

TUBERCULOSIS and **HIV**

**A framework to address
TB/HIV co-infection
in the Western Pacific Region**



World Health Organization
Regional Office for the Western Pacific

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WHO Library Cataloguing in Publication Data

Tuberculosis and HIV : A framework to address TB/HIV co-infection in the Western Pacific Region.

1. Tuberculosis --complications. 2. Acquired immunodeficiency syndrome. 3. HIV infection -- complications.

ISBN 92 9061 091 3 (NLM Classification: **WF 200**)

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Introduction

The human immunodeficiency virus (HIV) has a dramatic impact on tuberculosis (TB) control in countries with a high burden of TB/HIV. At the same time, tuberculosis is not only the leading cause of death among people with the acquired immunodeficiency syndrome (AIDS), but also the most common curable infectious disease among people living with HIV/AIDS (PHA). This has led to the realization that additional interventions are urgently needed to augment the WHO-recommended DOTS strategy for TB control. Tackling tuberculosis should include tackling HIV as the most potent force driving the tuberculosis epidemic; tackling HIV should include tackling tuberculosis as a leading killer of PHA. The World Health Organization's (WHO) global response has been the development of the global framework for TB/HIV with the aim to reduce tuberculosis transmission, morbidity and mortality (while minimizing the risk of anti-tuberculosis drug resistance), as part of overall efforts to reduce HIV-related morbidity and mortality in high HIV prevalence settings. The global framework largely focuses on sub-Saharan Africa.

The rising number of HIV infections increasingly affects the TB prevalence in the Western Pacific Region (WPR), which carries up to one-third of the global TB burden. However, the TB/HIV problem has not yet reached epidemic proportions in most countries in the Region. Furthermore, the structure of the health service delivery system in many countries in the Region differs from the system in Sub-Saharan Africa. These considerations led the Stop TB and HIV/AIDS units in the WHO Western Pacific Regional Office to develop a Regional framework to address TB/HIV, fitting with the Region's epidemiological situation and health care setting.

This framework, which draws on the *Global strategic framework to reduce the burden of TB/HIV*¹ and on the *Guidelines for phased implementation of collaborative TB and HIV activities*,² was developed based on the following two premises. First, the National TB Programme (NTP) needs to address the impact of HIV, i.e. higher caseload of TB and increasing drug-resistant TB, and to mobilize resources related to TB/HIV activities. Second, the National AIDS Programme (NAP) needs to prolong the life and reduce the suffering of PHA through better management of TB, and to mobilize resources for TB/HIV.

The Regional framework is built on the strengths of the individual National TB and AIDS Programmes, and identifies areas in which both programmes complement each other in addressing TB/HIV. This approach is considered useful, not only for countries with a relatively high prevalence of HIV, such as Cambodia, but also for most of countries in the Region that are faced with a relatively low prevalence of HIV. The scope of the Regional framework comprises interventions against tuberculosis (intensified case-

finding and cure and tuberculosis preventive treatment) and interventions against HIV (and therefore indirectly against tuberculosis), e.g. comprehensive prevention, care and support, including condoms, sexually transmitted infection (STI) treatment, safe injecting drug use (IDU) and antiretroviral (ARV) treatment. Key components of the Regional framework are: surveillance; diagnosis and referral, including voluntary counselling and testing (VCT) for HIV; interventions; and, areas of collaboration.

The framework outlines the roles of the individual TB and HIV/AIDS programmes (i.e. "who does what") and provides examples of how to operationalize the different components.

2

Background

2.1 TB/HIV Epidemiology

TB

TB is still a major health problem in the Region. Cambodia, China, the Philippines and Viet Nam are four of the 22 countries with the highest burden of TB in the world. It was estimated that the incidence of tuberculosis in the Region was 1 975 000 in 2000, of whom 860 000 were smear-positive. In total, 804 579 cases (all types) and 384 755 smear-positive cases were notified for 2000. Regional case notification rates per 100 000 population were 49 (all types) and 23 (smear-positive). Therefore, the case detection rate was 41% (all cases) and 45% (smear-positive). The latest notification of TB in countries with a high and intermediate TB prevalence is shown in Table 1.

Table 1 TB notification in countries with a high and intermediate prevalence of TB in the Western Pacific Region, 2002

Countries	Pop. (x 1000)	TB case notification, 1995 - 2001					Case notification, 2002			
		All cases (Number*)					Number		Rate/100 000	
		2002	1997	1998	1999	2000	2001	All Types*	New Sm +ve	All Types*
<i>Countries with a high burden of TB:</i>										
Cambodia	13 810	15 629	16 946	19 266	18 891	19 170	24 610	17 258	178	125
China	1 294 867	448 053	464 559	471 359	463 373	485 221	462 609	194 972	36	15
Lao People's Democratic Republic	5 529	1923	2153	2434	2234	2 382	2 621	1 829	47	33
Mongolia	2 559	2987	2915	3348	3109	3 526	3 829	1 670	150	65
Papua New Guinea	5 586	7977	11 291	12 189	12 121	3 470	5 324	926	95	17
Philippines	78 580	195767	162 360	145 807	128 495	107 133	118 408	65 148	151	83
Viet Nam	80 278	77 938	87 468	88 879	89 792	90 679	95 577	56 811	119	71
Sub-total	1 481 209	750 274	747 692	743 282	718 015	711 581	712 978	338 614	776	
<i>Countries with an intermediate burden of TB:</i>										
Brunei	350	149	198	267	307	216	221	112	63	32
Hong Kong (China)	6 981	7072	7673	7512	5141	7 262	6 608	1 890	95	27
Japan	127 478	42 190	44 016	40 800	39 384	35 489	32 828	10 807	26	8
Macao	460	575	465	422	449	465	388	147	84	32
Malaysia	23 965	13 539	14 115	14 908	15 057	14 830	14 389	7 958	60	33
Republic of Korea	47 430	33 215	34 661	32 075	21 782	37 268	34 967	11 345	74	24
Singapore	4 183	1977	2120	1805	1728	1 536	1 516	549	36	13
Sub-total	210 847	98 717	103 248	97 789	83 848	97 066	90 917	32 808	438	169
WPR TOTAL	1 692 056	834 722	839 121	843 990	804 579	808 647	825 603	393 130	48	23

* 'all types' includes new smear-positive, relapse, smear-negative and extra-pulmonary TB cases

HIV/AIDS

An overwhelming share of the global HIV burden is borne by low- and middle-income countries, where 95% of HIV-infected people live. Of the global total of 40 million people living with HIV/AIDS at the end of 2001, 28.1 million (70%) were in SubSaharan Africa followed by 7.1 million (18%) in Asia. In 2001 alone, an estimated 1.07 million adults and children were newly infected in Asia.³ WHO estimates that nearly 1 million adults and children are living with HIV/AIDS in the Region. The HIV estimates for selected countries in the Region are shown in Table 2.

Table 2 HIV estimates in countries with high, low and declining incidence (2002)		
Country/area	Estimated HIV prevalence (age 15-49)	Estimated HIV prevalence rate (age 15-49) (%)
Countries with high HIV incidence: primarily heterosexual transmission		
Cambodia	157 500	2.56
Papua New Guinea	16 000	0.64
Countries with high HIV incidence among injecting drug users and increasing heterosexual HIV transmission		
China	1 000 000	0.14
Viet Nam	130 000	0.30
Countries with low HIV incidence		
Hong Kong (China)	2 600	0.06
Japan	10 000	0.02
Republic of Korea	3 800	0.02
Lao People's Democratic Republic	1 400	0.06
Malaysia	41 000	0.35
Philippines	6 000	0.02
Singapore	3 400	0.15
Countries with declining HIV incidence		
Australia	12 000	0.12
New Zealand	1 200	0.06
Total	1 384 900	

TB/HIV

Escalating TB case rates over the past decade in many countries in sub-Saharan Africa are largely attributable to the HIV epidemic.⁴ In some countries in sub-Saharan Africa up to 70% of patients with sputum smear-positive pulmonary TB are HIV-positive. Since the mid-1980s, in many African countries, including those with well-organized programmes,^{5,6} annual TB case notification rates have risen up to fourfold, reaching peaks of more than 400 cases per 100 000 population.⁷

While in sub-Saharan Africa the HIV epidemic has a devastating impact on the TB epidemic, the proportion of new TB cases infected with HIV among all TB cases in the Western Pacific Region is still relatively low. Increasingly, however, countries in the Region are reporting rising numbers of HIV-positive TB patients. In Phnom Penh (Cambodia) no TB patients

were reported with HIV in 1992, but the proportion of TB patients with HIV infection among all TB cases increased rapidly from 7.9% in 1994 to 14% in 1999 and 31.3% in 2002. In Malaysia, the proportion of new TB cases with HIV infection increased from 2.6% in 1996 to 4.9% in 2000; and in Viet Nam, from 0.49% in 1996 to 1.73% in 2000. In 2002, an estimated 1.3 million people were infected with HIV in the Region. Among the estimated 53 000 AIDS deaths in the Region (2002), up to 20 000 can be attributed to TB.

