: 7.3, 12.4, 22.5, 27.5, 33.1
TB/HIV co-infection

• TB is the most common opportunistic infection and a leading cause of death in people living with HIV, including children and adolescents
• CLHIV with severe immunosuppression have a 5-fold higher risk of TB compared with those with mild immunosuppression
• HIV infection is associated with poorer TB treatment outcomes
• TB in pregnant women living with HIV increases the risk for TB and HIV transmission to the infant, and is associated with increased risk of premature delivery, stillbirth, low birth weight, and overall infant mortality
• Routine screening for TB in mothers and children LHIV is often missed & TB preventive treatment (TPT) is often not provided
In 2019, **two thirds** of over 1.3 million eligible contacts <5 years did **NOT** access TB preventive treatment (TPT)

**Reasons for the prevention gap**

- Contact investigation not routinely conducted or restrictive (a passive approach)
- Limited access to TB preventive treatment (TPT), in particular shorter regimens and child-friendly formulations
- Lack of capacity among HCWs to distinguish infection from disease and concerns about providing monotreatment in case of TB disease
- Lack of understanding and resistance from parents/caregivers to provide TPT to healthy children
- Suboptimal coverage of BCG vaccination

![WHO recommends TB prevention including: Preventive therapy, Infection control measures, BCG vaccination.](image)
The case detection gap

% of missing TB patients in different age groups

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Missing (under-diagnosis and under-reporting)</th>
<th>Reported</th>
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<tbody>
<tr>
<td>0-4 years</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>5-14 years</td>
<td>49</td>
<td>51</td>
</tr>
<tr>
<td>All &lt;15 years</td>
<td>56</td>
<td>44</td>
</tr>
<tr>
<td>All &gt;15 years</td>
<td>25</td>
<td>75</td>
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**Reasons for the case detection gap:**

- Paucibacillary TB
- Lack of a sensitive POC test
- Challenges with collection of suitable respiratory samples
- Overlap of symptoms with other common childhood diseases
- Children access primary health care services and child health programmes often with limited capacity to diagnose children with TB (sample collection, access to testing/CXR, confidence in clinical diagnosis)
- Lack of systematic TB screening
(i) 40 million people with TB to be reached with care during the period 2018 and 2023, including 3.5 million children and 1.5 million people with drug-resistant TB, including 115,000 children with DR-TB; and,

(ii) At least 30 million people to be reached with TB prevention services during the period 2018-2023 including 4 million children under 5 years of age, 20 million other household contacts and 6 million people living with HIV (including children).
Roadmap towards ending TB in children and adolescents, 2018: key actions

1. Strengthen advocacy at all levels
2. Foster national leadership and accountability
3. Foster functional partnerships for change
4. Increase funding for child and adolescent TB programmes
5. Bridge the policy-practice gap
6. Implement and expand interventions for prevention
7. Scale up child and adolescent TB case-finding and treatment
8. Implement integrated family- and community-centred strategies
9. Improve data collection, reporting and use
10. Encourage child and adolescent TB research
Progress against UNGA HLM targets

**Case detection and treatment**
- 1,040,000 children notified with TB in 2018 and 2019
  - 30% of the 2022 target (3.5m)
- 8,984 children started on second-line treatment for MDR/RR-TB in 2018 and 2019
  - 7.8% of the 2022 target (115,000)

**Provision of TB preventive treatment**
- 782,952 contacts < 5y initiated on TPT in 2018 and 2019
  - 20% of the 2022 target (4m)
- 178,051 contacts ≥5y initiated on TPT in 2018 and 2019
  - 0.9% of the 2022 target (20m)
- 5.3 million PLHIV initiated on TPT in 2018 and 2019
  - 88% of the 2022 target (6m)

https://undocs.org/en/A/75/236
Recent WHO policy recommendations providing opportunities

- **TB preventive treatment guidelines and handbook:** 6/9H, 3HP, 3HR, 4R, 1HP* alternative and shorter treatment options for all disease burden settings and target populations including PLHIV - choice depends on availability of appropriate formulations and considerations for age, safety, drug-drug interactions and adherence. Age limits: 3HP ≥2y; 1HP ≥13y

- **Guidelines and handbook on Rapid Diagnostics for TB detection** Use of child-friendly (-er) specimens: Stool; NPA for Xpert (Ultra) testing; LF-LAM for CLHIV

- **DR-TB treatment guidelines and handbook:** shorter all oral BDQ-containing regimen for non extensive TB disease, non severe EPTB (any forms other than TB LN) for children ≥6 years & longer all oral individualized regimens for those not eligible for shorter regimen, including children <6y and with EPTB other than TB LN.
**Key messages**

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<tr>
<th>Large gaps in <strong>case detection</strong> and <strong>prevention</strong> remain</th>
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<tr>
<td>Limited <strong>data on TB in children living with HIV</strong></td>
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<tr>
<td>• Case detection</td>
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<td>• Provision of TPT</td>
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<tr>
<td><strong>Integration, coordination and harmonization essential</strong></td>
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<td>HIV, nutrition, maternal and child health services</td>
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<td>Important new opportunities and tools for child and adolescent TB</td>
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<tr>
<td>• Shorter <strong>TB Preventive Treatment regimens</strong></td>
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<tr>
<td>• Child-friendly(er) <strong>specimens</strong>: Stool, NPA for Xpert (Ultra) testing; LF-LAM for CLHIV</td>
</tr>
<tr>
<td>• All <strong>oral</strong> treatment regimens for children with DR-TB</td>
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<tr>
<td>• <strong>Child-friendly</strong> first- and second-line <strong>medicines</strong></td>
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Thank you for your attention

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