Management of collaborative TB/HIV activities:

Training for managers at the national and subnational levels

Manual for participants

World Health Organization
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Training for managers at the national and subnational levels

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World Health Organization
2005
Acknowledgements

This manual is part of a set of materials for the management of collaborative TB/HIV activities: training for managers at the national and subnational levels prepared by the Stop TB Department of the World Health Organization. It is designed to assist countries in developing and organizing country-specific TB/HIV courses for national and subnational TB and HIV/AIDS managers. This project was coordinated by Rafael Alberto López of the Stop TB Department of the World Health Organization. The training package was designed by Giovanni Battista Migliori of the WHO Collaborating Centre for Tuberculosis and Lung Diseases, Fondazione S. Maugeri, Care and Research Institute, Tradate, Italy and Karin Bergstrom and Pierre-Yves Norval of the Stop TB Department of the World Health Organization. All contributed to developing the content along with Alberto Matteelli of the University of Brescia, Italy.

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Jan van den Hombergh, WHO Country Office for Ethiopia
Marco Vitoria, Department of HIV/AIDS, WHO

The training package was field-tested in five TB/HIV courses organized in Addis Ababa, Ethiopia and Sondalo, Italy in 2004 and 2005.
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Goal and objectives of the course

Course goal

The overall goal of the training course is to further develop the skills required to plan and implement collaborative TB/HIV activities based on the strategies for controlling TB and HIV/AIDS recommended by WHO.

Objectives

By the end of the course, the participants will be able:

1) to analyse available data on key components of national TB control programmes and national HIV/AIDS programmes:
   a. planning and management
   b. epidemiology
   c. surveillance
   d. monitoring and evaluation
   e. drug management
   f. service delivery
   g. human resource development
   h. budgeting and financing
   i. partner coordination, fundraising and advocacy;

2) to identify gaps and priorities in TB/HIV collaboration and propose solutions to facilitate the implementation of collaborative TB/HIV activities; and

3) to prepare a plan for implementing collaborative TB/HIV activities.
Unit 1: Introduction to the course

Objectives

1. To provide participants with an overview of the course and its objectives
2. To introduce participants and facilitators
3. To describe the workshop methods and to review the workshop materials
4. To review course evaluation by participants
5. To set the tone of the workshop as informal, participatory and practical

Methods

Icebreaker session
Plenary presentation: Introduction to the course
Questions and answers

Materials

Document 1.1: Introduction to the course (slides)
Document 1.2: Course evaluation form
Working documents

References


Paper copies of the WHO publications are available from WHO upon request and in electronic versions at the following addresses:

http://who.int/tb/publications/en
http://who.int/hiv/pub
http://who.int/tb/hiv/en
http://stoptb.org/wg/tb_hiv/documents.asp
http://unaids.org
Document 1.1

Introduction to the course

Document No. 1.1

TB/HIV course for managers at the national and subnational levels

Objectives of the unit

• To provide participants with an overview of the course and its objectives
• To introduce participants and facilitators
• To explain the course method and to review the course materials
• To present the participants’ competencies and learning objectives
• To set the tone of the course as informal, participatory and practical

Goal of the course

The overall goal of the training course is to further develop the skills required to plan and implement collaborative TB/HIV activities based on the strategies for controlling TB and HIV/AIDS recommended by WHO

Objectives of the course – 1

• Analyse available data on key components of the planning and management of national tuberculosis control programmes and national HIV/AIDS control programmes:
  - epidemiology
  - surveillance
  - monitoring and evaluation
  - drug management
  - service delivery
  - human resource development
  - budgeting and financing
  - partner coordination, fundraising and advocacy

Objectives of the course – 2

• Identify gaps and priorities in TB/HIV collaboration and propose solutions to facilitate the implementation of collaborative TB/HIV activities
• Prepare a plan for implementing collaborative TB/HIV activities

Course management

• Interactive
• Based on exercises, experiences and problem-solving
• Flow of logic leading to the plan
Materials provided

- Manual for participants, including:
  - Background document on Fictitia, a TB/HIV country
  - Course evaluation form
  - Exercises
  - Presentations

- Plan template
- Agenda
- Other background documents

Course evaluation

- Participants evaluate the course by completing the course evaluation form
- Facilitators evaluate participants’ plans

Map of Fictitia, a TB/HIV country

Document No. 1.2/18.1: Course evaluation form

Management of collaborative TB/HIV activities: training for managers at the national and subnational levels

1. Please rate the quality of the training course by ticking the appropriate answer:

<table>
<thead>
<tr>
<th>Course unit</th>
<th>Very useful</th>
<th>Useful</th>
<th>Somewhat useful</th>
<th>Not useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1: Introduction to the course</td>
<td></td>
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<tr>
<td>Unit 2: How to prepare a plan for implementing collaborative TB/HIV activities</td>
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<tr>
<td>Unit 3: Epidemiology</td>
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<tr>
<td>Unit 4: Principles for controlling TB and HIV/AIDS</td>
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<tr>
<td>Unit 5, 6, 7, 8, 9</td>
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</tbody>
</table>

Fill in daily, please!
Course evaluation form

Management of collaborative TB/HIV activities: training for managers at the national and subnational levels

1. Please rate the quality of the training course by ticking the appropriate answer:

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tbody>
<tr>
<td>Overall course</td>
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<tr>
<td>Matching your needs as a TB/HIV manager</td>
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<td>Presentations</td>
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<td>Exercises</td>
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<td>Training materials</td>
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<td>Accommodation</td>
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<td>Meals</td>
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<td>Transport</td>
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<tr>
<td>Administrative support before the course</td>
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<td>Administrative support during the course</td>
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<tr>
<td>Venue</td>
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</tbody>
</table>

Comments:

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2. What did you like best about the training course?

________________________________________________________________________
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3. What did you like least about the training course?

________________________________________________________________________
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4. Should anything else be included in future training courses for TB/HIV managers?

5. Should anything on the agenda for this course be taken out for future training courses?

6. Please rate the usefulness of each course unit with regard to developing the necessary skills as a TB/HIV manager.

<table>
<thead>
<tr>
<th>Course unit</th>
<th>Very useful</th>
<th>Useful</th>
<th>Somewhat useful</th>
<th>Not useful</th>
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<td>Unit 2: How to prepare a plan for implementing collaborative TB/HIV activities</td>
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<td>Unit 3: Epidemiology</td>
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<td>Unit 4: Principles for controlling TB and HIV/AIDS</td>
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<td>Unit 5, part 1: The DOTS strategy for controlling TB</td>
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<td>Unit 5, part 2: Clinical management of TB</td>
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<td>Unit 6, part 1: Universal access to antiretroviral therapy</td>
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<td>Unit 6, part 2: Clinical management of HIV/AIDS</td>
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<td>7</td>
<td>Unit 7: Drug management for controlling TB and HIV/AIDS</td>
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<td>8</td>
<td>Unit 8: The WHO interim policy on collaborative TB/HIV activities</td>
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<td>9</td>
<td>Unit 9: Recording and reporting for the implementation of collaborative TB/HIV activities</td>
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<td>10</td>
<td>Unit 10: Surveillance of HIV prevalence among people with TB disease</td>
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<td>11</td>
<td>Unit 11: Human resource development for implementing collaborative TB/HIV activities</td>
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<td>12</td>
<td>Unit 12: Monitoring and evaluating the implementation of collaborative TB/HIV activities</td>
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<tr>
<td>13</td>
<td>Unit 13: Costing and budgeting for the implementation of collaborative TB/HIV activities</td>
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<tr>
<td>14</td>
<td>Unit 14: Case study on delivering services for TB and HIV/AIDS – the example of Malawi</td>
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<td>15</td>
<td>Unit 15: Field visit to a local health facility providing preventive, diagnostic and treatment services for TB and HIV/AIDS</td>
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<td>Unit 16: Individual finalization of plans for implementing collaborative TB/HIV activities</td>
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<td>Unit 17: Discussion of plans for implementing collaborative TB/HIV activities</td>
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<tr>
<td>Unit 18: Course evaluation</td>
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</tbody>
</table>

7. Use the space below to complement any previous response and/or to provide any suggestions you may have to further improve the course.

________________________________________________________________________
________________________________________________________________________
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Thank you!
Unit 2: How to prepare a plan for implementing collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:
1) to explain the importance of developing a national plan for implementing collaborative TB/HIV activities;
2) to discuss the structure and list the components of a plan for implementing collaborative TB/HIV activities; and
3) to prepare a plan, following the different topics and units presented during the course.

Methods

Plenary presentation: How to prepare a plan for implementing collaborative TB/HIV activities
Plenary discussion

Materials

Document 2.1: How to prepare a plan for implementing collaborative TB/HIV activities (slides)
Document 2.2: Plan template (file)
Document 2.1

How to prepare a plan
Document No. 2.1

TB/HIV course for managers at the national and subnational levels

Objectives of the unit

• Explain the importance of developing a national plan for implementing collaborative TB/HIV activities
• Discuss the structure and list the components of a plan for implementing collaborative TB/HIV activities
• Prepare a plan, following the different topics and units presented during the course

Outline of the presentation

Context
Initial questions
Basic content
Preparation
Presentation
Follow-up

Context

• Preparing a TB/HIV plan as part of the TB/HIV managerial training
• Within the spirit of TB and HIV/AIDS collaboration
• Following existing national or regional policies, plans and guidelines
• Aimed at concrete actions
• Individual, joint, realistic and contributing
• Containing a set of basic elements
• Basis for follow-up and support

Initial questions – 1

What to plan?
Implementation of collaborative TB/HIV activities

Why planning?
Effective use of available resources

When to plan?
From now on

How should it be done?
As follows …

Initial questions – 2
**Content of the plan**

1. Background
2. Goal, objectives and targets
3. Activities
4. Resources and partners
5. Monitoring and evaluation
6. Budget

---

**1. Background (brief)**

- Context
- Recent and current situation
- Relevant data
- Actors
- Action taken

---

**2. Goal, objectives and targets**

- Goal – Where we want to go in broad terms
- Objectives – What we want to do specifically
- Targets – Specific figures we want to reach and dates

---

**3. Activities**

- Set of actions to be performed or delivered to reach the proposed objectives

---

**Collaborative TB/HIV activities**

**Establish mechanisms for collaboration**
- Set up a coordinating body for TB/HIV activities
- Conduct surveillance of HIV prevalence among people with TB disease
- Carry out joint TB/HIV planning
- Conduct monitoring and evaluation

**Decrease the burden of TB among people living with HIV/AIDS**
- Establish intensified TB case-finding
- Introduce isoniazid preventive therapy
- Ensure TB infection control in health care and congregate settings

**Decrease the burden of HIV among people with TB disease**
- Provide HIV testing and counselling
- Introduce methods of preventing HIV transmission
- Introduce co-trimoxazole preventive therapy
- Ensure HIV/AIDS care and support
- Introduce antiretroviral therapy
4. Resources and partners

Resources – Consider health system and infrastructure, trained human resources, drugs, technology and sources of financing

Partners – Including TB, HIV, TB/HIV, national, international, official, private, civil society and community groups.

5. Monitoring and evaluation

Monitoring: routine tracking of the ongoing activities

Evaluation: periodic assessment of results
Both use key indicators

6. Budget

Determine the amount of money needed for each activity during a limited period of time (usually one year).

It is useful to further specify by categories, such as travel, staff salary, training courses, drugs and supervision.

Preparing a plan – 1

• Start your plan from the first day.
• As the course progresses, clearly identify how the various topics discussed relate to your current or future involvement in TB/HIV activities
• Continually discuss with the other colleague(s) from your country how to complement and integrate your planning

Preparing a plan – 2

• Include key points in the draft on a daily basis.
• Organize your activities by quarters for the first year and provide tentative activities to be conducted during the following year.
• Use the template provided as a guide to initiating your plan.
## Preparing a plan – 3

- Seek guidance if you have doubts.
- Start finalizing your plan towards the end of the week.
- Give an electronic version and paper copy to the course director at the end of the course.

## Presenting the plan

- All participants should be prepared to present their plan on the last day.
- Facilitators will choose at least two plans to be presented.
- The names of the people presenting plans will be announced mid-morning on the last day.
- The rest of participants will analyse and discuss the plans presented.
## Plan template

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Main activities and indicators</th>
<th>Responsible</th>
<th>Description and product</th>
<th>Budget</th>
<th>Description and product</th>
<th>Budget</th>
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<th>Budget</th>
<th>Description and product</th>
<th>Budget</th>
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<tbody>
<tr>
<td><strong>Example:</strong> Objective 1: To strengthen mechanisms for TB and HIV/AIDS collaboration</td>
<td>Activity 1.1: Developing a joint TB/HIV plan</td>
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<tr>
<td>[Indicator: Existence of joint planning]</td>
<td>National tuberculosis programme and national HIV/AIDS programme</td>
<td>Hold two preparatory meetings and conduct a one-day workshop for TB/HIV planning</td>
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<tr>
<td>Product: Draft plan produced</td>
<td>xxxx</td>
<td>Circulate draft version of the plan among the members of the TB/HIV body and key people involved for comments, prepare final version and get official endorsement</td>
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<tr>
<td>Product: Final plan endorsed</td>
<td>xxxx</td>
<td>Publication and distribution of the plan,</td>
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<tr>
<td>Product: Published plan distributed</td>
<td>xxxx</td>
<td>Support for adaptation of the national plan in the main regions of the country</td>
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</table>
Unit 3: Epidemiology

Objectives

By the end of this unit, participants will be able:

1) to describe the epidemiology of TB, HIV/AIDS and TB/HIV at the global, regional and national levels; and
2) to discuss the implications of the epidemiological situation for developing collaborative TB/HIV activities at the country level (priorities, mechanisms, steps and procedures).

Methods

Plenary presentations: Epidemiology of TB, HIV/AIDS and TB/HIV
Plenary discussion

Materials

Document 3.1: Presentation of the epidemiology of TB (slides)
Document 3.2: Presentation of the epidemiology of HIV/AIDS (slides)
Document 3.3: Presentation of the epidemiology of TB/ HIV (slides)
Document 3.1

Epidemiology of TB
Document No. 3.1

TB/HIV course for managers at the national and subnational levels

Objectives of the presentation

• To describe the epidemiology of TB at the global, regional and national levels

• To discuss the implications of the epidemiological situation for developing collaborative TB/HIV activities at the country level (priorities, mechanisms, steps and procedures)

Risk of TB infection in European countries

[Diagram showing per cent risk (log scale) against calendar year for countries like England and Wales, Serbia, Poland, Slovenia, Norway, France, and Netherlands, with slopes indicating % decline/year from 0% to 15%.]
Age-specific prevalence of TB infection in Switzerland, 1920–1990

TB reported in Switzerland by age, 1990

TB case notifications, sputum smear positive and all forms of TB in Kenya, 1990–2002
Global epidemiology of TB

- One third of the global population infected
- More than 8.8 million new cases per year (141 per 100,000 population)
- More than 2 million deaths per year
- More than 95% of cases and deaths occur in developing countries
  - 75% of cases among people 15–54 years old
  - Devastating economic costs
  - More than 1 million deaths due to TB/HIV
  - Multi-drug-resistant TB is ubiquitous
Growth of TB in Africa and Eastern Europe

MDR-TB is rampant in the former Soviet Union and China

Epidemiology of HIV/AIDS
Document No. 3.2

TB/HIV course for managers at the national and subnational levels

Objectives of the presentation

• To describe the epidemiology of HIV/AIDS at the global, regional and national levels

• To discuss the implications of the epidemiological situation on developing collaborative TB/HIV activities at the country level (priorities, mechanisms, steps and procedures)

Global estimates for adults and children, end 2003

• People living with HIV  37.8 million

• New HIV infections in 2003  4.8 million

• Deaths due to AIDS in 2003  2.6 million


Number of people living with HIV/AIDS

% HIV prevalence, 15–49 years old


Estimated Regional HIV Prevalence Trends

Adults and children estimated to be living with HIV/AIDS as of end 2003

Total: 40 (34–46) million
Estimated number of adults and children newly infected with HIV during 2003

Total: 5 (4.2–5.8) million

About 14 000 new HIV infections per day in 2003

• More than 95% are in low- and middle-income countries
• Almost 2000 are among children younger than 15 years of age
• About 12 000 are among people 15–49 years old, of whom:
  — almost 50% are women
  — about 50% are 15–24 years old

Estimated adult and child deaths from HIV/AIDS during 2003

Total: 3 (2.5–3.5) million

Proportion of people living with HIV/AIDS by region

Leading causes of disease burden in Africa, 2000

Leading causes of death in Africa, 2000


- 20–39%
- 10–20%
- 5–10%
- 1–5%
- 0–1%
- Trend data unavailable
- Outside region

HIV prevalence (%) among 15- to 24-year-olds in selected countries in sub-Saharan Africa, 2001–2003

- Niger
- Mali
- Burundi
- Kenya
- Zambia
- South Africa
- Zimbabwe

Estimated number of new HIV infections in Thailand by year and changing mode of transmission, 1985–2002

- Spouse 5%
- SW 90%
- IDU 5%
- MTCT 15%

HIV prevalence rates among sex workers and injecting drug users in Indonesia

- HIV prevalence rates among sex workers in selected sites in Indonesia ranged between 1.5% and 26.5% in 2000–2001
- HIV prevalence rates among injecting drug users in other Indonesian sites ranged between 24.5% and 53% in the same period.

HIV prevalence among adults in Asia: 1986–2001

- 2–5%
- 1–2%
- 0.5–1%
- 0.1–0.5%
- 0–0.1%
- Trend data unavailable
- Outside region

Declining HIV seroprevalence among pregnant women in selected urban areas of Africa: 1985–2002

- Kampala
- Addis Ababa
- Kigali

Sources: United States Census Bureau and WHO


HIV prevalence among adults in Latin America and the Caribbean, 1986–2001

Trend data unavailable

Outside region

AIDS cases notified by area in the European Region of WHO, 1995–2002

Number of deaths reported among people living with HIV/AIDS in western Europe, 1997–2001

New HIV infections notified by area, WHO European Region, 1995–2002

Changes in life expectancy in selected African countries with high and low HIV prevalence, 1950–2005

High HIV prevalence:
- Zimbabwe
- South Africa
- Botswana

Low HIV prevalence:
- Madagascar
- Senegal
- Mali


Source: UNAIDS, UNICEF and United States Agency for International Development.

Percentage of workforce lost to AIDS by 2005 and 2020 in selected African countries


Reduction in production in a household with an AIDS death, Zimbabwe

Crops | Reduction in output
--- | ---
Maize | 61%
Cotton | 47%
Vegetables | 49%
Groundnuts | 37%
Cattle owned | 29%

Document 3.3

Epidemiology of TB/HIV coinfection

Objectives of the presentation
- To describe the epidemiology of TB/HIV at the global, regional and national levels
- To discuss the implications of the epidemiological situation for developing collaborative TB/HIV activities at the country level (priorities, mechanisms, steps and procedures)

HIV fuels the TB epidemic (1)

1. Promotes progression to active TB among people with *Mycobacterium tuberculosis* infection
   - latent (most powerful risk factor)
   - recently acquired

   HIV-infected people coinfected with *Mycobacterium tuberculosis* – annual risk of developing TB = 3–13%

Incidence of TB among people infected with TB HIV-positive versus HIV-negative

HIV fuels the TB epidemic (2)

2. Increases rate of recurrent TB (due to only partial suppression from short-course chemotherapy or exogenous reinfection)

3. Increased TB cases among HIV-infected people pose an increased risk of TB transmission to the general community
Evidence of the interaction between TB and HIV epidemiology (1)

- Frequency of being HIV-positive among people with TB disease

Estimated HIV prevalence among people with TB disease, 2002

Estimated prevalence of HIV infection among people with TB disease per 100,000 population, 2000

Global total: 13 Million

Countries ranked by
a) the number of TB cases attributable to HIV (thousands) and b) the number of TB cases attributable to HIV per 100,000 population (rate): 1 to 15

Above the red line 80% of total number

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Number</th>
<th>Country</th>
<th>Number</th>
<th>Country</th>
<th>Rate</th>
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</thead>
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<td>Djibouti</td>
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<td>15</td>
<td>Cambodia</td>
<td>7.7</td>
<td>Ethiopia</td>
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<td></td>
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</tbody>
</table>
Countries ranked by
a) the number of TB cases attributable to HIV (thousands) and b) the number of
TB cases attributable to HIV per 100 000 population (rate): 16 to 30
Above the blue line: 90% of total

<table>
<thead>
<tr>
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<th>Rate</th>
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<td>6.5</td>
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<td>Burundi</td>
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<td>United Republic of Tanzania</td>
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<td>Ghana</td>
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<td>Cameroon</td>
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<td>20</td>
<td>Thailand</td>
<td>5.6</td>
<td>Burkina Faso</td>
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<td>21</td>
<td>Botswana</td>
<td>5.5</td>
<td>Congo</td>
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<td>22</td>
<td>Central African Republic</td>
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<td>Lesotho</td>
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<td>Democratic Republic of the Congo</td>
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<td>Gabon</td>
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<td>28</td>
<td>China</td>
<td>2.9</td>
<td>Ghana</td>
<td>64</td>
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<tr>
<td>29</td>
<td>Togo</td>
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<tr>
<td>30</td>
<td>United States</td>
<td>2.3</td>
<td>Angola</td>
<td>56</td>
</tr>
</tbody>
</table>

Evidence of the interaction between TB and HIV epidemiology (2)

- Frequency of being HIV-positive among people with TB disease
- High rates of TB in settings with a high HIV prevalence

Evidence of the interaction between TB and HIV epidemiology (3)

- Frequency of being HIV-positive among people with TB disease
- High rates of TB in settings with a high HIV prevalence
- Frequency of TB among people living with HIV/AIDS


To address the TB/HIV burden, reduce:

**HIV transmission**
Primary prevention, high-quality voluntary counselling and testing, antiretroviral therapy

**TB transmission**
Improved TB case-finding, DOTS

**TB reactivation among HIV-positive people**
Preventive therapy for TB

**HIV progression and TB incidence**
Antiretroviral therapy

---

Efficacy of six months of isoniazid preventive therapy among people living with HIV/AIDS during follow-up in Uganda


---

Antiretroviral therapy and the incidence of TB

- Highly active antiretroviral therapy reduced the incidence of active TB by 60–80% in two large observational studies in Europe and the United States (low-HIV, low-TB settings)\(^1\),\(^2\)
- In a setting in Brazil with high TB/HIV transmission, highly active antiretroviral therapy reduced the incidence of active TB by 80%\(^3\).


Unit 4: Principles for controlling TB and HIV/AIDS

Objectives

By the end of this unit, participants will be able:
1) to describe principles, priorities, transmission patterns, interventions, indicators and targets related to controlling TB;
2) to describe the main elements of prevention and care in controlling HIV/AIDS; and
3) to discuss the implications of these principles for implementing collaborative TB/HIV activities.

Methods

Plenary presentation
Plenary discussion

Materials

Document 4.1: Priorities, targets and interventions in controlling TB (slides)
Document 4.2: Prevention and care in controlling HIV/AIDS (slides)
Priorities, targets and interventions in controlling TB

Document No. 4.1

TB/HIV course for managers at the national and subnational levels

Objectives of the presentation

• To describe control priorities, transmission patterns, interventions, indicators and targets related to TB

• To discuss the implications of these principles have for implementing collaborative TB/HIV activities

Strategy for controlling TB: priorities

- a. Diagnose cases; b. Cure cases

  but there are cases known from clinical work, so:

- a. Cure known cases; b. Find more (smear-positive) cases

  How to know what is happening?

- Register, report and analyse data

Everything else (organization and planning, funding, technical guidelines, training, laboratory, drug management and advocacy) has value only as a function of the priorities.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Deaths prevented per 100 000 population</th>
<th>Smear-positive cases prevented per 100 000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United Republic of Tanzania</td>
<td>United Republic of Tanzania</td>
</tr>
<tr>
<td>Treatment of smear-positive*</td>
<td>35.0</td>
<td>46.1</td>
</tr>
<tr>
<td>Treatment of smear-negative*</td>
<td>7.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Total</td>
<td>42.6</td>
<td>51.2</td>
</tr>
<tr>
<td>Isoniazid preventive therapy</td>
<td>4.0</td>
<td>12.4</td>
</tr>
</tbody>
</table>

*Passive case-finding (the patient takes the initiative to report to health services)

TB manager: priorities (1)

1. Look at reports and analyse the results.
   - Is the programme curing people known to have TB?
   - Is the programme detecting most smear-positive people?

2. Look at the records and analyse the quality.
   - Are the data trustworthy?

3. Look at organization and inputs (data, interviews and field)
   - Are they compatible with international recommendations?
   - Are they adequate?
   - Can they be improved? How?

4. Capture concrete, relevant findings (patient focus).

5. Incorporate a few feasible actions for improvement, indicating the responsible level and time in your plan.

TB manager: priorities (2)

• Operational indicators can be measured routinely:
  – treatment outcome and case detection (targets)
  – laboratory network, workload and quality
  – health facility coverage as an indicator of access

• The manager may be asked how to measure the impact of the programme to achieve objectives:
  – reducing morbidity
  – reducing mortality
  – reducing transmission
  Without creating drug resistance.
**Targets of national TB control programmes**

- Curing 85% of the sputum smear–positive TB cases detected
- Detecting 70% of the estimated new sputum smear–positive TB cases

**TB interventions over time**

First sanatorium, Germany, 1857

First dispensary, Scotland, 1897

Koch, Mycobacterium tuberculosis, 1882

Drugs, 1945–1962

MMR, 1950–1980

Fox: ambulatory treatment, 1968

Styblo model, 1978

DOTS, 1991

Sanatoria

Outbreak management

Risk group management

Screening

BCG vaccination

Drug therapy

Socioeconomic improvement

**TB interventions over time: shortcomings**

Surplus of beds (staff)

Inefficient and costly case-finding

Erratic use of drugs

Insufficient funding, HIV

**Interventions**

1. **Diagnosis**
   - passive case detection (symptomatic)
   - active screening (high-risk groups)*

   *Only if symptomatic people can be cured.

2. **Treatment**
   
   Early start of adequate treatment*

   *Combination of drugs
   Sufficient duration
   Direct observation of rifampicin intake
Interventions

3. Environmental control

Dilution of infectious particles from the air*

*Ventilation
Filtration
Ultraviolet irradiation

4. Preventive chemotherapy

Contact tracing*

*Only if a good system is in place following the “stone-in-the-pond” principle

Interventions

5. BCG vaccination

Newborns*
*Only in high-incidence countries

High-risk groups*
*Only if there is no other means of protection

TB transmission (1)

The TB programme aims to reduce:

TB mortality
TB morbidity
TB transmission

TB transmission (2)

Questions:

• Which are the main factors?
• Can the factors be affected? How?
• Can the change be measured? How?