2.2 Links Between TB and HIV

Clinical Interaction between TB and HIV

HIV fuels the TB epidemic in several ways.⁸ HIV promotes progression to active TB both in people with recently acquired⁹ and with latent¹⁰ *Mycobacterium tuberculosis* infections. HIV is the most powerful known risk factor for reactivation of latent TB infection to active TB.¹¹ The annual risk of developing TB in a PHA, who is co-infected with *M. tuberculosis*, ranges from 5%-15%. Up to 50% of PHA develop TB during their lifetime, compared to 5%-10% of HIV negative persons.¹² HIV increases the rate of recurrent TB,¹³ which may be due to either endogenous reactivation (true relapse) or exogenous re-infection.^{14,15}

TB may have an adverse effect on HIV progression (some studies show that the host immune response to *M. tuberculosis* enhances HIV replication and may accelerate the natural progression of HIV infection).^{16,17} Increasing TB cases in PHA pose an increased risk of TB transmission to the general community, whether or not HIV-infected.

At the level of immunodeficiency at which PHA develop TB, susceptibility to a range of diseases is associated with high case fatality rates by the end of TB treatment, typically about 20% for new sputum smear-positive and up to 50% for new sputum smear-negative cases.¹⁸ Yet many of the illnesses and causes of death in HIV-infected TB patients are potentially treatable or preventable.¹⁹

TB/HIV and National TB and AIDS Programmes

The TB/HIV epidemic not only affects individual patients, but also has an impact on the National TB Programme (NTP) and the National AIDS Programme (NAP).

Impact of HIV on NTP

- Higher incidence of TB: increasingly stretched services for diagnosis and case-holding
- Higher death rates: lower treatment success rates
- Increasingly stretched human resources in the health sector
- Increased risk of nosocomial TB infection
- Increased HIV-related mortality and morbidity in TB patients
- The stigma of HIV causes TB suspects to delay accessing health services.

Impact of TB on NAP

- TB is the most common treatable infectious HIV-related disease of PHA in countries with a high burden of TB.
- TB is the most common cause of death among PHA.
- Late TB diagnosis contributes to increased death rates in PHA.
- TB may accelerate the progression of HIV-related immunosuppression.

2.3 The Response to Decrease the Burden of TB and HIV

2.3.1 Global Response

Global Strategic Framework

The Global TB/HIV Working Group, coordinated by WHO, is one of six working groups established under the auspices of the Global Partnership to STOP TB. The group includes more than 100 experts on TB and HIV from more than 30 countries including representatives from international agencies and donors. The TB/HIV Working Group developed the *Global Strategic Framework to Reduce the Burden of TB/HIV*, which was endorsed by the Strategic and Technical Advisory Group for TB (STAG-TB). See Box 1.

Box 1 Key features of the Global Strategic Framework to Reduce the Burden of TB/HIV, 2002

- The strategic goal is to reduce TB transmission, morbidity and mortality (while minimizing the risk of anti-TB drug resistance), as part of overall efforts to reduce HIV-related morbidity and mortality in high HIV prevalence populations.
- The framework represents a strengthened unified health sector strategy to control TB among HIV-infected people as an integral part of the strategy for HIV/AIDS.
- The expanded scope of the new strategy for TB control in populations with high HIV prevalence comprises interventions against TB (intensified case-finding and cure and TB preventive treatment) and interventions against HIV (and therefore indirectly against TB), e.g. condoms, STI treatment, safe injecting drug use (IDU) and highly active antiretroviral treatment (HAART).
- The public health approach to decreasing the burden of TB/HIV requires more effective delivery of the available interventions by health service providers, with increased population coverage
- The applicability of health service interventions in response to HIV/AIDS at different levels of the health care system depends on the country's income level.
- A phased implementation of TB/HIV activities is promoted.

The focus of the global strategic framework is on the roles within the overall health system of HIV/AIDS and TB programmes in supporting the response of health service providers to the needs of people in high HIV populations. The framework calls for a coherent health service response, indicating the interventions applicable at different levels of the health care system according to available resources, and the criteria for determining priorities. It suggests ways forward for collaboration (leading to integration if demonstrably beneficial) between HIV/AIDS and tuberculosis programmes in supporting general health service providers. The framework also emphasizes priority research needs in developing new and improved interventions, monitoring their impact, and implementing national strategies to decrease the burden of TB/HIV

The main focus of the global framework is on sub-Saharan Africa since this region bears the overwhelming brunt of HIV-related TB. The framework is less relevant to regions where lower rates of HIV infection may fuel the tuberculosis epidemic.

Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)

The concept for an international funding mechanism to fight HIV/AIDS, TB and malaria was presented at the Okinawa G8 Summit in July 2000. Strongly supported by United Nations Secretary-General Kofi Annan and many national leaders, the concept of the Fund was unanimously endorsed in June 2001 at the United Nations General Assembly Special Session on HIV/AIDS. In July 2001, G8 leaders meeting in Genoa committed US\$ 1.3 billion to the Fund. The Global Fund to Fight AIDS, Tuberculosis and Malaria is an independent, public-private partnership working to: increase global resources to combat the three diseases; direct these resources where they are needed most; and ensure that these resources are used effectively.

The Fund was created to fight the global HIV/AIDS, TB and malaria epidemics by sharing resources and expertise across national boundaries, and between the private and public sectors. The Fund's Board consists of representatives from donor countries, developing countries, nongovernmental organizations (NGOs) and the private sector. The Fund will support interventions for the prevention, treatment, care and support of the infected and directly affected. Proposals to the Fund must be evidence-based, technically and developmentally sound, and must show that added resources will bring additional results.

2.3.2 Regional Response

The WHO Office of the Western Pacific Region recognizes the need to promote effective national responses to prevent and control TB/HIV. The Stop TB and HIV/AIDS units will guide countries based on the Regional Framework on TB/HIV and encourage the implementation of collaborative TB and HIV activities.

Joint NTP and NAP programme managers meeting

In recognition of the need for collaboration in the area of TB/HIV, the Stop TB and HIV/AIDS units of the WHO Office of the Western Pacific Region held the first joint Regional meeting of NTP and NAP managers in October 2001. The meeting discussed the TB/HIV situation in the Region

and explored mechanisms for effective collaboration between the two programmes. During the meeting, WHO presented the first draft of the Regional Framework on TB/HIV.

Regional Framework on TB/HIV

The rising number of HIV infections affects East-Asian countries with an existing high TB burden, as it does in sub-Saharan Africa. However, the status of the TB/HIV epidemic and the health service systems of these two regions are entirely different. For those reasons, the Stop TB and the HIV/AIDS units of the WHO Office of the Western Pacific Region jointly developed a regional strategic framework adapted to the particular epidemiological situation and health service system in the Region. The framework considers the strengths of National AIDS and TB Programmes within the existing health service system and identifies the areas in which both programmes can complement each other in addressing TB and HIV. See box 2.

Conceptual Framework

In countries with increasing rates of TB/HIV co-infection, it is apparent that persons involved primarily with tackling tuberculosis need to support the general health service response to HIV/AIDS, and vice versa. Tackling HIV should include taking on tuberculosis as a major killer of PHA; tackling tuberculosis should include acknowledging HIV as the most potent force driving the tuberculosis epidemic.

Box 2 Principles of TB/HIV framework

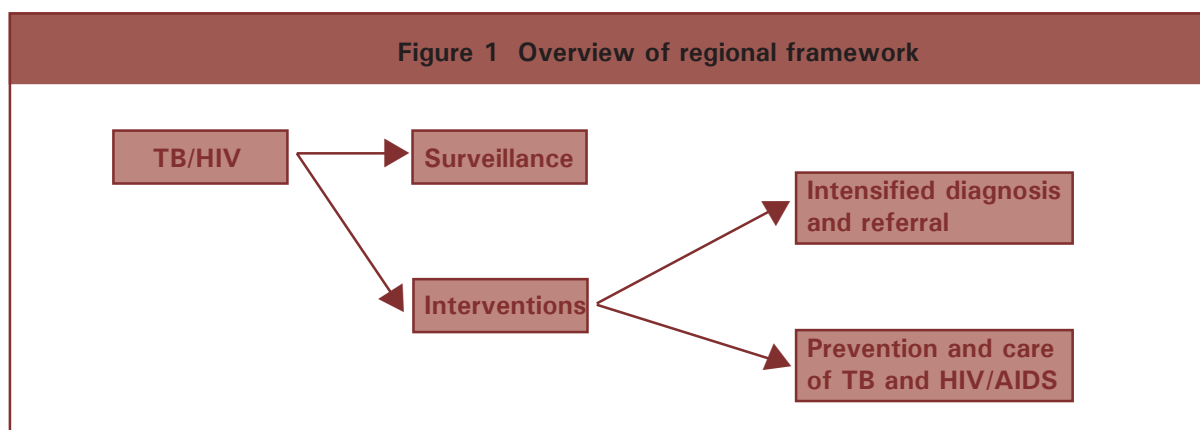
- NAP and NTP have well-defined responsibilities with regard to the diagnosis and referral of patients.
- NAP and NTP complement each other in the provision of interventions for TB/HIV with well-defined responsibilities.
- NAP and NTP have a joint responsibility in the surveillance of TB/HIV.

The Regional framework is built on the strengths of the individual National TB and AIDS Programmes and identifies areas in which both programmes complement each other in addressing TB/HIV (see Box 2). This approach is considered useful, not only for countries with a high prevalence of TB and a relatively high prevalence of HIV, such as Cambodia, but also for most countries in the Region that are faced with a relatively low prevalence of HIV in the presence of a high TB prevalence.

