Tackling TB Among PLHIV: A Success Story in Screening and Prevention

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Outline

Introduction

Description

Learned

Recommendation

Q&A
The 3 HBC lists to be used by WHO, 2021-2025

- 30 countries in each list; 49 countries in at least 1 list; 10 countries in all 3 lists

**NOW**
- Brazil
- Central Afr. Rep.*
- Congo*
- Ethiopia
- Gabon*
- Kenya
- Lesotho*
- Liberia*
- Namibia*
- Thailand
- Uganda
- UR Tanzania

**TB/HIV**
- Botswana
- Cameroon
- Eswatini
- Guinea
- Guinea-Bissau
- Malawi
- Russian Federation
- Zimbabwe

**MDR/RR-TB**
- Angola
- Bangladesh
- DPR Korea
- Mongolia*
- Pakistan
- Papua New Guinea*
- Viet Nam

**TB**
- Azerbaijan
- Belarus
- Kazakhstan
- Nepal
- Peru
- Rep. Moldova
- Russian Federation
- Somaliland
- Tajikistan
- Ukraine
- Uzbekistan
- Zimbabwe
Estimated TB incidence rate per 100K per year in Thailand

Rate per 100K population per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated TB incidence in Thailand</th>
<th>Estimated TB incidence in Global</th>
</tr>
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<tbody>
<tr>
<td>2000</td>
<td>241</td>
<td>184</td>
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<tr>
<td>2005</td>
<td>232</td>
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<td>2010</td>
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<td>2015</td>
<td>196</td>
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<tr>
<td>2020</td>
<td>188</td>
<td>172</td>
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<td>2025</td>
<td>181</td>
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<td>2030</td>
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<td>2065</td>
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<td>2070</td>
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<td>2080</td>
<td>141</td>
<td>137</td>
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<tr>
<td>2085</td>
<td>134</td>
<td>134</td>
</tr>
</tbody>
</table>

Rate per 100K population per year
Thailand
TB Situation, 2021

- 103,000 people fell ill with TB (79,000 - 129,000)
  - 68% men
  - 32% women
  - 1% children
- 11,400 TB deaths (9,670 - 13,080)
  - Including 1,700 deaths among people with HIV
- 72,000 people with TB notified (new and relapse)
- 31,000 people not notified or not diagnosed

TREATMENT

- TB treatment coverage: 70%
- 2025 target: 90%
- Treatment success rate: 83%

Note: WHO, Global TB Report 2023, TB profile, Summary of tuberculosis data
TB with HIV Situation in Bangkok

- HIV testing in TB ~ 58-61% (goal > 90%)
- ARV access in TB with HIV ~ 70-78% (goal = 100%)

<table>
<thead>
<tr>
<th>Year</th>
<th>HIV Testing</th>
<th>HIV +</th>
<th>ARV access</th>
<th>Register</th>
</tr>
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<tbody>
<tr>
<td>2019</td>
<td>12,180</td>
<td>1,023</td>
<td>781</td>
<td>7,225</td>
</tr>
<tr>
<td>2020</td>
<td>11,152</td>
<td>1,023</td>
<td>781</td>
<td>7,225</td>
</tr>
<tr>
<td>2021</td>
<td>9,220</td>
<td>929</td>
<td>733</td>
<td>5,651</td>
</tr>
<tr>
<td>2022</td>
<td>9,169</td>
<td>673</td>
<td>509</td>
<td>5,379</td>
</tr>
</tbody>
</table>

- HIV testing: 59.32% (2019), 63.30% (2020), 60.80% (2021), 59.18% (2022)
- ARV access: 76.34% (2019), 78.90% (2020), 70.80% (2021), 75.63% (2022)

Fast-Track Cities 2023 • September 25-27, 2023
In 2014, Bangkok joined the Paris Declaration On Fast-Track Cities. To achieve the 90-90-90 targets by 2020 and ending the AIDS epidemic by 2030.

