TB/HIV Collaborative Activities
TB & HIV Collaborative Activities

A. Establish the mechanism for collaboration between TB/HIV and AIDS programs

A.1. TB & HIV coordinating bodies

A.2. HIV surveillance among TB patient

A.3. TB & HIV planning

A.4. TB & HIV monitoring and evaluation
TB & HIV Collaborative Activities

B. To decrease the burden of TB in PLWHA (HIV entry point)

B.1. Intensified TB case finding

B.2. Isoniazid preventive therapy

B.3. TB infection control in care and congregate settings
C. To decrease the burden of HIV in TB patients (TB entry point)

C.1. HIV testing and counselling
C.2. HIV preventive methods
C.3. Cotrimoxazole preventive therapy
C.4. HIV/AIDS care and support
C.5. Antiretroviral therapy to TB patients.
WHO 3 I’s strategy to prevent TB

- WHO strategy to reduce the burden of TB amongst PLWHA
  - Intensified TB case finding (**ICF**)
  - Isoniazid Preventive Therapy (**IPT**)
  - Infection prevention and control (**IC**)

3I’s are interlinked!!!!!
Important steps in the development of TB

1. Exposure
2. Infection
3. Disease
Important steps to prevent TB
Intensified Case Finding → Exposure → Infection → Disease → IPT → Infection Control
Passive TB case finding
- relies on individual with suspected TB to present themselves for diagnosis and care
- TB control programmes rely on this type of CF

Active case finding!

- Definition: an activity intended to detect possible TB cases as early as possible in people living with HIV
  - 1st step towards making a TB diagnosis
  - Part of the HCT campaign: all clients have to be screened for TB
Why ICF?

• Identify TB cases early → initiate treatment early
• Reduce transmission by infectious cases
• Reduce morbidity and mortality due to TB

ICF provides an opportunity for IPT /TB treatment
Where and when?

PICT/VCT (CICT) TB SCREENING

- STI SERVICES
- PMTCT SERVICES
- PLWA Support groups
- HOUSEHOLD
- PRISONS, MINES
- TRADITIONAL HEALERS
- GPs/Industry
- HBC

SOUTHERN AFRICAN HIV CLINICIANS SOCIETY
SCALING UP INTENSIFIED CASE FINDING
The TB screening Tool??
TB symptom screening

• Method used to symptomatically exclude TB

• Part of the WHO Three I’s Strategy to reduce the burden of TB among HIV+ patients

• Asking questions about TB symptoms to exclude TB

• Differentiate this from clinical screening/clinical investigation e.g CXR,

• It can be done even by non-clinical people
TB screening tool

- Do you have any current cough? (any duration for HIV+)
- Do you have unintentional weight loss?
- Do you sweat a lot at night?
- Do you have fever?

➤ CXR and TST not necessity
If NO to all questions!!!

- Give information on IPT benefit
- Assess eligibility for IPT
TB Preventative Therapy
IPT

Exposure
Infection
Disease

Intensified Case Finding

Infection Control

IPT
Natural History of TB

Exposure → Infection (Sub-clinical) → Disease (Infectious tuberculosis) → Death

Risk factors

Disease (Non-infectious tuberculosis)
Definition

- **Preventive therapy** against TB is the use of one or more anti-tuberculosis drugs given to individuals with latent infection with *M. tuberculosis* in order to prevent the progression to active disease.

HIV is the strongest risk factor for the progression of latent infection into active TB.
Rationale for IPT in the HIV positive

• 10% **lifetime** risk of developing active TB if infected with M. tuberculosis alone

• 5-10% **annual** risk of developing active TB if co-infected with HIV

• INH preventive therapy (IPT) reduces risk of TB in HIV+ people*
  • By 64% in PPD+
  • By 33% overall

• The protection period ranges from 1 year to 2 years

IPT Effectiveness

• Uganda: 67% protective efficacy in TST-positive subjects

  Whalen et al

• Zambia: 75% protective efficacy in those with TST-positive persons

  Mwinga et al
## IPT Effectiveness: SA study

<table>
<thead>
<tr>
<th>IPT usage</th>
<th>TB incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPT (n=338)</td>
<td>8.6/100 person years</td>
</tr>
<tr>
<td>No IPT (n=221)</td>
<td>19.1/100 person years</td>
</tr>
</tbody>
</table>

