World Health Organization

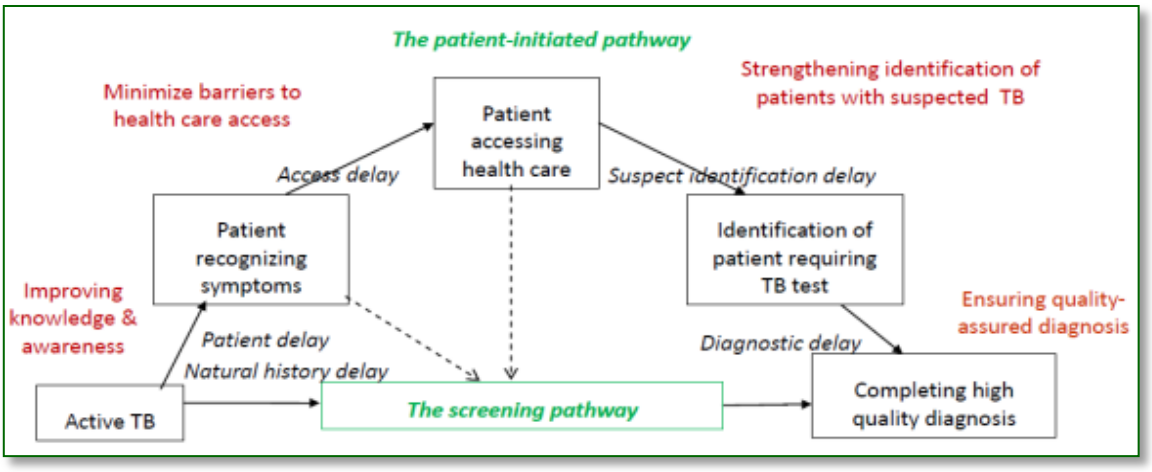
Improving early detection of active TB through systematic screening

Systematic screening for active TB is defined as the *systematic identification of people with suspected active TB, in a predetermined target group, using tests, examinations or other procedures that can be applied rapidly*.

BACKGROUND

- The delay in diagnosing TB and initiating appropriate treatment is often long, especially in groups with poor access to health care.
- The burden of undetected TB is high in many settings, especially in some risk groups.
- Many people with active TB do not experience typical TB symptoms in the early stages of the disease. These individuals are unlikely to seek care early, and may not be properly diagnosed when seeking care. This and other barriers along the patient-initiated pathway (see figure) leads to missed or delayed TB diagnoses.
- Screening for active TB in selected risk groups is one of several possible interventions to improve early TB detection. However, the impact of screening on health outcomes and TB transmission remains unclear.
- Unless properly targeted to relevant risk groups with high risk of TB, screening requires a lot of resources in relation to the number of persons identified with TB and can also lead to a high number of false positive TB cases being diagnosed.

Tuberculosis risk groups	
Community	Geographical areas with a high prevalence and subpopulations with poor access (poor populations, urban slums, remote areas, refugees, homeless, etc)
Hospital outpatient and inpatient departments, and primary health-care centres	People previously treated for TB
	People with an untreated fibrotic lesion
	People living with HIV and people attending HIV testing
	People with diabetes mellitus
	People with chronic respiratory disease and smokers
	Undernourished
	People with gastrectomy or jejunoileal bypass
	People with an alcohol- or drug-use disorder
	People with chronic renal failure
	People with immunocompromising treatments
	Elderly people
	People in mental health clinics or institutions
Residential institutions	Prisoners and prison staff
	People residing in shelters
	Other congregate settings (such as the military)
Immigration and refugee services	Immigrants from settings with a high prevalence of TB
	People in refugee camps
Workplaces	Health-care workers
	Miners or others who are exposed to silica
	Other workplaces with a high prevalence of TB



WHO RESPONSE

- WHO, with partners, has developed a guideline on screening for active TB, based on four systematic reviews and a series of expert consultations.
- A key message of the guideline is that ***indiscriminate mass screening should be avoided while risk groups should be prioritised for screening based on careful assessment of local TB epidemiology, potential benefits and risks of harm of screening, and alternative interventions to improve early TB detection***. People with very high risk of TB or severe consequences of delayed TB diagnosis should be prioritized first (see box).
- The guideline outlines key principles for screening: Ensuring high-quality TB care before initiating screening; performing a baseline analysis of TB epidemiology and health systems capacity; following established ethical principles for screening; optimizing synergies with the delivery of other health services and social services; and monitoring the screening inputs and yield continually to inform re-prioritization of risk groups, re-adaptation of screening approaches when necessary and discontinuation of screening at an appropriate time.
- The guideline includes several screening and diagnostic algorithms and advice on how to choose algorithms for different risk groups.
- A practical screening implementation guide will be developed in 2013-2014, based on assessments of recent field experiences in selected countries.

RECOMMENDATIONS ON RISK GROUPS TO SCREEN

The following risk groups should always be screened for active TB, in all settings:

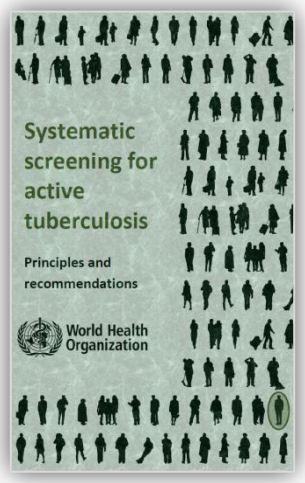
1. Close contacts of people with TB;
2. People living with HIV;
3. Workers in silica exposed workplaces.

In addition, the following risk groups may be prioritized for screening based on local TB epidemiology, health systems capacity, resource availability, and feasibility of reaching the risk groups:

4. People in prisons and other penitentiary institutions, and prison staff;
5. People with untreated fibrotic CXR lesion;
6. People in high TB burden settings (estimated TB prevalence >100/100,000 in the general population) who are seeking care or who are in care and belong to selected risk groups (see table), and health care workers.
7. Geographically defined sub-populations with extremely high levels of undetected TB (>1% prevalence), and other sub-populations with very poor health care access.

EXPECTED IMPACT OF THE IMPLEMENTATION OF THE GUIDELINE

- Selective screening among people with very high risk of TB may improve the health outcomes for these individuals.
- Proper selection of risk groups and due attention to the accuracy of the screening and diagnostic algorithm will help optimize rationale use of health resources and minimize the risk of a high number of false positive TB cases being diagnosed.
- The impact of screening on TB transmission is uncertain. Even though such impact is plausible when screening results in earlier detection and treatment of TB, a significant impact on TB incidence should not be expected from screening in very high risk groups, which tend to be small in size. Significant impact on incidence is particularly unlikely where the majority of incidence TB cases arise from latent rather than recent infection.



For further information see:

- Systematic screening for active tuberculosis - Principles and recommendations Geneva, World Health Organization, 2013 (WHO/HTM/TB/2013.04). **http://www.who.int/tb/tbscreening**
- Improving early detection of active TB through systematic screening: questions and answers

To visit the Global TB Programme website please access www.who.int/tb