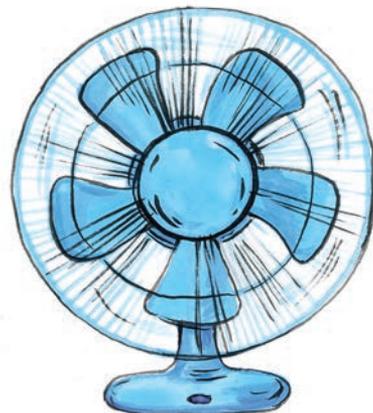


36. What are the types of environmental ventilation? How effective is ventilation in TB infection control?

Environmental ventilation is the process of bringing in air from the outside, and/or removing the bacteria from the air. There are three main types of ventilation:

1. Mechanical ventilation uses fans to move air through a building. Mechanical ventilation can be combined with filtration systems.
2. Natural ventilation uses the wind to drive the air flow through a building.
3. Mixed-mode ventilation system combines the use of both mechanical and natural ventilation

Health facilities lacking appropriate ventilation systems have reported TB transmission. Therefore the WHO recommends that health facilities put in place a ventilation system to control the spread of TB. There is a need to maintain the mechanical equipment in order to ensure it is working correctly.



37. Are UVGI devices recommended by the WHO for TB infection control?



Ventilation is essential for preventing transmission of TB in the air. When it is not possible because of climate or building structure, an option is to use upper room or shielded ultraviolet germicidal irradiation (UVGI) devices. These devices use ultraviolet light to break down bacteria in the air. Using a combination of infection control strategies is the most effective way of reducing TB transmission, therefore when possible, open window shades and/or hold

support group meetings outside, and use UVGI devices.

UVGI lamps must be cleaned regularly and care should be taken since the UVGI, if not properly shielded, can cause eye damage.

38. What specific measures are recommended by the WHO for HIV positive health workers in order to prevent them from getting infected with TB?

HIV positive health workers should be offered a package of prevention, treatment and care that includes:

- a. access to antiretroviral therapy (ARV therapy strengthens the immune system and significantly reduces the risk of TB)
- b. regular screening for active TB and a full regimen of anti-TB treatment, should they be diagnosed
- c. isoniazid preventive therapy (IPT) for latent TB

The WHO recommends that HIV-positive health workers should not be working with patients with known or suspected TB (in particular, they should not be working with patients with MDR-TB and XDR-TB).

39. For persons with infectious TB, what actions can be taken to reduce the risk of transmission of TB to their household members?

Household members of persons with infectious TB are at high risk of becoming infected with TB. Therefore, detecting TB early remains one of the most important interventions for reducing the risk of TB transmission in the household. Potentially infectious people may require some isolation from other household members. Soon after starting TB treatment individuals are no longer infectious.

To reduce exposure in households:

- Houses should be adequately ventilated, particularly rooms where people with infectious TB spend considerable time.
- Anyone who coughs should be educated on cough etiquette and respiratory hygiene, and should follow such practices at all times

- TB patients should
 - spend as much time as possible outdoors
 - sleep alone in a separate, adequately ventilated room, if possible
 - spend as little time as possible in congregate settings or in public transport.
 - practice cough etiquette (including use of masks) and respiratory hygiene when in contact with people.
- Ideally, family members living with HIV should not provide care for patients with infectious TB. If there is no alternative, HIV-positive family members should wear respirators, if available.
- Children below five years of age should spend as little time as possible in the same living spaces as infectious TB patients. Such children should be followed up regularly with TB screening.
- Potential renovation of the patient's home should be considered if possible, to improve ventilation (e.g. building of a separate bedroom, or installation of a window).