**Overall 55% reduction in TB incidence**

Eligible for IPT

All HIV positive people with no signs & symptoms of TB are potentially eligible for TB preventive therapy

- No alcohol abuse
- No active liver disease
- Not currently taking TB treatment
- No active TB
SCREEN FOR TB BEFORE INITIATING IPT!
What about a CXR for screening?

Chest X-ray does not improve TB case detection in HIV+ asymptomatic individuals!

CXR forms part of the investigations of a symptomatic patient with or without negative sputum AFB’s
What do I achieve with TB screening?

- From TB screening I can identify who is:
  - A TB suspect, and needs further investigation
  - An “IPT suspect” that needs to be evaluated for IPT
What do I achieve with TB screening?

- From TB screening I can identify who is:
  - A TB suspect, and needs further investigation
  - An “IPT suspect” that needs to be evaluated for IPT

TB Screening → TB Suspect → Investigations

No TB, or Start TB Treatment

IPT “suspect” → NO IPT!!!
Important steps recap!
IPT and ART

- IPT well tolerated in pt on ART, maybe increased risk of S/E

- d4T and INH- peripheral neuropathy

- NVP and INH- hepatotoxicity
IPT in previously treated TB patients

• Can be started after successful completion of TB treatment

*NB!* - active TB disease must be excluded
Recommended Regimen

- **Adults:**
  - Isoniazid (INH) 5 mg/kg/day (maximum 300 mg per day) for 6 months
  - Vitamin B6 (pyridoxine) 25 mg per day > prevents occurrence of peripheral neuropathy.
Follow up visit for a client on IPT

- **Peripheral neuropathy**: use Pyridoxine 100mg dly
- **Hepatitis** (jaundice, RUQ pain, nausea & vomiting, confusion: **Stop IPT**
  Do LFT’s, refer
- **Rash** – Rx symptomatically if not severe

**TB screening and weight at every visit**

**Screen for side effects**

**Monitor adherence**
  Do pill-counts

**Symptomatic**: investigate for active TB, including culture ans sensitivity

If active TB diagnosed:
- **Start TB treatment**
- **Stop IPT**

If repeated interruption/poor adherence:
- **Consider stopping IPT**

If poor adherence:
- **Intensify counseling**
Reasons to stop IPT

• When active TB is diagnosed:
  • Continue IPT until a decision is reached
• Peripheral neuropathy possibly due to IPT
  • Assess severity - difficulty in walking, stop IPT.
  • Rx with tryptanol 25mg nocte if PNP is mild
• Hepatotoxicity possibly due to IPT discontinue IPT immediately
  • Consider monitoring with transaminases and re-challenging to complete IPT course
Reasons to stop IPT (2)

Poor adherence

• If patient interrupts IPT once-
  - counsel and restart if no active TB and adherence obstacles have been addressed

• If patient interrupts a second time,
  - consider stopping IPT
TB Infection Control & Prevention

Exposure → Infection → Disease → IPT

Infection Control
Hierarchy of Infection Control

Administrative Controls

Environmental Controls

Respiratory Protection
Infection Control Hierarchy

1st line of defense
Administrative Control
Reduce HCW and patient exposure

2nd line of defense
Environmental Control
Reduce the concentration of infectious particles

3rd line of defense
Personnel Protection
Protects HCW
Administrative Controls

- Early diagnosis of infectious patients
- Prompt separation or isolation
- Prompt initiation of appropriate treatment
- Infection control plan
- Adequate training of HCW
- Do a risk assessment of facility
# 5 Steps for Client Management to Prevent Transmission of TB in HIV Care Settings