In 2021, Bangkok Received “The Circle of Excellence Award” in Fast-Track Cities 2021 conference.

In 2022, Bangkok joined the Sevilla Declaration On Fast-Track Cities. To achieve the 95-95-95 targets by 2025 and ending the AIDS epidemic by 2030.
Fast-Track Cities 2023 • September 25-27, 2023

Incidence Rate 10 : 100,000 population in 2035

Accelerate TB patient case finding
- Passive Case-Finding
- Active Case-Finding
  - Household Contacts
  - On-site at hospital: HIV, Diabetic, PWID
  - Out-site of hospital: slums, prisons, vulnerable population

Effective and Successful Treatment
- In line with NTP guideline
- Free of charge; (both Thai and Non Thai)
  (Strong Recommended)
- DOT/VOT: Clinic base DOT, Family member based DOT
  (Strong Recommended)
- Living Support

Screening and Treatment for Latent TB Infection
- Target population: Focus on
  - TB Contact cases
    - Bacteriologically positive cases
  - PLHIV
  - Children < 5 yrs who contact to TB patient

Monitoring, Evaluation and Supervision
- Focus on health facilities under BMA:
  - 11 hospitals
  - 69 public health centers

Ending TB Strategies in Bangkok
Latent TB Infection

Target populations:
Focus on

Others risk group: DM, HCWs, etc.
(case by case basis)

TB Contact cases
(Bacteriologically positive cases)

PLHIV

U₅ who contact to TB patient
HIV, TB and STIs Services & Activities in BMA Public Health Centers, 2010-2023

- **2010**
  - BSMS

- **2011**
  - SD-ART/TPT 2017-present

- **2012**
  - Index testing 2019-present

- **2013**
  - Recency testing 2021-present

- **2014**
  - TPT/IGRA
  - Same Day Result 2014-present

- **2015**
  - Pride clinic 2022-present

- **2016**
  - PrEP/PEP 2017/18-present

- **2017**
  - Recency testing 2021-present

- **2018**
  - HIVST-MATESDI 2022-present

- **2019**
  - BKK Connect 2022-present

- **2020**
  - PrEP Booking Online

- **2021**
  - TB/ Urine LAM

- **2022**
  - TPT/IGRA

- **2023**
  - BKK Connect 2022-present
Public Health Center 28, BMA

- A primary care unit (PCU) under Bangkok Metropolitan Administration
- Providing free services for
  - Tuberculosis (TB) since 2000
  - HIV patients since 2017
- The first PCU in Bangkok to initiate antiretroviral therapy (ART) for PLHIV since 2017
- As of June 2023, currently provide care for 4,398 PLHIVs
Public Health Center 28 Services Timeline

**Before 2015**
- Safe love Clinic
- Free TB Treatment (adult)
- OPD
- Promotion & HIV Prevention (Condoms)
- ARV start at the hospital (Thai HIV CPG began 2010)

**2016**
- Safe love Clinic
- Free TB Treatment/ TPT (adult & child)
- OPD
- Promotion & HIV Prevention (Condoms)

**2017**
- PrEP/PEP (TUC)
- ARV for all (Donation/oPEP drugs)
- TB&HIV training and research center: TUC

**2018**
- Mental Health
- Sexual Health
- Immunization (HPV/HBV)
- Intensive TPT (Tuberculosis Preventive Treatment: add IGRA, 3HP)
- ARV for all (BMA/ Government budget)

**2022**
- BKK pride clinic
- Telemedicine in ARV clinic
- HCV treatment. (C-free and NSHO)

Budget from Donation:
1. HCWs & Friends: ARV
2. Bangkok AIDS Foundation: transportation
Migrant Receiving Services At Public Health Center 28th

Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of PLHIV</th>
<th>Number of ART</th>
<th>Number of VL Supressed</th>
<th>New Dx PLHIV</th>
<th>Number of Deaths</th>
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<tbody>
<tr>
<td>2020</td>
<td>972,966</td>
<td>475</td>
<td>34</td>
<td>616</td>
<td>34</td>
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<tr>
<td>2021</td>
<td>1,081</td>
<td>1,081</td>
<td>34</td>
<td>34</td>
<td>40</td>
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<tr>
<td>2022</td>
<td>1,317</td>
<td>947</td>
<td>78</td>
<td>351</td>
<td>40</td>
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<tr>
<td>2023</td>
<td>1,496</td>
<td>1,496</td>
<td>40</td>
<td>351</td>
<td>40</td>
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# Patient Demographic Data

## All PLHIV

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Sex</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14 years</td>
<td>Female (All)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Male (All)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>8</td>
</tr>
<tr>
<td>15-19 years</td>
<td>Female (All)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Male (All)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>6</td>
</tr>
<tr>
<td>20-24 years</td>
<td>Female (All)</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Male (All)</td>
<td>38</td>
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<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>38</td>
</tr>
<tr>
<td>25-49 years</td>
<td>Female (All)</td>
<td>444</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>359</td>
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<tr>
<td></td>
<td>Male (All)</td>
<td>1,973</td>
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<td></td>
<td>Male (VL &lt; 1000)</td>
<td>1,433</td>
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<td>50+ years</td>
<td>Female (All)</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>114</td>
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<tr>
<td></td>
<td>Male (All)</td>
<td>234</td>
</tr>
<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>196</td>
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## Migrant PLHIV

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Sex</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>0-14 years</td>
<td>Female (All)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Male (All)</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>34</td>
</tr>
<tr>
<td>15-19 years</td>
<td>Female (All)</td>
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</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Male (All)</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>13</td>
</tr>
<tr>
<td>20-24 years</td>
<td>Female (All)</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Male (All)</td>
<td>264</td>
</tr>
<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>204</td>
</tr>
<tr>
<td>25-49 years</td>
<td>Female (All)</td>
<td>963</td>
</tr>
<tr>
<td></td>
<td>Female (VL &lt; 1000)</td>
<td>683</td>
</tr>
<tr>
<td></td>
<td>Male (All)</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Male (VL &lt; 1000)</td>
<td>33</td>
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</table>
Description

• TB remains the leading cause of mortality among PLHIV in Thailand

• Public Health Center 28 implemented a comprehensive TB screening and treatment package for PLHIV since 2017

• Our screening methods at the initial visit include
  • TB symptom questionnaires
  • Assessing contact history with TB patients
  • Chest X-rays (CXRs)
  • Molecular techniques for sputum examination (Gene X-pert, LPA)
  • TB culture tests
Flow of Services in HIV/STIs Clinic

- **Anti-HIV**: positive
- **New Case**: Screening for signs & symptoms: HIV, TB and STIs
- **HIV/TB Clinic**: Flow of services
  - Assessment for depression and suicidal risk
  - Index Testing
- **Laboratory tests**
- **Psychologist in HIV/TB Clinic**
- **Same Day Labs**
  - Chest X-ray
  - Anti-HIV rapid test (3 tests)
  - Syphilis rapid test
  - Serum Cryptococcus Antigen
  - Fundus Camera
- **Another Day Labs**
  - CBC, CD4⁺
  - Confirm Anti-HIV
  - Anti-HBs, HBs Ag, Anti-HCV,
  - TPHA, RPR titer
  - FBS, Chol, TG, Cr(eGFR), ALT
  - Electrolyte, PO₄
  - Sputum AFB & Gene X-pert, LPA, Culture

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Flow of Services in HIV/STIs Clinic

- Chest X-ray: normal
- Serum Crypto Antigen: Negative
- Fundus Camera: No CMV retinitis

- Chest X-ray: Abnormal

- Pulmonary Tuberculosis

- PCP

- Treatment for Hepatitis C infection: C-free Project
- Treatment for STIs eg. Syphilis, Gonorrhea, etc.
- Start ARV regardless any CD4+ followed by 1-2 weeks for adverse drug reaction and lab.