The main objectives of the Regional framework are:

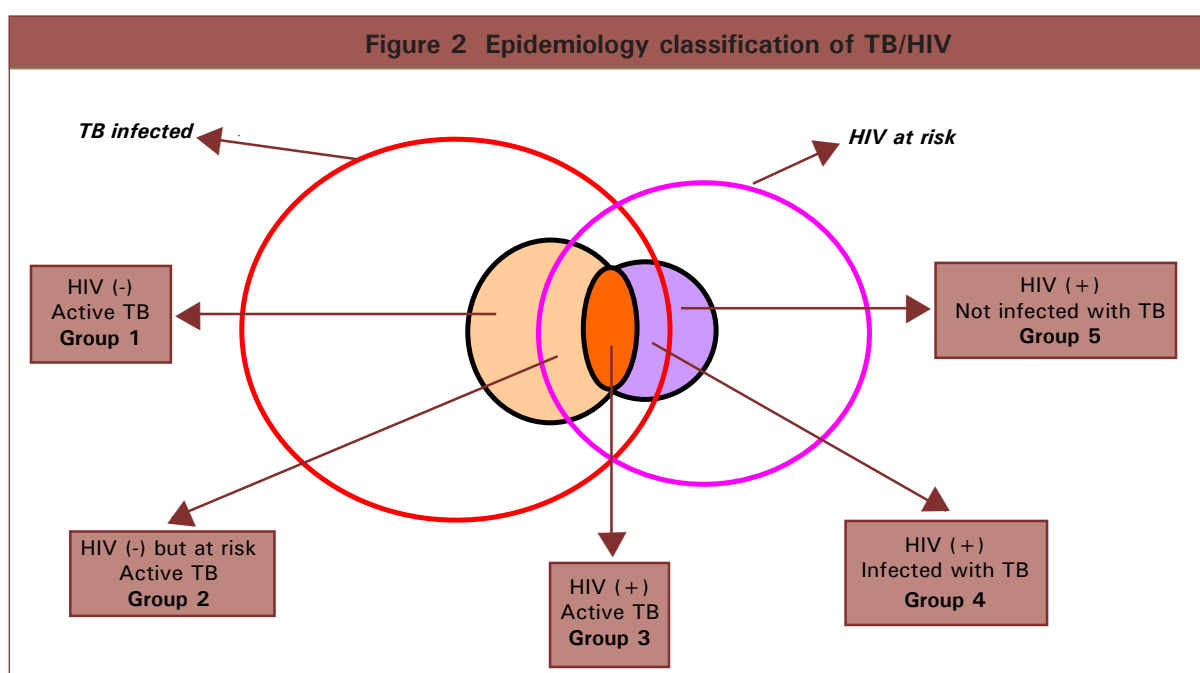
- to guide countries in the Region in understanding the interaction between TB and HIV;
- to assist countries to identify mechanisms for collaboration to address TB/HIV;
- to facilitate diagnosis and referral between TB and AIDS programmes, as well as the implementation of interventions for the prevention and care of TB/HIV; and
- to support countries in strengthening their TB/HIV surveillance systems.

The key aspects of the Regional framework are surveillance; diagnosis and referral; and interventions for prevention and care of TB and HIV/AIDS, including Isoniazid (INH) preventive therapy (IPT). Figure 1 illustrates the background of the concept of the framework.



The starting point for the Regional framework is intensified case finding for TB and voluntary counselling and testing (VCT) for HIV (see Chapter 5). The outcome of the diagnostic process will determine what type of intervention(s) is required and who is responsible for the intervention(s). After diagnosis, patients can be classified in the epidemiological groups shown in Figure 2. Key in this figure is the overlap between people who are infected with TB and people who are infected with HIV. The most relevant groups for specific interventions related to TB/HIV are Group 3 (HIV-positive and active TB), Group 4 (HIV-positive and infected with TB), and Group 5 (HIV-positive and not infected with TB).

For each of the groups of patients, a range of interventions or actions can be provided by the individual NTP or NAP, or through collaborative efforts by both programmes (see Chapter 6). These interventions or actions may include, but are not limited to, preventive (e.g. INH preventive therapy) and curative services (e.g. DOT and ARV treatment).



Surveillance of TB/HIV

It is estimated that HIV-infected persons have a 5%-10% annual risk and 30% lifetime risk of developing clinical TB. Although the TB epidemic has no direct impact on the HIV epidemic, it does affect the course of HIV infection, with TB being the most common opportunistic infection and cause of death in PHA.

Surveillance of HIV among tuberculosis patients has become increasingly recognized as important, as the HIV epidemic has continued to fuel the tuberculosis problem and as new solutions have emerged to address this situation. A good overview of HIV surveillance among TB patients is provided in a recent publication called *Guidelines for HIV Surveillance among Tuberculosis Patients*.²⁰

Surveillance activities for HIV usually refer to the intentional collection of data, through surveys, for example. However, it is increasingly recognized that surveillance systems can also make use of data that results from other activities, where surveillance is a secondary objective. HIV surveillance data may thus be obtained from activities such as voluntary counselling and testing (VCT) services and from the testing of blood for diagnostic purposes.

Surveillance of HIV infections, AIDS cases and TB/HIV co-infection is, in general, not different from surveillance for other diseases and infections. However, surveillance methods must be adapted because of the wide variation in prevalence of HIV and the importance of issues such as anonymity and confidentiality.

4.1 Rationale for surveillance

The overall objective for any communicable disease surveillance system is to collect, analyse and disseminate accurate epidemiological data. This should contribute to a better understanding of the magnitude of the problem and provide reliable, timely and cost-efficient information for action.

It is important for national TB control programmes to determine and monitor over time the prevalence of HIV infection in TB patients since it is a direct measure of the impact of the HIV epidemic on the tuberculosis problem. Surveillance is a useful tool for evaluating the current situation and for predicting future changes in TB incidence. Surveillance of TB/HIV is the starting point for intensified case detection and for the implementation of TB/HIV interventions. In some countries, surveillance data may be used to target interventions in areas most affected by the HIV epidemic.

In most countries in the Region, the existing health information system rarely monitors the prevalence of HIV infection among active TB cases and, therefore, is unable to provide warning signs for the spread of HIV and TB/HIV. Similarly, data to demonstrate the magnitude of TB among AIDS cases are not available in most countries. When such data are available, they are not routinely collected.

4.2 Methods of surveillance

The appropriate method mix for the surveillance of HIV among tuberculosis patients for individual countries depends on their HIV epidemic state. Figure 3 shows a flow chart that guides the selection of the most appropriate method of surveillance. There are three main methods of surveillance: periodic surveys, sentinel surveillance methods, and data from routine care.²¹ The main features of these three methods and their advantages and disadvantages are outlined in Annex I.

Periodic surveys

Periodic seroprevalence surveys have been the main surveillance method for measuring HIV prevalence among tuberculosis patients for many countries around the world. In countries without information on the magnitude of HIV prevalence among TB patients, a survey will be the preferred method. Well-conducted, cross-sectional seroprevalence surveys using a representative sample of tuberculosis patients can provide reliable point prevalence estimates of HIV prevalence among tuberculosis patients.

Sentinel surveillance

Sentinel surveillance can be described as the system by which 'specific sites and population groups are selected, a predetermined number of persons are routinely tested, and testing is performed in a regular and consistent way'.²² When interpreting the results from sentinel methods, it is important to estimate firstly the extent to which the people tested are representative of the sentinel population from which they are drawn and secondly, the extent to which the sentinel population is representative of the general tuberculosis population.