TB transmission (3)

PREVALENCE OF INFECTION X BREAKDOWN = TB INCIDENCE

Effect of:
– malnutrition and HIV?
– BCG vaccination and isoniazid preventive therapy?
TB transmission (4)

INCIDENCE X DURATION = PREVALENCE

Effect of:
- HIV?
- diagnosis and treatment?

TB transmission (5)

PREVALENCE OF SOURCES X CONTACT = TRANSMISSION (annual risk of TB infection)

Effect of:
- housing and population density?
- ventilation and ultraviolet lights?

TB transmission (6)

TB INCIDENCE X RISK OF DEATH = TB MORTALITY

Effect of:
- malnutrition and HIV?
- diagnosis and treatment?

TB transmission model (1)

IN ABSENCE OF INTERVENTIONS

1 SOURCE

10 INFECTIONS X 2 YEARS = 20

50% SMEAR POSITIVE

10% LIFETIME BREAKDOWN

20 INFECTED

TB transmission model (2)

IN ABSENCE OF INTERVENTIONS WITH HIV

2 SOURCES

1 SOURCE

10 INFECTIONS X 1 YEAR = 10

40% SMEAR POSITIVE

50% LIFETIME BREAKDOWN

10 INFECTED

TB transmission model (3)

IN ABSENCE OF INTERVENTIONS WITH MALNUTRITION, STRESS AND DIABETES

2 SOURCES

1 SOURCE

10 INFECTIONS X 2 YEARS = 20

50% SMEAR POSITIVE

20% LIFETIME BREAKDOWN

20 INFECTED
TB transmission model (4)
WITH TREATMENT

1 SOURCE

10 INFECTIONS
X 1 YEAR = 10

50% SMEAR
POSITIVE

10% LIFETIME
BREAKDOWN

10 INFECTED

TB transmission model (5)
WITH IRREGULAR TREATMENT

1.5 SOURCES

1 SOURCE

10 INFECTIONS
X 3 YEARS = 30

50% SMEAR
POSITIVE

10% LIFETIME
BREAKDOWN

30 INFECTED

TB transmission model (6)
WITH EARLY DIAGNOSIS OR GOOD TREATMENT

1 SOURCE

6.25 SOURCES

10 INFECTIONS
X 0.5 YEARS = 5

50% SMEAR
POSITIVE

10% LIFETIME
BREAKDOWN

5 INFECTED

TB transmission model (7)
WITH EARLY DIAGNOSIS OR GOOD TREATMENT
PLUS MALNUTRITION, DIABETES AND STRESS

1 SOURCE

6.5 SOURCES

10 INFECTIONS
X 0.5 YEARS = 5

50% SMEAR
POSITIVE

20% LIFETIME
BREAKDOWN

5 INFECTED

TB transmission model (8)
WITH EARLY DIAGNOSIS OR TREATMENT
PLUS HIV

1 SOURCE

1 X 10 INFECTIONS
X 0.5 YEARS = 5

40% SMEAR
POSITIVE

10% LIFETIME
BREAKDOWN

5 INFECTED
Document 4.2

Prevention and care in HIV/AIDS control
Document No. 4.2

TB/HIV course for managers at the national and subnational levels

Objectives of the presentation

• To describe the main elements of prevention and care in controlling HIV/AIDS

• To discuss the implications of these principles for implementing collaborative TB/HIV activities

Risks of transmission

<table>
<thead>
<tr>
<th>Sexual</th>
<th>Blood</th>
<th>Mother to Child</th>
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</thead>
<tbody>
<tr>
<td>Type of sexual activity</td>
<td>Contaminated blood and blood products</td>
<td>Stage of HIV infection of mother</td>
</tr>
<tr>
<td>Presence of genital infection</td>
<td>Contaminated surgical equipment</td>
<td>Viral load of HIV+ mother</td>
</tr>
<tr>
<td>Presence of lesions/blood</td>
<td>Sharing of injecting materials</td>
<td>Method of delivery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breastfeeding</td>
</tr>
</tbody>
</table>

Exposure category of reported AIDS cases: selected countries: mid-1990s

United Kingdom Spain Thailand Australia Brazil United States

Bisexual (Brazil only)

Heterosexual

Blood

Child

Injecting drug use

Other *

* Includes cases whose risk not reported or identified

Probability of HIV transmission per contact

(Royce, NEJM 1997, 336: 1072)

Number of secondary cases generated by each primary case of sexually transmitted infection

(number of sexual partners) × (transmission efficiency) × (duration of infective period)

\[ R_0 = c\beta D \]
Preventing HIV infection

Sexual

- Abstinence
- Number of partners
- Changing sexual behaviour (type of sexual activity)
- Barrier method (male-female condoms)
- Effective and timely treatment of sexually transmitted infections

Reported condom use with non-regular partners in selected districts in Uganda, 1996–2000

[Graph showing condom use percentages over years and districts]

Source: STD/AIDS Control Programme, Uganda

HIV prevalence and reported consistent condom use among female sex workers, Abidjan, Côte d'Ivoire, 1992–1998

[Graph showing HIV prevalence and reported consistent condom use percentages over years]


Incidence of sexually transmitted diseases in Thailand, 1982–2000

[Graph showing incidence of various STIs over years]

First case of AIDS in 1984
100% condoms initiated in 1989
100% condoms completed in 1992

Preventing HIV infection

Blood and blood products

- Avoid contaminated needles and syringes
- Avoid unnecessary blood transfusion
- Screen donated blood
- Take universal precautions
- Avoid reusing or sharing injecting equipment

Three essential elements for safe blood supply

1. There must be a national not-for-profit blood transfusion service answerable to the health ministry.
2. There must be a policy of excluding all paid or professional donors and encouraging voluntary (non-paid) donors. People are suitable donors only if they are considered to have a low risk of infection.
3. All donated blood must be screened for HIV as well as for hepatitis B and syphilis (and hepatitis C where possible). In addition, both donors and patients must be aware that blood should be used only for necessary transfusions.
Minimizing the risk of occupational HIV infection

Understand and take universal precautions with all patients, at all times, in all settings, regardless of the diagnosis.

Reduce unnecessary blood transfusions, injections, suturing, invasive procedures such as episiotomies and other questionable surgical procedures.

Make adequate supplies available to comply with simple standards of infection control, even in resource-constrained settings.

Adopt locally appropriate policies and guidelines for the proper use of supplies and for the education and supervision of staff.

Assess and reduce risks during regular supervision in health care settings.

Universal precautions

Careful handling and disposal of sharps

Handwashing with soap and water before and after all procedures; use of protective barriers such as gloves, gowns, aprons, masks and goggles for direct contact with blood and other body fluids

Safe disposal of waste contaminated with blood or body fluids

Proper disinfection of instruments and other contaminated equipment

Sterilization and disinfection

**Sterilization**: 1) steam under pressure (such as an autoclave or pressure cooker); 2) dry heat such as an oven.

**Disinfection**: boiling and chemical disinfection. Boil for 20 minutes at sea level and longer at higher altitudes. Chemical disinfection is not as reliable as sterilizing or boiling; it is to be used on heat-sensitive equipment or when other methods of decontamination are not available. Chemicals that inactivate HIV: 1) chlorine-based agents; 2) 2% glutaraldehyde; 3) 70% ethyl and isopropyl alcohol.

Strategies for prevention: harm reduction among injecting drug users

Major elements of harm reduction programmes

- Community outreach for injecting drug users
- Relevant, credible HIV/AIDS and drug education
- Increased access to means of behaviour change, such as needle and syringe programmes and condoms
- Drug substitution treatment
- Supportive policy, legislation and advocacy

HIV transmission does not occur at random

Reducing risk behaviour and vulnerability requires a strategic HIV/AIDS prevention mix
Preventing HIV infection
Preventing HIV infection among infants and young children

• Primary prevention
• Avoid unintended pregnancy (family planning)
• Specific interventions
• Care and support of HIV-infected mothers, their infants and partners

Strategies for prevention: mother-to-child transmission
1. Antiretroviral therapy and/or prophylaxis
Highly active antiretroviral therapy or short-course combination of zidovudine + lamivudine or nevirapine, or zidovudine alone or nevirapine alone

2. Safer infant delivery
Elective Caesarean section, avoiding invasive procedures

3. Infant feeding
• Avoiding all breastfeeding by HIV-infected mothers when replacement feeding is acceptable, feasible, affordable, sustainable and safe
• Otherwise, exclusive breastfeeding during the first months of life
• Breastfeeding should be discontinued as soon as feasible, taking into account the local circumstances, the individual women’s situation and the risks of replacement feeding
• When serostatus is unknown, exclusive breastfeeding is recommended

The offer and uptake of HIV testing are rate-limiting steps for preventing mother-to-child transmission of HIV

Underpinning principles of testing: the three C’s
I. confidential
II. accompanied by counselling
III. only be conducted with informed consent: both informed and voluntary.
UNAIDS/WHO recommend that the following four types of HIV testing be clearly distinguished:

**Client-initiated**
- Voluntary counselling and testing

**Provider-initiated**
- Routine offer of HIV testing by health care providers
- Diagnostic HIV testing
- Mandatory testing

Client-initiated voluntary counselling and testing
- Effective promotion of knowledge of HIV status among any population that may have been exposed to HIV through any mode of transmission
- Pre-testing counselling: on an individual basis or in group settings with individual follow-up
- Use of rapid tests; results are provided in a timely fashion for both HIV-negative and HIV-positive individuals.

Provider-initiated diagnostic HIV testing

**Indicated:**
- whenever a person shows signs or symptoms that are consistent with HIV-related disease or AIDS; and
- to aid clinical diagnosis and management.

This includes offering HIV testing to everyone with TB as part of their routine management.

Provider-initiated routine offer of HIV testing
- In sexually transmitted infection clinics – to permit counselling tailored to HIV status
- In the context of pregnancy – to facilitate an offer of antiretroviral prevention of mother-to-child transmission
- In clinical and community-based health service settings where HIV is prevalent and antiretroviral therapy is available

Essential conditions for provider-initiated HIV testing
- Referral to post-test counselling services emphasizing prevention
- Referral to health care and psychosocial support for those testing positive.
- Basic conditions of confidentiality, counselling and consent

Mandatory HIV screening
- All blood destined for transfusion or manufacture of blood products
- All procedures involving transfer of bodily fluids or body parts

UNAIDS/WHO do not support mandatory testing of individuals on public health grounds. Voluntary testing is more likely to result in behaviour change to avoid transmitting HIV to other individuals.
Mandatory HIV testing

Mandatory testing for immigration or military purposes should be conducted only when accompanied by counselling for both HIV-positive and HIV-negative individuals and referral to health care and psychosocial services for those who receive a positive test result.

HIV testing and counselling in the context of clinical TB care

- TB services are crucial entry points for universal access to antiretroviral therapy, in which:
  - All TB patients should be offered testing and counselling for HIV, which requires:
  - Collaboration in providing testing and counselling and antiretroviral therapy for people with TB disease who are HIV positive

Testing and counselling and TB services

- ProTEST revealed the viability and impact of linking testing and counselling with TB (and STI) detection and care
- A two-way lesson
  - Expand and strengthen HIV testing and counselling in the context of TB services
  - Strengthen the TB component in the context of HIV detection and management services

What is required?

- Advocacy to clarify policy on increasing access to testing and counselling (“the right to know”)
- Clarification of roles and responsibilities of health care workers and supporters
- Training
- Tests
- Funding

The rapid test

- Aim is to take the testing out of the lab, but:
  - Reference laboratories are a prerequisite
  - Who can perform the rapid test?
- Whole blood or serum specimen
- Ensure universal safety precautions
- Quality assurance, quality control, external quality assessment
Algorithm for use of HIV rapid tests in testing and counselling services

Pre-test education and/or counselling:
Ensure informed consent

First HIV rapid test (screening test)

Positive test result
Positive test result
NEGATIVE test result:
Counsel for negative result

Second HIV rapid test
Second HIV rapid test

POSITIVE test result:
Counsel for positive result

Negative test result

INCONCLUSIVE result:
Repeat testing in 6 weeks

Positive test result
NEGATIVE test result:
Counsel for negative result

Second HIV rapid test

POSITIVE test result:
Counsel for positive result

Negative test result

Report result as INCONCLUSIVE
REFER to reference laboratory

Care of people living with HIV/AIDS

• Clinical management
• Nursing care
• Palliative care
• Home care
• Counselling
• Social support

IMAI (Integrated Management of Adolescent and Adult Illness) materials

• Module on acute care: how to classify the illness and provide specific treatment based on signs and symptoms.

• Module on chronic HIV care with antiretroviral therapy: how to manage antiretroviral therapy at the primary health facility level.

• Module on palliative care: symptom management and end-of-life care

• Module on general principles of good chronic care: provide general principles of good chronic care, which can be applied, among other diseases, to HIV/AIDS

TB/HIV clinical manual

• This publication provides detailed clinical information on diagnosis and care of both TB and HIV/AIDS.

Scaling up antiretroviral therapy in resource-limited settings

• This publication provides guidelines for scaling up antiretroviral therapy in resource-limited settings based on a public health perspective.

• See Unit 6 (Document 6.3: Clinical management of HIV/AIDS) for further details on the care of people living with HIV/AIDS and antiretroviral therapy
Unit 5, part 1: The DOTS strategy for controlling TB

Objectives
By the end of this subunit, participants will be able:
1) to describe the DOTS strategy (the WHO-recommended strategy for controlling TB); and
2) to discuss the implications of the strategy for implementing collaborative TB/HIV activities.

Methods
Plenary presentation: The DOTS strategy
Plenary discussion

Materials
Document 5.1: The DOTS strategy (slides)
Document 5.1

The DOTS strategy for controlling TB

Document No. 5.1

TB/HIV course for managers at the national and subnational levels

Objectives of the sub-unit

- To describe the DOTS strategy (the WHO-recommended strategy for controlling TB)
- To discuss the implications of the strategy for implementing collaborative TB/HIV activities

History of DOTS

1980s: Styblo defines International Union against Tuberculosis and Lung Diseases model to control TB in the United Republic of Tanzania
1991: World Health Assembly establishes the 70/85 targets for 2000
1993: WHO declares TB as a global emergency
1994: New TB control framework
1995: DOTS launched as a WHO strategy
1998: London Committee, StopTB Partnership launched
2000: Amsterdam Declaration; targets in 2005
2001: Six working groups and Global Drug Facility launched
2001: Global Fund to Fight AIDS, Tuberculosis and Malaria, Millennium Development Goals and Washington Commitment
2002: Expanded framework DOTS brand name

The DOTS strategy

is a comprehensive strategy that ensures cure to most people with TB disease presenting to primary health care services.


DOTS

- Government commitment to ensuring sustained, comprehensive TB control activities
- Case detection by sputum smear microscopy among symptomatic patients self-reporting to health services
- Standardized short-course chemotherapy using regimens of 6–8 months for at least all confirmed smear-positive cases. Good case management includes directly observed therapy during the intensive phase for all new sputum-positive cases, the continuation phase of rifampicin-containing regimens and the whole re-treatment regimen.
- A regular, uninterrupted supply of all essential anti-TB drugs
- A standardized recording and reporting system that allows assessment of case-finding and treatment results for each patient and of the TB control programme performance overall

Aspects of DOTS

- Technical
- Logistical
- Operational
- Political

Aspects of DOTS

Technical
• Case detection and diagnosis
• Standardized short-course chemotherapy
• Direct observation during the initial phase of treatment (DOT)
• Recording and reporting of progress and cure

Justification for Directly Observed Treatment (DOT)
About one third of patients do not take medications regularly as prescribed
Perhaps one third of patients who do take medications make errors in self-administration.


Aspects of DOTS

Logistical
• Dependable drug and diagnostic supply
• Laboratories for microscopy
• Supervision and training of health workers

Aspects of DOTS

Operational
• Five basic core elements
• Flexibility in implementation

Aspects of DOTS

Political
• Government commitment
• Policy formulation
• Resource mobilization

Three phases to gradual DOTS implementation
1. A pilot project phase
2. An expansion phase
3. A maintenance phase
### A strategy for quality

<table>
<thead>
<tr>
<th></th>
<th>DOTS</th>
<th>Non-DOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection</td>
<td>Passive, risk group</td>
<td>Active, population screening</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Three smear + limited X-ray</td>
<td>Extensive X-ray or fluoroscopy</td>
</tr>
<tr>
<td>Category</td>
<td>Smear-positive, smear-negative, extrapulmonary, new, relapse, treatment after interruption, failure, transfer in</td>
<td>Weak</td>
</tr>
<tr>
<td>Treatment</td>
<td>Standardized, DOT</td>
<td>Individual, inadequate, centralized or specialized</td>
</tr>
<tr>
<td>Follow-up</td>
<td>2, 4, 6 or 2, 5, 8 smear</td>
<td>Not systematic, X-ray</td>
</tr>
<tr>
<td>Recording and reporting</td>
<td>Standard system</td>
<td>No records, not done</td>
</tr>
<tr>
<td>Cure</td>
<td>Reliable cohort</td>
<td>Unreliable outcome</td>
</tr>
<tr>
<td>Result</td>
<td>Success, cost-effective</td>
<td>Multi-drug resistance, expensive</td>
</tr>
</tbody>
</table>

DOTS is more than

- DOT
- Only five components (but: planning, budgeting, financing, training, supervision, mapping, staff management, data analysis and assessment)
- Strictly five components (but: flexible DOT in low incidence, culture and drug susceptibility testing, X-ray and DOTS Plus)

### Treatment outcomes by WHO region: DOTS versus non-DOTS

#### 2001 cohort

<table>
<thead>
<tr>
<th></th>
<th>DOTS</th>
<th>Non-DOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated successfully</td>
<td>80%</td>
<td>60%</td>
</tr>
<tr>
<td>Not treated successfully</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Not evaluated</td>
<td>10%</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>DOTS</th>
<th>Non-DOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR African</td>
<td>70%</td>
<td>50%</td>
</tr>
<tr>
<td>AMR Region of the Americas</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>EMR Eastern Mediterranean</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>EUR European</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>SEAR South-East Asia</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>WPR Western Pacific</td>
<td>20%</td>
<td>0%</td>
</tr>
</tbody>
</table>


### Dynamics of pulmonary TB in Peru

- **Case-finding:**
  - DOTS 1990: 220 cases per 100,000
  - Pulmonary TB declining 6% per year

### Progress towards the 70/85 targets

- **Treatment success rate:**
  - DOTs detection rate (%)
  - WHO-recommended global strategy to stop TB and reach the Millennium Development Goals for 2015
  - Pursuing expansion and enhancement of high-quality DOTS
  - Political commitment
  - Case detection through bacteriology
  - Standardized treatment, with supervision and patient support
  - Effective drug supply system
  - Monitoring system and evaluation of impact

Additional components:
1. Addressing TB/HIV and multi-drug-resistant TB
2. Contributing to strengthening health systems
3. Engaging all care providers
4. Empowering patients and communities
5. Enabling and promoting research
The anchor of the WHO-recommended global strategy: pursue expansion and enhancement of high-quality DOTS

- Political commitment with long-term planning, adequate human resources and expanded and sustainable financing to reach the targets set by the World Health Assembly and the Millennium Development Goals
- Case detection through bacteriology (microscopy first and then culture and drug susceptibility testing) and strengthening the laboratory network to facilitate detection of TB cases that are sputum smear-positive and -negative, drug-resistant and multi-drug-resistant
- Standardized treatment, under proper case management conditions, including DOT to reduce the risk of acquiring drug resistance, and patient support to increase adherence and the chance of cure
- An effective and regular drug supply system, including improving drug management capacity
- An efficient monitoring system for supervising and evaluating programmes, including measuring impact

The other five components of the WHO-recommended global strategy

2. Addressing TB/HIV, multi-drug-resistant TB and other special challenges by scaling up TB/HIV joint activities, DOTS Plus and other relevant approaches

3. Contributing to strengthening health systems by collaborating with other health programmes and general services in, for example, mobilizing the necessary human and financial resources for implementation and evaluating impact and by sharing and applying the achievements of TB control

4. Engaging all care providers, public, nongovernmental and private, by scaling up public-private mix approaches to ensure adherence to the international standards of TB care, with a focus on the providers for the poorest people

5. Empowering patients and communities by scaling up community TB care and creating demand through context-specific advocacy, communication and social mobilization

6. Enabling and promoting research to improve programme performance and for developing new drugs, diagnostics and vaccines

Quality TB care for all: ensure a high standard

- Patient care to cure and prevent TB is the ultimate goal of DOTS.
- The foundation of DOTS is effective patient care that alleviates suffering and controls and prevents TB in a community.
- A standard of care for TB exists already, and is evidence-based, but needs to be further promoted among all care providers.
- Simply, each care provider, public or private, should:
  - Diagnose TB quickly (bacteriological confirmation)
  - Treat TB properly (short-course chemotherapy and treatment support)
  - Report TB cases and treatment outcomes
- If all providers did the right thing, TB would be controlled.
Unit 5, part 2: Clinical management of TB

Objectives

By the end of this subunit, participants will be able:
1) to describe how the clinical management of TB is organized;
2) to state the principles of diagnosis, treatment and case management related to controlling TB; and
3) to discuss the implications of these principles for implementing collaborative TB/HIV activities.

Methods

Plenary presentation: Clinical management of TB
Exercise
Plenary discussion

Materials

Document 5.2: Clinical management of TB (slides)
Document 5.3: Introduction to the exercise for Unit 5
Clinical management of TB

Document No. 5.2

TB/HIV course for managers at the national and subnational levels

Objectives of the subunit

• To describe how the clinical management of TB is organized
• To state the principles of diagnosis, treatment and case management of TB
• To discuss the implications for collaborative TB/HIV activities

Organization of clinical management: objective

• To ensure that the drug regimen is regularly taken until cure

Organization of clinical management: factors

• Patient’s access
  – distance, time, cost, acceptability
• Regular drug supply
• Duration and periodicity of treatment
  – daily, intermittent
• Direct observation of treatment (DOT)
• Drug presentation
  – blister pack, fixed-dose combination, patient kit

Diagnosis versus case detection

• Diagnosis: health care activity performed on people consulting for symptoms or signs
• Main objective: curing the patient
• Uses all methods available, and covers all ages, sites and forms of the disease
• Is followed by information to the patient and prescription of treatment
• Treatment is patient’s responsibility

Diagnosis versus case detection

• Case detection: control programme activity, mainly to find sources of infection: smear-positive pulmonary cases
• Mainly by sputum smear examination in people with cough of long duration
• To shorten infectivity, reduce the risk of infection to the community, mortality and morbidity (contacts and high-risk groups)
• Must be followed by information to the person with TB and treatment (programme responsibility)
Case detection

- Active and passive are obsolete terms
- All diagnosis is passive (patient demand)
- All case detection is active
  - contacts
  - High-risk groups
  - suspects with cough in health facilities
- The key is correct selection of the target population and the method

Sputum smear examination

- Rapid results
- Correlates with infectivity
- Detects the main sources
- Without HIV, correlates with severity
- Technique allows decentralization
- Less costly than culture

Case detection

Sputum smear examination

- Three smears detect >60% of pulmonary TB
  >95% of the most infectious cases
- One smear detects ~75% of smear-positive, the second adds ~20% and the third ~5%
- Spot/overnight/spot maximizes results
- Reduces the number of visits (patient cost)
  - spot is immediately available
  - overnight is the best quality
- Error (disagreement) <5%

Sputum culture

- Allows confirmation of \( M. \) tuberculosis
- Detects lower concentration (100 bacteria/ml)
- One culture detects ~80% of culture (+)
- Does not identify most infectious cases
- Long delay until results available
- More complex than smears (central laboratory)

Radiology

- As a diagnostic tool
  - useful for differential diagnosis and site
  - rapid
  - requires expert interpretation
  - under-reading 20–30%, over-reading 1–20%
  - does not confirm diagnosis
  - less useful for TB among people living with HIV/AIDS
- As a monitoring tool
  - inter- and intrareader disagreement >20%
  - shadows (scars) do not mean active disease

Radiology

- As a case detection method
  - does not identify most infectious sources
  - ~12% of positive cases missed, ~37% unconfirmed

- In mass examination (MMR)
  - most cases detected through symptoms
  - does not detect incidence (75% of cases in Kolin District)
  - smear and culture (+) develop in <1 year
  - costly
  - leads to over-diagnosis
  - patients not motivated for treatment
**Case detection**

Smear (+) infect ~10 times more than (–)

Where to find sources (actively)?
- **In the community**
  - Prevalence is low (1–2 per 1000)
  - Does not detect the true incidence
  - Is costly and complex
  - Patients detected are not motivated for treatment
- **In high-risk groups**
  - Rationale if abnormal X-ray, contacts, prisons
  - If high prevalence (1–10%)
  - They are usually a small number

**Screening for cough in outpatient department**
- Cough is a common outpatient symptom
- Screening is rapid and inexpensive
- 3–10% of general adult outpatients may have cough of over two weeks’ duration
- 1–10% are smear-positive for TB
- Many attend for other reasons (including child vaccination)
- People with TB disease visit health facilities several times before diagnosis

**Case detection: conclusions**

- Smear examination: rapid detection of sources to reduce risk of infection (treatment monitoring)
- Culture: confirms TB disease (+ treatment monitoring)
- Radiology: helps clinical diagnosis (+ screening high-risk group)

Diagnosis of adult pulmonary TB should include smear results (positive or negative)

**Case detection: definitions**

- TB suspected: with symptoms or signs of TB
- Case of TB: a person bacteriologically confirmed or diagnosed by a clinician
- Definite case of TB: culture-positive or with two positive sputum smears

**Standardized TB treatment regimens**

<table>
<thead>
<tr>
<th>Diagnostic category</th>
<th>People with TB disease</th>
<th>Initial phase Daily or 3 times weekly</th>
<th>Continuation Daily or 3 times weekly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New sputum smear-positive (Hopeful), smear-negative pulmonary</td>
<td>Isoniazid + Rifampicin + Pyrazinamide + Ethambutol for 2 months (2 HRZE)</td>
<td>Isoniazid + Rifampicin for 6 months (6 HR) or Isoniazid + Ethambutol daily for 6 months (6 HE)</td>
</tr>
<tr>
<td>2</td>
<td>Previously treated sputum smear-positive, positive or not treated after failure (Aftercare after treatment)</td>
<td>Isoniazid + Rifampicin or Ethambutol + Pyrazinamide + Streptomycin (2 HREB) followed by Isoniazid + Ethambutol for 4 months (4 HR)</td>
<td>Isoniazid + Rifampicin + Ethambutol for 5 months (5 HRE)</td>
</tr>
<tr>
<td>3</td>
<td>New sputum smear-negative (other than category 1)</td>
<td>Isoniazid + Rifampicin + Pyrazinamide + Ethambutol for 6 months (6 HRE)</td>
<td>Isoniazid + Rifampicin for 4 months (4 HR) or Isoniazid + Ethambutol daily for 6 months (6 HE)</td>
</tr>
<tr>
<td>4</td>
<td>Chronic and multi-drug-resistant TB (2 or more sputum smear positive after supplemented treatment)</td>
<td>Specially designed nonstandard or individualized regimen</td>
<td>Specially designed nonstandard or individualized regimen</td>
</tr>
</tbody>
</table>
**Organization of treatment (1)**

**Initial phase alternatives**
- Hospitalization (daily treatment)
- Costly, helps patient but not family
- Food, rest, specialists not critical
- Allows direct observation of intake
- Ambulatory (daily or three times weekly)
- Accessible, acceptable, allows work
- Requires well-organized supplies, staff
- Requires organization of DOT

---

**Organization of treatment (2)**

**Initial phase alternatives**
- 3 or 4 drugs
  - severity, load of bacilli, HIV, resistance
- Fixed-dose combinations
  - ensures all-or-none intake
  - practical to define dosage by weight
- Patient kits
  - ensures full supply
  - facilitates ordering and distribution

---

**Organization of treatment (3)**

**Continuation phase alternatives**
- Isoniazid + rifampicin 6 months (observed) or isoniazid + ethambutol 8 months
  - Isoniazid + rifampicin more effective, mainly in HIV-positive people
- “Daily” or three times per week
  - Three times is better for observed treatment, less costly for patient, allows time for retrieval
- Fixed-dose combinations, blister packs and patient kits

---

**Treatment delivery process**

- Integrated activity including:
  - Appropriate regimen (quality proven, properly selected, right dose, given at the right time …)
  - This involves the drug management cycle, the training and capacity-building component of the programme and the health education (to the patient) component
  - The DOT component
Document 5.3

Introduction to the exercise for Unit 5

For this exercise, your facilitator will divide the participants into groups of three. The purpose of the exercise is to analyse the implementation of the DOTS strategy in “Fictitia”, identify gaps and propose activities to address the gaps.