IMPACT OF ART ON TB PREVENTION

40. What is the role of ART in preventing TB?

Studies have shown that the risk of developing TB is significantly decreased among HIV-infected persons receiving ART because of its effect on reducing HIV replication.¹² ART has been found to reduce TB risk by up to 92% for an individual, and to reduce TB reinfection rates by 50%.^{13 14}

41. What is the role of ART in preventing morbidity and mortality for people living with HIV who develop TB?

Mortality among patients with HIV and TB coinfection is high despite the use of TB treatment. A recent trial has shown that taking antiretroviral therapy during tuberculosis therapy reduced mortality by 56%.¹⁵

42. What do the 2010 WHO ART guidelines say about when to start ART for someone who has TB?

The 2010 WHO ART guidelines strongly recommend that ART should be started in all HIV-infected individuals with active TB, regardless of CD4 cell count. TB treatment should be started first, followed by ART as soon as possible but no later than 8 weeks starting TB treatment. Efavirenz (EFV) should be the preferred drug in patients starting ART while on TB treatment.

¹² Kwara A, Flanigan TP, Carter EJ. Highly active antiretroviral therapy (HAART) in adults with tuberculosis: current status. *Int J Tuberc Lung Dis.* 2005 Mar;9(3):248-57.

¹³ Ait-Khaled N., Alarcon, E., Bissell, K., Boillot, F., Caminero, J. A., Chiang, C. Y., Clevenbergh, P., Dlodlo, R., Enarson, D. A., Enarson, P., Ferroussier, O., Fujiwara, P. I., Harries, A. D., Heldal, E., Hinderaker, S. G., Kim, S. J., Lienhardt, C., Rieder, H. L., Rusen, I. D., Trebucq, A., Van, Deun A., and Wilson, N. Isoniazid preventive therapy for people living with HIV: public health challenges and implementation issues. *Int J Tuberc Lung Dis* 2009; 13(8):927-935

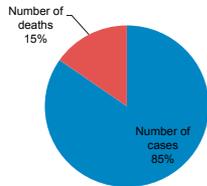
¹⁴ SD Lawn, K Kranzer and R Wood, Antiretroviral therapy for control of the HIV-associated tuberculosis epidemic in resource-limited settings, *Clin Chest Med* 30 (2009), pp. 685-699

¹⁵ Abdool Karim SS, Naidoo K, Grobler A, Padayatchi N, Baxter C, Gray A, Gengiah T, Nair G, Bamber S, Singh A, Khan M, Pienaar J, El-Sadr W, Friedland G, Abdool Karim Q. Timing of initiation of antiretroviral drugs during tuberculosis therapy. *N Engl J Med.* 2010 Feb 25;362(8):697-706.

STATISTICS

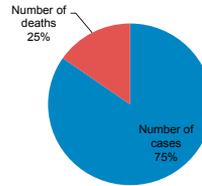
2009 HIV/TB Statistics

All forms of TB



9.4 million cases
1.7 million deaths

HIV related TB



1.2 million cases
0.4 million deaths

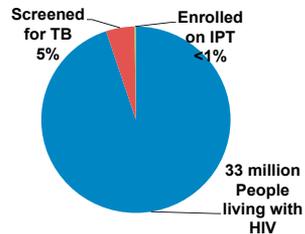
One in four



AIDS deaths due to TB

Isoniazid Preventive Therapy: IPT

- 33 million people estimated to be living with HIV in 2009
- An estimated 1.7 million HIV+ people screened for TB (5%)
- An estimated 86,000 enrolled on IPT (less than 1% of HIV+ people without active TB)



Implementation of IPT in Southern Africa

Country	People living with HIV	HIV-positive people screened for TB	HIV-positive people given IPT
Botswana	300,000	159,112	11,732
Mozambique	1.5 million	24,330	2,429
South Africa	5.6 million	433,662	23,583
Swaziland	190,000	8,427	2,107
Lesotho	270,000	Data unavailable	Data unavailable
Zambia	1.1 million	Data unavailable	Data unavailable
Zimbabwe	1.3 million	Data unavailable	Data unavailable

Source: World Health Organization

Is IPT effective?

- A review of 12 trials which included over 8000 patients found....
 - A 64% reduction in risk of developing active TB among patients on IPT

Source: Akolo C, Adetifa I, Shepperd S, Volmink J. Treatment of Latent Tuberculosis Infection in HIV Infected Persons (Review). *The Cochrane Collaboration*. Wiley Publishers. 2010

Misconceptions about IPT?