Data from routine care

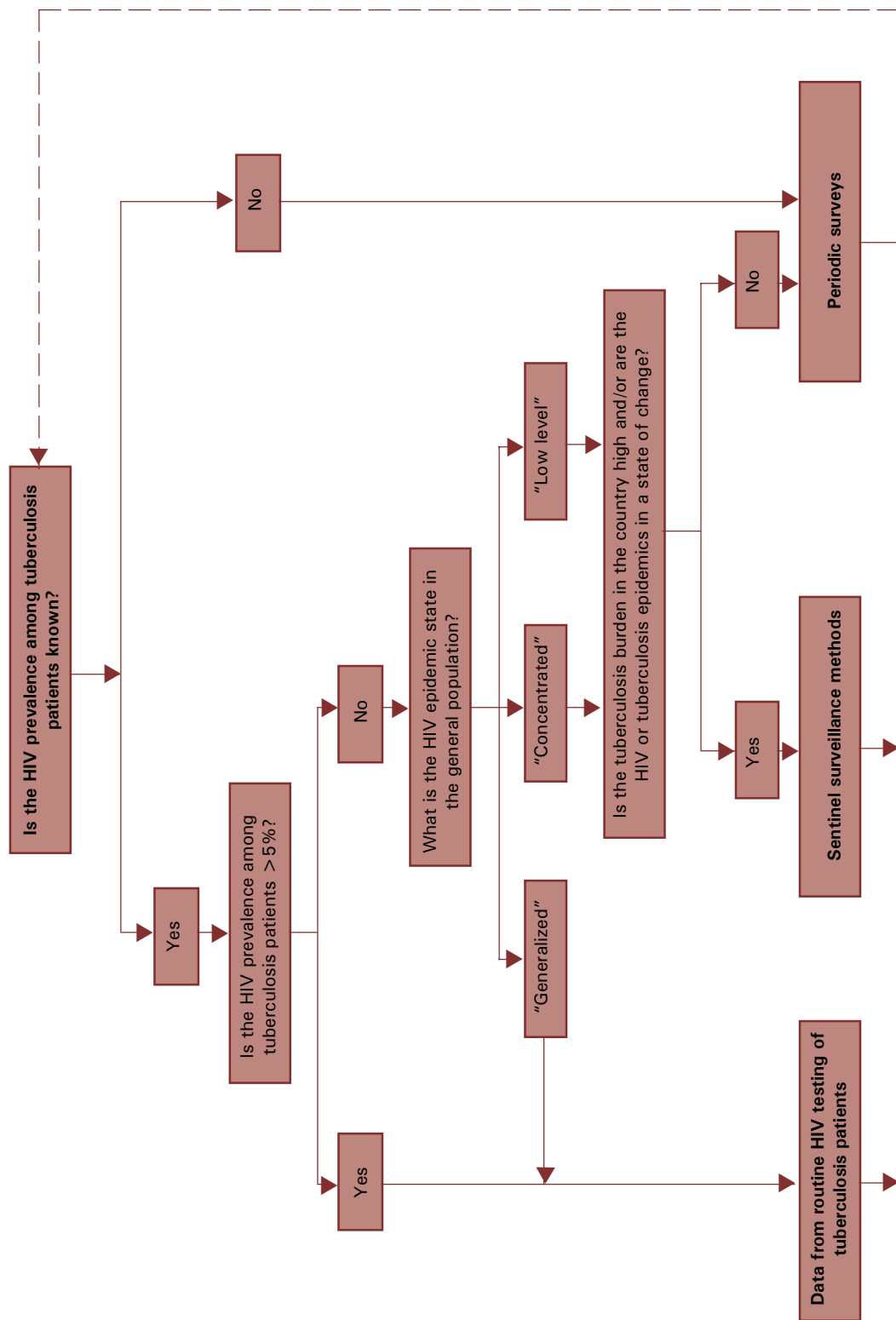
Data from routine patient care may be collected through a variety of methods. In general, the methods used to capture data from routine care will largely depend upon the existing tuberculosis and HIV/AIDS programmes in a country, as well as the available resources for surveillance activities. However, data from routine patient care should be based on the routine reporting of all individuals with tuberculosis who test positive for HIV antibodies for any reason and should include individuals tested for HIV for diagnostic reasons as well as clients of VCT services.

4.3 Implementation of surveillance

As mentioned above, in situations where the prevalence of TB/HIV is unknown, a baseline survey may need to be conducted. In other situations, sentinel surveillance or the collection of routine data from service delivery may be the most appropriate method. Whichever surveillance method is used, it is important that sufficient attention is given to sampling; quality of laboratory procedures; data management, including confidentiality; resource implications; and regular evaluation of the surveillance system.²³

More detailed information on surveillance methods and methodological issues is provided in *Guidelines for HIV surveillance among tuberculosis patients*.²⁴

Figure 3 Flow diagram for selection of surveillance method



5

TB Case Finding and VCT

The TB/HIV situation in the Region does not favour the implementation of a wide range of TB/HIV activities by the individual NAP and NTP. The provision of VCT requires skilled and well-trained staff, as does diagnosing TB cases. It would not be realistic to expect that such skills are available in each of the two programmes, particularly considering the relatively low prevalence of TB/HIV in many countries in the Region. This framework places the responsibility for VCT and TB case finding with the NAP and NTP, respectively, and encourages the implementation of an effective referral system between the two programmes. See Box 4.

Box 4 Principles of diagnosis and referral for NAP and NTP

- NAP is responsible and accountable for VCT in terms of qualifying the institution, supervising, training, recording and reporting.
- NTP is responsible and accountable for TB diagnosis in terms of qualifying the institution, supervising, training, recording and reporting.
- Effective referral mechanisms between NAP and NTP exist (developed and agreed upon by both programmes).

5.1 TB Case Finding

The currently recommended approach to TB case finding involves detecting cases among people presenting with symptoms (most importantly chronic cough) to general health services: **passive case finding**. It is also recommended to expand TB case finding only if tuberculosis control programmes can ensure a high rate (more than 85%) of successful treatment. Otherwise, finding more cases without being able to treat them successfully is likely to result in an increased pool of infectious cases (through decreased mortality but prolonged duration of infectivity of inadequately treated cases) and increased drug-resistance.

The most efficient approach to detecting more TB cases, with shortened duration of infectivity, involves intensified case finding in settings where HIV-infected people are concentrated. Potential TB cases include people with respiratory symptoms attending general health service providers, people attending centres for VCT for HIV, prisoners, and household contacts of persons who are HIV-positive and sputum smear-positive for TB.

In some countries, or parts of these countries, TB case finding will be done by designated TB clinics or TB hospitals. In most countries, TB services are provided as part of the general health services, but monitored and supervised by the NTP.

5.2 Identifying HIV using VCT

HIV-positive persons are at high risk of developing TB. Early diagnosis and treatment of TB in HIV-positive persons will help reduce the spread of TB and can alleviate the suffering of individual patients. It is, therefore, important to identify HIV-positive persons and ensure that they are effectively screened for TB. This emphasizes the need for NAP to identify HIV-positive persons through intensified screening of high-risk behaviour groups.

Because many PHA in resource-poor settings do not know their HIV status, they have no reason to adopt and/or maintain strategies that reduce the risk of further HIV transmission. They may not utilize health services until they become sick, which usually occurs during the late stage of HIV infection.

Identification of HIV status is usually done through VCT services. VCT is a process by which a client chooses to be tested for HIV for a variety of reasons (e.g. perceived risk, recommended by others, pregnancy, requirement for employment or entry to insurance scheme), through a service comprising a pre-test counselling session, HIV antibody testing, a post-test counselling session and optional follow-up counselling. Each element of the VCT process should be confidential and voluntary.

VCT encourages clients to reduce their risk of transmitting HIV or of becoming infected with HIV. Those found to be HIV-positive should be able to use health services at an early stage of HIV infection. However, in many countries in the Region only a limited number of people access VCT services, which are available at a limited number of locations. One of the major constraints of expanding VCT and promoting its utilization is the lack or insufficiency of HIV/AIDS care and support, which would help people to acknowledge and to appreciate the benefits of VCT.

There is an urgent need to develop HIV/AIDS care and support, including collaborative TB/HIV activities, particularly in countries or areas with intermediate or high HIV prevalence. VCT should be expanded simultaneously with the care and support component. VCT serves as the entry point for HIV prevention and care and includes many of the collaborative TB/HIV activities (see Chapter 6: TB/HIV Interventions).

In some countries in the Region, VCT services may be provided by designated STI and/or HIV/AIDS clinics; in other countries, VCT may be provided as part of the general health service delivery.

5.3 Diagnosis and Referral

A functioning referral system between TB and HIV/AIDS programmes focusing on TB case detection and VCT is the entry point to a range of interventions aimed at addressing TB/HIV. This framework recognizes the importance of intensified case finding of TB cases and VCT services

through a diagnosis and referral mechanism between NTP and NAP as illustrated in Figure 4. The referral system is based on the availability of diagnostic services that are provided by the individual TB and HIV/AIDS programmes.

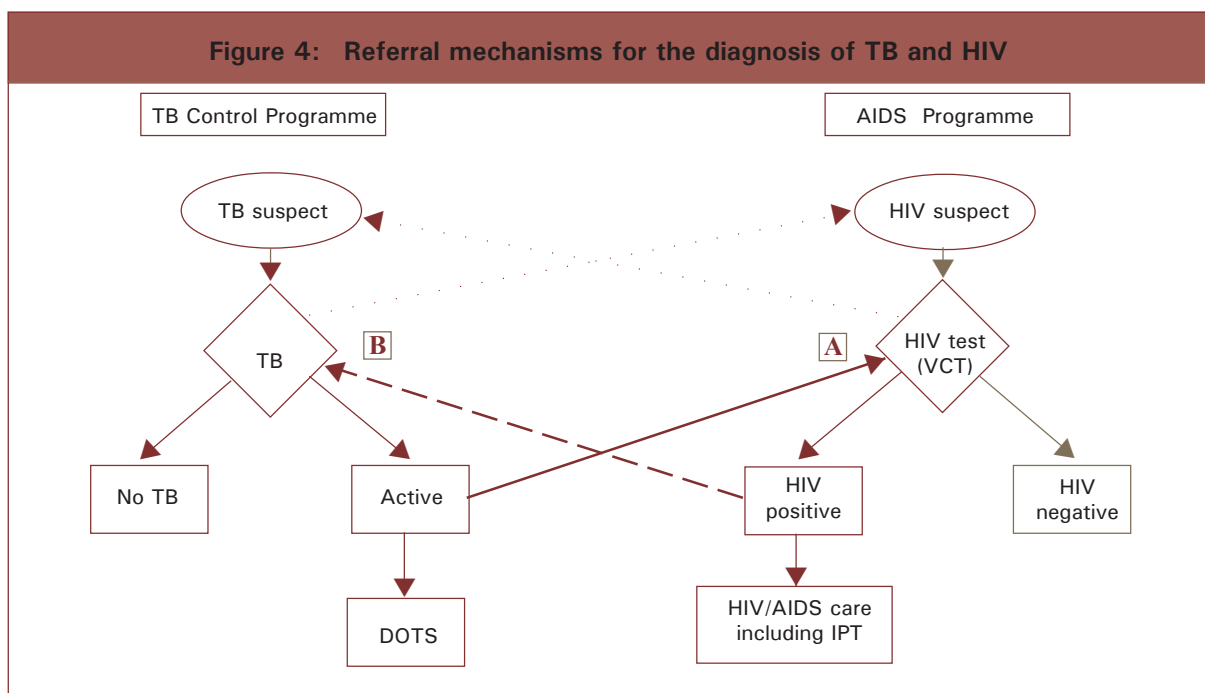
- The NTP will refer patients for VCT services based on certain criteria (including presence of active – smear-positive or smear-negative – TB). VCT services will be the responsibility of the NAP (A). An early referral, prior to TB diagnosis, is also possible.

