Community Intervention for Tuberculosis Contact Tracing and Preventive Treatment - a cluster randomized study (CONTACT)

Maryline Bonnet on behalf of the CONTACT study team

Institut de Recherche pour le Développement,
U Montpellier, INSERM, Montpellier, France
CONFLICT OF INTEREST DISCLOSURE FORM

☑️ I have no Conflict of Interest to report.

☐ I have the following Conflict of Interest(s) to report:

Please tick the type of affiliation / financial interest and specify the name of the organisation:

☐ Receipt of grants/research supports: _______________________________

☐ Receipt of honoraria or consultation fees: ___________________________

☐ Participation in a company sponsored speaker's bureau: _______________

☐ Tobacco-industry and tobacco corporate affiliate: _______________________

☐ Stock shareholder: _________________________________________________

☐ Spouse/partner: _________________________________________________

☐ Other: _________________________________________________________
STUDY RATIONALE

- Poor implementation of TB preventive treatment (TPT) among child contacts
  - Difficulty to exclude TB disease in children
  - Operational constraints
  - Poor adherence of the 6 months isoniazid preventive therapy
  - Parents hesitant to bring healthy children to facility for screening and TPT management

- Hypothesis: A community-based approach could increase the proportion of child contacts who initiate and complete TPT
  - WHO pragmatic approach
    - Symptomatic screening enough to exclude active TB in child contacts < 5 years or 5-14 years HIV positive (high priority group)
    - No need to confirm MTB infection
STUDY OBJECTIVES

• **Primary objective**
  To compare the proportion of household child TB contacts eligible for TPT (<5 years and HIV-infected children 5-14 years) who initiate and complete TPT using a community-based approach vs the standard of care for contact screening and TPT management

• **Secondary objectives**
  To compare the community-based approach and the standard of care in terms of:
  • Cascade of care for the initiation and completion of TPT
  • Cascade of care for TB detection
  • Acceptability by parents/guardians, health personnel and community
  • TPT safety
  • Cost and cost-effectiveness of the different approaches
METHODS

• **Design:** Pragmatic cluster randomised trial comparing
  • **Standard of care:** Facility-based for symptom screening, TPT (3 rifampicin-isoniazid) initiation and follow-up
  • **Intervention:** Community-based for symptom screening, TPT (3RH) initiation, and follow-up

• **Setting:** 20 clusters in Cameroon and Uganda
  CaP-TB supported facilities with TB diagnosis and catchment area

• **Sample size for primary endpoint:** 1500 declared child contacts < 5 years or 5-14 years HIV+

• **Acceptability**
  • 12 focus group discussion with TB patients divided by gender
  • 24 in-depth interviews with healthcare providers and community leaders

• **Implementation of the intervention:** Oct 19 – Aug 22
  Put on hold due to COVID: April – Sept 20 in both countries and Jun- Aug 21 in Uganda

1. Vasiliu et al 2021. Trials
Household child contact = child <15 years who shared the same living space as the index case for one or more nights or for frequent (more than 3 days per week) or extended (half day or more) daytime periods during the 3 months before the start of treatment.
RESULTS: FLOW DIAGRAM

Randomized, (20 clusters)

Intervention (10 clusters)

Analysed (9 clusters)
Index cases included = 558
Child contact declared = 1884
Contact declared < 5 years and 5-14 years HIV-positive = 941

Standard of care (10 clusters)

Analysed (10 clusters)
Index cases = 341
Contacts declared = 1005
Contacts declared < 5 years and 5-14 years HIV-positive = 459
# Index and Declared Child Contacts’ Characteristics

<table>
<thead>
<tr>
<th>Variable, median (IQR), n (%)</th>
<th>Intervention</th>
<th>Standard Of Care</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index cases</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N = 558</td>
<td></td>
<td>N=341</td>
</tr>
<tr>
<td>Age (years)</td>
<td>38.4 (29, 49)</td>
<td>36.5 (29, 49)</td>
</tr>
<tr>
<td>Female</td>
<td>207 (37.1)</td>
<td>119 (34.9)</td>
</tr>
<tr>
<td>HIV positive</td>
<td>139 (24.9)</td>
<td>72 (21.1)</td>
</tr>
<tr>
<td><strong>Child contacts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=1884</td>
<td></td>
<td>N=1005</td>
</tr>
<tr>
<td>&lt; 5 years</td>
<td>938 (49.8)</td>
<td>458 (45.6)</td>
</tr>
<tr>
<td>Female</td>
<td>946 (50.2)</td>
<td>500 (49.7)</td>
</tr>
<tr>
<td>Relation to index case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daughter/son/sibling</td>
<td>780 (41.4)</td>
<td>501 (49.8)</td>
</tr>
<tr>
<td>Other family member</td>
<td>1058 (56.2)</td>
<td>501 (49.8)</td>
</tr>
<tr>
<td>Not family</td>
<td>46 (2.4)</td>
<td>3 (0.3)</td>
</tr>
</tbody>
</table>
## PRIMARY ENDPOINT ANALYSIS