1. It's too hard to rule out active TB
2. IPT leads to resistance
3. IPT is not needed for patients on ART
4. IPT leads to toxicities and side effects

Difficulty of TB screening in people with HIV

- HIV-infected TB patients do not often show symptoms of infection
 - Up to 30% of HIV-infected TB patients with pulmonary TB have a normal chest radiograph
 - Sputum smears may be negative in 50% or more

Sources

- Lucas SB, De Cock KM, Hounnou A, Peacock C, Diomande M, Honde M, Beaumel A, Kestens L, Kadio A. Contribution of tuberculosis to slim disease in Africa. *BMJ*. 1994;308:1531–3.
- Jones BE, Young SM, Antoniskis D, Davidson PT, Kramer F, Barnes PF. Relationship of the manifestations of tuberculosis to CD4 cell counts in patients with human immunodeficiency virus infection. *Am Rev Respir Dis*. 1993;148:1292–7.

TB diagnosis among people with HIV

- Although TB diagnosis is more complex among people who are HIV+, symptom screening is very sensitive, especially among those with high CD4 counts.
 - In a range of studies of symptom screening for tuberculosis in people living with HIV, results suggested that a combination of symptoms (cough, night sweats, fever, and weight loss) correctly identified a large proportion of patients with TB.

Symptom screening to rule out active TB

Study	Sample size and setting	Percent of confirmed TB cases	Percent correctly identified with TB when displaying symptoms
South Africa	899 HIV+ gold miners-TB preventive clinic	5%	Atleast one symptom-75%
Ethiopia	438 HIV+ people-VCT centre	7%	Atleast one symptom-77%
Cambodia	441 HIV+ home-care network	9%	Atleast one symptom-95%
South Africa	129 HIV+ TB preventive trial	9%	Atleast two symptoms -100%
Cambodia	496-VCT centre	6%(4% HIV+)	Atleast one symptom 100%
Tanzania&Burundi	182(130 HIV+) hospitalised patients	23%(16% HIV +)	Atleast two symptoms -85%
Dominican Republic	400(200HIV+) VCT centre	10%(7% HIV +)	Atleast one symptom-85%
Zimbabwe	4668(874HIV+) occupational health clinic	0.6%(0.3% HIV+)	69% of HIV+ reported symptoms

See sources at end of presentation

Resistance

- There may be concern that IPT promotes drug resistant disease and makes first-line therapy less effective when active TB occurs
 - There is no strong evidence that IPT promotes drug resistant disease. When active TB occurs among those given IPT, standard four-drug first-line therapy works
 - A trial of community wide IPT of South African gold miners found that the levels of of INH resistance among those exposed to IPT is similar to the rest of the population

- Sources:
 - Balcells ME, Thomas SL, Godfrey-Faussett P, Grant AD. Isoniazid preventive therapy and risk for resistant tuberculosis. *Emerg Infect Dis* 2006; 12:744–751.
 - Cattamanchi A, Dantes RB, Metcalfe JZ et al. *Clinical characteristics and treatment outcomes of patients with isoniazid-monoresistant tuberculosis. Clin. Infect. Dis.* 2009; 48: 179–85.
 - van Halsema, C. L., Fielding, K. L., Chinota, V. N., Russell, E. C., Lewis, J. J., Churchyard, G. J., et al. (2010). Tuberculosis outcomes and drug susceptibility in individuals exposed to isoniazid preventive therapy in a high HIV prevalence setting. *AIDS*, 1051-1055.

IPT does not increase resistance

- If an individual has latent TB, there are only a few bacteria in the lungs and there is a low risk of selecting DR-TB
- Most resistance comes from poor adherence to treatment of active disease, so preventing active disease will reduce resistance
- There is a need to closely monitor those on IPT for the development of active TB

IPT & ART

- Because ART reduces the incidence of TB, some feel that IPT is no longer required
- IPT and ART work together to reduce TB incidence among people with HIV
 - A study looking to analyze the effect of ART and IPT on the incidence of TB found that ART alone was associated with a 59% reduction in tuberculosis incidence, while the use of both IPT and ART further reduced the incidence to approximately 24% in comparison to patients who were receiving neither.
- Source: Golub JE, Saraceni V, Cavalcante SC, et al. The impact of antiretroviral therapy and isoniazid preventive therapy on tuberculosis incidence in HIV-infected patients in Rio de Janeiro, Brazil. *AIDS* 2007;21:1441-1448