Referral criteria should be developed taking into account several factors, such as HIV prevalence among certain groups of the population, HIV prevalence among TB cases, and capacity of health services in terms of workload and financial burden of existing VCT services. These criteria include one or more of the following:

- all persons with active TB
- persons with active TB and high HIV risk
- persons with active TB and symptoms suspect of HIV
- all persons suspected of TB
- persons suspected of TB and high HIV risk
- persons suspected of TB with symptoms suspect of HIV.

- The NAP will refer persons who are infected with HIV and/or are suspected of TB to facilities with diagnostic capacity for TB (B). An early referral, prior to VCT, is possible.

According to the situation in the country, HIV-positive persons tend to concentrate in specific settings. Examples include: VCT sites; STI clinics; PHA groups; homebased care for PHA; prisons and rehabilitation camps for injecting drug users (IDU) and sex workers.



6

TB/HIV Interventions

The underlying principles of the Regional framework for TB/HIV interventions are that interventions related to TB are the responsibility of the NTP, and interventions directly related to HIV/AIDS are the responsibility of the NAP. Both programmes need to agree on interventions that can be implemented by either of the two programmes separately, or by both programmes through collaborative mechanisms.

Box 5 Principles of TB/HIV Interventions

- NAP is responsible and accountable for any intervention directly related to HIV/AIDS
- NTP is responsible and accountable for any intervention directly related to TB
- NAP and NTP can complement each other in providing prevention, treatment, care and support; and should agree on “who does what”

Countries may not need to implement all collaborative TB/HIV interventions, but should consider the regional (within country) variation of HIV prevalence rates to determine the types of collaborative TB/HIV activities to implement (see Box 6). For efficient use of their resources, countries with low HIV prevalence should focus on high HIV and high TB risk groups such as injecting drug users and commercial sex workers (CSW) and congregate settings such as prisons and military or police barracks.

Box 6 Thresholds for commencing collaborative TB/HIV activities²⁵

Category	Criteria	Recommended collaborative TB/HIV activities
I	<p>Countries with national adult HIV prevalence rate $\geq 1\%$</p> <p style="text-align: center;">OR</p> <p>Countries in which national HIV prevalence among tuberculosis patients is $\geq 5\%$.</p>	<p>A. To establish the mechanisms for collaboration:</p> <ul style="list-style-type: none"> - coordinating body for TB/HIV activities - surveillance of HIV prevalence among TB patients - joint TB/HIV planning - monitoring and evaluation <p>B. To decrease the burden of TB in PHA:</p> <ul style="list-style-type: none"> - intensified TB case finding - isoniazid preventive therapy - TB infection control in care and congregate settings <p>C. To decrease the burden of HIV in TB patients:</p> <ul style="list-style-type: none"> - HIV testing and counselling - HIV prevention methods - cotrimoxazole preventive therapy - HIV/AIDS care and support - antiretroviral therapy
II	<p>Countries with national adult HIV prevalence rate below 1%</p> <p style="text-align: center;">AND</p> <p>Administrative areas that have adult HIV prevalence rate $\geq 1\%$</p>	<p>A. In administrative areas with $\geq 1\%$ adult HIV prevalence:</p> <ul style="list-style-type: none"> - implementation of activities designed for Category I countries in the administrative areas identified <p>B. In other parts of the country:</p> <ul style="list-style-type: none"> - implementation of activities designed for Category III countries
III	<p>Countries with national adult HIV prevalence rate below 1%</p> <p style="text-align: center;">AND</p> <p>No administrative areas with adult HIV prevalence rate $\geq 1\%$</p>	<p>A. Joint national TB/HIV planning:</p> <ul style="list-style-type: none"> - Surveillance of HIV prevalence among TB patients <p>B. To decrease the burden of TB in PHA (with focus on high HIV and TB risk groups, e.g. IDUs, CSW and congregate settings)</p> <ul style="list-style-type: none"> - intensified TB case finding - isoniazid preventive therapy - TB infection control in care and congregate settings

Box 7 Epidemiological group or target clients	
Group 1	HIV -ve Active TB
Group 2	HIV -ve but at risk Active TB
Group 3	HIV +ve Active TB
Group 4	HIV +ve TB infection
Group 5	HIV +ve No TB infection

6.1 Management by HIV and TB status

Once diagnosed, patients can be classified in epidemiological groups. This classification forms the basis for the provision of a range of interventions by the NTP and NAP. A different range of interventions is available for each of the groups. Each of these interventions may be provided by the NTP, by the NAP, or by both programmes, depending on the institutional arrangements that have been made by the two programmes. For example, INH preventive therapy (IPT) for Group 4 persons (HIV +ve, with evidence of TB infection) will be provided by the TB programme, but NAP staff may also provide IPT guided by NTP, as per local arrangements. Similarly, prophylactic treatment with co-trimoxazol for HIV +ve persons (Groups 3, 4 and 5), which is the responsibility of the NAP, may be provided by the NTP, guided by the NAP.

Box 7 shows the five different target populations for whom a minimum package of intervention is available. Within these five populations, the framework addresses two categories: (1) groups of persons with active TB and (2) groups of persons who are HIV-positive (see Figure 5).

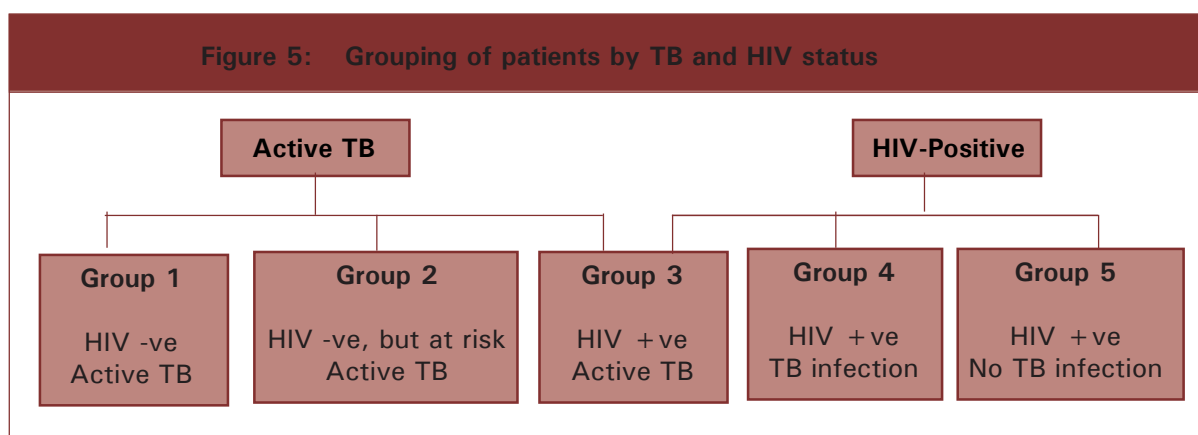


Figure 5 clearly illustrates that interventions addressed at persons in Group 3 – HIVpositive with active TB – will require close coordination between NTP and NAP. Both programmes have specific responsibilities for interventions aimed at patients in the other four groups.

Table 3 TB/HIV interventions by target population with known HIV status		
Group	Diagnosis	Interventions
1	- HIV negative - Active TB	<ul style="list-style-type: none"> • DOTS • Prevention of HIV transmission
2	- HIV negative with high risk behaviour - Active TB	<ul style="list-style-type: none"> • DOTS • Prevention of HIV transmission • Offer HIV testing after window period
3	- HIV positive - Active TB	<ul style="list-style-type: none"> • DOTS • Prevent common OI <ul style="list-style-type: none"> - Cotrimoxazole preventive therapy during TB treatment • Prevention of HIV transmission • HIV/AIDS care and support
4	- HIV positive - TB infection	<ul style="list-style-type: none"> • HE for TB symptoms, encourage early diagnosis and treatment • Regular monitoring for active TB • Prevention of HIV transmission • Prevent common OI <ul style="list-style-type: none"> - Isoniazid preventive treatment - Cotrimoxazole preventive therapy • HIV/AIDS care and support
5	- HIV positive - No TB infection	<ul style="list-style-type: none"> • Bacillus of Calmette and Guerin (BCG) • Health education (HE) for TB symptoms, encourage early diagnosis and treatment • Prevent exposure to TB • Regular monitoring for active TB • Prevention of HIV transmission • Prevent common opportunistic infections (OI) <ul style="list-style-type: none"> - Cotrimoxazole preventive therapy • HIV/AIDS care and support

The minimum set of interventions for each of the five target populations, which is shown in Table 3, can be expanded depending on local needs, resources and health service delivery systems. A more detailed description of the range of effective interventions to reduce the burden of HIV, to prevent HIV infection and prolong duration and quality of life for PHA is provided in Annex 2.