- Read pages 140-148 in the report from Fictitia in Annex 1

- Analyse what the national TB control programme has done so far for implementing the DOTS strategy in the country in relation to WHO recommendations for a public health approach, with special focus on:
  1) organization of the TB diagnosis and treatment services;
  2) standardization of TB treatment regimens;
  3) provision of isoniazid preventive therapy; and
  4) collaboration between the TB and HIV/AIDS programmes.

- Identify immediate gaps in the programme (especially in terms of strengthening the capacity of the health system) and propose priorities for your planning.

- Prepare to present the group work in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Unit 6, part 1: Universal access to antiretroviral therapy

Objectives

By the end of this subunit, participants will be able:
1) to describe universal access to antiretroviral therapy (rationale, core premises and principles, targets, objectives, and components of its strategic framework); and
2) to discuss the implications of universal access to antiretroviral therapy for implementing collaborative TB/HIV activities.

Methods

Plenary presentation: Universal access to antiretroviral therapy
Plenary discussion

Materials

Document 6.1: Universal access to antiretroviral therapy (slides)
Document 6.2: UNAIDS/WHO policy statement on HIV testing (1)
Universal access to antiretroviral therapy

Document No. 6.1

TB/HIV course for managers at the national and subnational levels

Objectives of the subunit

• To describe universal access to antiretroviral therapy (rationale, core premises and principles, targets, objectives, and components of its strategic framework)

• To discuss the implications of universal access for implementing collaborative TB/HIV activities

Myths about antiretroviral therapy

• Developing countries are too poor to afford antiretroviral drugs.

• Antiretroviral drugs are too complicated.

• Infrastructure to support antiretroviral therapy is insufficient:
  » Poor drug procurement and distribution systems
  » No laboratories to monitor resistance

• Inadequate human resources
  » To prescribe and monitor antiretroviral therapy use

• Everything must be in place before any action.

Why now?

• Six million people need antiretroviral therapy
• Only 1 million were receiving it by mid-2005
• Antiretroviral therapy offers hope
  » Has decreased death rates by up to 80% in Europe and the Americas
  » Drug prices continue to fall
• Unprecedented global political commitment
• New sources of financing – US$ 20 billion on the table:
  » Multilateral sources: World Bank, Global Fund to Fight AIDS, Tuberculosis and Malaria
  » Bilateral funding: United States President's Emergency Plan for AIDS Relief, United Kingdom Department for International Development, GTZ and Sweden

Antiretroviral therapy coverage in low- and middle-income countries, June 2005

<table>
<thead>
<tr>
<th>Geographical region</th>
<th>Number of people receiving antiretroviral therapy</th>
<th>Coverage (low estimate – high estimate)</th>
<th>Estimated need</th>
<th>Estimated coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Saharan Africa</td>
<td>500 000 (425 000–575 000)</td>
<td>6 700 000 (11%)</td>
<td>6 700 000</td>
<td>11%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>290 000 (270 000–310 000)</td>
<td>465 000 (62%)</td>
<td>465 000</td>
<td>62%</td>
</tr>
<tr>
<td>East, South and South-East Asia</td>
<td>155 000 (125 000–185 000)</td>
<td>1 100 000 (14%)</td>
<td>1 100 000</td>
<td>14%</td>
</tr>
<tr>
<td>Europe and central Asia</td>
<td>20 000 (18 000–22 000)</td>
<td>160 000 (13%)</td>
<td>160 000</td>
<td>13%</td>
</tr>
<tr>
<td>North Africa and the Middle East</td>
<td>4 000 (2 000–4 000)</td>
<td>75 000 (5%)</td>
<td>75 000</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>970 000 (840 000–1 100 000)</td>
<td>6.5 million (15%)</td>
<td>6.5 million</td>
<td>15%</td>
</tr>
</tbody>
</table>
Number of people receiving antiretroviral (ARV) therapy in low- and middle income countries, end 2002 to mid-2005

High burden countries in need of antiretroviral treatment, situation as of November 2003

Estimated number of people receiving ARV therapy and percentage coverage in 20 countries with the highest unmet need, June 2005

*Extrapolated based on the total number of people aged 15+ years of estimated prevalence in 2004 assessed for provision of antiretroviral therapy in June 2005.
Deaths per 100 person-years


Mortality and use of antiretroviral therapy, 1995–2001

Deaths

Use of antiretroviral therapy

Deaths per 100 person-years

Percentage of patient-days on antiretroviral therapy

Widening gap in HIV/AIDS treatment

AIDS deaths in Africa

Introduction of highly active antiretroviral therapy

AIDS deaths in western Europe

Guiding principles

- Respect of ethical standards
- Universal and equitable access
- Paying attention to vulnerable groups
- Involving people living with HIV/AIDS
- Country in the driving seat
- Intensive partnership (countries, multilateral partners, bilateral partners, communities and the private sector)
- Innovation, learning and sharing

Prices (US$ per year) of a first-line antiretroviral regimen in Uganda, 1998–2001

Strategic framework

1. Global leadership, strong partnership, advocacy
2. Urgent, sustained country support
3. Simplified standardized tools to deliver antiretroviral therapy
4. Effective, reliable supply of medicines and diagnostics
5. Rapid identification and reapplication of new knowledge and successes

Accelerating prevention

- Treatment and prevention must be scaled up together or the epidemic will continue
- Availability of treatment can reduce stigma and facilitate prevention
- Routine testing increases the numbers of people who know their HIV status
- Treatment has the power to mobilize funds to scale up prevention
Influence of TB lessons

- Target-driven
- Public health approach
- Integrate prevention with treatment
- Brand name
- Partnerships
- Standardization and harmonization
- Link people with TB disease to drug flow
- and many more ……..

Treatment scale-up: countries that requested assistance as of March 2004

Technical assistance needs identified

<table>
<thead>
<tr>
<th>Field of technical assistance</th>
<th>% of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity-building (tools and training)</td>
<td>60%</td>
</tr>
<tr>
<td>Medicines and diagnostics (procurement, supply chain management, etc.)</td>
<td>56%</td>
</tr>
<tr>
<td>Monitoring and evaluation (patient-tracking system)</td>
<td>48%</td>
</tr>
<tr>
<td>Antiretroviral therapy (policy and equity issues)</td>
<td>44%</td>
</tr>
<tr>
<td>Human resources planning</td>
<td>32%</td>
</tr>
<tr>
<td>Testing and counselling</td>
<td>28%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>20%</td>
</tr>
<tr>
<td>Program communication and advocacy</td>
<td>16%</td>
</tr>
<tr>
<td>Coordination and management (underestimated)</td>
<td>15%</td>
</tr>
<tr>
<td>Fundraising</td>
<td>8%</td>
</tr>
<tr>
<td>Community involvement</td>
<td>5%</td>
</tr>
<tr>
<td>Partnership</td>
<td>5%</td>
</tr>
</tbody>
</table>

Conclusions

- The most challenging public health intervention
- Considerable additional opportunities for developing health systems
- Monitoring and evaluation systems need to be reinforced and tailored to country needs
Unit 6, part 2: Clinical management of HIV/AIDS

Objectives

By the end of this subunit, participants will be able:

1) to describe how the clinical management of HIV/AIDS is organized;
2) to review the clinical and laboratory eligibility criteria for antiretroviral therapy, antiretroviral drug regimens and side-effects; and
3) to discuss the implications of these principles for implementing collaborative TB/HIV activities.

Methods

Plenary presentation: Clinical management of HIV/AIDS
Exercise
Plenary discussion

Materials

Document 6.3: Clinical management of HIV/AIDS (slides)
Document 6.4: Exercise
Document 6.5: Scaling up antiretroviral therapy in resource-limited settings: treatment guidelines for a public health approach – 2003 revision (2)
Document 6.6: TB/HIV: a clinical manual (3)
Document 6.7: IMAI interim guidelines for first-level facility health workers (4)
Document 6.8: Participant manual for the WHO basic ART clinical training course (5)
Clinical management of HIV/AIDS

Document No. 6.3

TB/HIV course for managers at the national and subnational levels

Objectives of the subunit

• Describe the organization of clinical management of HIV/AIDS based on the WHO publication *Scaling up antiretroviral therapy in resource-limited settings: treatment guidelines for a public health approach*

• Review the clinical and laboratory eligibility criteria for antiretroviral therapy and the side effects

• Discuss the implications for collaborative TB/HIV activities

Principles of the revised guidelines

• Review and update of 2002 guidelines

• Simplified and standardized antiretroviral therapy guidelines for WHO’s “3 by 5” strategy to allow rapid scale-up of treatment

• Targets resource-limited settings

• For use by national AIDS control programmes and other policy-makers

Scaling up antiretroviral therapy in resource-limited settings - Key elements (1)

• Standardization and simplification of antiretroviral regimens and monitoring tools (facilitate initial treatment)

• Better definition of first- and second-line regimens
  - First line: regimens based on non-nucleoside reverse transcriptase inhibitors (five drugs and four possibilities)
  - Second line: regimens based on protease inhibitors (preferentially protease inhibitor boosted)

• Fixed-drug combinations and co-blister packs to improve adherence, limit emergence of drug resistance and facilitate logistics

Scaling up antiretroviral therapy in resource-limited settings - Key elements (2)

• Stavudine, lamivudine and nevirapine (d4T/3TC/NVP) is the most suitable first-line option for immediate start in very-low-resource settings (no laboratory, low cost, fixed-drug combinations available, suitable for different patient groups)

• Body weight, total lymphocyte count, haemoglobin colour scale, objective monitoring parameters (CD4 desirable, viral load not recommended)

• Symptom-directed laboratory evaluation of toxicity

Assessing eligibility for antiretroviral therapy

• Laboratory-confirmed HIV infection

• Clinical assessment of HIV infection and HIV disease (WHO staging system)

• Assessment of CD4 cell count

• Total lymphocyte count as a substitute indication for treatment (symptomatic HIV disease stage II)

• Assessment of viral load not considered necessary to start therapy
WHO staging system for HIV infection and disease in adults and adolescents (1)

WHO clinical stage 1: asymptomatic
- No weight loss
- No symptoms or only persistent generalized lymphadenopathy
- Performance scale 1: asymptomatic, normal activity

WHO clinical stage 2: mild disease
- Weight loss 5-10%
- Minor mucocutaneous manifestations, herpes zoster within past five years, recurrent upper respiratory infections (bacterial sinusitis or otitis)
- Performance scale 2: symptomatic, normal activity

WHO clinical stage 3: moderate disease
- Weight loss >10%
- Unexplained chronic diarrhoea or unexplained prolonged fever >1 month, oral candidiasis (thrush), oral hairy leukoplakia, pulmonary TB within last year, severe bacterial infections (such as pneumonia or pyomyositis)
- Performance scale 3: bedridden <50% of the day during past month

WHO clinical stage 4: severe disease (AIDS)
- HIV wasting syndrome
- Pneumocystis carinii pneumonia, toxoplasmosis of the brain, Cryptosporidium diarrhoea >1 month, extrapulmonary cryptosporidiosis, cytomegalovirus disease other than liver, spleen or lymph node (that is, retinitis), mucocutaneous or visceral herpes simplex virus infection, progressive multifocal leukoencephalopathy, any disseminated endemic mycosis, candidiasis of esophagus, trachea, bronchi, atypical Mycobacterium tuberculosis TB (disseminated or lungs), non-tuboid Salmonella septicemia, extrapulmonary TB, lymphoma, Kaposi’s sarcoma, HIV encephalopathy
- Performance scale 4: bedridden > 50% of the day during past month

WHO staging system for HIV infection and disease in adults and adolescents (2)

WHO clinical stage 3: moderate disease
- Weight loss >10%
- Unexplained chronic diarrhoea or unexplained prolonged fever >1 month, oral candidiasis (thrush), oral hairy leukoplakia, pulmonary TB within last year, severe bacterial infections (such as pneumonia or pyomyositis)
- Performance scale 3: bedridden <50% of the day during past month

Recommendations for initiating antiretroviral therapy among adults and adolescents with documented HIV infection (1)

If CD4 assay available:
- WHO stage IV disease, irrespective of CD4 count
- WHO stage III disease, consider using CD4 count <350 to assist decision-making
- WHO stage I or II if CD4 count <200

*In this situation, the decision to start or defer antiretroviral therapy should take into consideration not only the CD4 cell count and its evolution, but also concomitant clinical conditions.

Antiretroviral regimens and monitoring

- WHO-recommended first- and second-line antiretroviral regimens and issues considered for selection
- Steps recommended for clinical and laboratory monitoring of antiretroviral therapy

Recommendations for initiating antiretroviral therapy among adults and adolescents with documented HIV infection (2)

If CD4 assay not available:
- WHO stage IV disease, regardless of total lymphocyte count
- WHO stage III disease, regardless of total lymphocyte count
- WHO stage II or I disease with total lymphocyte count <1200

*Total lymphocyte count is only useful for people with symptoms. In the absence of a CD4 assay, one would not treat a stage I asymptomatic adult.
Considerations that informed the choice of first-line antiretroviral regimens

- Potency
- Side-effect profile
- Maintenance of future options
- Predicted adherence
- Availability of fixed-dose combinations (FDCs) of antiretroviral drugs
- Coexistent medical conditions (TB and pregnancy or a risk thereof)
- Concomitant medications
- Presence of a resistant viral strain
- Cost and availability
- Limited infrastructure
- Rural delivery

Recommended ARVs

<table>
<thead>
<tr>
<th>Nucleoside Reverse Transcriptase Inhibitors (NtRTIs)</th>
<th>Nucleoside Reverse Transcriptase Inhibitors (NtRTIs)</th>
<th>Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)</th>
<th>Protease Inhibitors (PIs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nucleoside Reverse Transcriptase Inhibitors (NtRTIs)</td>
<td>Nucleoside Reverse Transcriptase Inhibitors (NtRTIs)</td>
<td>Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)</td>
<td>Protease Inhibitors (PIs)</td>
</tr>
<tr>
<td>Zidovudine</td>
<td>Tenofovir</td>
<td>Nevirapine</td>
<td>Saquinavir</td>
</tr>
<tr>
<td>Didanosine</td>
<td>ddI</td>
<td>lamivudine</td>
<td>d4T</td>
</tr>
<tr>
<td>Stavudine</td>
<td>Abacavir</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WHO-recommended first and second-line antiretroviral therapy regimens for children

<table>
<thead>
<tr>
<th>First-line regimen</th>
<th>Second-line regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zidovudine (d4T) or zidovudine (ZDV) + didanosine (ddI)</td>
<td>abacavir (ABC) + lamivudine (3TC) + protease inhibitor: lopinavir with a ritonavir boost (LPV/r) or nevirapine (NVP), or saquinavir with a ritonavir boost (SQV/r) if weight &gt;25 kg</td>
</tr>
<tr>
<td>- Insufficient pharmacokinetic data on tenofovir in children to recommend it as an alternative nucleotide reverse transcriptase inhibitor, and there are concerns about the bone toxicity of tenofovir</td>
<td></td>
</tr>
</tbody>
</table>

Problems with second-line antiretroviral regimens

- Multiple resistance mutations
- High pill burden
- Limited experience
- Availability of tenofovir (TDF)
- Hypersensitivity to abacavir (ABC)
- Cold chain for ritonavir (RTV)
- High cost

First-line antiretroviral regimens

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Cross-reacting resistance</th>
<th>Usage in TB/HIV</th>
<th>Lab monitoring</th>
<th>Price (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stavudine + lamivudine + nevirapine 30–48/150/200 mg twice daily</td>
<td>Yes</td>
<td>Alternative regimen – preferably not due to rifampicin/nevirapine interaction</td>
<td>No</td>
<td>281–358</td>
</tr>
<tr>
<td>Stavudine + lamivudine + nevirapine 30/150/200 mg twice daily</td>
<td>Yes</td>
<td>Alternative regimen – preferably not due to rifampicin/nevirapine interaction</td>
<td>Yes</td>
<td>300–410</td>
</tr>
<tr>
<td>Stavudine + lamivudine + efavirenz 200–400 mg once</td>
<td>No</td>
<td>stavudine + lamivudine only</td>
<td>Yes</td>
<td>rifampicin-efavirenz interaction</td>
</tr>
<tr>
<td>Stavudine + lamivudine + efavirenz 30/150/200 mg twice daily + 600–800 mg once</td>
<td>No</td>
<td>stavudine + lamivudine only</td>
<td>Yes</td>
<td>rifampicin-efavirenz interaction</td>
</tr>
</tbody>
</table>

*Nevirapine 200 mg once daily for two-week lead-in. LDC: least developed countries.
Why fixed-drug combinations?

- Significant reduction of daily tablet doses
- Improves adherence and reduces the risk of the emergence of resistance
- Lower cost
- Facilitates logistics
- Facilitates use of supervised treatment strategies
- Reduces the production process time, enabling accelerated delivery

Fixed-dose combinations of antiretroviral drugs for use among HIV-positive adults and adolescents at the end of 2003

Three-drug fixed-dose combinations

<table>
<thead>
<tr>
<th>Combination</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stavudine (30 mg) + lamivudine (150 mg) + nevirapine (200 mg)*</td>
<td></td>
</tr>
<tr>
<td>Zidovudine (300 mg) + stavudine (150 mg) + nevirapine (200 mg)*</td>
<td></td>
</tr>
<tr>
<td>Zidovudine (300 mg) + lamivudine (150 mg) + efavirenz (300 mg)*</td>
<td></td>
</tr>
</tbody>
</table>

Two-drug fixed-dose combinations (for use with a third antiretroviral drug and for nevirapine lead-in dosing)

<table>
<thead>
<tr>
<th>Combination</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stavudine (30 mg) + lamivudine (150 mg)</td>
<td></td>
</tr>
<tr>
<td>Stavudine (40 mg) + lamivudine (150 mg)</td>
<td></td>
</tr>
<tr>
<td>Zidovudine (300 mg) + lamivudine (150 mg)</td>
<td></td>
</tr>
</tbody>
</table>

*Presentations with WHO prequalified manufacturers.

Special considerations among people with TB

- Rifampicin drug interactions with nevirapine and protease inhibitors
- Pill burden and adherence
- Drug toxicity
  - First-line recommendation: zidovudine or stavudine + lamivudine + efavirenz (600 or 800 mg/day)
  - Use of nevirapine questioned: increased liver toxicity? Poor efficacy due to 50% reduction in serum concentrations?
  - Zidovudine + lamivudine + abacavir is another alternative, especially in children
- The optimal time to start antiretroviral therapy among people with TB is unknown, but based on expert consensus:
  - CD4 <200: start TB therapy; recommend antiretroviral therapy as soon as TB therapy is tolerated (2–8 weeks)
  - CD4 200–350: start TB therapy; consider antiretroviral therapy
  - CD4 >350: start TB therapy; defer antiretroviral therapy
  - If no CD4 available: start TB therapy; recommend antiretroviral therapy, timing based on other clinical signs of immunodeficiency

Clinical and laboratory assessment of adults and adolescents on antiretroviral therapy

Evaluations at baseline:
- HIV disease stage
- Concomitant health conditions (TB, pregnancy, major mental disorder)
- Concomitant medication use (including traditional therapies)
- Body weight
- Patient readiness for therapy

Evaluations while on therapy:
- Assessment for signs and symptoms of potential drug toxicity
- Body weight
- Assessment of response to therapy
- Assessment of adherence
- Laboratory evaluation when clinically indicated (depends on the antiretroviral drug regimen in use)
### Basic laboratory monitoring for first-line antiretroviral regimens at community or district centre (levels 1 & 2)

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Laboratory test at baseline</th>
<th>Laboratory test on therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zidovudine + lamivudine + nevirapine</td>
<td>Not required</td>
<td>Symptom directed: haemoglobin, white blood cells, ALT</td>
</tr>
<tr>
<td></td>
<td>(CD4 desirable)</td>
<td>CD4 every 6–12 months if available</td>
</tr>
<tr>
<td>Stavudine + lamivudine + efavirenz</td>
<td>Desirable but not required</td>
<td>Symptom directed: haemoglobin, white blood cells, ALT</td>
</tr>
<tr>
<td></td>
<td>complete blood count, CD4</td>
<td>CD4 every 6–12 months if available</td>
</tr>
<tr>
<td>Zidovudine + lamivudine + efavirenz</td>
<td>Not required</td>
<td>Symptom directed: haemoglobin, white blood cells, ALT</td>
</tr>
<tr>
<td></td>
<td>(CD4 and pregnancy test</td>
<td>CD4 every 6–12 months if available</td>
</tr>
<tr>
<td></td>
<td>desirable)</td>
<td></td>
</tr>
</tbody>
</table>

*Obtain if symptoms of toxicity develop (not routine).

### Recommended tiered laboratory capabilities to monitor antiretroviral therapy

<table>
<thead>
<tr>
<th>Community health centre (level 1)</th>
<th>District hospital (level 2)</th>
<th>Regional referral hospital (level 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid HIV test</td>
<td>Rapid HIV test</td>
<td>Rapid HIV test</td>
</tr>
<tr>
<td>Haemoglobin (for zidovudine)</td>
<td>Second serological HIV rapid test method</td>
<td>Second serological HIV rapid test method</td>
</tr>
<tr>
<td>Pregnancy test (for efavirenz in women)</td>
<td>Complete blood count and differential CD4 count</td>
<td>Complete blood count and differential CD4 count</td>
</tr>
<tr>
<td>Sputum smear for TB (referral if microscopy not available)</td>
<td>Pregnancy test (for efavirenz in women)</td>
<td>Pregnancy test (for efavirenz in women)</td>
</tr>
<tr>
<td>Sputum smear for TB</td>
<td></td>
<td>Viral load testing</td>
</tr>
</tbody>
</table>

### Mean viral load, CD4 and weight evolution after antiretroviral therapy in South Africa (MSF project)

### Clinical and CD4 definition of treatment failure in adults and adolescents

<table>
<thead>
<tr>
<th>Clinical criteria</th>
<th>CD4 criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>New opportunistic infection or malignancy (must differentiate from immune reconstitution syndrome)</td>
<td>Return CD4 cell count to pre-therapy baseline or below without other cause</td>
</tr>
<tr>
<td>Recurrence of prior opportunistic infection (such as oral candidosis refractory to treatment)</td>
<td>≤50% fall from peak CD4 count on therapy without other cause</td>
</tr>
<tr>
<td>Onset or recurrence of WHO stage III conditions</td>
<td></td>
</tr>
</tbody>
</table>

*Recurrence of TB may not reflect progression as reinfection may occur; clinical evaluation necessary.

### Immune reconstitution

- Inflammatory response in first 1–2 months
- Clinical spectrum – fever, lymph node swelling, lung and central nervous system involvement
- With latent *Mycobacterium tuberculosis* infection, can develop active TB
- If active TB develops, it is not necessary to stop antiretroviral therapy.
Correlation between adherence and viral failure

People with viral failure (%)

<table>
<thead>
<tr>
<th>Adherence (%)</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;95</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>90–95</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>80–90</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>70–80</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>&lt;70</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
</tr>
</tbody>
</table>

P = 0.00001, r = –0.55


Darwinian Evolution

- Reproduction
- Survival of the Fittest
- Natural Selection
- Mutation
- Genetic Diversity

HIV resistance: underlying concepts

- Genetic variants are continuously produced as a result of high viral turnover and inherent error rate of reverse transcriptase.
  - Mutations at each codon site occur daily.
    - Survival depends on replication competence and presence of drug or immune selective pressure.
  - Double mutations in same genome also occur, but three or more mutations in the same genome is a rare event.
  - Numerous natural polymorphisms exist.

