Improving Childhood TB Detection Through Facility-Based Integrated Approaches in Kinshasa, DRC

Aimé Loando, MD | 30 October 2019
Outline

- CaP TB Project overview
- Country context
- CaP TB
- Site-level implementation
- Results
- Key lessons learned
**CaP TB Project Overview**

- **GOAL**: Contribute to reduction in morbidity and mortality due to pediatric TB

- **OUTCOME**: Critical access barriers removed to facilitate scale-up of pediatric TB

- Pilot phase (Year 1 and 2): Small number of sites/proof of concept

- Expanded implementation Phase (Year 3 and 4): Implementation in a larger number of sites with an aim to be catalytic for national uptake

- Key collaborators: GDF, IRD, TAG, Univ of Sheffield, SAATHII

- 4 years project (Sept 2021)
Context: Democratic Republic of Congo

- Population: Approx. 90 million
- TB incidence: 322 per 10,000 persons
- Number of notified TB cases in 2018: 18,453
- Percentage Pediatric TB: 11%
- TB treatment coverage: 57%
- Among the top 30 countries with the highest TB burden

Source: Global report 2018

Percentage Ped TB by province, 2018
Pediatric TB Notification (all forms)

<table>
<thead>
<tr>
<th>Year</th>
<th>0 - 14 years</th>
<th>15 years +</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>12785</td>
<td>117214</td>
<td>129499</td>
</tr>
<tr>
<td>2015</td>
<td>12681</td>
<td>120508</td>
<td>133189</td>
</tr>
<tr>
<td>2016</td>
<td>14213</td>
<td>131932</td>
<td>146145</td>
</tr>
<tr>
<td>2017</td>
<td>16933</td>
<td>151832</td>
<td>168765</td>
</tr>
<tr>
<td>2018</td>
<td>18453</td>
<td>171682</td>
<td>190135</td>
</tr>
</tbody>
</table>

Source: DRC-NTP reports
Catalyzing Pediatric TB Innovations

- Funded by Unitaid

- **Pilot phase:** January 2018 – December 2019, 21 pilot sites in Kinshasa

- **Scale-up phase:** January 2020 – September 2021, 50 sites in Kinshasa and Tshopo provinces

- Hub and spokes model

- Strong collaboration with NTP

Kinshasa: CaP pilot sites (21)
Hub and Spokes Model

**Spoke activities:**
- TB screening and investigation
- Contact investigation
- Sample collection and transportation to Xpert service
- Initiation and follow-up of latent TB infection treatment
- Initiation and follow-up of active TB treatment

**Hub activities:**
- TB screening and investigation
- Contact investigation
- Collection procedures for respiratory and non-respiratory samples
- GeneXpert
- CXR
- Initiation and follow-up of latent TB infection treatment
- Initiation and follow-up of active TB treatment
- Hospitalization
- One-site training

Intensified Case Finding for Pediatric TB in Child Health Entry Points

Contact Investigation
Community Volunteers

Hub and Spokes Model

[Image of a diagram showing the Hub and Spokes Model with various activities listed for each spoke and hub.]
TB services are not integrated with other entry points including maternal and child health (MCH) and nutrition settings

Health care workers are not trained in pediatric TB.

Lack of materials for sample collection procedures, i.e. sputum induction, gastric aspiration (GA), nasopharyngeal aspiration (NPA), fine needle aspiration (FNA)

Systematic contact tracing at community and facility level are not implemented

Lack of sample collection and transportation system

Xpert limited to presumptive DR-TB and coinfected TB-HIV patients

Limited access to CXR investigations for pediatric TB diagnosis
TUBERCULOSE CONFIRMEE : MTB Detected/Présence de BAAR

Xpert MTB-Rif
Si Xpert non disponible : Microscopie

TUBERCULOSE NON CONFIRMEE: MTB no detected/Absence de BAAR

Antibiothérapie non spécifique à large spectre (Exceptés anti TB et fluoroquinolones)

Pas d'Amélioration
Amélioration

SKE, Refaire Xpert MTB/RIF, autres

Pas de tuberculose

Tuberculose confirmée (TB/C ou TB+)

1. Mettre sous traitement anti TB
2. DCIP

VIH positif : Mettre sous CTX et TAR

VIH négatif : Poursuivre le traitement anti-TB

(*) : Toux, persistante avec ou sans antibiothérapie non spécifique, Fièvre persistante, Notion de contagé, Perte de poids ou insuffisance de croissance ne répondant pas à une réhabilitation nutritionnelle, Signes physiques (épanchement pleural, tuméfaction ganglionnaire, tuméfaction osseuse, syndrome méningé).