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Triage</td>
<td>Early <strong>recognition</strong> of clients with suspected or confirmed TB disease</td>
</tr>
<tr>
<td>2. Educate</td>
<td>Instructing persons identified through screening in <strong>cough etiquette</strong> and <strong>respiratory hygiene</strong></td>
</tr>
<tr>
<td>3. Separate</td>
<td>Clients identified as TB suspects or cases should be <strong>separated</strong> from other patients to wait in a separate well-ventilated waiting area</td>
</tr>
<tr>
<td>4. Provide HIV services</td>
<td>Place symptomatic clients at the <strong>front of the queue</strong> for the services they are seeking. Provide integrated TB/HIV services, including TB screening.</td>
</tr>
<tr>
<td>5. Investigate/ treat for TB or refer</td>
<td><strong>Promptly</strong> investigate for TB and start correct <strong>anti-TB therapy</strong> or refer once diagnosis made</td>
</tr>
</tbody>
</table>
Educate about cough etiquette

- Instruct coughing patients to “cover your cough”.
- Provide tissues or surgical masks for this purpose.
Environmental Control Measures

Second line of defense

• 3 types:

1. Ventilation
   • Natural
   • Mechanical

2. Filtration

3. Ultraviolet germicidal irradiation

• Controlled natural ventilation most practical
Direction of Natural Ventilation or Correct Working Locations

Good!!!
Direction of Natural Ventilation or Incorrect Working Locations

Bad!!!
Direction of Natural Ventilation or Correct Working Locations

Wind → Patient → HCW → Wind

Good Compromise!
Enclosed, crowded waiting areas compromise health and safety of other patients and staff.
Infection Control realities...

No segregation of patients or measures to rapidly identify high-risk individuals
Infection Control realities...

Administrative pressures compromise triage procedures
Natural Ventilation
Mechanical Ventilation

- Use in areas where natural ventilation is not feasible or inadequate

- Should facilitate air entry into, and exhaust from, the room or area

- Direct air movement so that aerosols from patient are directed away from others

- Directional air flow should be from a “clean” area, across the patient, and to the outside
Propeller Fans

- Inexpensive
- ↑ natural ventilation effectiveness
- Mix air in room
- Reduce concentration of particles
- Assist in direction of air movement
Examples of fans
Ultraviolet Germicidal Irradiation (UVGI)

- Where natural or mechanical ventilation is not feasible, UVGI may be a useful alternative.
- Kills or inactivates microorganisms.
- Requires ongoing maintenance, monitoring.
- Overexposure can cause cutaneous reactions and ocular toxicity.
- In most situations, use of continuous upper air irradiation with shielding below of UVGI light.
- Most effective with good air mixing.
Example of UVGI
Personal Respiratory protection

- N95 respirators
- Third line of defense
  - Ineffective in absence of administrative and environmental control measures!
- Proper fit important for effectiveness
- Protect HCWs from inhaling *M. tuberculosis*
- Special equipment to determine proper fit
High-risk situations where N95 is needed

• Isolation rooms for patients with TB, especially M(X)DR-TB

• Sputum induction or other cough-inducing procedures

• Consultations with high risk patients (suspected/confirmed MDR/XDR)

In conjunction with administrative and environmental control measures
<table>
<thead>
<tr>
<th><strong>RESPIRATOR</strong></th>
<th><strong>SURGICAL MASK</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Protects healthcare workers from inhaling infectious droplets</td>
<td>Inadequate to protect against inhalation of infectious droplets</td>
</tr>
<tr>
<td>Filters small particles</td>
<td>Not designed for high filtration</td>
</tr>
<tr>
<td>Has a tight seal around the entire edge</td>
<td>Does not have a tight seal around edges</td>
</tr>
<tr>
<td>Use in high risk situations to protect healthcare workers</td>
<td>Used by patients (TB/DR TB suspects or TB/DRTB cases) to avoid the spread of TB bacilli (cough etiquette)</td>
</tr>
<tr>
<td>Too expensive to use for patient cough etiquette</td>
<td>Inexpensive</td>
</tr>
</tbody>
</table>
Paradigm shift in TB/HIV Advocacy

"We can’t fight AIDS unless we do much more to fight TB as well"

Nelson Mandela
Bangkok, July 2004