HIV drug resistance and developing countries

- The induction and spread of drug-resistant strains is an inevitable consequence of the introduction of antiretroviral therapy.
- This is not a reason to delay the introduction of effective therapy into developing countries.
- Strategies to prevent drug resistance should be introduced in parallel with antiretroviral therapy programmes.
- Drug resistance monitoring should be an essential component of antiretroviral therapy programmes.
- Technical issues need to be faced
  - Assay questions
  - Technology transfer

Adverse effects of antiretroviral drugs: class-specific effects

- **NsRTI**
  - Lactic acidosis
  - Mitochondrial toxicity
  - Lipodystrophy syndrome with long usage

- **NtRTI**
  - Mitochondrial toxicity

- **NNRTI**
  - Skin rash
  - Hepatitis

- **PI**
  - Lipodystrophy syndrome
  - Hyperlipidaemia
  - Hyperglycaemia

Specific drug side-effects

- **Zidovudine**: gastrointestinal intolerance, haematotoxicity (anaemia), muscle pains, headache
- **Stavudine**: peripheral neuropathy, pancreatitis, lipoatrophy
- **Nevirapine**: cutaneous hypersensitivity, hepatotoxicity
- **Efavirenz**: teratogenicity, mental disorder
- **Nelfinavir**: gastrointestinal intolerance, skin rash
- **Lopinavir**: gastrointestinal intolerance, hypercholesterolaemia and triglyceridaemia
First-line antiretroviral regimens: major side effects

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Major side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zidovudine + lamivudine + efavirenz</td>
<td>Anaemia; skin and liver toxicity; cannot use lamivudine with efavirenz</td>
</tr>
<tr>
<td>Stavudine + lamivudine + efavirenz</td>
<td>Lipoatrophy and neuropathy; central nervous system symptoms and teratogenicity</td>
</tr>
</tbody>
</table>

Simplified guidelines for antiretroviral therapy (HIV-1 infection)

First-line regimen

- ZDV/3TC/NVP
  - If severe anaemia
  - If severe CNS symptoms
  - Replace ZDV with ddI
  - Replace NVP with EFV
  - Replace EFV with NVP

Second-line regimen

- TDF + ddI + LPV/r
  - If severe dyslipidaemia
  - Replace LPV/r with SQV/r
  - Replace ddI with ABC
  - Replace LPV/r with SQV/r
  - Replace ddI with ABC

Simplified guidelines for antiretroviral therapy (HIV-1 infection)

First-line regimen

- d4T/3TC/NVP
  - If severe anaemia
  - If severe CNS symptoms
  - Replace d4T with ddI
  - Replace NVP with EFV
  - Replace EFV with NVP

Second-line regimen

- TDF + ddI + LPV/r
  - If severe dyslipidaemia
  - Replace LPV/r with SQV/r
  - Replace ddI with ABC
  - Replace LPV/r with SQV/r
  - Replace ddI with ABC

Simplified guidelines for antiretroviral therapy (HIV-2 infection)

First-line regimen

- ZDV/3TC/NVP
  - If severe anaemia
  - If severe CNS symptoms
  - Replace ZDV with ddI
  - Replace NVP with EFV
  - Replace EFV with NVP

Second-line regimen

- TDF + ddI + LPV/r
  - If severe dyslipidaemia
  - Replace LPV/r with SQV/r
  - Replace ddI with ABC
  - Replace LPV/r with SQV/r
  - Replace ddI with ABC
Document 6.4

Introduction to the exercise for Unit 6

For this exercise, your facilitator will divide the participants into groups of three. The purpose of the exercise is to analyze the provision of antiretroviral therapy services in Fictitia, identify gaps and propose activities to address these gaps.

- Read pages 140-148 in the report from Fictitia in Annex 1.

- Analyse what the national HIV/AIDS programme has done so far in the country in relation to WHO recommendations for a public health approach, with special focus on:
  1) eligibility for antiretroviral therapy;
  2) the skills available through the health system for delivering antiretroviral therapy services;
  3) the capacity of the laboratory network to comply with the requirements for antiretroviral therapy monitoring; and
  4) the management of people coinfected with TB/HIV.

- Identify gaps in the programme (especially in terms of strengthening the capacity of the health system) and propose priorities for your planning.

- Prepare to present the group work in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Unit 7: Drug management for controlling TB and HIV/AIDS

Objectives

By the end of this unit, participants will be able:

1) to discuss the various aspects of TB and HIV drug management using a logical framework;
2) to identify the differences between the procurement practices for TB and HIV/AIDS drugs; and
3) to identify gaps and priorities in the procurement of TB and HIV/AIDS drugs and to propose solutions to facilitate drug management in implementing collaborative TB/HIV activities.

Methods

Plenary presentation: Drug management for controlling TB and HIV/AIDS
Exercise
Plenary discussion

Materials

Document 7.1: Drug management for controlling TB and HIV/AIDS (slides)
Document 7.2: Exercise
Document 7.1

Drug management for controlling TB and HIV/AIDS
Document No. 7.1

TB/HIV course for managers at the national and subnational levels

Objectives of the unit

• To discuss the various aspects of TB/HIV drug management using a logical framework
• To identify the differences between procurement practices for TB and HIV/AIDS drugs
• To identify gaps and priorities in procurement of TB and HIV/AIDS drugs and to propose solutions to facilitate the implementation of collaborative TB/HIV activities in drug management

Pharmaceutical management cycle

Pharmaceutical management is the set of practices aimed at ensuring the timely availability and appropriate use of safe, effective and high-quality medicines and related products and services in any health care setting

Standardized treatment regimens and uninterrupted drug supply are basic principles of the DOTS Strategy

• Political commitment to programme, including normative, financial, planning, surveillance, training and supervision functions
• Case detection among people presenting with symptoms, using low-cost tools
• Standardized treatment with direct observation
• System for uninterrupted supply of high-quality TB drugs
• Recording and reporting system allowing accountability and outcome evaluation
TB drug supply

- There are key rules for estimating drug needs (based on previous consumption and/or on notifications)
- Regimens are standardized
- Fixed-drug combinations and/or blister packs are recommended
- The cost of one first-line regimen is about US$ 15
- The Global Drug Facility (GDF) is fully operational to support the procurement of quality drugs at the lowest possible price
- Low-cost second-line drugs are available for Green Light Committee (GLC) programmes

Management of HIV supplies Key principles

HIV-related drugs and diagnostics are ordinary supplies, but...

- Treatment is for life, and treatment interruptions (supply interruptions) have to be avoided at all cost.
- The supply system has to cater for the various treatment regimens and the changing proportions to which these are used over time.
- Antiretroviral drugs are relatively expensive and in high demand.
- Antiretroviral therapy receives high-level government and donor support and scrutiny.
- Antiretroviral drugs and test kits may require cold storage and often have short shelf lives.

Selection

- National consensus: a committee + guidelines (regimen, weight band, strength, loose or combined, box or blister or kit)
- Curative drugs: antiretroviral drugs, opportunistic infections, palliative care, AIDS-related cancer, opioid dependence
- Preventive drugs: isoniazid, co-trimoxazole
- HIV diagnosis kit
- CD4, viral load and drug resistance equipment

Notes:
- More people need to change regimens for HIV/AIDS (because of failure or side-effects) than for TB (30% versus 2%)
- Recommendations to shift from first- to second-line standardized for TB but are under constant revision for antiretroviral drugs

Procurement: quantification

- Fixed number of people receiving antiretroviral therapy per year
- Previous antiretroviral consumption times 2 – existing stock
- Previous activity: number of people receiving antiretroviral therapy times number of drugs per year times 2 – existing stock
- Morbidity: HIV prevalence rate times the population covered

Notes:
- Isoniazid preventive therapy must be quantified
- Number of HIV/AIDS cases is harder to predict than for TB, as quarterly TB reporting is systematized
- Lack of expertise for appropriate quantification of antiretroviral drugs during scaling-up (unlike TB drugs)
- Antiretroviral drugs and test kits have short shelf lives (eight months)
- Complex procurement due to multiple sources of funds
- Manufacturing and supplies unable to meet demand (shortages of stavudine and efavirenz)

Distribution

- Port clearing (document, testing and taxes)
- Storage: separate versus common, bulk versus shelves, expiry dates, temperature and accountability (register and bin card)
- Push or pull system (consumption, activity and order forms)
- Transport (frequency, separate versus common)

Notes:
- Small but sufficient stock to avoid expiry at the local level
- Coordinated TB/HIV drug distribution based on model used
- Security for antiretroviral drugs (more expensive) is a priority
- Cold chain needed for some antiretroviral drugs

Use

- Health unit provider or home delivery (by health staff)
- Drug provision (daily, weekly or monthly)
- Adherence
  - Recording (patient card, register and report)
  - DOT, weekly observation
  - Blister, kit or combined tablets
  - Patient education and support (psychological)
  - Patient cost (free of charge, contribution or unofficial)

Notes:
- Antiretroviral therapy is more expensive for families and programmes than TB (tests, drugs and programme)
- Continuous (lifetime) motivation necessary for antiretroviral therapy
- Accurate training on side-effects for Antiretroviral drugs necessary
- Irrational use of antiretroviral drugs leads to greater wasting of resources
- Lack of expertise in managing antiretroviral therapy and formulations for children
Procurement: tender

- Open tender: too long
- Restricted tender: market information on price and quality:
  - Indicative price: “Sources and prices of selected medicines and diagnosis for people living with HIV/AIDS” June 2003
  - Untangling the web of price reductions, December 2003
- Selected tender: national manufacturer or supplier, patented or generic

Procurement: generic versus originator (1)

- Doha Declaration 2001 (TRIPS and public health)
  - Flexibility, such as compulsory licensing, is introduced to ensure that the TRIPS Agreement does not prevent members from taking measures to protect public health.
- Government can allow companies to make patented product under licence without the consent of the patent owner for the domestic market (antiretroviral drugs only)

Procurement: generic versus originator (2)

WTO member government decision of 30 August 2003: the DOHA Declaration effectively limited the ability of countries that cannot make pharmaceutical products from importing cheaper generics from countries where pharmaceuticals are patented.

The decision allows any member country to export pharmaceutical products made under compulsory license.

Twenty-three countries announced that they would voluntarily refrain from using the system for import.

Making commodities available for countries: the WHO AIDS Medicines and Diagnostics Service

- The AIDS Medicines and Diagnostics Service (AMDS) was launched in December 2003 as the access and supply arm of the “3 by 5” Initiative.
- The objective of the AMDS is to expand access to high-quality, effective treatments for HIV/AIDS by improving the supply of antiretroviral drugs and diagnostics to developing countries.

Group of partners

- United Nations agencies
  - WHO (EDM, EHT, CPS and Essential Drugs units and HIV regional advisors in regional offices), UNICEF, World Bank, UNAIDS, UNFPA, UNDP
- Technical organizations and donor agencies
- Observers
  - MSF, United States Department of State (President’s Emergency Plan for AIDS Relief), United States Agency for International Development
- Secretariat
  - AMDS unit of Department of HIV/AIDS of WHO

What the AMDS offers

- Governments, NGOs: intelligence for making informed choices on procurement (prices of drugs and diagnostics and information on regulations and intellectual property rights)
- Governments, NGOs: capacity-building for managing procurement and supply
- Manufacturers: information necessary for forecasting volumes to be produced (not yet available)

Making commodities available for countries: the WHO AIDS Medicines and Diagnostics Service

- Technical country support for the pharmaceutical management cycle
- Guidance on selection of core antiretroviral drugs.
- Guidance on legal issues related to importing generic medicines
- Prequalification of drugs and diagnostics
- Information on product specification to be used in tenders
- Guidance and training in local production and quality assurance

What the AMDS can provide to countries
Introduction to the exercise for Unit 7

For this exercise, your facilitator will divide the participants into groups of three. The purpose of the exercise is to estimate the antiretroviral therapy and TB services needed in a given country or region, to identify gaps and propose activities to address these gaps.

- Select one specific country (or a region within the country) representing the group members.

- Provide figures (or estimates) on:
  1) the number of people infected with HIV and coinfected with TB and HIV living in the country (or region);
  2) the number of people eligible for antiretroviral therapy in the country (or region) and the number of people requiring TB treatment and isoniazid preventive therapy;
  3) the number of people infected with HIV and coinfected with TB and HIV currently receiving antiretroviral therapy, TB treatment regimen and isoniazid preventive therapy in the country (or region);
  4) the target year for universal access to antiretroviral therapy in the country (or region);
  5) the number of people receiving antiretroviral therapy at the end of the year in the country (or region); and
  6) the number of people receiving isoniazid preventive therapy at the end of the year in the country (or region).

- Discuss the figures or estimates.

- List three priority interventions to improve the pharmaceutical management cycle to achieve universal access to antiretroviral therapy in the country (or region).

- Prepare to present the group work in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Unit 8: The Interim policy on collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:
1) to describe the main elements of the interim policy on collaborative TB/HIV activities; and
2) to discuss the main problems, constraints and opportunities found in implementing collaborative TB/HIV activities at the country level.

Methods

Plenary presentation: The *Interim policy on collaborative TB/HIV activities*
Exercise
Plenary discussion

Materials

Document 8.1: The Interim policy on collaborative TB/HIV activities (slides)
Document 8.2: Exercise
Document 8.3: *Interim policy on collaborative TB/HIV activities* (6)
Document 8.4: *Guidelines for implementing collaborative TB and HIV programme activities* (7)
Document 8.5: *Strategic framework to decrease the burden of TB/HIV* (8)
**Document 8.1**

### The Interim policy on collaborative TB/HIV activities

**Document No. 8.1**

TB/HIV course for managers at the national and subnational levels

### Objectives of the unit

- To describe the main elements of the interim policy on collaborative TB/HIV activities
- To discuss the main problems, constraints and opportunities found in implementing collaborative TB/HIV activities at the country level

### Background on AIDS and ProTEST

- 1981: AIDS reported in the United States
- 1984: AIDS in Africa
- 1984: TB in AIDS
- 1989+: Descriptive studies of HIV and TB
- 1991: Thiacetazone and HIV
- 1992: HIV-related mortality, relapse and morbidity in TB
- 1997: ProTEST and other projects conceived
- 2000: Interventions defined

### ProTEST

- WHO initiative to promote testing for HIV using voluntary counselling and testing as an entry point to a range of prevention and care interventions related to TB/HIV and sexually transmitted infections
- Objective of ProTEST:
  To develop a more cohesive response to TB in settings with high HIV prevalence through collaboration between TB and HIV control programmes.

### ProTEST Interventions:

- Collaboration between stakeholders and the health service
- Improved access to high-quality voluntary counselling and testing
- Intensified case-finding and treatment of active TB among people living with HIV/AIDS
- Isoniazid preventive therapy to treat latent TB
- Co-trimoxazole preventive therapy to reduce morbidity and mortality from opportunistic infections
- HIV prevention (including condoms and management of sexually transmitted infections)
- Improved clinical care for people living with HIV/AIDS

### ProTEST Results:

- TB/HIV collaboration was feasible
- Improved human resources capacity
- Increased access to high-quality voluntary counselling and testing (VCT) services
- Improved TB case-finding
- Isoniazid preventive therapy (IPT) and co-trimoxazole preventive therapy (CPT) introduced
- HIV prevention activities introduced or enhanced
- Community involvement developed
- Profile of TB/HIV raised
ProTEST

Lessons learned:
- Involvement of all stakeholders is critical
- Additional staff are essential
- Technical support is essential
- More operational research and cultural understanding are required to increase adherence to preventive treatments
- Standard monitoring and evaluation tools are needed
- Joint TB/HIV work sets stage for antiretroviral therapy

Rationale for joint TB/HIV activities
- HIV drives TB incidence and mortality in areas with a high HIV prevalence: 11–50% of people living with HIV/AIDS die from TB
- DOTS alone is insufficient to control TB in these areas
- Joint TB/HIV interventions, jointly delivered, are needed to control HIV-associated TB, expand DOTS and control HIV
- TB control system can be a major partner for delivery of antiretroviral therapy and thus for “3 by 5”, the United States President’s Emergency Plan for AIDS Relief etc.

TB is not just part of the problem; it is also part of the solution

Principles
- “Two diseases, one patient”
  - Patient focuses in care delivery for both diseases at the same time
- There is an ongoing catastrophe, therefore:
  - No more “projects”
  - Immediate scale up of what works
  - Revise as more evidence becomes available
- No separate programme
  - Collaborative activities add to existing strategies for controlling TB and HIV/AIDS
- Policy needs to be global

Sequence of TB/HIV policy development
- Builds on field experience with ProTEST (Malawi, South Africa and Zambia) and other TB/HIV pilot projects (Botswana, Côte d’Ivoire, Kenya, Rwanda, Thailand, etc.)
- Complements the Strategic framework to decrease the burden of TB/HIV, which provides a complete rationale and mentions what could be done
- Complements the Guidelines for implementing collaborative TB and HIV programme activities, which show how to organize at the national and district levels

The Interim policy on collaborative TB/HIV activities states what countries should do

Process for the interim policy
- Under the auspices of the Global TB/HIV Working Group
- Iterative drafting process by:
  - technical experts from TB and HIV
  - health management policy-makers,
  - people living with HIV/AIDS and their advocates,
  - international and national TB and HIV programme managers and donor agencies

Goal and objectives
Goal
To decrease the burden of TB and HIV in dually affected populations

Objectives
A. to establish the mechanisms for collaboration between TB and HIV/AIDS programmes
B. to decrease the burden of TB among people living with HIV/AIDS
C. to decrease the burden of HIV in Tuberculosis patients
Collaborative TB/HIV activities

A. Establish mechanisms for collaboration
1. Set up coordinating bodies for TB/HIV activities at all levels
2. Conduct surveillance of HIV prevalence among tuberculosis patients
3. Carry out joint TB/HIV planning
4. Conduct monitoring and evaluation

B. Decrease the burden of TB among people living with HIV/AIDS
1. Establish intensified TB case-finding
2. Introduce isoniazid preventive therapy
3. Ensure TB infection control in health care and congregate settings

C. Decrease the burden of HIV among tuberculosis patients
1. Provide HIV testing and counselling
2. Introduce HIV prevention methods
3. Introduce co-trimoxazole preventive therapy
4. Ensure HIV/AIDS care and support
5. Introduce antiretroviral therapy

Thresholds for collaborative TB/HIV activities

<table>
<thead>
<tr>
<th>Category</th>
<th>Recommendation</th>
</tr>
</thead>
</table>
| Category I | Countries with national adult HIV prevalence rate ≥1% OR Countries in which national HIV prevalence among tuberculosis patients is ≥5%.
| Implement all recommended collaborative TB/HIV activities |
| Category II | Countries with national adult HIV prevalence rate below 1% AND Administrative areas that have adult HIV prevalence rate ≥1% |
| Implement all recommended collaborative TB/HIV activities in administrative areas with HIV prevalence ≥ 1% and in other areas as in Category III |
| Category III | Countries with national adult HIV prevalence rate below 1% AND No administrative areas with adult HIV prevalence rate ≥ 1% |
| HIV surveillance among TB patients Activities to decrease the burden of TB in people living with HIV/AIDS (with special emphasis on high HIV risk groups) |
Target for collaborative TB/HIV activities

- By 2005, all category I and II countries will have established at least a national TB/HIV coordinating body.
- By 2007, all category I and II countries will have developed joint TB/HIV implementation plans.
- By 2007, all category I and II countries will have established a system for HIV surveillance among TB patients.

Usual position

Joint TB/HIV activities

Keep in mind:

- It is high time for TB and HIV/AIDS programmes to work together
- Much synergy is possible
- Many missed opportunities would be prevented
- Universal access to antiretroviral therapy, Stop TB strategy and other approaches and initiatives provide many opportunities for TB/HIV collaboration – we must take advantage of them
Document 8.2

Introduction to the exercise for Unit 8

For this exercise, your facilitator will divide the participants into four groups. The purpose of the exercise is to review in detail the activities proposed in the *Interim policy on collaborative TB/HIV activities*.

- Each group is assigned three or four activities from the *Interim policy on collaborative TB/HIV activities* as follows:
  - Group 1: A1; B2; B3; C5;
  - Group 2: A2; B1; C4;
  - Group 3: A3, C3; and
  - Group 4: A4; C1; C2.
- Familiarize yourself with the assigned activities.
- Discuss within the group and provide an example of how each of the assigned activities could be implemented in one of the countries or regions represented in the group.
- Brainstorm within the group on the constraints and opportunities found in implementing collaborative TB/HIV activities at the country level.
- Prepare to present the group work in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Unit 9: Recording and reporting for the implementation of collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:

1) to describe how recording and reporting is organized for controlling TB;
2) to describe how recording and reporting is organized for controlling HIV/AIDS; and
3) to discuss relevant country experiences on TB/HIV recording and reporting and how existing recording and reporting systems can be harmonized to serve the implementation of collaborative TB/HIV activities.

Methods

Plenary presentations: Recording and reporting for controlling TB and HIV/AIDS
Plenary discussion

Materials

Document 9.1: Recording and reporting for controlling TB (slides)
Document 9.2: Recording and reporting for controlling HIV/AIDS (slides)
Document 9.3: TB and HIV/AIDS forms (handout)
Document 9.1

Recording and reporting for controlling TB
Document No. 9.1

TB/HIV course for managers at the national and subnational levels

Objectives of the presentation

- To describe how recording and reporting are organized for controlling TB
- To discuss relevant country experiences on TB/HIV recording and reporting and how existing recording and reporting systems can be harmonized to serve the implementation of collaborative TB/HIV activities

TB determinants and case definitions

Core package for TB recording and reporting

<table>
<thead>
<tr>
<th>Registers and forms</th>
<th>Content and purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment card (TB 01)</td>
<td>Individual record of diagnosis, treatment and follow-up of each TB patient for proper care management at treatment unit</td>
</tr>
<tr>
<td>Identity card (TB 02)</td>
<td>Personal record of diagnosis, treatment and follow-up for information to the TB patient</td>
</tr>
<tr>
<td>District register (TB 03)</td>
<td>Record of diagnosis, treatment and follow-up of each TB patient in the district or equivalent catchment area</td>
</tr>
<tr>
<td>Laboratory register (TB 04)</td>
<td>Record of each sputum smear and bacillus microscopy examination at laboratory</td>
</tr>
<tr>
<td>Sputum examination request/report form (TB 05)</td>
<td>Request for sputum and bacillus microscopy to laboratory with report of results to requesting unit</td>
</tr>
<tr>
<td>Laboratory request/report form (TB 06)</td>
<td>Request for laboratory culture or susceptibility test to laboratory, with report of results to requesting unit</td>
</tr>
<tr>
<td>Quarterly report on case-testing (TB 07)</td>
<td>Consolidated quarterly report of the TB cases (new pulmonary TB+, new extra-pulmonary TB+ and new pulmonary TB- cases registered in a quarter)</td>
</tr>
<tr>
<td>Quarterly report on treatment results (TB 08)</td>
<td>Consolidated quarterly report of final treatment results in the new pulmonary TB+, other pulmonary TB+ and new pulmonary TB- cases registered in a quarter</td>
</tr>
<tr>
<td>Referral/transfer form (TB 09)</td>
<td>Forms to refer or transfer person with TB to other card</td>
</tr>
</tbody>
</table>

An additional register for TB suspects and forms to evaluate sputum smear conversion had been recently introduced.

Core package for TB recording and reporting

- Laboratory request/report (TB 04)
- Treatment card (TB 01)
- Referral/transfer form (TB 09)
- Identity card (TB 02)
- Quarterly report 
  - New cases and outcomes (TB 08)
  - Previous treatment outcome (TB 08)

Monitoring the programme at the central level

Monitoring the programme at the district level

Indicators for analysing TB case-finding

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Calculation</th>
<th>Some possible interpretations</th>
</tr>
</thead>
<tbody>
<tr>
<td>New pulmonary TB+ notifications (per 100,000 population)</td>
<td>New pulmonary TB+ registered in one year / Total population</td>
<td></td>
</tr>
<tr>
<td>New extra-pulmonary TB+ notifications</td>
<td>New extra-pulmonary TB+ registered in one year / Total population</td>
<td></td>
</tr>
<tr>
<td>New TB+ (new or relapse) cases (per 100,000 population)</td>
<td>New TB+ (new or relapse) cases registered in a quarter / Total population</td>
<td></td>
</tr>
<tr>
<td>Proportion of total pulmonary TB who are smear positive (percentage)</td>
<td>Pulmonary TB (both +ve and -ve) in one quarter / Total pulmonary TB in one quarter</td>
<td></td>
</tr>
<tr>
<td>Proportion of total smear positive pulmonary TB who are sputum positive (percentage)</td>
<td>Pulmonary TB (sputum positive) in one quarter / Total smear positive pulmonary TB in one quarter</td>
<td></td>
</tr>
</tbody>
</table>

Indicators for analysing TB treatment results

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Calculation</th>
<th>Some possible interpretations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smear conversion rate (percentage)</td>
<td>New pulmonary TB+ in one quarter* who became negative after intensive phase treatment times 100 New pulmonary TB+ registered in the same quarter</td>
<td>Less than 85%: absence of follow-up sputum smear examination, poor DOT, excess of deaths and transfers out, poor investigation about previous TB treatment, drug resistance or poor reporting</td>
</tr>
<tr>
<td>Cure rate (percentage)</td>
<td>New pulmonary TB+ cured in one quarter² times 100 New pulmonary TB+ registered in the same quarter</td>
<td>Less than 85% cure: as above</td>
</tr>
<tr>
<td>Programme success rate (percentage)</td>
<td>New pulmonary TB+ in one quarter cured and completed treatment³ times 100 New pulmonary TB+ registered in the same quarter</td>
<td>Less than 85% (target for TB control): poor overall programme performance</td>
</tr>
</tbody>
</table>

*The same is applied to relapse of pulmonary TB+. ²The same is applied to other treatment result rates in new pulmonary TB+ and relapse pulmonary TB+. ³The same is applied to calculate the other rates in new pulmonary TB+ and relapse pulmonary TB+.

Cohort analysis

In a foot race: A group of people start together a 10-km foot race ➔ How many people completed the race?

In a TB programme: A group of people with TB disease start treatment within one quarter ➔ How many patients completed this treatment?