Toxicity

- IPT is far less toxic than the standard first line 4 drug regimen for TB treatment (HRZE) and has far fewer interactions with ART than Rifampicin
 - Trial in Uganda to determine the efficacy of three different regimens for the prevention of TB found no serious toxic effects were reported with six months of isoniazid

Source:

Whalen, C. C., J. L. Johnson, A. Okwera, D. L. Hom, R. Huebner, P. Mugenyi, R. D. Mugerwa, and J. J. Ellner. 1997. A trial of three regimens to prevent tuberculosis in Ugandan adults infected with the human immunodeficiency virus: Uganda-Case Western Reserve University Research Collaboration. *N. Engl. J. Med.* 337:801-808.

Cost-Effectiveness of prevention vs. treatment of TB

- A study looking to measure the costs and estimate the cost-effectiveness of a package of TB/HIV interventions in primary health care facilities in South Africa found:
- Cost per TB case prevented through...
 - VCT (through preventing HIV) :US\$ 129–215
 - ICF: US\$ 323–664
 - IPT :US\$486–962
- Cost of treating a new case of TB: US\$ 823–1362
- Not using chest X-rays for screening for IPT decreased the cost per TB case prevented by 36%

Source:

Hausler, Harry Peter et al. Costs of measures to control tuberculosis/HIV in public primary care facilities in Cape Town, South Africa. *Bull World Health Organ* [online]. 2006, vol.84, n.7, pp. 528-536

Infection control in health facilities

- TB transmission in health facilities is a big problem and patients and other health care workers are at an increased risk of infection.
- A review of a range of studies found that the risk of TB transmission varied across work location.

Association between work location and risk of TB

Work location	TB rate in comparison to general population
Outpatient facilities	4.2 – 11.6
General medical wards	3.9 – 36.6
Inpatient facilities	14.6 – 99.0
Emergency rooms	26.6 – 31.9
Laboratories	42.5 to 135.3

Source: Joshi R, Reingold AL, Menzies D, Pai M [2006]. Tuberculosis among health-care workers in low- and middle-income countries: a systematic review. *PLoS Med* 3(12): e494.

Infection Control Measures

Setting	Administrative Measures	Physical Measures	Environmental Measures	Effect
Hospital in Thailand	Early TB detection and treatment	Use of N95 masks by HCWs and air filters in labs	Separate TB wards, ventilation, UVGI devices	Drop in latent infections from 9.3% to 2.2%
Hospitals in Brazil	Rapid diagnosis and treatment Separation of TB patients	Use of N95 masks by HCWs and air filters in labs	Negative pressure rooms and air filters	Significantly lower rates of latent infection in comparison to other hospitals
40 TB hospitals in Malawi	Appropriate Triage	Cough etiquette and masks worn during operations	Ventilated wards, open windows, patients spend time outdoors	Significantly lower rates of TB disease

Sources:

1. Yanai H, Limpakarnjanarat K, Uthairavit W, Mastro TD, Mori T, et al. (2003) Risk of *Mycobacterium tuberculosis* infection and disease among health care workers, Chiang Rai, Thailand. *Int J Tuberc Lung Dis* 7: 36–45
2. Roth VR, Garrett DO, Laserson KF, et al. (2005) A multicenter evaluation of tuberculin skin test positivity and conversion among health care workers in Brazilian hospitals. *Int J Tuberc Lung Dis* 9: 1335–1342.
3. Harries AD, Hargreaves NJ, Gausi F, Kwanjana JH, Salaniponi FM (2002) Preventing tuberculosis among health workers in Malawi. *Bull World Health Organ* 80: 526–531.