6.2 Interventions targeting HIV-positive persons

In order to prolong the lives of PHA and to improve the quality of life – promoting “positive living” – a wide range of care and support interventions are needed.

HIV/AIDS care and support (see Annex 2)

In order to respond to the various needs of PHA, a wide range of care interventions are needed, including ARV therapy. Treatment of HIV/AIDS, even in resource-limited settings became feasible after a dramatic

reduction in recent years of the prices for antiretroviral drugs. The key elements of HIV/AIDS care include:

- voluntary counselling and testing;
- prevention, prophylaxis, screening and treatment of opportunistic infections (OI), including TB;
- educational support and health promotion, including nutrition, family planning and prevention of further HIV transmission;
- psychosocial care including counselling;
- socioeconomic support and reducing discrimination;
- symptomatic and palliative care;
- support for orphans and care givers; and
- ARV therapy.

The day care centre (see Annex 3), designed for and operated by PHAs, or a similar mechanism, is expected to serve as the “heart” or “hub” of the HIV/AIDS care system in a certain geographical area through provision of care, management, capacity building, coordination and facilitation. In particular, the day care centre should enable a high level of adherence to ARV therapy and to prophylaxis for opportunistic infections, through its capacity to respond to a wide range of needs of PHA, peer support and user-friendly one-stop service. The day care centre should also contribute to early detection of opportunistic infections, including TB.

HIV/AIDS Prevention

The following interventions have shown to be effective in pilot projects, controlled trials or national programmes in several less developed countries:

- safer sex:
 - 100% condom use programme targeting high risk groups such as CSW;
 - promotion of condom use in casual sex; and
 - reduction in the number of sexual partners;
- treatment of STI;
- safe injecting drug use;
- universal precautions and post-exposure prophylaxis for health care workers;
- prevention of mother-to-child transmission of HIV; and
- voluntary counselling and testing (VCT).

References

- ¹ World Health Organization. *Strategic framework to decrease the burden of TB/HIV*. Geneva, World Health Organization, 2002. WHO/CDS/TB/2002.296; WHO/HIV_AIDS/2002.2.
- ² World Health Organization. *Guidelines for phased implementation of collaborative TB and HIV activities*. Geneva, World Health Organization, 2003. WHO/CDS/TB/2003.319; WHO/HIV/2003.01
- ³ UNAIDS. *AIDS epidemic update: December 2000*. Geneva, UNAIDS, 2001. http://www.unaids.org/worldaidsday/2001/Epiupdate2001/Epiupdate2001_en.pdf
- ⁴ Bleed D., Dye C., Raviglione M. Dynamics and control of the global TB epidemic. *Current Opinion in Pulmonary Medicine*, 2000, 6: 174-179.
- ⁶ Harries AD. *et al.* TB program changes and treatment outcomes in patients with smear-positive pulmonary TB in Blantyre, Malawi. *Lancet*, 1996, 347: 807-809.
- ⁷ World Health Organization. *Global TB Control. WHO Report 2001*. Geneva, World Health Organization, WHO/CDS/TB/2001.287
- ⁸ Lienhardt C., Rodrigues LC. Estimation of the impact of the human immunodeficiency virus infection on TB: TB risks revisited? *International Journal of Tuberculosis and Lung Disease*, 1997, 1 (3): 196-204.
- ⁹ DiPerri G. *et al.* Nosocomial epidemic of active TB in HIV infected patients. *Lancet*, 1989; 2: 1502-1504.
- ¹⁰ Raviglione MC. *et al.* TB and HIV: current status in Africa. *AIDS*, 1997, 11 (suppl B): S115-S123.
- ¹¹ Rieder HL. *et al.* Epidemiology of TB in the United States. *Epidemiologic Reviews*, 1989, 11: 79-98.
- ¹² World Health Organization. Preventive therapy against TB in people living with HIV. *Weekly Epidemiological Record*, 1999, 74: 385-398.
- ¹³ Fitzgerald DW. *et al.* Effect of post-treatment isoniazid on prevention of recurrent TB in HIV-1-infected individuals: a randomised trial. *Lancet*, 2000, 356: 1470-74.
- ¹⁴ Daley CL. TB recurrence in Africa: true relapse or re-infection? *Lancet*, 1993, 342: 756-57 (commentary).
- ¹⁵ Sonnenberg P, Murray J, Glynn J, *et al.* HIV-1 and recurrence, relapse, and reinfection of tuberculosis after cure: a cohort study in South African mineworkers. *Lancet*, 2001, 358(9294): 1687-93
- ¹⁶ Del Amo J. *et al.* Does TB accelerate the progression of HIV disease? Evidence from basic science and epidemiology. *AIDS*, 1999, 13: 1151-1158.
- ¹⁷ Nakata K. *et al.* *Mycobacterium TB* enhances human immunodeficiency virus-1 replication in the lung. *American Journal of Respiratory and Critical Care Medicine*, 1997, 155: 996-1003.
- ¹⁸ Mukadi YD, Maher D, Harries AD. TB case fatality rates in high HIV prevalence populations in sub-Saharan Africa. *AIDS*, 2001, 15: 143-152.
- ¹⁹ Greenberg AE. *et al.* Autopsy-proven causes of death in HIV-infected patients treated for TB in Abidjan, Cote d'Ivoire. *AIDS*, 1995, 9: 1251-1254.

²⁰ World Health Organization. *Guidelines for HIV surveillance among tuberculosis patients*. Geneva, World Health Organization, 2003 (in press).

²¹ Slutkin G. *et al. Sentinel surveillance for HIV infection: A method to monitor HIV infection trends in population groups*. Geneva, Global Programme on AIDS (GPA), World Health Organization, 1988. WHO document WHO/GPA/DIR 88.8.

²² World Health Organization. *Guidelines for HIV surveillance among tuberculosis patients*. Geneva, World Health Organization, 2003 (in press).

²³ World Health Organization. *Protocol for the Evaluation of Epidemiological Surveillance Systems*. Geneva: Emerging and other Communicable Diseases, Surveillance and Control, World Health Organization; 1997. WHO document WHO/EMC/DIS/97.2.

²⁴ World Health Organization. *Guidelines for HIV surveillance among tuberculosis patients*. Geneva, World Health Organization, 2003 (in press).

²⁵ Adapted from: World Health Organization. *Interim Policy on Collaborative TB/HIV Activities*. Geneva, World Health Organization, 2003 (unpublished).

Annex 1

Surveillance methods for measuring the prevalence of HIV infection among TB patients

Surveillance methods for measuring the prevalence of HIV infection among TB patients

Surveillance method	Periodic surveys	Sentinel methods	Data from routine care
<p>HIV prevalence level of country*</p> <p>Description</p> <p>Cross-sectional HIV sero-prevalence surveys among a small representative group of tuberculosis patients within a country. Surveys should include all newly registered tuberculosis cases, but countries may choose to focus on a sub-group of patients, such as adult cases with smear positive disease for ease.</p>	<p>"Low level, concentrated or generalised"</p>	<p>"Low level or concentrated" **</p> <p>Includes tuberculosis patients as a sentinel group as part of the general HIV sentinel surveillance system. A predetermined number of tuberculosis patients are routinely tested at selected sentinel sites, and testing is performed in a regular and consistent way. As with surveys, all tuberculosis cases should be included, but countries may choose to focus on a sub-group of patients, such as adult cases with smear positive disease for ease.</p>	<p>"Generalized"</p> <p>Data collected from routine care of tuberculosis patients who are tested for HIV on voluntary and confidential basis. With increasing levels of HIV in the general population, countries should aim to test all tuberculosis patients for HIV. Countries with a generalized HIV epidemic state, or where the HIV prevalence among tuberculosis patients is known to be over 5%, should aim to ensure that HIV testing is actively promoted and offered to all tuberculosis patients.</p>
<p>Key objectives</p> <ul style="list-style-type: none"> This system should be used where HIV prevalence is unknown. It aims to provide tuberculosis programmes with rough point prevalence estimates of the level of HIV infection among tuberculosis patients, as part of the initial assessment of the situation. This information may alert tuberculosis programmes to a potential HIV problem and enable appropriate changes to be made to programmes, which may include the institution of more systematic surveillance methods. This system may also be used in countries with established surveillance systems based on data from routine patient care, to corroborate prevalence estimates. This system may also be used in resource-limited countries with under-developed surveillance systems, i.e. where HIV prevalence in the general population may be high but where the institution of more systematic methods of surveillance is not possible. 	<ul style="list-style-type: none"> This surveillance system aims to provide more systematic information that is able to provide point prevalence estimates as well as be able to identify trends. This information is of value in designing, implementing and monitoring public health programmes for the prevention and control of tuberculosis. These regular prevalence estimates can also be used to identify, at an early stage, areas where HIV testing programmes directed to the individual should be developed. 	<ul style="list-style-type: none"> The primary objective of this type of surveillance is the identification of individuals who are co-infected with HIV and tuberculosis to provide them with the medical and psychosocial support they need. The secondary objective is to provide information that is of value in designing, implementing and monitoring public health programmes for the prevention and control of tuberculosis. 	