- Other conditions / Need for Hospitalization

- Serum Crypto Ag: Positive

- Fundus Camera: Abnormal

- Refer to Hospital

- Treatment for TB/PCP prior to ARV

- Treatment for STIs eg. Syphilis, Gonorrhea, etc.

- Treatment for Hepatitis C infection: C-free Project

- Start ARV regardless any CD4+

- Follow-up 1-2 weeks for adverse drug reaction and lab.
Description (cont.)

• TB-negative PLHIVs were screened for latent TB infection (LTBI):
  • tuberculin skin testing or
  • Interferon-gamma release assays (IGRA)

• LTBI-positive individuals receive tuberculosis preventive therapy (TPT):
  • Regimen: 3HP, 1HP, 9H (and Vitamin B6)

• No cases of active TB were detected among PLHIVs after initiating ART at our PCU

• We also employ TB symptom questionnaires, assessing contact history with TB patients and perform annual CXRs during each visit
  • We found three PLHIVs referred to our PCU for continued ART subsequently developed active TB
Learned

• Between October 2017 and September 2022, Public Health Center 28 provided care for 3,627 PLHIVs

• 246 (6.8%) had TB/HIV co-infection
  
  All 246 individuals successfully had completed their TB treatment and received ART altogether without any serious complications
TB in Public Health Center 28

TB Cases Notification in 2022

- 80% Thai
- 20% Non Thai

Treatment Success rate in Non Thai in 2019 - 2021

- 2019: 97.56%
- 2020: 100%
- 2021: 100%

TB HIV in Non Thai in 2020 - 2022

- 2020:
  - 32 register
  - 96.88% success
  - 70.97% HIV test
  - 100% HIV +
  - 100% On ARV

- 2021:
  - 22 register
  - 100% success
  - 31.82% HIV test
  - 100% HIV +
  - 100% On ARV

- 2022:
  - 15 register
  - 100% success
  - 60% HIV test
  - 100% HIV +
  - 88.89% On ARV
# TB Preventive Treatment (TPT)

<table>
<thead>
<tr>
<th>Completion rate of TPT</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household contact cases</td>
<td>64.7%</td>
<td>62.5%</td>
<td>89.5%</td>
<td>95%</td>
<td>94.2%</td>
</tr>
<tr>
<td>PLHIV</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>U5</td>
<td>70%</td>
<td>75%</td>
<td>76.5%</td>
<td>76.5%</td>
<td>83.4%</td>
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<table>
<thead>
<tr>
<th>Target population</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact case &lt; 5year</td>
<td>17</td>
<td>32</td>
<td>17</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>Contact case ≥ 5year</td>
<td>22</td>
<td>24</td>
<td>19</td>
<td>38</td>
<td>42</td>
</tr>
<tr>
<td>PLHIV</td>
<td>38</td>
<td>43</td>
<td>81</td>
<td>137</td>
<td>372</td>
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</tbody>
</table>
Screening TB in PLHIV

TB Disease
- 6.8%
- 100% Complete treatment
- No relapse or recurrent case

PLHIV
- 2017-2022
- About 3,600 PLHIV

TPT
- 18.5%
- 100% complete
- No new TB cases
Recommendations

- Implementing a systematic and comprehensive TB screening and prevention package for all PLHIV, including using TB symptom questionnaires during each visit, assessing contact history with TB patients, performing annual CXRs, utilizing molecular techniques for sputum examination, and culture tests

- TB-negative PLHIV should undergo screening for LTBI and receive TPT if diagnosed with LTBI

- These measures are crucial for managing TB among PLHIV and reducing TB-related morbidity and mortality
Lessons learned to Thai CPG for LTBI in HIV