Infection Control knowledge and practices among HCWs

- In a study in Malaysia, HCWs with TB disease were 5.9 times more likely to have poor knowledge about TB transmission, and 4.3 times more likely to be unaware of the need for respiratory protection.
- In a study among medical students in Brazil, although 90% were aware of the risk of TB transmission, only 46% reported the use of personal-protection measures.
- In a study from Thailand, although 97% of HCWs were aware of TB infection-control policies, only 52% used personal-protection measures (e.g., respirators)
- Another study in Malawi found that failure to use personal protection was associated with a 2.6 higher risk of TB disease among HCWs

Sources:

- Jelip J, Mathew GG, Yusin Y, et al. (2004) Risk factors of tuberculosis among health care workers in Sabah, Malaysia. *Tuberculosis (Edinb)* 84: 19–23
- Teixeira EG, Menzies D, Comstock GW, et al. (2005) Latent tuberculosis infection among undergraduate medical students in Rio de Janeiro State, Brazil. *Int J Tuberc Lung Dis* 9: 841–847
- Luksamjarukul P, Supapvanit C, Loosereewanich P, Aiumlaor P (2004) Risk assessment towards tuberculosis among hospital personnel: Administrative control, risk exposure, use of protective barriers and microbial air quality. *Southeast Asian J Trop Med Public Health* 35: 1005–1011.
- Harries AD, Nyirenda TE, Banerjee A, Boeree MJ, Salaniponi FM (1999) Tuberculosis in health care workers in Malawi. *Trans R Soc Trop Med Hyg* 93: 32–35

Sources for studies on symptom screening

Day JH, Charalambous S, Fielding KL, Hayes RJ, Churchyard GJ, Grant AD. Screening for tuberculosis prior to isoniazid preventive therapy among HIV-infected gold miners in South Africa. *Int J Tuberc Lung Dis* 2006; 10: 523–29.

Shah NS, Demissie M, Lambert LA, et al. Intensified tuberculosis case-finding among HIV-infected persons from a voluntary counseling and testing center in Addis Ababa, Ethiopia. *J Acquir Immune Defic Syndr* (in press).

Kimerling ME, Schuchter J, Chanthol E, et al. Prevalence of pulmonary tuberculosis among HIV-infected persons in a home care program in Phnom Penh, Cambodia. *Int J Tuberc Lung Dis* 2002; 6: 988–94.

Mohammed A, Ehrlich R, Wood R, Cilliers F, Maartens G. Screening for tuberculosis in adults with advanced HIV infection prior to preventive therapy. *Int J Tuberc Lung Dis* 2004; 8: 792–95.

Chheng P, Tamhane A, Natpratan C, et al. Pulmonary tuberculosis among patients visiting a voluntary confidential counseling and testing center, Cambodia. *Int J Tuberc Lung Dis* 2006; 12: 54–62.

Samb B, Henzel D, Daley CL, et al. Methods for diagnosing tuberculosis among in-patients in eastern Africa whose sputum smears are negative. *Int J Tuberc Lung Dis* 1997; 1: 25–30.

Espinal MA, Reingold AL, Koenig E, Lavandera M, Sanchez S. Screening for active tuberculosis in HIV testing centre. *Lancet* 1995; 345: 890–93.

Corbett EL, Charalambous S, Moloi VM, et al. Human immunodeficiency virus and the prevalence of undiagnosed tuberculosis in African gold miners. *Am J Respir Crit Care Med* 2004; 170: 673–79.

TB IC FOR PATIENTS CHECKLISTS

Patient Management

- Is there a health care worker that has screened you for prolonged (longer than 2 weeks) duration of cough immediately after you and other patients arrive at the facility.
- Are masks available for you and other patients who are coughing?
- Is there an enclosed waste basket where face masks can be discarded?
- Is there a separate waiting area for patients with suspected infectious TB?
- Are patient who are coughing while waiting to be seen:
 - asked whether they have a history of TB and/or TB treatment
 - asked about the duration of their cough
 - asked to wait in a separate waiting area
 - placed in the front of the line
 - educated about cough etiquette and respiratory hygiene
 - provided with face masks to cover their mouth and nose

- Is there a symptom checklist in place to screen patients for TB?
- Are the following items included in the checklist:
 - Chronic cough (2-3 weeks)
 - Weight loss
 - Night sweats for more than 2 weeks
 - Fever for more than 2 weeks
 - Close contact with someone with TB in the past year
 - History of TB treatment
- Is there a designated area away from other patients where sputum specimens are taken?
- Have you been advised by a health care worker on how to produce a sputum specimen if you needed one?
- Does the health care worker use a respirator when retrieving the sputum specimen?