Results expected in a good TB programme

- Success rate >85%
- Death rate <5%
- Unsatisfactory outcomes (default or failure) <10%

TB forms and HIV/AIDS (1)

Additional information that will have to be captured in TB recording and reporting forms:
- Offered HIV test
- Counsellled and tested
- Test result positive or negative
- Given co-trimoxazole
- Referred for HIV care and support
- Given antiretroviral therapy during or at the end of TB treatment

TB forms and HIV/AIDS (2)

- **Main issue**: confidentiality of HIV test results in the TB register.
- **The response**: the TB register already contains confidential patient information that should be treated with the same level of confidentiality as HIV results.
- **The solution** is not to hide HIV results but rather to improve the confidentiality of the TB register.
Objectives of the presentation

- To describe how recording and reporting is organized for controlling HIV/AIDS
- To discuss relevant country experiences on TB/HIV recording and reporting and how existing recording and reporting systems can be harmonized to serve the implementation of TB/HIV collaborative activities

Patient tracking data serve multiple needs

- Direct patient care
  - Clinical team caring for group of patients
  - Facilitates shift from acute to chronic care
- Monitoring drug supply and preparing facility drug orders
- Summarizing and reporting data to meet district and national programme needs and to track progress to targets

Contribution of patient tracking to the milestones on universal access to antiretroviral therapy

<table>
<thead>
<tr>
<th>Level of monitoring and evaluation</th>
<th>Milestone</th>
<th>Data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Children, women and men with advanced HIV receiving antiretroviral therapy</td>
<td>Country reports, site reporting, industry, nongovernmental organizations, patient tracking – current on antiretroviral therapy (numerator), once established</td>
<td></td>
</tr>
<tr>
<td>11. Survival on antiretroviral therapy</td>
<td>Patient tracking, once established</td>
<td></td>
</tr>
</tbody>
</table>

TB experience …

- Standardized treatment card
- Standardized register
- Globally standardized definitions
- Deliberately constrains the data collected
- Based on long experience
- Recently, new TB/HIV indicators
- Disease-specific (vertical)

HIV care (pre–antiretroviral therapy) register

To record data on:
- Patients’ data
- Date of HIV diagnosis
- Isoniazid prophylaxis
- Co-trimoxazole prophylaxis
- Fluconazole prophylaxis
- TB treatment
- Pregnancy
- Clinical staging system
- Outcome
  - antiretroviral therapy
  - lost to follow-up
  - death

Provides a link with antiretroviral therapy register:
- Date eligible
- Reason for eligibility
- Date eligible and ready
- Date antiretroviral therapy started
- Unique antiretroviral therapy number
**Antiretroviral therapy register**
(linked with pre-antiretroviral therapy register)

To record data on:

- Status when antiretroviral therapy starts
  - Clinical
  - Immune
- Isoniazid prophylaxis
- Co-trimoxazole prophylaxis
- TB treatment
- Pregnancy
- Antiretroviral therapy regimens
  - First line
  - Second line
  - Reason for change

Follow-up:

- Status at end of month
  - 24 months at least
- Functioning and CD4
  - 0, 6, 12 and 24 months

---

**Consistent definitions for why an antiretroviral drug or regimen is changed**

1. Toxicity or side-effects
2. Pregnancy
3. Risk of pregnancy
4. New TB
5. New drug available
6. Drug out of stock
7. Other reason (specify)
8. Clinical treatment failure
9. Immune failure
10. Viral failure

---

**Consistent definitions**

**Follow-up status (outcomes)**

- Alive and on antiretroviral therapy
  - Specify current regimen
- Alive and stopped antiretroviral therapy
- Alive and restart
- Lost (not the same as TB default)
- Dead
- Transfer in or transfer out with records

---

**Consistent definitions for why antiretroviral therapy is stopped – reason codes**

1. Toxicity or side-effects
2. Pregnancy – planned treatment interruption
3. Treatment failure
4. Poor adherence
5. Illness or hospitalization
6. Drug out of stock
7. Patient lacked financial resources
8. Other patient decision
9. Planned treatment interruption (record reason, such as early pregnancy)
10. Other

---

**HIV care registers**

Allow the measurement of:

- Medically eligible people
- Eligible and ready people
- Start of first-line therapy

---

**Cohort analysis report:**

Receiving antiretroviral therapy for 6 months, 12 months, yearly

- Proportion working, ambulatory or bedridden
- Proportion alive and receiving antiretroviral therapy at 6 and 12 months (survival indicator)
- Proportion still on a first-line regimen
- Proportion still on an original first-line regimen
- Proportion who have substituted an alternative first-line regimen
- Proportion switched to a second-line (or higher) regimen
- Median CD4 count (optional)
Cohort analysis report:
Receiving antiretroviral therapy for 6 months, 12 months, yearly

- Optional:
  - Reasons for switching regimen
  - Reasons for stopping

Malawi experience

Antiretroviral therapy patient master card
Every three months, update the register from the master card data

Antiretroviral therapy facility register
Every three months, perform quarterly cohort analysis from the updated register

Antiretroviral therapy patient cohort analysis

Cohort analysis

- Every three months, each cohort is analysed for its treatment outcomes
  [this allows survival analysis to be conducted]

- Every three months, all the cohort case numbers and treatment outcomes are combined together
  [this allows cumulative up-to-date data]

Antiretroviral therapy quarterly cohort analysis form

NAME OF TREATMENT UNIT_____________ Thyolo DH
COHORT [specify the year and the quarter] __________ 2003, Q2
Total number of patients initially registered in the cohort____ 116
Year in which evaluation is taking place;_______________________ 2003
Date on which evaluation is taking place _______________________ 10 July

Of the total number registered in the cohort:

Number
- Alive and on antiretroviral therapy____ 106 (91%)
  - [Alive and on first-line regimen____ 101]
  - [Alive and on alternative first-line regimen____ 5]
  - [Alive and on second-line regimen____ 0]
- Dead_______________________ 6
- Defaulted___________________ 0
- Stopped___________________ 4
- Transferred out to another treatment unit__________ 0

Of those alive:

Number
- Ambulatory_______________________ 106
- At work__________________________ No information
- With side-effects__________________ 14
- With pill count in bottle 8 or less_____ 63/63

(Note: pill count in bottle 8 or less is equivalent to 95% adherence)
Document 9.3

Course organizers will hand out the type of TB and HIV forms used in the country or area where the course is conducted.
Unit 10: Surveillance of HIV prevalence among people with TB disease

Objectives

By the end of this unit, participants will be able:
1) to describe surveillance of HIV prevalence among people with TB disease; and
2) to discuss the main problems, constraints and opportunities for implementing coordinated TB/HIV surveillance.

Methods

Plenary presentation: Surveillance of HIV prevalence among people with TB disease
Exercise
Plenary discussion

Materials

Document 10.1: Surveillance of HIV prevalence among people with TB disease (slides)
Document 10.2: Exercise
Document 10.3: Guidelines for HIV surveillance among tuberculosis patients (9)
Surveillance of HIV prevalence among people with TB disease

Objectives of the unit

- To describe surveillance of HIV prevalence among people with TB disease
- To discuss the main problems, constraints and opportunities for implementing coordinated TB/HIV surveillance

Guidelines for HIV surveillance among tuberculosis patients, 2nd edition


- From experience in sub-Saharan Africa
- Unlinked, anonymous seroprevalence survey of HIV infection among adults with newly diagnosed TB

Why is surveillance of HIV prevalence among people with TB disease important?

- HIV prevalence among people with TB disease is a sensitive indicator for the spreading of HIV into the general population.
- Advocates increasing commitment to provide comprehensive HIV/AIDS care and support, including antiretroviral therapy, to HIV-positive people with TB disease.

Surveillance methods

The three main methods for surveillance of HIV among people with TB disease:

1. Data from routine patient care
2. Sentinel surveillance
3. Periodic (special) surveys

Surveillance methods for use in different HIV and TB prevalence settings

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
<th>Recommended surveillance method</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Countries with national adult HIV prevalence rate ≥1%</td>
<td>Routine testing plus Sentinel or special surveys to calibrate the results of routine testing</td>
</tr>
<tr>
<td>II</td>
<td>Countries with national adult HIV prevalence rate below 1% RUP and HIV prevalence rate ≤5% in groups with high-risk behaviour</td>
<td>Routine testing or Sentinel or periodic surveys</td>
</tr>
<tr>
<td>III</td>
<td>Countries with national adult HIV prevalence rate below 1% RUP and No population group with HIV prevalence rate ≤5%</td>
<td>Sentinel or periodic surveys if Routine testing not in use</td>
</tr>
</tbody>
</table>
Methods for measuring HIV prevalence among people with TB disease

<table>
<thead>
<tr>
<th>Surveillance method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periodic (special) surveys</td>
<td>Cross-sectional HIV seroprevalence surveys among a sample of people with TB disease within a country. To include all newly registered TB cases; easier to focus on adult cases with smear-positive disease.</td>
</tr>
<tr>
<td>Sentinel surveillance</td>
<td>A predetermined number of people with TB disease are routinely tested at selected sentinel sites. People with TB disease are used as a sentinel group within a general HIV sentinel surveillance system. To include all newly registered TB cases; easier to focus on adult cases with smear-positive disease.</td>
</tr>
<tr>
<td>Data from routine care</td>
<td>Data collected from routine care of people with TB disease who are tested for HIV on a voluntary and confidential basis, through notification forms (TB or HIV/AIDS) or registers (TB, special TB + HIV, co-trimoxazole; isoniazid preventive therapy; voluntary counselling and testing; voluntary counselling and testing + TB) or cross-matching of HIV and TB notification systems (computerized).</td>
</tr>
</tbody>
</table>

Periodic (special) survey (1)

How:
- Description: cross-sectional survey in sample of people with TB disease
- Eligibility: all new TB cases or new cases and relapses (only if survey <2–3 months) or only new adult (15–59 years) smear-positive cases; unlinked anonymous testing or linked anonymous testing with informed consent
- Data collection: sample size, sampling procedure (random, systematic, consecutive, cluster); <8–12 weeks (point prevalence) or <6 months (period prevalence); to repeat after 2–3 years
- Specimen tested: blood, sputum (only with HIV prevalence >10%)
- HIV testing: blood or sputum (only if HIV prevalence >10%); 1 enzyme-linked immunosorbent assay (ELISA) (if HIV prevalence >10%), ELISA or ELISA + ELISA or another assay with different antigen (if HIV prevalence >10%) or 2 ELISA + Western blot (if HIV prevalence <10%)
- Data management: standard reporting, confidentiality, quality, analysis and feedback

Ethical issues in HIV surveillance

- An unlinked anonymous method is used to reduce bias caused by people refusing to be tested (based on testing blood drawn for other purposes). This is ethical only if it is both anonymous and unlinked. The ethical concern is that it limits access to antiretroviral therapy. All people with TB disease included in unlinked anonymous seroprevalence surveys should have access to actively proposed, free, voluntary, confidential counselling and testing for HIV infection.
- If leftover blood not available, each person with TB should give informed consent. Alternatively, linked anonymous testing can be used in which only person with TB knows the result.
- Security and confidentiality policies and procedures in the transfer of information: minimal storage and retention of unnecessary or redundant paper or electronic reports; names removed from surveillance records when this no longer serves the public health purpose; records located in security area; electronic data protected by coded passwords and computer encryption.

Methodological issues

Use of sputum samples in HIV surveillance

- HIV testing tests other than on serum or blood (principally gingival secretions) are available and being further developed. In most countries sputum is routinely collected as part of the preliminary diagnostic investigations for all people with TB disease. In some settings this may favour the testing of sputum specimens over blood samples, especially if unlinked anonymous testing is adhered to (for example for sputum testing).
- The current sensitivity and specificity of HIV tests favours the use of blood testing over sputum testing. Even when unlinked methods are used, the current sensitivity and specificity of sputum testing methods (93.5–97.1% sensitivity and 99.7–100.0% specificity, respectively) are still not sufficiently high to avoid having a low positive predictive value (71.9%) in countries with low HIV prevalence (5%).
- Their use in HIV surveillance among people with TB disease is not recommended unless these tests have been validated in the country against gold-standard sero-HIV tests and found to be sufficiently reliable.

Sentinel surveillance

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple and inexpensive</td>
<td>Possible conflict of responsibility</td>
</tr>
<tr>
<td>Focuses on easily accessible people</td>
<td>Problems if sample not taken routinely</td>
</tr>
<tr>
<td>Often part of a well-established HIV sentinel system</td>
<td>Ethical concerns</td>
</tr>
<tr>
<td>Good information on trends</td>
<td>Low representativity of sentinel sites</td>
</tr>
<tr>
<td></td>
<td>Possible selection biases</td>
</tr>
<tr>
<td></td>
<td>If poor testing, inconsistent results</td>
</tr>
</tbody>
</table>
**HIV testing from routine care**

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
</table>
| - Access to HIV prevention and care  
- Estimates the burden of HIV-related disease and demand for care | - Need for large infrastructure (time, costs)  
- If low coverage (<80%) of testing, unreliable HIV prevalence estimates; if poor testing, inconsistent results  
- May reflect more the access to health care services than the prevalence of HIV within the TB population |

**Methodological issues**

**Costs**

**Direct**
- Specimen collection equipment  
- Transport of specimens  
- Specimen testing kits  
- Laboratory staff time  
- Travel costs of staff  
- Costs of data entry and analysis  
- Dissemination of information (printing of reports, postage, presentations etc.)

**Indirect**
- Investment of staff time at all levels in activities, ranging from specimen collection to the overall coordination of surveillance activities

**Challenges to TB/HIV surveillance**

**Organizational and financial**
- Low awareness of importance: lack of political commitment to surveillance and insufficient investment  
- Suffers from gaps in the TB/HIV initiative  
- Lack of skilled epidemiological personnel  
- Lack of feedback to those involved in surveillance activities

**Concluding remarks**

- HIV surveillance among people with TB disease is a key TB/HIV activity  
- It should be part of a plan for joint TB/HIV activity with proper allocation of funds  
- Surveillance methods in countries should vary according to the underlying HIV epidemic state and TB burden  
- Considering ethical issues and any possible organizational constraints is important  
- A guideline to provide a framework for this activity is now available
Document 10.2

Introduction to the exercise for Unit 10

For this exercise, your facilitator will divide the participants into four groups. The purpose of the exercise is to discuss how to implement surveillance of HIV among people with TB disease.

• Read pages 140-148 in the report on Fictitia in Annex 1.

• Review the available information on the epidemiological situation and surveillance system in Fictitia.

• Identify gaps in the surveillance component, in particular with relation to surveillance of HIV among people with TB disease, and propose priorities for addressing the gaps.

• Estimate the sample size and costs for a special survey to be conducted in Fictitia to estimate the prevalence of HIV among people with TB disease.

• Prepare to present the group work in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Unit 11: Human resource development for implementing collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:

1) to describe the overall goal for human resource development for implementing collaborative TB/HIV activities and the strategies to reach and sustain this goal;
2) to describe the elements of a human resource development plan for implementing collaborative TB/HIV activities; and
3) to identify priorities and propose solutions to strengthen human resource development for implementing collaborative TB/HIV activities in Fictitia.

Methods

Plenary presentation: Human resource development for implementing collaborative TB/HIV activities
Exercise
Plenary discussion

Materials

Document 11.1: Human resource development for implementing collaborative TB/HIV activities (slides)
Document 11.2: Exercise
Document 11.3: Human resources for collaborative TB/HIV activities: training and staffing (handout)
Document 11.4: Management of tuberculosis – training for health facility staff (10)
Human resource development for implementing collaborative TB/HIV activities

Document 11.1

TB/HIV course for managers at the national and subnational levels

Objectives of the unit

- To describe the overall goal for human resource development for implementing collaborative TB/HIV activities and the strategies to reach and sustain this goal
- To describe the elements of a human resource development plan for implementing collaborative TB/HIV activities
- To identify priorities and propose solutions to strengthen human resource development for implementing collaborative TB/HIV activities in fictitious

Human resource development
What do we mean?

Human resource development for collaborative TB/HIV activities sets a broader agenda, including not only the organization of specific training courses but the overall management of training and other human resource development activities.

It includes the availability of enough staff of the categories of personnel involved in comprehensive TB control and HIV/AIDS prevention and care at all levels, clinical and managerial, necessary to reach a specific long-term goal for professional competence in TB/HIV.

The vision for human resource development for collaborative TB/HIV activities

A world in which health systems, public and private, have adequate staffing with the relevant professional competencies and the support systems needed to motivate staff to use their competencies to provide quality preventive and curative services for comprehensive TB/HIV care to the entire population according to their needs.

Human resource development for TB/HIV

- Collaborative TB/HIV activities cannot be simply added to the responsibilities of the staff currently implementing the DOTS strategy or HIV/AIDS prevention and care.
- In many instances, additional staff with appropriate expertise have to be hired to manage the activities of collaborative TB/HIV activities at the central and lower levels.
Objectives of the human resource development component of the plan for collaborative TB/HIV activities:

- To ensure that all staff involved in the programmes (at all service level, and both public or private) are competent (have the required knowledge, skills and attitudes) and motivated to implement it
- To ensure that enough staff (clinical and managerial) are available at all levels to implement the plan without harming other areas of work of the national TB control programme or national HIV/AIDS control programme.

Constraints in human resource development for collaborative TB/HIV activities

- Training and competence (quality) of the existing workforce
- Staffing and motivation (quantity and availability)
  - Imbalances
  - Shortages

Constraints in training and competence

- Inadequate skills of existing staff
  - Many staff involved in TB control or HIV/AIDS prevention and care not fully trained
  - Suboptimal training (in-service training): lack of specific measurable learning objectives, training material, inadequate length of training, poor use of adequate training methods and lack of learning evaluation
  - Trainers and managers assume that everything taught is learned and will lead to high-quality performance
  - Lack of attention to other factors influencing behaviour change among health care providers

Constraints: staffing and motivation

- Imbalances in human resources for TB/HIV collaborative activities
  - Imbalances in overall numbers
  - Imbalances in distribution
  - Urban versus rural
  - Imbalances in skills or skill mix (a mismatch between the type or level of training and the skills required by the health system or job)
- Shortages of human resources for collaborative TB/HIV activities

Constraints: staffing and motivation

- Increased demand on existing staff – not only by TB and HIV/AIDS programmes
  - Impact of HIV/AIDS among staff
  - Low staff retention
  - Low staff motivation
  - Under-skilled (inadequate and infrequent training)
  -Unsupported and lack of supervision
  - Poor working environment
  - Poor career structure
  - Underpaid
  - Overburdened
  - Morale problems
  - Sick or caring for sick family members
  - Insufficient number of posts
  - Increased brain drain
  - High staff turnover

Factors influencing competence:
- Job descriptions
- Basic training
- In-service training
- Supervision
- Experience

Factors influencing motivation:
- Recognition
- Love of work
- Career structure
- Seeing results
- Social respect

Factors retaining personnel: salary, supervision, working conditions, adequate workload, etc.
Key strategies for national TB control programmes and national HIV/AIDS programmes to reach the goal

- Organize in-service training (clinical and managerial)
  - Initial training in basic DOTS implementation and HIV/AIDS prevention and care:
    - On-the-job training (refresher: small performance problems that can be addressed during a supervisory visit)
    - Continued training to gain new skills and knowledge and not to go through the same supervisory visits.
  - Initial training in new skills (TB/HIV collaborative activities, Practical Approach to Lung Health (PALHC)).
- Monitor and supervise:
  - to detect performance deficiencies
  - to identify new staff who need training
  - to identify need for additional staff
- Coordinate and collaborate with:
  - other in-service training programmes
  - health system management and human resources for health departments of the health ministry
- Strengthen preservice training (basic training)

Human resource development plan for implementing collaborative TB/HIV activities (1)

- Assign a focal point for human resource development for collaborative TB/HIV activities within the national TB control programme or national HIV/AIDS control programme (normally the focal point for overall human resource development for either programme).
- Assess the human resource requirements of the collaborative TB/HIV activities and the implications for the existing workforce (clinical – including DOTS and TB/HIV prevention and care; managerial; laboratory; and pharmaceutical).
  - Define tasks to be performed at each level of the system to implement the collaborative TB/HIV activities.
  - Assign tasks to specific categories of health workers.
  - Assess the time needed to implement these tasks, especially at the peripheral level (where changes in the number and type of cases diagnosed and treated have the biggest impact on the workload).
  - Assess how many staff of the respective categories are needed to maintain the current service delivery level and include collaborative TB/HIV activities.

Human resource development plan for implementing collaborative TB/HIV activities (2)

- Assess the current human resource situation of the national TB control programme, national HIV/AIDS control programme or health system and determine the number of staff of the relevant categories available at any time.
- Identify the human resource gaps both in terms of numbers required (increased numbers, additional roles and responsibilities – such as a coordinator for collaborative TB/HIV activities) and the quality of staff (additional competencies – knowledge and skills – needed) to implement the activities.

Human resource development plan for implementing collaborative TB/HIV activities (3)

- Prepare short- and medium-term plans, including how to ensure adequate staffing and preparation and how to implement training programmes based on the task analysis.
- Consider:
  - In-service training (clinical and managerial)
    - Initial training in implementing collaborative TB/HIV activities.
    - Retraining (major performance problems requiring more time than a supervisory visit to solve, such as a formal training course)
    - On-the-job training (refresher: small performance problems that can be addressed during a supervisory visit)
    - Continued training (to gain more skills and knowledge and not to go through the same training again)

Human resource development plan for implementing collaborative TB/HIV activities (4)

- Coordination with other in-service training programmes and training institutions and human resource departments (in particular, measures to retain trained staff with interventions to stop unnecessary rotation of staff; and support for career paths)
- Preservice training (basic training in skills needed prior to entering the workforce).

Human resource development plan for implementing collaborative TB/HIV activities (5)

- Ensure monitoring and supervision:
  - to detect performance deficiencies in newly trained staff
  - to identify new staff who need training (additional staff needs or staff vacancies).
- Ensure timely implementation of the plan and regular monitoring of the implementation.
- Periodically evaluate the implementation of the plan and revise as necessary.

Conclusion

- Having a competent workforce for collaborative TB/HIV activities must be seen and managed in the broader perspective of managing the health workforce for better performance.
- This brings together the health and educational sectors to achieve the three core objectives of human resource development – competence, coverage and motivation.
- Human resource development for TB/HIV will never be completed – as TB and HIV/AIDS programmes improve their performance, human resource development becomes more complex.
- Human resource development requires long-term management
Document 11.2

Introduction to the exercise for Unit 11

For this exercise, your facilitator will divide the participants into groups of three. The purpose of the exercise is to analyse the human resource development situation for implementing collaborative TB/HIV activities in Fictitia, to identify gaps and to propose activities to address the gaps.

• Recall aspects of human resource development in the report from Fictitia in Annex 1.

• Analyse what has been done so far in Fictitia to manage human resource development for implementing collaborative TB/HIV activities. Review specifically how the national TB control programme and the national HIV/AIDS programme are implementing activities to reach and sustain the goal for human resource development for controlling TB and HIV/AIDS.

• Identify gaps in the current human resource development activities for implementing collaborative TB/HIV activities and propose an overall plan to address the gaps.

• Prepare to present the group work in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Document 11.3

Human resources for collaborative TB/HIV activities: training and staffing

1. Introduction

Human resource development for collaborative TB/HIV activities sets a broad agenda including not only organizing specific training courses but managing overall issues related to training and staffing. It includes the availability of sufficient staff of all the categories of personnel involved in the collaborative TB/HIV activities at all levels, clinical and managerial, trained as necessary to reach a specific long-term goal for professional competence in implementing collaborative TB/HIV activities. Thus, the challenge for programme managers and technical support agencies is to ensure that managerial and clinical staff are competent to implement the collaborative TB/HIV activities and to ensure that sufficient staff are available.

This document briefly discusses issues that should be considered in meeting this challenge.

2. Human resource development plan for collaborative TB/HIV activities within the framework of the overall human resource development activities for controlling TB

Collaborative TB/HIV activities cannot be simply added to the responsibilities of the staff currently implementing the DOTS strategy and HIV/AIDS prevention and care. There are numerous constraints to the effective performance of the health workforce, as indicated in Table 1. In many instances, additional staff with appropriate expertise have to be hired to manage collaborative TB/HIV activities at the central and lower levels. Central management should estimate staff requirements for implementing all aspects of the programme. Realistic projections, based on analysing tasks, revising job descriptions and estimating workloads for concerned staff form the basis for preparing a human resource development plan to support the implementation of collaborative TB/HIV activities. Issues include the needed level of effort and support systems (such as transport) required for treatment, for health care worker’s visits, for psychosocial support and for clinical and laboratory personnel.

The objectives of the human resource development component of the collaborative TB/HIV activities are:

- to ensure that enough staff (clinical, psychosocial and managerial) are available at all levels to implement the plan without harming other areas of work of the national TB control programme or national HIV/AIDS programme; and
- to ensure that all staff involved in the programmes (at all service levels and both public or private) are competent (have the required knowledge, skills and attitudes) and motivated to implement the activities.
Table 1. Human resource constraints to implementing programmes

<table>
<thead>
<tr>
<th>Training and competence</th>
<th>Staffing and motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate skills of existing staff:</td>
<td></td>
</tr>
<tr>
<td>• Many staff involved in TB control and HIV/AIDS prevention and care are not fully trained</td>
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<tr>
<td>• Suboptimal in-service training: lack of specific measurable learning objectives and training material, inadequate length of training, poor use of adequate training methods and lack of learning evaluation</td>
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<tr>
<td>• An assumption by trainers and managers that everything taught is learned and will lead to high-quality performance</td>
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<tr>
<td>• Lack of attention to other factors influencing change in behaviour among health care providers</td>
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<tr>
<td>• Training is seen as a time-limited activity: when the strategy for collaborative TB/HIV activities has reached 100% coverage training is “no longer needed since everyone has been trained”</td>
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<tr>
<td>• Inadequate pre-service training</td>
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<tr>
<td>• Imbalances in human resources for TB control and HIV/AIDS prevention and care</td>
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<tr>
<td>• Imbalances in overall numbers</td>
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<td>• Imbalances in distribution</td>
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<tr>
<td>◊ Under-skilled (inadequate and infrequent training)</td>
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<tr>
<td>◊ Unsupported and lack of supervision</td>
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<tr>
<td>◊ Poor working environment</td>
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<tr>
<td>• Insufficient number of posts</td>
<td></td>
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<tr>
<td>• Increased “brain drain”</td>
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<tr>
<td>• High staff turnover</td>
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</tr>
</tbody>
</table>

The following steps should be considered in preparing and implementing the human resource development plan for implementing collaborative TB/HIV activities.

1. Assign a focal point for human resource development for collaborative TB/HIV activities within the national TB or HIV/AIDS control programme. This should be the human resource development focal point in TB or HIV/AIDS programmes or a person in their teams.

2. Assess the human resource requirements of the collaborative TB/HIV activities and the implications for the existing workforce (clinical, including directly observed treatment; managerial; laboratory; and pharmaceutical).
• Define the tasks to be performed at each level of the system to implement the collaborative TB/HIV activities.
• Assign tasks to specific categories of health workers.
• Assess the time needed to implement these tasks, especially at the peripheral level, where changes in the number and type of cases diagnosed and treated have the greatest impact on the workload.
• Assess how many staff of the respective categories are needed to maintain the current service delivery level and include collaborative TB/HIV activities.

3. Assess the current human resource situation of the national TB control programme, national HIV/AIDS programme and health system and determine the number of staff of the relevant categories available at any time.

4. Identify the human resource gaps both in terms of numbers required (increased numbers, additional roles and responsibilities – such as a coordinator for collaborative TB/HIV activities or a laboratory focal point) and the quality of staff (additional competencies needed) to implement the programme.