* Classified according to the WHO definitions (**low level**: HIV prevalence has not consistently exceeded 5% in any defined sub-population; **concentrated**: HIV prevalence consistently over 5% in at least one defined sub-population. HIV prevalence below 1% in pregnant women in urban areas; **generalized**: HIV prevalence consistently over 1% in pregnant women)

** Recommended in countries that also have a high burden of tuberculosis in the general population

Surveillance methods for measuring the prevalence of HIV infection among TB patients (continued...)

Surveillance method	Periodic surveys	Sentinel methods	Data from routine care
<p>Advantages</p> <ul style="list-style-type: none"> • Simple • No need for major investment in infrastructure • Established method • With representative sampling, may provide reliable estimate • Can be helpful in indicating possible sources of bias in surveillance based on sentinel methods or data from routine care of patients • Can be used to calibrate the results of routine surveillance systems. 	<ul style="list-style-type: none"> • Fairly simple and cheap system • Good information on trends • Focuses on easily accessible patients • Often part of a well established HIV sentinel system 	<ul style="list-style-type: none"> • HIV testing and reporting among tuberculosis patients is important in individual case management and provides the opportunity for co-infected patients to benefit from collaborative prevention and care programmes. • Public health advantages around HIV prevention activities that can be associated with large-scale HIV counselling and testing programmes • System which is most beneficial to patients • Provides tangible evidence of the presence of the HIV epidemic and depending on the completeness of the reporting may provide a basis for estimating the burden of HIV-related disease and the demand for health care • If testing is widely available and uptake is high, data may provide reliable HIV prevalence estimates among tuberculosis patients. 	<ul style="list-style-type: none"> • Necessary infrastructure for the surveillance system may be complex and may be time consuming and expensive to maintain. • May provide biased estimate if not all patients are tested • Completeness is often affected by the quality of the reporting, health seeking behaviour and the availability of testing. • May reflect more the access to health care services than the true occurrence of HIV within the tuberculosis population
<p>Disadvantages</p> <ul style="list-style-type: none"> • Provides poor information on trends if undertaken infrequently • May be expensive and time consuming • Problems with the inclusion of smear negative tuberculosis patients who may have complicated diagnostic pathways • Problems in obtaining sample for testing if specimen is not one that is routinely taken • Ethical issues over unlinked anonymous methods • Difficulty in keeping specimens unlinked and anonymous • Sample sizes may be too small for detailed analyses • Representativeness of sample often questionable, so may be open to selection bias 	<ul style="list-style-type: none"> • Sentinel sites may not be representative of overall population. • Lack of a consistent sampling frame may lead to biased estimates of trends • Problems with the inclusion of smear negative tuberculosis patients who may have complicated diagnostic pathways • Ethical issues over unlinked anonymous methods • Difficulty in keeping specimens unlinked and anonymous • Problems over who has responsibility for the system • Has been found to provide inconsistent results in countries with poor testing procedures and inadequate quality control 	<ul style="list-style-type: none"> • Sentinel sites may not be representative of overall population. • Lack of a consistent sampling frame may lead to biased estimates of trends • Problems with the inclusion of smear negative tuberculosis patients who may have complicated diagnostic pathways • Ethical issues over unlinked anonymous methods • Difficulty in keeping specimens unlinked and anonymous • Problems over who has responsibility for the system • Has been found to provide inconsistent results in countries with poor testing procedures and inadequate quality control 	<ul style="list-style-type: none"> • Necessary infrastructure for the surveillance system may be complex and may be time consuming and expensive to maintain. • May provide biased estimate if not all patients are tested • Completeness is often affected by the quality of the reporting, health seeking behaviour and the availability of testing. • May reflect more the access to health care services than the true occurrence of HIV within the tuberculosis population

Annex 2

HIV/AIDS care including antiretroviral (ARV) treatment

HIV/AIDS care including antiretroviral (ARV) treatment

In order to respond to the various needs of people living with HIV/AIDS (PHA), a wide range of care interventions are needed, including ARV treatment. Treatment of HIV/AIDS, even in resource-limited settings, became feasible after a dramatic reduction in recent years of the prices for antiretroviral drugs. The key elements of HIV/AIDS care include:

- voluntary counselling and testing (VCT);
- prevention, prophylaxis, screening and treatment of opportunistic infections (OI) including TB;
- educational support and health promotion including nutrition, family planning and prevention of further HIV transmission;
- psychosocial care including counselling;
- socioeconomic support and reducing discrimination;
- symptomatic and palliative care;
- support for orphans and care givers; and
- ARV treatment.

Scaling up ARV treatment in the Region is an urgent task in line with the global target of putting three million people on ARV treatment by 2005. In order for ARV treatments to be effective, however, VCT must be acceptable and accessible; selection criteria for ARV enrolment must be established; educational support for all people receiving treatment and care must be available; and psychosocial support and counselling must be readily available. These, together with other mechanisms must be in place to support drug adherence and follow-up, as effective implementation of ARV treatment requires 95% of adherence. In addition, health care workers should have the capacity to manage ARV side-effects and to prevent and treat opportunistic infections.

Since all these requirements for effective ARV treatment and management are beyond the capacity of the hospital clinical services or home visits, it is important to consider HIV/AIDS care within a continuum of care framework, which involves health facility-based care and home- and community-based care. Therefore, the immediate tasks of countries affected by HIV/AIDS in the region are to establish the continuum of care and to scale-up ARV treatment at the same time, while ensuring equitable access, integrating care and prevention, and developing the capacity to respond to diverse and changing situations. The following approaches are recommended:

1. Strengthening political commitment of national and local decision-making bodies
 - a) Set ambitious national target for ARV scale-up
 - b) Mobilize resources
 - c) Establish central units/bodies to manage HIV/AIDS care including ARV

- d) Develop administrative and funding mechanisms to support local actions
2. Establishing continuum of care
 - a) Create partnership mechanism between public health services, clinical services, peer support and CBOs/NGOs: day care centre approach (Annex 3)
 - b) Expand VCT linked to care
 - c) Integrate HIV/AIDS care into health facility services
 - d) Establish home and community competence for HIV/AIDS care
 - e) Identify and implement care package incorporating TB/HIV related services and HIV prevention interventions
 3. Scaling up ARV treatment integrated into continuum of care
 - a) Increase availability of affordable HIV medicines and diagnostics
 - b) Develop operational procedures to ensure adherence to ARV as part of care package: building on day care centre approach
 - c) Develop and support human resources for ARV
 - d) Conduct costing analysis and explore appropriate financing options
 - e) Control private sector
 4. Improving equitable access to care
 - a) Overcome financial barriers, such as prohibitive user charge and lack of health insurance and poverty exemptions scheme
 - b) Overcome health service barriers, such as discrimination in the health facilities and insufficient health service quality
 - c) Overcome social barriers including stigma and discrimination against injecting drug users (IDU) and sex workers
 - d) Overcome geographical barriers, such as insufficient coverage and transportation
 - e) Overcome information and communication barriers, in particular concerning VCT, information, education and communication (IEC) and health seeking behaviour
 5. Responding to diverse and changing situation
 - a) Identify essential indicators to track progress
 - b) Develop recording and reporting that lead to appropriate and timely action
 - c) Support local monitoring and responses
 - d) Establish ARV drug resistance surveillance
 - e) Conduct operational research

Annex 3

Day care centre for and by PHA

Day care centre for and by PHA

1) What is a day care centre?

A day care centre is the place where PHA freely get together and conduct a wide range of activities for comprehensive HIV/AIDS care, which are facilitated and supported by health workers, in collaboration with NGOs and the community.

Many day care centres are attached to health facilities, such as district hospitals. Others are established in health centres and sometimes in the community (e.g. Northern Thailand).

A day care centre can be launched with minimum resources, i.e. a room and staff, without any major capital investment. It can be viewed as a user-friendly, one-stop service with intimate staff and short waiting time.

2) Activities and functions

The functions of the day care centre, or similar mechanism, depend on the population being served. For example, a day care centre that works primarily with PHA who are infected through injecting drug use has a somewhat different focus than a day care centre where the primary form of HIV transmission is heterosexual contact.

- It is important to note, however, that many of its functions will remain the same, but with a different emphasis. In particular, through its capacity to respond to a wide range of PHA needs, the day care centre should serve as a crucial mechanism to ensure a high level of adherence to ARV treatment and prophylaxis of opportunistic infections. It should also facilitate the early detection of opportunistic infections, including TB. With this proviso in mind, the activities and functions of the day care centre for and by PHA include:
- **Medical services** including prophylaxis, diagnosis and treatment of opportunistic infections (including TB), ARV treatment, as well as management of side-effects of drugs and treatment adherence.
- **Health checkups** including early detection of TB.
- **Psychological support** including individual, group, couple, family and community counseling and meditation, particularly through PHA group formation and activities.
- **Education** for PHA and family on self-care, home-care, health promotion and nutrition, as well as for health workers, volunteers, NGO members and the community.
- **Socioeconomic support** including response to discrimination in daily livings, income generation activities, occupational training/promotion, and support for orphans.
- **Home visit** for PHA by PHA with technical backup of health workers. Capacity building of PHA and families often results in less need to conduct home visits. Health staff sometimes conducts home visits, if necessary.