TB treatment and referrals

- Do you or other patients receive TB treatment from the facility?
- If not, are you and other patients referred to another facility to get treatment?

Environmental Infection Control Measures

- Does the facility:
 - Have open windows on different sides of the room
 - Have open windows on one side of the room
 - Open vents
 - High ceilings
- Are windows:
 - Kept open during the day
 - Kept open during the night
 - Kept open in the summer

- Kept open in the winter
- Kept open during the dry season
- Kept open during the wet season
- Kept open when it is windy
- Are fans available and on in the facility?
- Are there other types of mechanical ventilation systems available in the facility (air conditioners, air extraction systems, etc.)
- Are air cleaning methods used in the facility? (ultraviolet germicidal irradiation UVGI)

Personal Respiratory Protection

- Are N95 masks available?

Patient education and awareness

- Have you been taught about:
 - Signs and symptoms of TB?
 - Cough etiquette and respiratory hygiene?
- Have you been given educational materials on TB infection control, prevention and treatments?
- Are posters displaying cough etiquette and respiratory hygiene displayed?

TB IC CHECKLIST

TB Infection Control Policy

- Does the facility have a written infection control plan that is kept on site?

Patient Management

- Is there a health care worker who screens patients for prolonged (longer than 2 weeks) duration of cough immediately after they arrive at the facility.
- Are masks available for patients who are coughing?
- Is there an enclosed waste basket where face masks can be discarded?
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 - Kept open in the winter
 - Kept open during the dry season
 - Kept open during the wet season
 - Kept open when it is windy
- Are fans available and on in the facility?
- Are there other types of mechanical ventilation systems available in the facility (air conditioners, air extraction systems, etc.)
- Are air cleaning methods used in the facility? (ultraviolet germicidal irradiation UVGI)

Personal Respiratory Protection

- Are N95 masks available?
- Do staff members use any personal respiratory protection when doing sputum induction?

Patient education and awareness

- Are patients taught about:
 - Signs and symptoms of TB?
 - Cough etiquette and respiratory hygiene?
- Are patients given educational materials?
- Are posters displaying cough etiquette and respiratory hygiene displayed?
- Is training on infection control provided to new staff members?
- Is refresher or ongoing training on infection control provided to staff members?

Staff protection

- Are staff members screened for TB?
- Are staff members offered voluntary counseling and testing for HIV?
- Are policies for reassignment in place for staff members?
- Is HIV-related care available for staff members?
- Is IPT available for staff members?

WHO RECOMMENDATIONS FOR TB INFECTION

Set of activities for national and subnational TB infection control

The national and subnational managerial activities listed below provide the managerial framework for the implementation of TB infection control in health-care facilities, congregate settings and households.

1. Identify and strengthen a coordinating body for TB infection control, and develop a comprehensive budgeted plan that includes human resource requirements for implementation of TB infection control at all levels.
2. Ensure that health facility design, construction, renovation and use are appropriate.
3. Conduct surveillance of TB disease among health workers, and conduct assessment at all levels of the health system and in congregate settings.
4. Address TB infection control advocacy, communication and social mobilization (ACSM), including engagement of civil society.
5. Monitor and evaluate the set of TB infection control measures.
6. Enable and conduct operational research

Set of measures for facility-level TB infection control

The measures listed below are specific to health-care facilities.

Facility-level measures

7. Implement the set of facility-level managerial activities:
 - a) Identify and strengthen local coordinating bodies for TB infection control, and develop a facility plan (including human resources, and policies and procedures to ensure proper implementation of the controls listed below) for implementation.
 - b) Rethink the use of available spaces and consider renovation of existing facilities or construction of new ones to optimize implementation of controls.
 - c) Conduct on-site surveillance of TB disease among health workers and assess the facility.
 - d) Address advocacy, communication and social mobilization (ACSM) for health workers, patients and visitors.
 - e) Monitor and evaluate the set of TB infection control measures.
 - f) Participate in research efforts.