5. Prepare short- and medium-term plans, including how to ensure adequate staffing and preparation and implementation of training programmes based on the task analysis. Consider:
   • In-service training (clinical and managerial)
     – Initial training in implementing collaborative TB/HIV activities
     – Retraining (major performance problems need more time than a supervisory visit to solve, such as a formal training course)
     – On-the-job training (refresher: small performance problems that can be addressed during a supervisory visit)
     – Continued training (to gain more skills and knowledge and not to go through the same training again)
   • Coordination with other in-service training programmes and training institutions and human resource departments (in particular, measures to retain trained staff with interventions to stop unnecessary rotation of staff; and support for career paths)
   • Preservice training (basic training in skills needed before entering the workforce)

When training programmes are being developed, ensure that:
• job descriptions are based on task analysis;
• training courses and programmes have skills-based learning objectives based on the task analysis and the job descriptions;
• training programmes and courses use methods and allocate time to allow participants to meet the learning objectives;
• the ratio of participants to facilitators in each course is at a level that allows participants to meet the learning objectives; and
• evaluation is objective to ensure that the learning objectives have been met and that the following issues are considered in planning and implementing evaluation:
  – Evaluation during the training course:
    ◊ Evaluation by course participants
    ◊ Evaluation of participants (to determine whether participants have learned the skills as outlined in the learning objectives and are therefore competent to do their jobs)
– Evaluation in the field:
  ◊ Supervision (post-training evaluation) to identify performance problems and determine whether problems are due to lack of skill or lack of will
  ◊ Specific follow-up immediately after training.

6. Ensure monitoring and supervision to:
   • detect performance deficiencies in newly trained staff; and
   • identify new staff who need training (additional staff needs and staff vacancies).

7. Ensure timely implementation of the plan and regular monitoring of the implementation.

8. Periodically evaluate the implementation of the plan and revise it as necessary.

Ensuring competent and sufficient human resources for implementing collaborative TB/HIV activities of high quality requires ongoing management. As the programme implementation expands, the management of human resources becomes more complex due to the continued and diversified demands on staff at all levels.

More information on human resource development is available in the following publications.


Unit 12: Monitoring and evaluating the implementation of collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:
1) to describe the role of monitoring and evaluating the implementation of collaborative TB/HIV activities;
2) to describe the elements of monitoring and evaluating the implementation of collaborative TB/HIV activities; and
3) to plan the monitoring and evaluation of the implementation of collaborative TB/HIV activities.

Methods

Plenary presentation: Monitoring and evaluating the implementation of collaborative TB/HIV activities (slides)
Exercise
Plenary discussion

Materials

Document 12.1: Monitoring and evaluating the implementation of collaborative TB/HIV activities (slides)
Document 12.2: Exercise
Document 12.3: A guide to monitoring and evaluation for collaborative TB/HIV activities (11)
Document 12.1

Monitoring and evaluating the implementation of collaborative TB/HIV activities
Document No. 12.1

TB/HIV course for managers at the national and subnational levels

Objectives of the Unit

- To describe the role of monitoring and evaluating the implementation of collaborative TB/HIV activities
- To describe the elements of monitoring and evaluating the implementation of collaborative TB/HIV activities
- To plan the monitoring and evaluation of the implementation of collaborative TB/HIV activities

Monitoring

- Routine tracking of input, process and outcome data
- Ensures that resources are utilized, services are accessed, activities occur in a timely manner and expected outcomes are achieved
- Problems may indicate need for evaluation
- Uses routine records and regular reporting systems as well as health facility observation and client surveys
- Collected at the facility level, compiled at the district level and aggregated at the regional and national levels
- Feeding back analysed data to the district and facility levels is essential for managing performance

Evaluation

- More extensive analysis of programme data and data not routinely collected, to explore a perceived problem or issue in the programme
- Do the inputs generate the expected outcomes – outcome evaluation, and will these have the desired impact: impact evaluation?
- If not, what corrections are necessary?
- May require more in-depth analysis of additional data sources such as staff reports, interviews with staff or clients and focus groups
- Less frequent than routine monitoring

Reasons for monitoring and evaluation

- Facilitating the most effective and efficient use of human and financial resources to achieve maximum health benefit for the population served
- Programme management
  - Measure programme performance
  - Ensuring quality and effectiveness
  - Progress in achieving specific objectives
  - Identify problems and solutions
- Promote a learning culture focused on improving service
- Accountability
- Attracting resources

Interim policy

Guide to monitoring and evaluation
Steps in developing a monitoring and evaluation plan

- Identifying the goals and objectives of the programme
- Developing a monitoring and evaluation framework
- Defining and selecting relevant indicators
- Identifying sources of data and methods of collection
- Developing a plan for implementing monitoring and evaluation
- Disseminating and using the results

Goal and objectives

Goal

To decrease the burden of TB and HIV in dually affected populations

Objectives

A. to establish the mechanisms for collaboration between TB and HIV/AIDS programmes
B. to decrease the burden of TB among people living with HIV/AIDS
C. to decrease the burden of HIV among TB patients

Monitoring and evaluation framework

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>Environmental, cultural, political and socioeconomic factors external to the programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>Basic resources necessary - Policies, people, money, equipment</td>
</tr>
<tr>
<td>PROCESS</td>
<td>Programme activities - Training, logistics, management, information and communication, behaviour change, communication</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>Results at the programme level (measure of programme activities) - Services, service use, knowledge</td>
</tr>
<tr>
<td>OUTCOME</td>
<td>Results at the level of target population - Behaviour, number treated, safer practices</td>
</tr>
<tr>
<td>IMPACT</td>
<td>Ultimate effect of project in long term - TB incidence, HIV prevalence, morbidity, mortality</td>
</tr>
</tbody>
</table>

Steps in developing a monitoring and evaluation plan

- Identifying the goals and objectives of the programme
- Developing a monitoring and evaluation framework
- Defining and selecting relevant indicators
- Identifying sources of data and methods of collection
- Developing a plan for implementing monitoring and evaluation
- Disseminating and using the results

Monitoring and evaluation plan: tracking progress ...

<table>
<thead>
<tr>
<th>Assessment and planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input (resources)</td>
</tr>
<tr>
<td>Process (interventions, services)</td>
</tr>
<tr>
<td>Output (immediate effects)</td>
</tr>
<tr>
<td>Outcomes (intermediate effects)</td>
</tr>
<tr>
<td>Impact (long-term effects)</td>
</tr>
</tbody>
</table>

Steps in developing a monitoring and evaluation plan

- Identifying the goals and objectives of the programme
- Developing a monitoring and evaluation framework
- Defining and selecting relevant indicators
- Identifying sources of data and methods of collection
- Developing a plan for implementing monitoring and evaluation
- Disseminating and using the results
A. To establish the mechanisms for collaboration

A.1. A coordinating body for TB/HIV activities effective at all levels.
A.2. Surveillance of HIV prevalence among people with TB.
A.3. Joint TB/HIV planning including resource mobilisation, capacity building and training, information, education and communication enhancing community involvement and operational research.

B. To decrease the burden of TB among people living with HIV/AIDS

B.1. Intensified TB case-finding.
B.3. TB infection control in care and congregate settings.

C. To decrease the burden of HIV in TB patients

C.1. HIV testing and counselling.
C.2. HIV prevention methods.
C.3. Cotrimoxazole preventive therapy.
C.4. HIV/AIDS care and support.
C.5. Antiretroviral therapy.

D. Others

D.1 Political commitment
D.2 Partnership development and collaboration
D.3 Financial resources

Indicators for TB/HIV monitoring and evaluation

- At least one indicator for each activity defined in the Interim policy on collaborative TB/HIV activities
- Additional input indicators (D)
- Total of 20 indicators in the monitoring and evaluation guide
- Eight defined as core indicators:

A. 2 Surveillance of HIV prevalence among people with TB

- Indicator A.2.1 Number of all registered people with TB who are HIV-positive, expressed as a proportion of all registered people with TB

B.1 Intensified TB case finding

- Indicator B.1.1 Proportion of people living with HIV/AIDS attending for HIV testing and counselling or HIV treatment and care services who were screened for TB symptoms
- Indicator B.1.2 Proportion of people living with HIV/AIDS attending for HIV testing and counselling or HIV treatment and care services who are newly diagnosed with TB through screening
B.2 Treatment of latent TB infection (Isoniazid preventive therapy)

- **Indicator B.2.1** Proportion of newly diagnosed HIV-positive clients who are given treatment for latent TB infection

C.1 HIV testing and counselling

- **Indicator C.1.1** Proportion of registered people with TB who are tested for HIV (after giving consent)
- **Indicator C.1.2** Proportion of registered people with TB tested for HIV (after giving consent) who test HIV-positive

C.3 Co-trimoxazole preventive therapy

- **Indicator C.3.1** Proportion of HIV-positive people with TB who receive (at least one dose of) co-trimoxazole preventive therapy during their TB treatment

C.5. Antiretroviral therapy

- **Indicator C.5.1** Proportion of HIV-positive registered people with TB who are started on antiretroviral therapy or continue previously initiated antiretroviral therapy during or at the end of TB treatment

**C.5.1 Antiretroviral therapy**

- **Definition** – Proportion of HIV-positive registered people with TB who are started on antiretroviral therapy or continue previously initiated antiretroviral therapy during or at the end of TB treatment
- **Numerator** – All HIV-positive people with TB, registered over a given time period, who receive antiretroviral therapy (are started on or continue previously initiated antiretroviral therapy)
- **Denominator** – All HIV-positive people with TB registered over the same given time period.
- **Purpose** – Output indicator to measure the commitment and capacity of TB service to ensure that HIV-positive people with TB are able to access antiretroviral therapy

- **Methods** – data collection depends on who provides antiretroviral therapy
  - TB programme – a modified TB register or separate TB/HIV register with data reported at the end of TB treatment, to include everyone started on antiretroviral therapy during TB treatment.
  - HIV or other care services – requires a system to ensure that TB programme is informed of referral outcome and recorded in a modified TB register or TB/HIV register
- **Periodicity** – collected continuously and reported with the quarterly cohort outcome data
C.5.1 Antiretroviral therapy

Strengths and limitations

- Diagnosis of TB is a major entry point for antiretroviral therapy
- Important for programme management and individual patient care
- Measures
  - degree to which antiretroviral therapy is part of the package of care for HIV-positive people with TB
  - accessibility of antiretroviral therapy to HIV-positive people with TB
  - drug availability
  - degree to which health care providers encourage antiretroviral therapy as a part of routine care
  - strength of the referral process between TB and HIV

Does not measure

- whether patients treated correctly,
- at what point during TB treatment people are started on antiretroviral therapy
- adherence
- quality of treatment
- impact of antiretroviral therapy

The expected values will vary depending on national eligibility criteria for antiretroviral therapy, CD4 count availability

Importance – core. Data should be collected for this indicator even in settings where antiretroviral therapy is not available in the public sector, as this information is in itself important

Responsibility – national HIV/AIDS control programme and national TB control programme

Measurement tools – modified TB register, modified HIV care register or separate TB/HIV register with referral system (where appropriate)

Global milestones for tracking antiretroviral therapy scale-up

<table>
<thead>
<tr>
<th>Input and process</th>
<th>Milestone</th>
<th>Data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of monitoring and evaluation</strong></td>
<td><strong>Milestone</strong></td>
<td><strong>Data collection</strong></td>
</tr>
<tr>
<td><strong>Input</strong></td>
<td>1. Resources for treatment and prevention</td>
<td>National accounts, funders</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>2. Average price of antiretroviral drugs per person</td>
<td>Industry, country report</td>
</tr>
<tr>
<td></td>
<td>3. Training (certification of competence)</td>
<td>Administrative records, country report</td>
</tr>
<tr>
<td></td>
<td>4. Production and distribution of first-line antiretroviral drugs</td>
<td>Industry figures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Global milestones: output and outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of monitoring and evaluation</strong></td>
</tr>
<tr>
<td><strong>Output</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
## Global milestones: impact

<table>
<thead>
<tr>
<th>Level of monitoring and evaluation</th>
<th>Milestone</th>
<th>Data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact</td>
<td>11. Survival among people living with HIV/AIDS receiving antiretroviral therapy</td>
<td>Clinical tracking system</td>
</tr>
<tr>
<td></td>
<td>12. Age- and sex-specific AIDS mortality among adults</td>
<td>Vital registration, research studies, census, surveys</td>
</tr>
<tr>
<td></td>
<td>13. HIV prevalence among young people and among high-risk populations</td>
<td>Surveillance and surveys</td>
</tr>
</tbody>
</table>

## WHO specific milestones

<table>
<thead>
<tr>
<th>Level of monitoring and evaluation</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>1. Additional financial resources allocated to universal access to antiretroviral therapy</td>
</tr>
<tr>
<td></td>
<td>2. Staff deployed to countries by WHO</td>
</tr>
<tr>
<td></td>
<td>3. Training packages and guidance documents</td>
</tr>
<tr>
<td></td>
<td>4. Involvement of partner organizations in universal access</td>
</tr>
<tr>
<td>Process</td>
<td>5. Countries asking for WHO support</td>
</tr>
<tr>
<td></td>
<td>6. Countries establishing universal access targets</td>
</tr>
<tr>
<td></td>
<td>7. Countries using AMDS for procurement and distribution of drugs or diagnostics</td>
</tr>
</tbody>
</table>
Document 12.2

Introduction to the exercise for Unit 12

For this exercise, your facilitator will divide the participants into four groups. The purpose of the exercise is to prepare a plan for implementing selected indicators to monitor and evaluate the implementation of collaborative TB/HIV activities. The choice of the indicators depends on what collaborative activities have been chosen in a given country (or region) and how the activity is implemented.

- Select four indicators from *A guide to monitoring and evaluation for collaborative TB/HIV activities (11)* (one from each section – A to D) that would be used in the country (or region).

- For each indicator, the group should decide:
  - what information needs to be collected;
  - how to collect it – such as tools and resources;
  - how often to collect and report it;
  - how to analyse and produce results;
  - how to disseminate the results; and
  - who would use the results and for what purpose.

- Prepare to present one of your indicators in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Unit 13: Costing and budgeting for the implementation of collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:
1) to analyse the financial situation of a national TB control programme or national HIV/AIDS programme; and
2) to prepare a draft budget for implementing collaborative TB/HIV activities.

Methods

Plenary presentation: Costing and budgeting
Exercise
Plenary discussion

Materials

Document 13.1: Costing and budgeting for the implementation of collaborative TB/HIV activities (slides)
Document 13.2: Costing and budgeting for the implementation of collaborative TB/HIV activities (file)
Document 13.3: Exercise: Costing and budgeting
Costing and budgeting for the implementation of TB/HIV collaborative activities

Objectives of the unit

- To analyse the financial situation of a national TB control programme or a national HIV/AIDS control programme
- To prepare a draft budget for implementing collaborative TB/HIV activities

Proposal for the Global Fund to Fight AIDS, Tuberculosis and Malaria (draft)

The draft proposal of the national TB control programme includes four general objectives under the TB component:

1) To strengthen the health care system
2) To ensure and monitor 100% DOTS coverage
3) To ensure access to DOTS for vulnerable groups
4) To establish a monitoring and evaluation system

Strong points in the TB component

- Collaborative TB/HIV activities included
- Solid background documentation
- Relatively modest and realistic budget
- Log frame approach

Group work

- Each group works on one broad activity.
- A draft budget framework has been prepared in Excel format for each group (13.2).
- The proposed budget items should be discussed, obsolete ones should be deleted, new ones should be added and realistic budget lines must be developed.
- Unit costs should be checked for consistency.
- Quantities should be stated.
- The final budget should be prepared and presented in plenary (10 minutes).

Group 1: Objective 1

Broad activity 2:

- Building procurement and supply capacity management for collaborative TB/HIV activities
Group 2: Objective 2

Broad activity 1:

- Identifying infectious TB cases among HIV-positive people

Group 3: Objective 3

Broad activity 2:

- Preventing TB among people living with HIV/AIDS

Group 4: Objective 4

Broad activity 1:

- Monitoring and evaluating collaborative TB/HIV activities in 20 hospitals

Global Fund to Fight AIDS, Tuberculosis and Malaria Š country budget

Objective 3: To ensure access to DOTS components for vulnerable groups

Service area 2: Preventing TB among people living with HIV/AIDS

<table>
<thead>
<tr>
<th>Budget item</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit</td>
</tr>
<tr>
<td>A. Human Resources</td>
<td></td>
</tr>
<tr>
<td>1. Service area coordinator</td>
<td>person</td>
</tr>
<tr>
<td>2. Per diem payments for screening people living with HIV/AIDS</td>
<td>person</td>
</tr>
<tr>
<td>3. Trainers fee for screening</td>
<td>person</td>
</tr>
<tr>
<td>B. Infrastructure and equipment</td>
<td></td>
</tr>
<tr>
<td>C. Training</td>
<td></td>
</tr>
<tr>
<td>1. Workshops for TB/HIV guidelines</td>
<td>workshop</td>
</tr>
<tr>
<td>2. Training for screening</td>
<td>training</td>
</tr>
<tr>
<td>D. Commodities and products</td>
<td></td>
</tr>
<tr>
<td>1. PPD for screening people living with HIV/AIDS</td>
<td>person</td>
</tr>
<tr>
<td>2. Radiological examination for people living with HIV/AIDS</td>
<td>person</td>
</tr>
<tr>
<td>3. Sputum examination for people living with HIV/AIDS</td>
<td>person</td>
</tr>
<tr>
<td>4. Isoniazid treatment for people living with HIV/AIDS who have TB</td>
<td>persons</td>
</tr>
<tr>
<td>E. Planning and administration costs</td>
<td>%</td>
</tr>
<tr>
<td>F. Total costs</td>
<td></td>
</tr>
</tbody>
</table>

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Global Fund to Fight AIDS, Tuberculosis and Malaria — country budget

Budget item Breakdown

<table>
<thead>
<tr>
<th>Project costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Human resources</strong></td>
<td></td>
</tr>
<tr>
<td>1. Service area coordinator</td>
<td>person</td>
</tr>
<tr>
<td>2. Service area assistant</td>
<td>person</td>
</tr>
<tr>
<td>3. Trainers’ fees for training laboratory technicians on smear (1 day)</td>
<td>person</td>
</tr>
<tr>
<td>4. Supervision fees (quality assurance in the districts)</td>
<td>person</td>
</tr>
<tr>
<td><strong>Total (A)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>B. Infrastructure and equipment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>C. Training</strong></td>
<td></td>
</tr>
<tr>
<td>1. Training laboratory staff according to the guidelines on smear (1 day)</td>
<td>training session</td>
</tr>
<tr>
<td>2. Training laboratory staff according to the guidelines on culture and susceptibility (2 days)</td>
<td>training session</td>
</tr>
<tr>
<td><strong>Subtotal (C)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Objective 2: To develop collaborative TB/HIV activities in selected health facilities with voluntary counselling and testing service

<table>
<thead>
<tr>
<th>Objectives and broad activities</th>
<th>Responsible Institution</th>
<th>July to September 2003</th>
<th>October to December 2003</th>
<th>January to March 2004</th>
<th>April to June 2004</th>
<th>Total for the fiscal year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad activity 1. Strengthening the capacity of Federal Ministry of Health to conduct collaborative TB/HIV activities</td>
<td>PASS, TLCT, APCT</td>
<td>Invoice of inputs purchased</td>
<td>80,000</td>
<td>80,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad activity 2. Conducting needs assessment visits to the seven health facilities</td>
<td>TB/HIV Coordinator, TLCT, APCT, VTLIC</td>
<td>Conduct seven needs assessment visits</td>
<td>15,000</td>
<td>15,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad activity 3. Adoption of a standardized protocol or guideline for collaborative TB/HIV activities</td>
<td>TB/HIV Coordinator, TLCT, APCT, Mentor (CDC)</td>
<td>Final draft of training materials and modules</td>
<td>10,000</td>
<td>900 training materials and modules printed and distributed</td>
<td>20,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Broad activity 4. Conducting training of trainers and training of staff at the selected health facilities</td>
<td>Conduct training of trainers for 10 trainers</td>
<td>30,000</td>
<td>Conduct training for 100 health workers in the selected health facilities</td>
<td>50,000</td>
<td>80,000</td>
<td></td>
</tr>
<tr>
<td>Broad activity 5. Purchasing items required to initiate collaborative TB/HIV activities</td>
<td>PASS, TLCT</td>
<td>Invoice of drugs for the provision and treatment of opportunistic infections (OI)</td>
<td>100,000</td>
<td>190,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad activity 6. Supervision</td>
<td>TLCT, APCT</td>
<td>Conduct four supervisory visits</td>
<td>7,000</td>
<td>7,000</td>
<td>14,000</td>
<td></td>
</tr>
<tr>
<td>Broad activity 7. Monitoring and evaluation for objective 2</td>
<td>TB/HIV Coordinator, TLCT, APCT</td>
<td>Progress report</td>
<td>2,500</td>
<td>Progress report</td>
<td>2,500</td>
<td>Progress report</td>
</tr>
<tr>
<td><strong>Total Objective 2</strong></td>
<td></td>
<td></td>
<td>107,500</td>
<td>242,500</td>
<td>39,500</td>
<td>9,500</td>
</tr>
</tbody>
</table>
Document 13.2

Introduction to the Excel file

The Excel file provided includes a preliminary list of activities, a structure for the budget, a tentative unit cost for the activities proposed and formulas allowing calculations of subtotal and total costs.

Please see Document 13.3 for further instructions on how to perform the exercise.
## Breakdown

**Budget item** | **Breakdown** | **Total**
--- | --- | ---
### Project costs

#### A. Human resources
1. Service area coordinator for procurement
   - person 625 x months 0
2. Service area coordinator for drug management system
   - person 625 x months 0
3. Service area assistant
   - person 375 x months 0
4. Supervision fee for procurement on twice yearly
   - person 125 x visits 0
5. Supervision fee for drug management
   - person 125 x visits 0
6. Trainers fee
   - persons 75 x seminars 0

**Subtotal (A)** 0

#### B. Infrastructure and equipment
1. Vehicle for Central Unit
   - 31,250 -
2. Maintenance and repair cost
   - 6,250 -
3. Insurance and registration
   - 5,000 -

**Subtotal (B)** 0

#### C. Training
1. Training of national TB control programme Central Unit on drug management (2 days)
   - training 1,300 -
   - session 900 -
2. Training of TB nurses on drug management
   - training 900 -

**Subtotal (C)** -

#### D. Commodities and products
1. Safety cabinets
   - devices 25,734 -
   - Maintenance of safety cabinets
     - 500 x -
2. UV lamps
   - devices 80 -
3. Microscopes
   - devices 2,500 -
4. Fluorescent microscopes
   - devices 7,000 -
5. Equipment for rapid culture
   - devices 100,000 -
6. Autoclaves
   - devices 3,000 -
7. Refrigerators
   - devices 780 -
8. X-ray machine
   - devices 100,000 -
9. Software for drug management system
   - sets 2,000 -
10. Reagents and consumables for bacteriological laboratories (smear, culture and susceptibility)
    - various 80,000 x -
11. TB drugs – first line
    - drugs 45,000 x -

**Subtotal (D)** 0

#### E. Planning and administration costs
1. International consultant for drug management
   - 4,000 x 0

**Subtotal (E)** 0

**Total costs** -
Global Fund to Fight AIDS, Tuberculosis and Malaria – country budget

Objective 2: To ensure and maintain 100% DOT coverage in the country
Broad objective 1: Identification of infectious TB cases among people living with HIV/AIDS

<table>
<thead>
<tr>
<th>Budget item</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project costs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>A. Human Resources</strong></td>
<td></td>
</tr>
<tr>
<td>1. Service area coordinator</td>
<td>person 625 x months 0</td>
</tr>
<tr>
<td>2. Service area assistant</td>
<td>person 375 x months 0</td>
</tr>
<tr>
<td>Trainers’ fees for training</td>
<td></td>
</tr>
<tr>
<td>3. Laboratory technicians on smear</td>
<td>person 8 75 x seminars 0</td>
</tr>
<tr>
<td>(1 day)</td>
<td></td>
</tr>
<tr>
<td>4. Supervision fees (quality assurance</td>
<td>person 63 x districts 0</td>
</tr>
<tr>
<td>in the districts)</td>
<td></td>
</tr>
<tr>
<td>1. Allowance for quality assurance</td>
<td>1 12 100 months 1,200</td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
<td>1,200</td>
</tr>
<tr>
<td><strong>B. Infrastructure and equipment</strong></td>
<td></td>
</tr>
<tr>
<td>1. Olympus binocular microscope</td>
<td>1 10 1,350</td>
</tr>
<tr>
<td>with spare x100 bulbs</td>
<td></td>
</tr>
<tr>
<td>2. Reagents and consumables</td>
<td>1 8 100</td>
</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
<td>14,300</td>
</tr>
<tr>
<td><strong>C. Training</strong></td>
<td></td>
</tr>
<tr>
<td>Training laboratory staff</td>
<td></td>
</tr>
<tr>
<td>1. Training according to guidelines on</td>
<td>5 8 75 3,000</td>
</tr>
<tr>
<td>smear (5 days)</td>
<td></td>
</tr>
<tr>
<td>2. Training of laboratory staff</td>
<td></td>
</tr>
<tr>
<td>according to the guidelines on culture</td>
<td>training 800 session 0</td>
</tr>
<tr>
<td>and susceptibility (2 days)</td>
<td></td>
</tr>
<tr>
<td>2. Logistics and administration</td>
<td>1 8 15 120</td>
</tr>
<tr>
<td>3. Facilitators</td>
<td>5 2 150</td>
</tr>
<tr>
<td><strong>Subtotal (C)</strong></td>
<td>4,620</td>
</tr>
<tr>
<td><strong>D. Commodities and products</strong></td>
<td></td>
</tr>
<tr>
<td>1. Development of guidelines on</td>
<td></td>
</tr>
<tr>
<td>laboratory examinations</td>
<td>brochure 110</td>
</tr>
<tr>
<td><strong>Subtotal (D)</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>E. Planning and administration costs</strong></td>
<td></td>
</tr>
<tr>
<td>International consultant 7 days</td>
<td></td>
</tr>
<tr>
<td>per year for quality assurance in</td>
<td></td>
</tr>
<tr>
<td>laboratory</td>
<td></td>
</tr>
<tr>
<td>7%</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (E)</strong></td>
<td>1,408</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td>21,528</td>
</tr>
</tbody>
</table>
## Global Fund to Fight AIDS, Tuberculosis and Malaria – country budget

**Objective 3:** To ensure access to DOTS components for vulnerable groups  
**Service area 2:** Preventing TB among people living with HIV/AIDS

<table>
<thead>
<tr>
<th>Budget item</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Costs</td>
<td></td>
</tr>
<tr>
<td><strong>A. Human Resources</strong></td>
<td></td>
</tr>
<tr>
<td>1. Service area coordinator</td>
<td>person 625 x months 0</td>
</tr>
<tr>
<td>2. Per diem payments for screening people living with HIV/AIDS</td>
<td>person 88 x times 0</td>
</tr>
<tr>
<td>3. Trainers' fee for screening</td>
<td>person 75 x training sessions 0</td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>B. Infrastructure and equipment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>C. Training</strong></td>
<td></td>
</tr>
<tr>
<td>1 Workshops for guidelines on TB/HIV</td>
<td>workshop 1,000 0</td>
</tr>
<tr>
<td>2 Training for screening</td>
<td>training session 600 0</td>
</tr>
<tr>
<td><strong>Subtotal (C)</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>D. Commodities and products</strong></td>
<td></td>
</tr>
<tr>
<td>1. PPD for screening of people living with HIV/AIDS</td>
<td>person 1 x times 0</td>
</tr>
<tr>
<td>2. Radiological examination for people living with HIV/AIDS</td>
<td>person 5 x times 0</td>
</tr>
<tr>
<td>3. Sputum examination for people living with HIV/AIDS</td>
<td>person 1 x times 0</td>
</tr>
<tr>
<td>4. Isoniazid treatment for people living with HIV/AIDS who have TB</td>
<td>person 12 0</td>
</tr>
<tr>
<td><strong>Subtotal (D)</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>E. Planning and administration costs</strong></td>
<td>7%</td>
</tr>
<tr>
<td><strong>Subtotal (E)</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td>-</td>
</tr>
</tbody>
</table>
Global Fund to Fight AIDS, Tuberculosis and Malaria – country budget
Objective 4: To establish a Monitoring and evaluation system
Broad activity 1: Monitoring and evaluation of TB/HIV activities in 20 hospitals

<table>
<thead>
<tr>
<th>Budget item</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Units</td>
</tr>
<tr>
<td>Monitoring and evaluation costs</td>
<td></td>
</tr>
<tr>
<td>A. Human resources</td>
<td></td>
</tr>
<tr>
<td>1. Programme Manager</td>
<td></td>
</tr>
<tr>
<td>2. Programme Assistant</td>
<td></td>
</tr>
<tr>
<td>3. Supervisor team members – fee</td>
<td></td>
</tr>
<tr>
<td>Subtotal (A)</td>
<td></td>
</tr>
<tr>
<td>B. Infrastructure and equipment</td>
<td></td>
</tr>
<tr>
<td>Subtotal (B)</td>
<td></td>
</tr>
<tr>
<td>C. Training and planning</td>
<td></td>
</tr>
<tr>
<td>1. Training of team at the central level and supervisory team in programme management and monitoring and evaluation</td>
<td></td>
</tr>
<tr>
<td>Subtotal (C)</td>
<td></td>
</tr>
<tr>
<td>D. Commodities and products</td>
<td></td>
</tr>
<tr>
<td>1. Office stationery</td>
<td></td>
</tr>
<tr>
<td>Subtotal (D)</td>
<td></td>
</tr>
<tr>
<td>E. Monitoring and evaluation</td>
<td></td>
</tr>
<tr>
<td>1. Supervision visits</td>
<td></td>
</tr>
<tr>
<td>2. External evaluation visits</td>
<td></td>
</tr>
<tr>
<td>Subtotal (E)</td>
<td></td>
</tr>
<tr>
<td>F. Administration costs</td>
<td></td>
</tr>
<tr>
<td>1. International assistance trainer</td>
<td></td>
</tr>
<tr>
<td>Subtotal (F)</td>
<td></td>
</tr>
<tr>
<td>Total costs</td>
<td></td>
</tr>
</tbody>
</table>
Budget for Fictitia. Annex 1. Suggested breakdown for training courses

All figures can be modified in the sheet; the totals are calculated automatically. Costs per item require consensus.