Proportion of declared child contacts (< 5 years or 5-14 years HIV+) who initiate and complete the TB preventive treatment

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Standard of Care</th>
<th>Individual level*</th>
<th>Cluster level</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/N, %</td>
<td>n/N, %</td>
<td>OR [95% CI]</td>
<td>p</td>
</tr>
<tr>
<td>751/941 (79.8)</td>
<td>282/459 (61.4)</td>
<td>3.03 [1.23;7.44]</td>
<td>0.019</td>
</tr>
</tbody>
</table>

* logistic mixed model with a logit link function using fixed effects of model assignment, country and number of index cases per cluster and one random-effect for the cluster; correction for small number of clusters using degree-of-freedom Between-Within method
Intra cluster correlation: 0.096
OD: odds ratio, RR: relative risk
TPT MANAGEMENT CASCADE OF CARES

**Intervention**
- Declared child contacts 941
- Screened for TB 839 (89.2)
- Eligible to TPT 807 (85.8)
- Initiated on TPT 800 (85.0)
- Completed TPT 751 (79.8)

**Standard of Care**
- Declared child contacts 459
- Screened for TB 372 (81.0)
- Eligible to TPT 366 (79.7)
- Initiated on TPT 366 (79.7)
- Completed TPT 282 (61.4)

- TB screening 11% vs 19% loss
- TPT completion 5% vs 19% loss
## TB DETECTION CASCADE OF CARES (ALL CHILD CONTACTS)

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Standard of care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declared child contacts</td>
<td>1884</td>
<td>1005</td>
</tr>
<tr>
<td>Screened for TB</td>
<td>1550 (82.3)</td>
<td>474 (47.2)*</td>
</tr>
<tr>
<td>TB suggestive, n (%)</td>
<td>102 (6.6)</td>
<td>35 (7.4)</td>
</tr>
<tr>
<td>Investigated for TB, n(%)</td>
<td>82 (80.4)</td>
<td>35 (100)</td>
</tr>
<tr>
<td>TB diagnosis, n(%)</td>
<td>8 (9.9)</td>
<td>1 (2.9)</td>
</tr>
<tr>
<td>TB treatment started, n(%)</td>
<td>7**</td>
<td>1</td>
</tr>
</tbody>
</table>

* Standard of Care focused on < 5 years old child contacts
**TB treatment refused by the parent
ACCEPTABILITY BY BENEFICIARIES AND HEALTH CARE PROVIDERS

CONDITIONS FOR THE TPT COMMUNITY-BASED APPROACH

• CHW
  o Selection: experience and motivation
  o Existing network: integration with other tasks (TB and other diseases), workload to be monitored
  o Training and good code of conduct
  o Secure transport and communication cost for CHW: incentives. Issue with sustainability.

• Adapted tools
  o Job aids: TB symptoms, tolerability assessment, indication of immediate referral
  o TPT adherence tools

• Mentoring and supervision by TB focal person requiring a good communication

• Drugs
  o Dispensation and storage at health facility by TB focal person
  o No dose adaptation during f-up: issues with carrying scale

• Importance of counselling
  o Initial counselling of index case by TB focal person
  o Trusting environment: respect of confidentiality
CONCLUSION

• Significant increase of child contacts who initiated and completed TPT with the community-based intervention: +20%
• Increased number of contacts (children and adults) screened and diagnosed with TB with the community-based model
• Community-based intervention feasible and acceptable by beneficiaries and health care providers
• Additional benefits of the community based approach
  • Integration of TB and HIV screening at community level
  • Integrated cares for contacts and index cases
• Cost-effectiveness analysis in health facility and patients’ perspective ongoing
ACKNOWLEDGEMENTS

- Participants: Index cases, contacts, child’s parents/guardians
- Country research teams
  - Cameroon: Boris Tchounga, Boris Tchakounte, Collette Sih, Rogacien Kana, Patrice Tchendjou, Eric Youm, research assistants, TB focal persons, safety monitors and CHWs
  - Uganda: Daniel Atwine, Bob Ssekyanzi, David Otai, Rinah Arinaitwe, research assistants, TB focal persons, safety monitors and CHWs
- IRD: Anca Vasiliu, Elisabete de Carvalho, Savine Chauvet, Sayouba Ouedraogo, Benjamin Cuer
- EGPAF: Martina Casenghi, Mikhael DeSouza, Jennifer Cohn, Appolinaire Tiam, Maria Oziemkowska, Richard Okello, Henry Ijjo, Léonie Simo
- NTP: Stavia Turyahabwe (Uganda), Albert Kuate Kuate (Cameroon)
- Scientific Advisory Committee