Administrative controls a

8. Promptly identify people with TB symptoms (triage), separate infectious patients, control the spread of pathogens (cough etiquette and respiratory hygiene) and minimize time spent in health-care facilities.
9. Provide a package of prevention and care interventions for health workers, including HIV prevention, antiretroviral therapy and isoniazid preventive therapy (IPT) for HIV-positive health workers.

Environmental controls

10. Use ventilation systems.
11. Use ultraviolet germicidal irradiation (UVGI) fixtures, at least when adequate ventilation cannot be achieved.

Personal protective equipment

12. Use particulate respirators.

WHO RECOMMENDATIONS

What are the key recommendations of the 2010 WHO IPT/ICF Guidelines?

- Adults and adolescents living with HIV should be screened with a clinical algorithm and those who do not have current cough, fever, weight loss or night sweats are unlikely to have active TB and should be offered IPT. **(Strong recommendation)**¹
- Adults and adolescents living with HIV and screened with a clinical algorithm and presenting with current cough, fever, weight loss or night sweats may have active tuberculosis and should be evaluated for TB and other diseases. **(Strong recommendation)**
- Adults and adolescents who are living with HIV, have unknown or positive TST status and are unlikely to have active TB should receive at least 6 months of INH preventive therapy as part of a comprehensive package of HIV care. This includes individuals irrespective of degree of immunosuppression, those on ART, those who have previously been treated for TB, and pregnant women. **(Strong recommendation)**

¹ A **strong recommendation** is one for which the panel is confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects.

- Adults and adolescents, who are living with HIV, have unknown or positive TST status and who are unlikely to have active TB should receive at least 36 months INH preventive therapy. This includes individuals irrespective of degree of immunosuppression, those on ART, those who have previously been treated for TB, and pregnant women. **(Conditional recommendation)**²
- Tuberculin skin test is not a requirement for initiating IPT for people living with HIV **(Strong recommendation)**
- Where feasible, TST can be used as people with a positive test benefit more from IPT than those with a negative test **(Strong recommendation)**
- Providing IPT to people living with HIV does not increase the risk of developing INH resistant TB. Therefore concerns regarding the development of INH resistance should not be a barrier to providing IPT **(Strong recommendation)**
- Children living with HIV and present without poor weight gain³, fever or current cough are unlikely to have active tuberculosis and should be offered IPT **(Strong recommendation)**
- Children living with HIV and presenting with any one of the following: poor weight gain³, fever or current cough may have active tuberculosis and should be evaluated for TB and other conditions **(Strong recommendation)**
- Children over 12 months of age who are living with HIV who are unlikely to have active TB should receive 6 months of INH preventive therapy (10mg/kg) as part of a comprehensive package of HIV **(Strong recommendation)**
- All children over 12 months of age living with HIV after successful completion of treatment for TB disease should receive INH for an additional 6 months. **(Conditional recommendation)**
- All children with a history of contact with a TB case should receive 6 months IPT irrespective of their age. **(Strong recommendation)**

² A **conditional recommendation** is one for which the panel concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects. Therefore, the recommendation is only applicable to a specific group, population or setting or new evidence may result in changing the balance of risk to benefit or the benefits may not warrant the cost or resource requirements in all settings

³ **Poor weight gain** is defined as reported weight loss, or very low weight (weight-for-age less than -3 z-score), or underweight (weight-for-age less than -2 z-score), or confirmed weight loss (>5%) since the last visit, or growth curve flattening

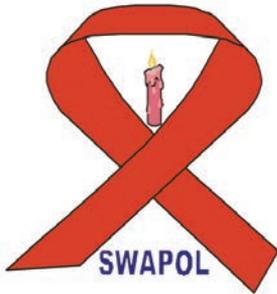
ARASA
AIDS & Rights
Alliance
for Southern Africa

 **ADRA**
ADVENTIST DEVELOPMENT
AND RELIEF AGENCY

BONELA



The Botswana
Network on
Ethics, Law
and HIV/AIDS



SWAPOL

TAC
TREATMENT ACTION CAMPAIGN