<table>
<thead>
<tr>
<th>Items</th>
<th>General health workers and district coordinators</th>
<th>Training of mid-level coordination staff</th>
<th>Training of trainers at the central level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of courses</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Duration of course</td>
<td>5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Districts per course</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Max. number of participants per course</td>
<td>30</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Per diem health worker</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Average transport health worker</td>
<td>12</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Number of facilitators</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Per diem facilitator</td>
<td>13</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Transport facilitator</td>
<td>35</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Number of drivers</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Per diem drivers</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Refreshments per person per day</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Venue per day</td>
<td>20</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Stationery per person</td>
<td>5</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total cost course(s) (US$)</strong></td>
<td><strong>2,540</strong></td>
<td><strong>3,560</strong></td>
<td><strong>5,944</strong></td>
</tr>
<tr>
<td><strong>Cost of one course (US$)</strong></td>
<td><strong>2,540</strong></td>
<td><strong>3,560</strong></td>
<td><strong>5,944</strong></td>
</tr>
</tbody>
</table>
### Objective 2. To develop collaborative TB/HIV activities in selected health facilities with voluntary counselling and testing services

<table>
<thead>
<tr>
<th>Objectives and broad activities</th>
<th>Responsible institution</th>
<th>July to September 2003</th>
<th>October to December 2003</th>
<th>January to March 2004</th>
<th>April to June 2004</th>
<th>Total for the fiscal year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broad activity 1. Strengthen the capacity of the Federal Ministry of Health to conduct collaborative TB/HIV activities</strong></td>
<td>PASS, TLCT, APCT</td>
<td>Invoice of inputs purchased</td>
<td>80,000</td>
<td></td>
<td></td>
<td>80,000</td>
</tr>
<tr>
<td><strong>Broad activity 2. Conducting needs assessment visits to the seven health facilities</strong></td>
<td>TB/HIV Coordinator, TLCT, APCT, RTLC</td>
<td>Conduct seven needs assessment visits</td>
<td>15,000</td>
<td></td>
<td></td>
<td>15,000</td>
</tr>
<tr>
<td><strong>Broad activity 3. Adopting a standardized protocol or guideline for collaborative TB/HIV activities</strong></td>
<td>TB/HIV Coordinator, TLCT, APCT, Mentor (CDC)</td>
<td>Final draft of training materials and modules</td>
<td>10,000</td>
<td>500 training materials and modules printed and distributed</td>
<td>20,000</td>
<td>30,000</td>
</tr>
<tr>
<td><strong>Broad activity 4. Conducting training of trainers and training of staff at the selected health facilities</strong></td>
<td></td>
<td>Conduct training of trainers for 10 trainers</td>
<td>30,000</td>
<td>Conduct training for 100 health workers in the selected health facilities</td>
<td>50,000</td>
<td>80,000</td>
</tr>
<tr>
<td><strong>Broad activity 5. Purchasing items required to initiate collaborative TB/HIV activities</strong></td>
<td>PASS, TLCT</td>
<td>Tender document floated and winner(s) identified</td>
<td>0</td>
<td>Invoice of drugs for preventing and treating opportunistic infections purchased</td>
<td>190,000</td>
<td>190,000</td>
</tr>
<tr>
<td><strong>Broad Activity 6. Supervision</strong></td>
<td>TLCT, APCT</td>
<td></td>
<td></td>
<td>Conduct four supervisory visits</td>
<td>7,000</td>
<td>7,000</td>
</tr>
<tr>
<td><strong>Broad activity 7. Monitoring and evaluation for objective 2</strong></td>
<td>TB/HIV Coordinator, TLCT, APCT</td>
<td>Progress report</td>
<td>2,500</td>
<td>Progress report</td>
<td>2,500</td>
<td>Progress report</td>
</tr>
<tr>
<td><strong>Total objective 2</strong></td>
<td></td>
<td></td>
<td>107,500</td>
<td>242,500</td>
<td>59,500</td>
<td>9,500</td>
</tr>
</tbody>
</table>
Document 13.3

Introduction to the exercise for Unit 13

For this exercise, your facilitator will divide the participants into four groups. The purpose of the exercise is to complete a component of the budget for implementing collaborative TB/HIV activities.

• Within a national TB control programme or national HIV/AIDS programme, a draft budget for collaborative TB/HIV activities has been already prepared within the proposal submitted to the Global Fund to Fight AIDS, Tuberculosis and Malaria.

• Each group is assigned a specific component of the budget to complete.

• An Excel file is provided with a preliminary list of activities, a structure for the budget, a tentative unit cost for the activities proposed and formulas to allow calculations of subtotal and total costs.

• Within groups, participants should:
  1) complete the list of activities within the assigned component of the budget;
  2) assess whether the unit cost available is adequate;
  3) decide the number of units necessary; and
  4) complete the budget line and report in the plenary session.

• Prepare to present the budget component in the plenary session.

Tell a facilitator when you are ready for the plenary discussion.
Unit 14: Case study on delivering services for TB and HIV/AIDS – the example of Malawi

Objectives

By the end of this unit, participants will be able:
1) to analyse the organization of collaborative TB/HIV activities in a real country (Malawi);
2) to review and comment on the experience and materials (plans, guidelines, manuals and forms) used in a selected country with experience in implementing collaborative TB/HIV activities; and
3) to analyse the implementation of collaborative TB/HIV activities in the selected country and compare it with the experience (if any) of one’s own country.

Methods

Plenary presentation: Malawi country experience
Plenary discussion

Materials

Document 14.1: Malawi country experience (slides)
Document 14.2: Three-year development plan for the implementation of joint TB and HIV services in Malawi (12)
Malawi country experience
Document No. 14.1

TB/HIV course for managers at the national and subnational levels

Objectives of the unit

• To analyse how collaborative TB/HIV activities are organized in a real country

• To review and comment on the experience and materials (plans, guidelines, manuals and forms) used in collaborative TB/HIV activities in a selected country with experience in implementing collaborative TB/HIV activities

• To analyse the implementation of collaborative TB/HIV activities in the selected country and compare it with one’s own country’s experience (if any)

Can antiretroviral therapy be scaled up?

<table>
<thead>
<tr>
<th>Enabling factors</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Funds to procure antiretroviral drugs</td>
<td>• Drug manufacturing and distribution capacity</td>
</tr>
<tr>
<td>• Costs of generic drugs decreasing</td>
<td>• Health system infrastructure and monitoring capacity</td>
</tr>
<tr>
<td>• International and national momentum</td>
<td>• Human resources</td>
</tr>
<tr>
<td>• Consumer demand</td>
<td></td>
</tr>
</tbody>
</table>

The “medicalized model” in Africa

Physicians to deliver antiretroviral therapy
Choice of multiple drug regimens
Mandatory laboratory monitoring
“Liver function tests, full blood counts and CD4 counts”
Computers to track patient follow-up

will preclude rapid and massive scaling up

The key is simplicity

TB control structure is the model

• Standardized diagnosis and case-finding
  (smear microscopy and well-defined types of TB)

• Standardized treatment
  (three treatment categories to cover all types of TB)

• Standardized recording and reporting system
  (treatment cards, registers, cohort analysis, monitoring)

• Standardized system of procurement

• Management by paramedical officers

• Drugs free of charge for patients

From policy to practice:
the case of Malawi

Open
## Standardized case-finding for antiretroviral therapy

People eligible for antiretroviral therapy:
- Positive HIV test
- WHO clinical stage III or IV
- (CD4 counts <200/mm³ where applicable)

### Standardized antiretroviral therapy

- First-line antiretroviral therapy:
  - Stavudine + lamivudine + nevirapine (fixed-drug combination)
- Alternative first-line antiretroviral therapy for side-effects:
  - Substitute zidovudine for stavudine (neuropathy)
  - Substitute efavirenz for nevirapine (skin or liver)
- Second-line antiretroviral therapy for first-line failure:
  - Zidovudine + didanosine + nelfinavir

First-line antiretroviral therapy only for country-wide scale-up in Malawi
- Stavudine + lamivudine + nevirapine is the only fixed-drug combination (one tablet twice daily)
- 85–90% of patients do well on this regimen
- First-line antiretroviral therapy simplifies:
  - drug procurement
  - drug security
  - patient management
  - system of recording and reporting
  - training of hospital staff

### Promoting drug adherence

- TB Programme has for several years used “guardians” to support the initial phase of anti-TB treatment with rifampicin
- System for delivering antiretroviral therapy uses “guardians” to support the individual person receiving therapy—this implies disclosure of HIV status

### Standardized registration, recording and reporting
Monitoring tools borrowed from the TB model

• Antiretroviral therapy patient treatment master card
• Antiretroviral therapy identity card for the patients
• Antiretroviral therapy patient register
• Antiretroviral therapy quarterly cohort analysis form
• Antiretroviral therapy monitoring forms for the national TB control programme regional officers

Antiretroviral therapy patient master card

Every three months, update the register from the master card data

Antiretroviral therapy facility register

Every three months, perform quarterly cohort analysis from the updated register

Antiretroviral therapy patient cohort analysis

Registration details

TB programme:
Specific TB registration number for each patient
Each facility starts each year with a new set of numbers:
MCH/01/2003
MCH/01/2004

Antiretroviral therapy:
Specific registration number for each person receiving antiretroviral therapy
Numbers just continue indefinitely, such as:
MCH/01
MCH/1027

Standardized treatment outcomes

TB programme
• Cured
• Treatment completed
• Dead
• Defaulted
• Failed
• Transferred out

Antiretroviral therapy
• Alive and receiving antiretroviral therapy
• Dead
• Defaulted
• Stopped treatment
• Transferred out

Example of ARV IDENTITY CARD

Current Treatment Unit: _______________

Name of Patient: Mr ___________________

Unique ARV Number: CKW/01

Age: 34
Sex: M
Initial Weight (Kg): 48Kg

Start 1st line ARV therapy (date): _________

Reason for ARV therapy: Stage III (Pneumonia)

Start alternative 1st line ARV therapy (date) __________

Start 2nd line ARV therapy (date) __________

Example of ARV TREATMENT RECORD CARD FOR ARV:

Unique ARV Number: CKW/ARV/01____ Year 2004_________

Name: Mr Joshua Phiri______________________ Age 34__ Sex M___ Initial Wt (Kg) 48____ Transfer In (Y/N) N_____

Address (physical / PO Box) TA Mtemba, near Chikwawa Boma, Chikwawa District________________________________________________

Name of identifiable guardian Mr John Phiri______________________________________________________________________________

Date of starting 1st line ARV regimen (specify d4t/3TC/NVP formulation) Jul 14 -d4T-30mg_ Reason for ARV: Stage III (Pneumonia)_________

Date of starting alternative 1st line ARV regimen (specify) ____________

Date of starting 2nd line ARV regimen (specify)____________________

Outcome status Of those alive Ambulatory Work/school Side effects
ARV Given yr month Date Wt Kg
A D DF Stop T O
Start Sbs Switch Amb Bed Yes No Y N
No. Pills in Bottle P G
<table>
<thead>
<tr>
<th>ARV Registration Number</th>
<th>Year</th>
<th>Quarter</th>
<th>Date of registration</th>
<th>Name</th>
<th>Sex</th>
<th>Age</th>
<th>Address</th>
<th>Date first started ARV drugs</th>
<th>Reason for starting ARV drugs</th>
<th>Name of Guardian</th>
<th>ARV Treatment Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKW/01</td>
<td>2004</td>
<td>3</td>
<td>July 14</td>
<td>Phiri</td>
<td>M</td>
<td>34</td>
<td>PO Box CMK</td>
<td>July 14</td>
<td>Stage III</td>
<td>Peter</td>
<td>CKW</td>
</tr>
<tr>
<td>CKW/02</td>
<td>2004</td>
<td>3</td>
<td>July 14</td>
<td>Nkhoma</td>
<td>F</td>
<td>29</td>
<td>TA 141</td>
<td>July 14</td>
<td>Stage III-PTB</td>
<td>Peter</td>
<td>CKW</td>
</tr>
<tr>
<td>CKW/03</td>
<td>2004</td>
<td>3</td>
<td>July 14</td>
<td>Kangombe</td>
<td>M</td>
<td>41</td>
<td>Monfort</td>
<td>July 14</td>
<td>Stage IV</td>
<td>Peter</td>
<td>CKW</td>
</tr>
<tr>
<td>CKW/04</td>
<td>2004</td>
<td>3</td>
<td>July 21</td>
<td>Lumbka</td>
<td>M</td>
<td>29</td>
<td>Nachalo</td>
<td>July 21</td>
<td>Stage IV-EPTB</td>
<td>Peter</td>
<td>CKW</td>
</tr>
<tr>
<td>CKW/05</td>
<td>2004</td>
<td>3</td>
<td>July 21</td>
<td>Kangoma</td>
<td>M</td>
<td>27</td>
<td>TA 21</td>
<td>July 21</td>
<td>Stage III</td>
<td>Peter</td>
<td>CKW</td>
</tr>
</tbody>
</table>

Reason for starting ARV Drugs: Stage III, Stage IV, CD4 count < 200/mm³, Stage II with TLC < 1200/mm³, Tuberculosis, Transfer-in

<table>
<thead>
<tr>
<th>Alive</th>
<th>Dead</th>
<th>Default</th>
<th>Stop</th>
<th>Transfer-out</th>
<th>Ambulant</th>
<th>At work or school</th>
<th>Adherence</th>
<th>All above</th>
<th>Intermittent</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Alive - alive and on ARV drugs; Dead - whatever the cause; Default - not seen in three months; Stop - stopped treatment due to side effects/other; Transfer-out - transfer-out to another ARV treatment unit; Ambulant - yes/no; At work or school - at previous or new employment for adults; Adherence > 95% - pill counts of 8 tablets or less when patient comes for review.
ARV QUARTERLY COHORT ANALYSIS FORM

NAME OF TREATMENT UNIT: Thyolo DH

COHORT [specify the year and the quarter]: 2003, Q2

Total number of patients initially registered for ARV in the cohort: 116

Year in which evaluation is taking place: 2003

Date at which evaluation is taking place: July 10th

Of total number registered in the cohort:

- Alive and on ARV therapy: 106 (91%)
  - Alive and on First line regimen: 101
  - Alive and on Alternative first line regimen: 5
  - Alive and on Second line regimen: 0
- Dead: 6
- Defaulted: 0
- Stopped: 4
- Transferred out to another treatment unit: 0

Of those Alive:

- Ambulatory: 106
- At work: No information
- With side effects: 14
- With Pill count in bottle 8 or less: 63/63

Note: Pill count in bottle 8 or less is equivalent to 95% adherence

Cohort analysis

- Every three months each cohort is analysed for its treatment outcomes
  [this allows survival analysis to be conducted]
- Every three months all the cohort case numbers and treatment outcomes are combined together
  [this allows cumulative up-to-date data]

Collecting the national antiretroviral therapy cohort data

- The national TB control programme conducts quarterly supervisory and monitoring visits to all TB treatment facilities in the country to collect case-finding and treatment outcome data
- There is no established system for HIV/AIDS
- HIV/AIDS data collection is therefore being piggy-backed on to TB data collection
- Details agreed with the Malawi national TB control programme

Cumulative analysis of patients starting antiretroviral therapy up to June 2004:
[Regional TB officers collected data from 11 hospitals in July–August]

<table>
<thead>
<tr>
<th>Number of people starting therapy</th>
<th>Number of people starting antiretroviral therapy who are...</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alive and on therapy</td>
</tr>
<tr>
<td>5558</td>
<td>4191 (75%)</td>
</tr>
</tbody>
</table>

Standardized procurement of drugs

TB programme:
- Drug orders based on number of patients registered in previous 1–2 quarters plus a percentage to allow for increased case notifications
- Drugs provided for “initial” and “continuation” phases

Antiretroviral drug delivery:
- Drug orders based on classifying units as: low burden (25/month), medium burden (50/month), high burden (150/month)
- Drugs provided as “starter” and “continuation” packs

For the individual recipient of antiretroviral therapy

The starter pack:
This is designed to provide medication for the first 15 days of treatment:
- One tin of Triomune
- One tin of Lamivir-S (each with 15 tablets)

The continuation pack:
This is designed to provide medication for 30 days of continuing treatment:
- One tin of Triomune
- One tin of Lamivir-S

131
Low-burden unit: antiretroviral drug packs for 75 people for 3 months

<table>
<thead>
<tr>
<th></th>
<th>Starter pack: 3 months</th>
<th>Continuation pack: 3 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 tins Lamivir-30 (15 tablets)</td>
<td></td>
<td>180 tins Triomune-30 (60 tablets)</td>
</tr>
<tr>
<td>15 tins Lamivir-40 (15 tablets)</td>
<td></td>
<td>45 tins Triomune-40 (60 tablets)</td>
</tr>
<tr>
<td>60 tins Triomune-30 (15 tablets)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 tins Triomune-40 (15 tablets)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculating antiretroviral drug needs for the 56 public facilities in Malawi

Number of public health facilities for antiretroviral therapy:
- 4 high-burden facilities
- 26 medium-burden facilities
- 26 low-burden facilities

National needs for one year:
- 400 starter packs
- 1320 continuation packs

Staff providing services at clinics

<table>
<thead>
<tr>
<th>TB programme:</th>
<th>Antiretroviral therapy delivery:</th>
</tr>
</thead>
<tbody>
<tr>
<td>44 sites in public sector</td>
<td>56 sites in public sector</td>
</tr>
<tr>
<td>4 clinical officers</td>
<td>6 physicians</td>
</tr>
<tr>
<td>6 nurses</td>
<td>50 clinical officers</td>
</tr>
<tr>
<td>28 health assistants</td>
<td></td>
</tr>
<tr>
<td>6 health surveillance assistants</td>
<td></td>
</tr>
</tbody>
</table>

Should antiretroviral drugs have user charges? (1)
The TB programme provides all anti-TB drugs free of user charges because:
- a) TB is a public health problem
- b) TB is an infectious disease
- c) long-term treatment – 6–8 months
- d) noncompliance or no adherence leads to drug resistance

Should antiretroviral drugs have user charges? (2)

Lilongwe Lighthouse:
- Users pay MK2500 per month
- High default rates approaching 40%
- High death rates of 15–20% because of late presentation due to costs

Thyolo – MSF District:
- Drugs are provided free of charge to users
- Low default rates of 0.7%
- Low death rates of 8%

Antiretroviral drugs will therefore be free of user charges in the public sector in Malawi

Conclusions

- DOTS has an excellent track record for TB control in resource-constrained settings
- The same model can be used for delivering antiretroviral therapy
- This should lead to many lives being saved and the risk of drug resistance being kept low
- What is the experience in your country?
Unit 15: Field visit to a local health facility providing preventive, diagnostic and treatment services for TB and HIV/AIDS

Objectives

By the end of this unit, participants will be able:
1) to conduct a field visit to a local health facility providing preventive, diagnostic and treatment services for TB and HIV/AIDS;
2) to describe the organization of TB and HIV/AIDS services, including laboratory, recording and reporting and possible links between TB and HIV services; and
3) to discuss opportunities to improve coordination between TB and HIV/AIDS services in the health facility visited and in their own countries.

Methods

Introduction to the site of the visit
Field visit
Plenary discussion

Materials

Document 15.1: Checklist for the field visit
Document 15.1

Checklist for the field visit

a) Services visited

TB/HIV clinic___ Antiretroviral therapy clinic___ TB clinic___
Voluntary counselling and testing room___ Outpatient department___ Laboratory___
Other (specify) _________
Are the visited services available for both people with TB and people living with HIV/AIDS?
yes ___ no___
Comments

b) Collaborative TB/HIV activities implemented

<table>
<thead>
<tr>
<th>Collaborative TB/HIV activity</th>
<th>Yes</th>
<th>No</th>
<th>Guide for comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish mechanisms for collaboration</td>
<td></td>
<td></td>
<td>To be asked during the field visit</td>
</tr>
<tr>
<td>A1. Coordinating body for TB/HIV activities available</td>
<td></td>
<td></td>
<td>At which level? How is it composed? Comments:</td>
</tr>
<tr>
<td>A2. Surveillance of HIV prevalence among people with TB performed</td>
<td></td>
<td></td>
<td>Systematically performed? Are data available? Comments:</td>
</tr>
<tr>
<td>A3. Joint TB/HIV planning performed</td>
<td></td>
<td></td>
<td>How is it performed? Comments:</td>
</tr>
<tr>
<td>A4. Monitoring and evaluation conducted</td>
<td></td>
<td></td>
<td>How is it organized? Which indicators are used? Comments:</td>
</tr>
<tr>
<td>Decrease the burden of TB among people living with HIV/AIDS</td>
<td></td>
<td></td>
<td>To be asked and observed during the visit</td>
</tr>
<tr>
<td>B1. Intensified TB case-finding established</td>
<td></td>
<td></td>
<td>Where is it performed? How is it organized? Which screening tools are used? Comments:</td>
</tr>
<tr>
<td>B2. Isoniazid preventive therapy introduced</td>
<td></td>
<td></td>
<td>Where is it performed? How is it organized? Comments:</td>
</tr>
<tr>
<td>B3. TB infection control in health care and congregate settings ensured</td>
<td></td>
<td></td>
<td>How is it organized? Comments:</td>
</tr>
<tr>
<td>Decrease the burden of HIV/AIDS among people with TB</td>
<td></td>
<td></td>
<td>To be asked and observed during the visit</td>
</tr>
<tr>
<td>C1. HIV testing and counselling provided</td>
<td></td>
<td></td>
<td>Where is it performed? Is a rapid test used for testing? Is a HIV test algorithm available? How is counselling organized? Comments:</td>
</tr>
<tr>
<td>C2. HIV prevention methods introduced</td>
<td></td>
<td></td>
<td>Where is it performed? How is it organized? Comments:</td>
</tr>
<tr>
<td>C3. Co-trimoxazole preventive therapy introduced</td>
<td>Where is it performed? How is it organized? Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C4. HIV/AIDS care and support ensured</td>
<td>Where is it performed? How is it organized? Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5. Antiretroviral therapy introduced</td>
<td>Where is it performed? How is it organized? Are guidelines available? Is it free of user charges? Which regimens are used? What are the criteria and timing for starting antiretroviral therapy among people with TB? Which antiretroviral therapy regimen is used for people with TB? Is treatment supervised? Are incentives given to enhance adherence? Is there a mechanism for referring people with TB/HIV at the end of TB treatment? Comments:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c) Specific issues

1) Recording and reporting
Are standardized forms and/or registers for TB/HIV collaboration available for:
TB/HIV yes ___ no ___; Antiretroviral therapy yes ___ no ___; TB yes ___ no ___;
Voluntary counselling and testing yes ___ no ___;
Comments:
___________________________________________________________________________________
___________________________________________________________________________________

2) Continuum of care
Are the some of the following activities implemented?
Link with community support organizations yes ___ no ___; Home-based care activities yes ___ no ___;
Peer group support yes ___ no ___; Involvement of nongovernmental organizations yes ___ no ___;
Nutrition support yes ___ no ___;
Comments:
___________________________________________________________________________________

3) Health education
Is health education on TB/HIV provided for patients and caregivers? Yes ___ no ___
Are there TB/HIV posters or brochures in the local languages? Yes ___ no ___
Comments:
___________________________________________________________________________________

<table>
<thead>
<tr>
<th>d) Summary of the visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengths</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Problems identified</td>
</tr>
<tr>
<td>Suggested solutions or recommendations</td>
</tr>
<tr>
<td>135</td>
</tr>
</tbody>
</table>
Unit 16: Individual finalization of plans for implementing collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:
1) to review the contents of their draft plan for collaborative TB/HIV activities based on what has been learned in previous units; and
2) to complete the draft plan for collaborative TB/HIV activities.