(**) : Faire la Culture et Antibiogramme ; Histologie (biopsie d'organe) ; l'Endoscopie bronchique ; l'Echographie/Scanner au niveau tertiaire
Site-Level Implementation

Key activities

- Integration of TB screening and identification of children with presumptive TB in all child health entry points: MCH, nutrition, out-patient department (OPD), in-patient department (IPD), and HIV

- Introduction of CaP TB form to record presumptive TB case information and to allow prospective follow up till treatment initiation (clinical symptoms, diagnosis and treatment)

- Pediatric TB training provided to health care providers from all key entry points (TB screening with intensified case finding tool (ICF), clinical management of paediatric TB, sample collection procedures)

- Intense programme for on site support and supervision (Week 0-2-4 – schedule, Check list)

- Training of Community Health care workers to support sample and patient referral

- Provision of consumables and implementation of sample collection procedures (GA for the time being)

- Using Xpert as first TB test for pediatric presumptive TB patients
Intensified Case Finding (ICF)

To be used in all entry points

Pediatric TB Intensified Case Finding Screening Tool

Date: ___ / ___ / ____  Age: ____ years old  Sex: □ M  □ F

DOES THE CHILD CURRENTLY HAVE THE FOLLOWING:

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheeze?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night sweats?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue / reduce playfulness / lethargy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of appetite/Eating less (or failure to thrive)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck swelling?</td>
<td></td>
<td></td>
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</tbody>
</table>

A household contact currently on TB treatment?

Color Coding Legend: White = MCH/PMTCT; Blue = OPD; Pink = Nutrition; Yellow = Pediatric Ward

PNLRT - RDC

For triage/waiting area use only

For clinician use only

MCH/PMTCT Unit

Nutrition Unit

OPD Unit

Pediatric Ward
Systematic TB Screening in Children

- Clinical management and decision on Tx initiation
- Sample collection
- Decision on treatment initiation

- Community volunteers escort patients if referral is needed
- Transport vouchers
- CXR vouchers
TB Detection in Children

(21 Sites in Kinshasa)
### Preliminary Results: Number Needed to Screen by Entry Points

**Number Needed to Screen to Identify One Pediatric TB Case (NNS)**  
Period: Feb-Aug 2019

<table>
<thead>
<tr>
<th>Entry Point</th>
<th>0-14y screened (#)</th>
<th>0-14 y diagnosed with TB(#)</th>
<th>Needed to screen to identify one TB case (NNS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPD</td>
<td>12,137</td>
<td>436</td>
<td>28</td>
</tr>
<tr>
<td>IPD</td>
<td>809</td>
<td>17</td>
<td>48</td>
</tr>
<tr>
<td>Nutrition</td>
<td>192</td>
<td>36</td>
<td>5</td>
</tr>
<tr>
<td>MCH</td>
<td>16,318</td>
<td>5</td>
<td>3,264</td>
</tr>
<tr>
<td>Contact investigation (household)</td>
<td>2,564</td>
<td>89</td>
<td>29</td>
</tr>
<tr>
<td>Contact investigation (facility)</td>
<td>155</td>
<td>31</td>
<td>5</td>
</tr>
</tbody>
</table>

**IMPORTANT:**  
- In the DRC health system, MCH services provide immunization and regular growth check for children <5 years old  
- Sick children access care through OPD
Lessons Learned

- Building health care workers capacity to manage pediatric TB: key to deploy on-site training and intense monitoring and supervision

- Integration of TB services in all pediatric entry points is critical

- Ensuring strong patient and sample referral system is key:
  - Sample transportation system (hub and spoke model)
  - Support for patients referral to sample collection sites and CXR sites

- Preliminary results show pediatric TB case finding might be higher in the following entry points in DRC: Nutrition, Contact Investigation, OPD

- Collaboration with national TB program
Thank You

The CAP TB project is made possible thanks to Unitaid’s funding and support. Unitaid accelerates access to innovative health products and lays the foundations for their scale-up by countries and partners.