- **Referral** of cases to relevant health facilities, home-based and community-based organizations, NGOs and other social services.
- **HIV/AIDS prevention** including use of universal precautions, condom promotion, harm reduction for injecting drug users, post exposure prophylaxis (PEP) and prevention of mother-to-child transmission (PMTCT)
- **Base** for hospitals, PHA groups, NGOs, community organizations and other sectors to interact with each other and to work together for HIV/AIDS care and prevention.

In summary, the day care centre, or a similar mechanism, functions as the “heart” or “hub” of a care system in a defined geographical area, through care provision, management, capacity building, coordination and facilitation.

Annex 4

Isoniazid Preventive Treatment (IPT)

Isoniazid Preventive Treatment (IPT)

A number of placebo-controlled studies in high TB/HIV burden countries have confirmed that preventive treatment with isoniazid reduces the risk of a PHA with latent TB infection to develop active tuberculosis. WHO and the Joint United Nations Commission on HIV/AIDS (UNAIDS), therefore, recommend IPT as part of a package of care for PHA. In addition, there is evidence that IPT prevents the risk of recurrent TB in PHA after TB treatment. However, it is not recommended to offer treatment to prevent recurrent episodes of TB as part of the Regional strategy.

Other preventive treatment regimens using combinations of more than one anti-TB drug have also been proven effective. These combinations are more costly and are less tolerated due to an increased frequency of side-effects. The following table lists a number of publications about IPT with different regimens.

Author/Setting (year)	Regimen	TB Outcome	Comment
Pape/Haiti (1993)	INH OD x 12m	2.2 per 100 py	All patients;
	Placebo	7.5 per 100 py	
Gordin/United States (1997)	INH OD x 6m	0.4 per 100 py	60% IDU Anergy cohort
	Placebo	0.9 per 100 py	
Whalen/Uganda (1997)	INH OD x 6m	1.1 per 100 py	PPD + patients 2 drug regimen more toxic Anergy cohort INH daily vs placebo: 3.06 per 100 py 2.53 per 100 py
	INH/RIF OD x 3m	1.3 per 100 py	
	INH/RIF/PZA OD x 3m	1.7 per 100 py	
	Placebo	3.4 per 100 py	
Hawken/Kenya (1997)	INH OD x 12m	5.6 per 100 py	PPD +, difference not significant
	Placebo	8.0 per 100 py	
Halsey/Haiti (1998)	INH biw x 6m	1.7 per year	Compliance better with RIF/PZA
	RIF/PZA biw x 2m	1.8 per year	
Mwinga/Zambia (1998)	INH biw x 6m	4.94 per 100 py	All patients No effect on mortality
	RIF/PZA biw x 3m	4.65 per 100 py	
	Placebo	8.06 per 100 py	
Gordin/United States, Mexico, Haiti, Brazil (2000)	RIF/PZA OD x 2m	0.8 per 100 py	PPD + Adherence better with RIF/PZA
	INH OD x 12m	1.1 per 100 py	

Criteria for IPT implementation

- Political and NTP support for the use of IPT
- A functioning DOTS programme with the capacity to accurately exclude active TB before prescribing IPT and reaching acceptable targets for TB case finding and cure
- Availability of VCT
- Linkage to other care and support services for PHA
- Coordination and referral system between VCT, TB and HIV/AIDS care services
- Capacity to monitor the outcomes of PHA taking IPT

When IPT is offered to PHA the following steps should be followed:

1. TB counselling

- Inform about symptoms of TB, e.g. cough >2 weeks
- Encourage to seek early diagnosis and treatment

2. Screening for active tuberculosis

- Ask about cough, chest pain, fever, enlarging lymph glands and night-sweats.
- Screen those with symptoms of TB (sputum smear)
- Refer active TB cases to the TB programme for registration and TB treatment
- Chest-X-ray all PHA being considered for IPT
- Exclude contraindications

3. Targeting of those most likely to benefit

- Recommend PPD testing
- If PPD is not feasible IPT may be given to PHA in the following settings:
 - Those living in populations with a TB prevalence estimated to be >30%
 - Health care workers
 - Voluntary counselling and testing (VCT) clients
 - Household contacts of TB patients
 - Prisoners
 - Miners
 - Other groups at high risk of TB transmission or infection (e.g. PHA groups, day care centres, HIV-positive mother participating in PMTCT programmes)

4. Provision of IPT to those without active TB

- Self-administered Isoniazid 5 mg/kg (maximum 300 mg) once daily for six months
- One-month supply

5. Monitoring for adherence and toxicity

PHA taking IPT should be monitored at monthly visits for the following:

- Adherence to treatment
- Drug toxicity (itch, skin rash, sensory neuropathy, hepatitis)
- Signs or symptoms of active TB

6. Defaulter tracing

- Telephone, letter, home visit

7. Monitoring, supervision and evaluation of IPT outcome

- Individual records to document use of IPT
- Regular reporting for estimation of future drug requirements
- Regular supervision meetings

Feasibility of IPT

Careful assessment of the feasibility of IPT is required, taking into account health resources and existing health services. Despite the efficacy of IPT in clinical trials, operational research studies show that a number of feasibility issues need to be addressed when IPT is provided in a routine setting. These issues include:

- Difficulties performing PPD skin testing in resource-poor settings:
 - Lack of cold chain
 - Lack of syringes and needles

- Loss to follow-up, with a some clients failing to return for PPD reading
- Difficulties accessing chest X-rays in resource-poor settings:
 - Lack of functioning X-ray services
 - Centralized X-ray services difficult for the poor to access
- Poor compliance in routine settings:
 - Fear that taking a long course of tablets will lead to disclosure of HIV status
 - Poverty of clients:
 - Cost of collecting tablets on a regular basis
 - Lack of food reduces compliance (patients report that IPT makes them hungry)

Advantages of IPT	Issues
Reduces the risk of active TB in PHA with latent TB infection	Effectiveness of IPT wanes after 1-2 years
Well-tolerated, with few side-effects	Limited compliance in routine settings
No evidence that IPT induces isoniazid-resistant TB strains, as long as active TB is excluded through the screening process	Should only be introduced in settings with the capacity to exclude active TB
Provides a tangible benefit after VCT, and is popular with VCT clients	The requirement for tuberculin skin testing and chest X-ray is a barrier to PHA starting IPT
Popular with counsellors providing VCT services	

Annex 5

Cotrimoxazole Prophylactic Treatment (CPT)

Cotrimoxazole Prophylactic Treatment (CPT)

1. Criteria for the provision of cotrimoxazole therapy to prevent *pneumocystis carinii* pneumonia

Adults and children older than 15 months

- HIV-positive persons with CD4 count < 200 cells/μL (in children CD4 < 15% or age specific CD4 count threshold)
- Symptomatic HIV or history of:
 - Oropharyngeal candidiasis
 - Pruritic papular eruption
 - Chronic diarrhoea
 - Wasting syndrome
 - History of AIDS defining illness

Infants

- Any child born to an HIV-infected woman should be offered cotrimoxazole from 4-6 weeks of age

Pregnant women

- Same as other adults
- Because of theoretical concerns regarding possible teratogenicity associated with drug exposure during the first trimester, providers may choose to withhold prophylaxis during the first trimester.

2. Criteria for adults and children to prevent recurrent infection

Persons who have completed initial therapy for *Pneumocystis carinii* pneumonia should be administered lifelong CPT.

3. Drug regimens

Adults

Recommended dose: one single-strength tablet 400/80 mg bid or one double-strength 800/160 mg tablet od (self administered). However, one single-strength tablet od is also effective and might be better tolerated than one double-strength tablet per day.

Infants

- Cotrimoxazole syrup should be given once daily
- If syrup is not available, cotrimoxazole tablets may be crushed
- Recommended dose: 150 mg trimethoprim/m² + 750 mg/m² sulphur-methoxazole.

4. When to stop CPT

- Occurrence of side-effects
 - Cutaneous reactions, which may be severe (e.g. fixed drug eruptions and Stevens-Johnson syndrome)
 - Renal/hepatic failure
 - Haematological toxicity
- If antiretroviral treatment available and the CD4 count rises to >500 cells/iL
- Children testing HIV-negative when older than 15 months

5. Contraindications to CPT

- Known allergy to sulphur-containing drugs (which includes cotrimoxazole and sulphadoxine-pyrimethamine)
- Renal or hepatic impairment

6. Follow-up to monitor for toxicity, clinical events and adherence

- Cotrimoxazole should be given in settings where regular patient follow-up is possible.
- Adults should be reviewed monthly initially, and then every three months thereafter if the medication is tolerated.
- Children should be reviewed monthly.
- Monitoring of adults should take place every six months, including haemoglobin and white cell counts (where facilities are available, or when clinically indicated).

7. Concerns about the use of cotrimoxazole

- High bacterial resistance rates to cotrimoxazole limits protection against other opportunistic pathogens.

- The spectrum of HIV-related pathogens may differ between countries, potentially affecting efficacy to prevent infections other than *P. carinii* pneumonia.
- Countries using cotrimoxazole as essential drug treatment of adult community-acquired pneumonia and childhood acute respiratory illness are concerned that widespread use of cotrimoxazole will lead to increased bacterial resistance rates.
- The use of cotrimoxazole has been shown to induce resistance in *Plasmodium falciparum* (malaria) against sulphamethoxine-pyrimethamine (a commonly used anti-malarial drug).