Methods

Individual work on plans

Materials

Document 2.1: How to prepare a plan for implementing collaborative TB/HIV activities (slides)
Unit 17: Discussion of plans for implementing collaborative TB/HIV activities

Objectives

By the end of this unit, participants will be able:
1) to review and discuss plans for implementing collaborative TB/HIV activities; and
2) to identify the strengths and weaknesses of their own draft plans to be improved later.

Methods

Plenary presentation: Presentation of selected plans
Plenary discussion

Materials

Document 17.1: Criteria for assessing plans
Document 17.1

Criteria for assessing plans

The plans will be assessed based on the following criteria:

1) existence of a clear background providing the context for the activities proposed;

2) existence of clear:
   • goal
   • objectives
   • targets;

3) inclusion of collaborative TB/HIV activities that correspond to the context described in the background and are based on the *Interim policy on collaborative TB/HIV activities* (6);

4) inclusion of indicators for each activity considered;

5) inclusion of the following for each activity of the plan:
   • responsible person or organization
   • description of the activity
   • product of the activity
   • budget per quarters; and

6) The plan following a logic and taking into consideration what was presented during the course.
Unit 18: Course evaluation

Objectives

By the end of the course, participants will have:
1) finalized their own plan for implementing collaborative TB/HIV activities;
2) filled out an evaluation questionnaire (course evaluation form, Document 1.2/18.1); and
3) synthesized verbally their opinions about the course.

Methods

Individual work on materials provided

Materials

Document 1.2/18.1: Course evaluation form (please see page 10)
Annex 1: The Democratic Republic of Fictitia, a country with a high TB and HIV burden

Document for group exercises and discussion, TB/HIV training course for managers

Introduction

The Democratic Republic of Fictitia is an ancient country situated in the south-east part of Afrasia. Fictitia borders Country A to the north and east and Country B to the east and south. The area of the country is 343 100 km², with a population density of 43.8 people per km². According to the National Statistical Agency of the Ministry of the Interior, the population was 9 188 400 on 1 January 2002. The estimated population in 2004 was 9 653 000 for the entire country and 987 900 for South City, the capital of the country. The national language is Fictik.

After gaining independence in early 1989, the country faced economic difficulties and endured a political and ethnic crisis that led to a civil war in the middle of 1989. The government could not concentrate on economic reforms until the General Peace Agreement was signed on 17 February 1995. The first Presidential election was held in June 1997, considered as the beginning of the reconstruction phase.

The currency used since independence is FIF (Fictitian fictik; US$ 1 = FIF 1960 as of July 2005). The gross domestic product in 2001 was US$ 260 per capita (US$ 318 in 1998). According to the World Bank, about 80% of the population was considered to be poor in 2002.

Organization of the health system and infrastructure

In order to develop an accessible and affordable system on line with human and financial resources available in the country, in 1998 Fictitia reduced the public health system to 59 health districts serving the 98 administrative districts. The health structure has three levels, central, provincial and district, which includes primary health centres and district hospital. There is no public health management function at the regional level. The health district level consists of 59 district health departments with catchment populations of about 150 000 each. Currently 59 district hospitals are functioning with 3350 beds. There are 582 primary health centres (dispensaries) countrywide, including 65 in South City and 92 in the provincial cities. About 124 health centres have 808 beds, and 458 health centres have no beds. In addition to the dispensaries, there are also 759 health posts, whose staff is not paid by the Ministry of Health. The catchment population of each health centre is about 15 000. Where population density is low and there are geographical barriers to access, districts can also establish health posts smaller than health centres. The private sector (private clinics, laboratories, pharmacies and cabinets) is growing rapidly, especially in the main cities. The coverage plan identified that primary health centres should offer the minimum package of services and district and provincial hospitals complementary
packages of services. Health posts should offer community services or advance primary health services such as immunization once a week. When the minimum package of services is introduced, staff receive a course of training and then the facility receives regular drug supplies corresponding to the minimum package of services. In 2002, about 48% of health centres were offering the minimum package of services. This reflects the scale of the task of reforming a national health system, and there have also been delays in implementation. In 1998, the Essential Drug List was developed and adopted and is being revised every two years. The quality control laboratories of the Ministry of Health control drug quality. However, the existing laboratories do not comply with modern requirements and good manufacturing practices. Most of the TB drugs and antiretroviral drugs, including fixed-dose combinations, are available on the private market. Humanitarian aid provides most drugs. The Global Drug Facility has provided TB drugs for the entire country since last year in kits for categories 1 and 2 and in blister packs for the category 3 regimen.

National HIV/AIDS Programme

HIV/AIDS burden

HIV/AIDS is a recent priority health problem in Fictitia. The country faces an epidemic increase of AIDS among population groups engaging in high-risk behaviour such as sex workers together with an increase in the general population. Information on the HIV seroprevalence among antenatal clinic attendees has been available since the mid-1980s. The rate rose from 1.4% in 1992 to 12.2% in 2004. The HIV prevalence among blood donors increased from 0.3% in 1986 to 7.2% in 2000 and 12.6% in 2004. In 2004, 44% of sex workers tested in South City were HIV positive and 69% of sex workers tested in other major cities were HIV positive. In early 2005, 38% of people attending sexually transmitted infection clinics tested in five sites were HIV positive. A recent study showed that 50% of injecting drug users have acquired HIV. The recorded HIV prevalence among people with TB disease increased from 2.2% in 1992 to 29% in 2004.

The estimated numbers of people living with HIV/AIDS at the end of 2004 were 310 000 15–49 years old, including 140 000 women, and 40 000 0–15 years old.

Reported AIDS cases:

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>12</td>
<td>150</td>
<td>1985</td>
<td>3895</td>
<td>4962</td>
<td>4879</td>
<td>5796</td>
<td>6086</td>
<td>7543</td>
</tr>
</tbody>
</table>

An estimated 25 000 people died from AIDS in 2004.

An estimated 100 000 children younger than 15 years old were orphans (losing their mother or father because of AIDS) at the end of 2004.

HIV is currently mainly transmitted via heterosexual intercourse. Among sexually transmitted infections, morbidity from syphilis and gonorrhoea is quite high.

Heroin became available in South City in the mid-1990s and has modified the practice of the users who earlier had access to the more traditional opium smoking. The appearance of disposable syringes has also modified needle-sharing habits. A national programme for drug abuse control and harm reduction was established in January 1998 in South City. Easy access to injecting pharmaceutical drugs, heroin or opium is
clearly visible in major cities and to some extent in the entire country. Easy access to various drugs increases poly-drug addiction. However, socio-medical support and repression are not clearly distinguished, and sound detoxification and support structures are lacking.

About 50 000 people need antiretroviral therapy, including 15 000 needing both antiretroviral therapy and TB therapy.

Number of people living with HIV/AIDS receiving antiretroviral therapy.

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>300</td>
<td>1100</td>
<td>4100</td>
</tr>
</tbody>
</table>

The proportion of people receiving antiretroviral therapy who have TB is unknown.

HIV/AIDS response

The national response to the HIV epidemic had initially focused on disseminating information, changing behaviour and promoting condoms as well as supportive care for people living with HIV/AIDS. Despite the advent of effective antiretroviral therapy in affluent countries in the mid-1990s, access to such therapy has been very limited in Fictitia, and when available, the user fees have been too expensive for the average person. The government antiretroviral therapy programme for adults was conceived in 2001 and commenced in January 2002 with drugs and test kits procured for 1500 people. The antiretroviral therapy programme commenced in three national hospitals and two district hospitals. Five model centres are now used as centres of excellence for training, and 20 district centres deliver antiretroviral therapy. Fictitia started preventing mother-to-child transmission of HIV in 2001 with two model centres jointly managed by the Ministry of Health and UNICEF; this is now available in 35 district centres.

Fictitia’s voluntary counselling and testing services are being scaled up outside South City: there are sites at three national hospitals, all nine provincial hospitals and 29 district hospitals. Blood safety remains a major concern. Managing sexually transmitted infections requires expanded efforts. Fictitia captured the UNAIDS/WHO policy statement on HIV testing (1), recommending routinely offering HIV testing by health care provider to everyone with sexually transmitted infections, to pregnant women and in settings with a high prevalence of HIV infection. More research is needed to better understand the sexual behaviour contributing to the epidemic.

Policies on antiretroviral therapy

The government budget allocated for drug procurement is generally determined based on available resources without taking into account real drug needs. Antiretroviral drugs have not been registered but are used with authorization of the national drug regulatory authority.

Thanks to support from the Global Fund to Fight AIDS, Tuberculosis and Malaria and the United States Agency for International Development, the Ministry of Health purchased 1500 doses of antiretroviral drugs in 2001 and 5000 per year since 2004 (with loose tablets until 2002 and shifting to generics in two- and three-drug fixed-dose combinations in 2003). The first-line antiretroviral regimen and the programme for preventing mother-to-child transmission of HIV are stavudine + lamivudine +
nevirapine and stavudine + lamivudine + efavirenz using the following fixed-dose combinations: stavudine 30 mg + lamivudine 150 mg; stavudine 40 mg + lamivudine 150 mg; stavudine 30 mg + lamivudine 150 mg + nevirapine 200 mg; stavudine 40 mg + lamivudine 150 mg + nevirapine 200 mg; efavirenz 200 mg; nevirapine 200 mg. Drugs are stored in the Central Medical Store and the Central Medical Store delivers drugs within Fictitia directly to 59 districts 2–4 times per year. The United States Agency for International Development (USAID9 and the World Bank Multi-Country HIV/AIDS Program (MAP) for Afrasia are discussing possibilities to procure patented antiretroviral drugs in India in 2005 depending on the TRIPS (Trade-related Aspects of Property Rights) Agreement.

The first-line regimen in South City is stavudine + lamivudine + efavirenz using patented drugs through support from the United States Agency for International Development (limited quantity). People with both TB and HIV/AIDS are eligible for the first-line regimen and start the TB regimen and antiretroviral therapy together. In case of opportunistic infection, antiretroviral therapy is postponed. The first-line regimen in the other pilot sites and the rest of the country is stavudine + lamivudine + nevirapine.

National antiretroviral therapy guidelines have been developed based on WHO clinical staging, clinical eligibility and first- and second-line antiretroviral therapy regimens. CD4 equipment is currently available only in two national hospitals and one provincial hospital. CD4 count is planned to be included in the antiretroviral therapy guidelines being developed.

The DOTS strategy should become an integral part of the HIV/AIDS home care programme where available. All health care staff, including full-time TB staff, TB relay and private practitioners are to be involved in weekly observed antiretroviral therapy.

**National TB Control Programme**

*Introduction*

DOTS started to be implemented in pilot sites in 1992 and expanded in a phased manner throughout Fictitia within five years. The first DOTS implementation plan (1992–1997) endorsed the DOTS strategy and expanded it in all hospitals of Fictitia. Full DOTS population coverage was reached in 1997. The second DOTS expansion plan for 1999–2004 decentralized TB services. A new 10-year plan for 2005–2015 to reach the Millennium Development Goals by 2015 is under development, including the revised DOTS strategy (TB/HIV, multi-drug resistance, contributing to health system strengthening, engaging all care providers, empowering patients and communities and promoting research will be included). All 59 district hospitals, 9 provincial hospitals and most of the functioning 582 health centres are currently applying the DOTS strategy. More than half the health centres developed village health relay providing home care for people with TB disease and people living with HIV/AIDS together with religious authorities and traditional healers. The DOTS strategy is considered one of the most successful decentralized and integrated activities in Fictitia. The reasons for this success include securing core functions (presented in the section on achievements) such as TB planning, financing, human resources capacity including training and supervision, drug supply, service delivery, monitoring and evaluation, information, education and communication and social mobilization.

The treatment success rate has exceeded 85% since the inception of DOTS. However,
case detection was always much lower than the global target of detecting 70% of smear-positive TB cases adopted by Fictitia in successive five-year plans.

Maintaining political commitment for TB control is a priority in Fictitia, the Prime Minister being the Chairman of the National Committee against Tuberculosis.

The National Health Sector Strategy for 2004–2008 has been developed, reflecting the future Plan for Tuberculosis and AIDS Control. Antiretroviral therapy is to be scaled up countrywide by 2008 within the framework of the extended “3 by 5” initiative.

**TB control: description**

DOTS is an integral part of the minimum package of services delivered through the primary health care network, which includes all public facilities and more than 1000 village health relays. Diagnosis is ensured following national guidelines. Two sputum samples are collected for each suspected case (smear done, culture and drug susceptibility testing in the provinces surrounding four major cities) and chest X-ray is performed. If TB is confirmed, examinations are repeated at 1, 2, 3, 5 and 6 months and at the end of treatment.

TB regimens are provided to everyone with TB, as follows:
- category 1: 2(RHZE)/4(RH) – (rifampicin + isoniazid + pyrazinamide + ethambutol) for two months followed by (rifampicin + isoniazid) for four months;
- category 2: 2S(RHZE)/1(RHZE)/5(RH)3E3 – streptomycin and (rifampicin + isoniazid + pyrazinamide + ethambutol) for two months, (rifampicin + isoniazid + pyrazinamide + ethambutol) for one month followed by (rifampicin + isoniazid) and ethambutol three times weekly for five months;
- category 3: 2(RHZ)/4(RH) – (rifampicin + isoniazid + pyrazinamide) for two months followed by (rifampicin + isoniazid) for four months; and
- category 4 for multi-drug resistance is not standardized.

Category 1 is in patient kit forms with a blister pack of four-drug fixed-dose combinations (150 mg rifampicin + 75 mg isoniazid + 400 mg pyrazinamide + 275 mg ethambutol) and two-drug fixed-dose combinations (150 mg rifampicin + 75 mg isoniazid).

Category 2 is in patient kit forms with blister packs of four-drug fixed-dose combinations (150 mg rifampicin + 75 mg isoniazid + 400 mg pyrazinamide + 275 mg ethambutol), two-drug fixed-dose combinations (150 mg rifampicin + 150 mg isoniazid) and 400 mg ethambutol, 60 syringes and water for injection vials.

Category 3 is in patient kits with blister packs of three-drug fixed-dose combinations (150 mg rifampicin + 75 mg isoniazid + 400 mg pyrazinamide) and two-drug fixed-dose combinations (150 mg rifampicin + 75 mg isoniazid).
Treatment for latent TB infection is provided to all people living with HIV/AIDS and other recent Mantoux tuberculin skin test converters (isoniazid, 5 mg per kg per day for 6–9 months, in which TB disease is clinically excluded). The Mantoux tuberculin skin test is performed in TB clinics, while treatment for latent TB infection is ensured by TB clinics or general health services in major cities. As the main research activity, a trial is ongoing comparing isoniazid for six months with isoniazid + moxifloxacin for three months, and a second project is aimed at evaluating a gamma-interferon-based test for the diagnosis of infection.

Drugs and laboratory supplies have been successfully maintained through Global Drug Facility TB drugs and laboratory kits purchased using the Global Fund to Fight AIDS, Tuberculosis and Malaria grant received in 2002, the private sector not being covered. Standardized TB case recording and reporting forms have been adopted nationwide. Reporting is accurate in the public sector but cannot produce consistent data on activity performed in the private and traditional sectors. Staff capacity development is an essential permanent activity that was secured during the DOTS expansion phase. Three quarters of the TB team at every level has been changed since DOTS implementation started. More than 250 health staff and 250 TB activists in the community are trained or refreshed yearly. Full-time and part-time TB professional posts have been secured at the central and district levels. However, human resources for TB remain insufficient to face the rapid increase in TB burden and activity. Specific supervision has always been secured and became again the only recognized supervision activity after joint supervision failed and was stopped in 2001. Fictitia has the worst TB epidemic in Afrasia, with 43 500 estimated new TB cases per year (451 per 100 000 population), which include an estimated 18 600 new smear-positive cases per year (193 per 100 000 population). TB mortality represents with AIDS one of the primary causes of mortality due to infectious disease, greater than meningitis and cholera outbreaks, or malaria. TB notification has more than doubled in less than five years due to better access and an unprecedented change in TB burden mainly due to HIV and TB coinfection. The importance given to TB control in the current health system has dramatically increased to face the rapid change in TB burden. Smear-positive TB notification increased 5–10% per year between 1998 and 2004 and seems to have tapered in the past one or two years. The incidence of notified smear-positive TB was 119 per 100 000 population in 2004. The prevalence of multi-drug-resistant TB is growing, being 5% in newly diagnosed cases in 2004. Treatment success among multi-drug-resistant TB cases is 50% (60% in those newly diagnosed and 40% in previously treated cases).


<table>
<thead>
<tr>
<th>TB case notification, 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Estimated number of TB cases</strong></td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>43 500</td>
</tr>
</tbody>
</table>

aDOTS detection rate
Treatment outcomes for DOTS, 2003

<table>
<thead>
<tr>
<th>Registered cases (new sputum smear positive)</th>
<th>Cured</th>
<th>Completed treatment</th>
<th>Defaulted</th>
<th>Failed</th>
<th>Died</th>
<th>Transferred out</th>
<th>% not evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 898</td>
<td>85.3%</td>
<td>0.4%</td>
<td>1.5%</td>
<td>4.7%</td>
<td>7.4%</td>
<td>0.7%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Treatment success: 85.7%

DOTS coverage

<table>
<thead>
<tr>
<th>% of population covered by DOTS in 2004a</th>
<th>Number of new districts introducing DOTS in 2004</th>
<th>Total number and % of districts implementing DOTS by 2004</th>
<th>Total number and % of health units implementing DOTS, 2004</th>
<th>National budget for TB control (per capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>0</td>
<td>59/59 (100%)</td>
<td>59 district hospitals + 5 HIV units</td>
<td>US $0.25</td>
</tr>
</tbody>
</table>

aAs reported in WHO report 2002: global tuberculosis control – surveillance, planning, financing (Geneva, WHO).

TB/HIV

HIV testing and counselling among TB cases initiated by health providers is delivered jointly in 50% of TB units in 28 districts. All 28 districts provide co-trimoxazole preventive therapy to people with HIV/AIDS and TB, and integrated TB and antiretroviral therapy services started in 2004 in three pilot sites. Everyone with TB is proposed an HIV rapid test through rapid pretest and post-test counselling services at voluntary counselling and testing centres when testing is not available in TB units. Acceptance rate for HIV testing ranges from 50% to 98%. At site 1, antiretroviral therapy eligibility is based on CD4 count (less than 350 per mm$^3$) and viral load, and the first-line regimen is stavudine + lamivudine + efavirenz using patented drugs. People with TB and HIV/AIDS who are eligible start the TB regimen and antiretroviral therapy 2–4 weeks later. In case of opportunistic infection, antiretroviral therapy is postponed. CD4 count is monitored twice in the first year of treatment. The second-line regimen is not standardized and often based on available antiretroviral drugs. In 2004, 10 TB cases started antiretroviral therapy in site 1 with stavudine + lamivudine + nevirapine due to a shortage of efavirenz. Shortages of HIV rapid test kits occurred twice in 2004, for two and six weeks, respectively. At sites 2 and 3, eligibility for antiretroviral therapy is based on clinical staging, and the first-line regimen is stavudine + lamivudine + nevirapine with 5% stavudine + lamivudine + efavirenz for pregnant women and people with side-effects. Antiretroviral therapy is provided in the TB clinics after 10 weeks. CD4 is not monitored and recording is not standardized. Discussion on further transfer of people with TB and HIV/AIDS to the HIV clinics or to primary health facilities (dispensaries) after TB treatment is
completed is under discussion. TB is screened in all HIV units in 20 districts, in most of 30 centres for preventing mother-to-child transmission of HIV and some voluntary counselling and testing centres. HIV recording is not standardized, and the number of people suspected of having TB referred is unknown. Isotiazid preventive therapy is said to be proposed in all HIV units and centres for preventing mother-to-child transmission of HIV, but limited information is available. Five HIV units are providing DOTS in close collaboration with the nearest TB unit.

**National financial support**

The revised plan for HIV/AIDS control, including comprehensive care, was estimated to cost US$ 217 million for 2003–2008. Fictitia has been successful in mobilizing resources for HIV/AIDS control. Regular budget allocation: US$ 5.6 million (2004), US$ 9.6 million (2005) (2% of the budget of the Ministry of Health is allocated for HIV/AIDS). In 2003, a grant agreement was signed with the Global Fund to Fight AIDS, Tuberculosis and Malaria for the allocation of US$ 36 million over the next five years. Through its Multi-Country HIV/AIDS Program for Afrasia, the World Bank also approved an allocation of US$ 25 million over four years. However, with an increasing epidemic burden, especially the need to deal with the growing numbers of HIV-positive people, additional external support is still needed. The following table reports (in millions of US dollars) the 2004–2005 financial plan:

**Budget for HIV/AIDS and (TB) in millions of US dollars**

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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Staff: national, technical assistance</td>
<td>2.0</td>
<td>10.8</td>
<td>2.0</td>
<td>0.8</td>
<td>15.6</td>
</tr>
<tr>
<td>2. Laboratory, reference laboratory, equipment and maintenance</td>
<td>2.5</td>
<td>0.5</td>
<td>0.0</td>
<td>0.5</td>
<td>3.5</td>
</tr>
<tr>
<td>3. Drugs (including distribution costs)</td>
<td>11.0</td>
<td>0.0</td>
<td>13.0</td>
<td>0.0</td>
<td>24.0</td>
</tr>
<tr>
<td>4. Psychosocial support</td>
<td>5.5</td>
<td>0.2</td>
<td>0</td>
<td>1.0</td>
<td>6.7</td>
</tr>
<tr>
<td>5. Programme and case management: supervision, transport, maintenance, recording and reporting, (excluding staff costs covered in 1 and laboratory costs covered in 2)</td>
<td>6.0</td>
<td>0.0</td>
<td>1.5</td>
<td>0.0</td>
<td>7.5</td>
</tr>
<tr>
<td>6. Training, including fellowship, conferences and meetings</td>
<td>1.2</td>
<td>0.0</td>
<td>2.5</td>
<td>0.0</td>
<td>3.7</td>
</tr>
<tr>
<td>7. Prevention (excluding those already identified above)</td>
<td>1.8</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
<td>3.8</td>
</tr>
</tbody>
</table>
8. Operating costs of dedicated facilities: office equipment, building and maintenance (excluding staff included in 1 and those identified above)  | 4.0  | 0.7  | 3.0  | 0.0  | 7.7  
9. Surveillance and research (excluding those identified above)  | 2.0  | 0.0  | 1.0  | 0.5  | 3.5  
10. Miscellaneous  | 0.0  | 1.0  | 0.0  | 0.0  | 1.0  
Total  | 36.0 | 13.2 | 25.0 | 2.8  | 77.0  

**Future challenges**

Future challenges include overwhelmed TB and HIV units, low decentralization and community involvement, late and variable proportions of TB cases tested for HIV, irregular HIV test supply, delays for HIV-positive people with TB disease to access antiretroviral therapy, lack of an exit strategy to hand over antiretroviral therapy after TB treatment and limited availability of CD4 equipment in TB units.

On the HIV side, lack of standardized registration, lack of supervision, management supply, access to efavirenz, unclear implementation of isoniazid preventive therapy and intensified case-finding, poor adherence to antiretroviral therapy, unknown quality of antiretroviral therapy, inadequate antiretroviral therapy in the private sector and unknown levels of multi-drug-resistant HIV (reaching 1% countrywide) and multi-drug-resistant TB.
### Annex 2. Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AAI</td>
<td>Accelerated Access Initiative</td>
</tr>
<tr>
<td>AIDS</td>
<td>acquired immunodeficiency syndrome</td>
</tr>
<tr>
<td>AMDS</td>
<td>AIDS Medicines and Diagnostics Service</td>
</tr>
<tr>
<td>ARV</td>
<td>antiretroviral</td>
</tr>
<tr>
<td>ART</td>
<td>antiretroviral therapy</td>
</tr>
<tr>
<td>CMS</td>
<td>central medical store</td>
</tr>
<tr>
<td>DOT</td>
<td>directly observed therapy</td>
</tr>
<tr>
<td>DOTS</td>
<td>WHO-recommended strategy for controlling TB</td>
</tr>
<tr>
<td>GDF</td>
<td>Global Drug Facility</td>
</tr>
<tr>
<td>HAART</td>
<td>highly active antiretroviral therapy</td>
</tr>
<tr>
<td>HIV</td>
<td>human immunodeficiency virus</td>
</tr>
<tr>
<td>IEC</td>
<td>information, education and communication</td>
</tr>
<tr>
<td>IMAI</td>
<td>Integrated Management of Adolescent and Adult Illness</td>
</tr>
<tr>
<td>IMCI</td>
<td>Integrated Management of Childhood Illness</td>
</tr>
<tr>
<td>MTCT</td>
<td>mother-to-child transmission of HIV</td>
</tr>
<tr>
<td>NsRTI</td>
<td>nucleoside reverse-transcriptase inhibitors</td>
</tr>
<tr>
<td>NtRTI</td>
<td>nucleotide reverse-transcriptase inhibitors</td>
</tr>
<tr>
<td>NNRTI</td>
<td>non-nucleotide reverse-transcriptase inhibitors</td>
</tr>
<tr>
<td>PI</td>
<td>protease inhibitor</td>
</tr>
<tr>
<td>PMTCT</td>
<td>prevention of mother-to-child transmission of HIV</td>
</tr>
<tr>
<td>PTB</td>
<td>pulmonary tuberculosis</td>
</tr>
<tr>
<td>SS+</td>
<td>sputum smear positive</td>
</tr>
<tr>
<td>SS–</td>
<td>sputum smear negative</td>
</tr>
<tr>
<td>STI</td>
<td>sexually transmitted infection</td>
</tr>
<tr>
<td>SW</td>
<td>sex workers</td>
</tr>
<tr>
<td>TB</td>
<td>tuberculosis</td>
</tr>
<tr>
<td>UNAIDS</td>
<td>Joint United Nations Programme on HIV/AIDS</td>
</tr>
<tr>
<td>UNDP</td>
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