Case finding strategies

Global TB Epidemiology and Intervention

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Case finding

Global strategy: Find and treat TB patients.

«Active» case finding

- Investigate/screen population

«Passive» case finding

- Investigate those who seek help in the health system

Active case finding: examples

- TB screening population by chest X-ray

- TB Prevalence surveys

- Examination of risk groups
  - often called «intensified case finding

**WHO Expert Committee
on Tuberculosis: Ninth Report (1974)**

Mass population screening common in Europe in the 1950-1960ies.

- WHO (1974) stated: … indiscriminate tuberculosis case-finding by mobile mass radiography should now be **abandoned…**

- Use instead practical methods of case finding
  - patients who **present themselves** with relevant symptoms to any health facility
  - increasing the **awareness** of the community, the medical profession and all cadres of staff

"Passive" case detection:
Usual current programmatic approach

- Sick patients present at health system

- Health personell recognize signs/symptoms

- Information to public:
    - Persons must seek help if symptoms/signs
    - Increase population awareness

Pathways to TB care with "passive" case finding

There may be DELAY to TB treatment at many steps to treatment. Examples of how to reduce some the barriers are outlined here.

- Patient delay: reduce by improving health knowledge

- Health care delay: reduce by minimizing barriers

- Suspect identification delay: reduce by improving staff knowledge and routines

- Diagnostic delay: reduce by ensuring quality diagnosis new tools

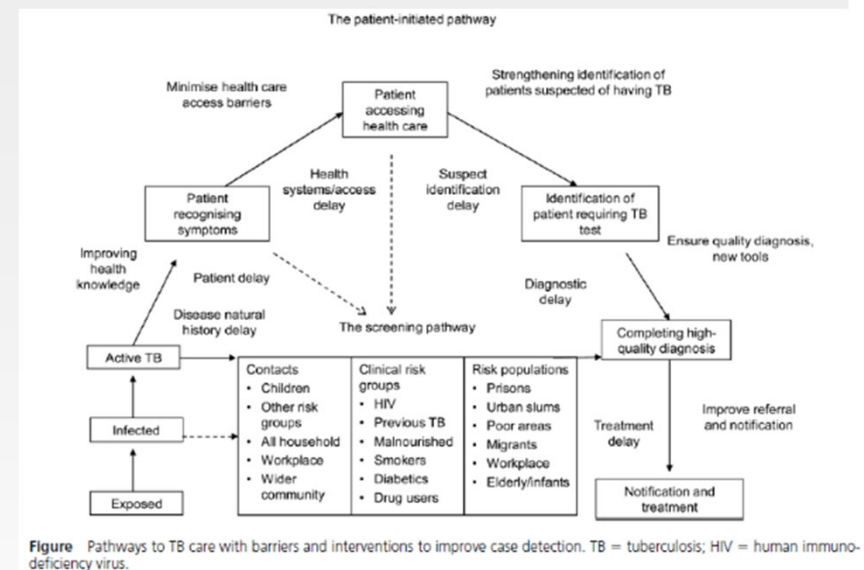- Treatment delay: reduce by improving referrals and notification

Figure Pathways to TB care with barriers and interventions to improve case detection. TB = tuberculosis; HIV = human immunodeficiency virus.

"Passive" case detection

Tasks and duties of the basic management unit where patients come:

- Suspect identifications, find persons who may have TB

- Diagnostic examination of those with relevant symtoms

- Initiate TB treatment on all diagnosed as TB

- Follow-up for the whole TB treatment (at least 6 months)

- Reporting cases and results to one level up:

  - From facility to district to region to National program

- Network of involved health workers related to followup with supervision from higher levels

"Passive" case detection:
Diagnostic tools available at basic and higher level

Basic management unit

- Chest radiograph
- Sputum smear microscopy
  - Ziehl-Neelsen
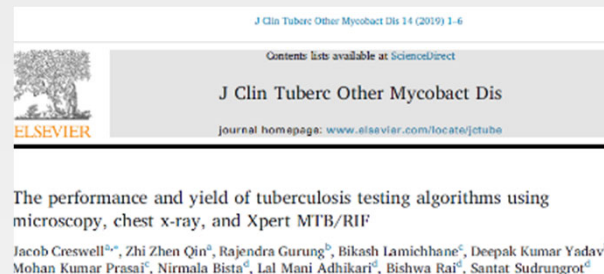
Higher referral centres

- Chest radiograph
- Sputum smear microscopy
  - Ziehl-Neelsen
  - Fluorescence
  - Light-emitting diode (LED)
- Bacteriological culture
- Serum test IGRA (TSpotTB, Quantiferon)
- Serum test NAAT (Xpert® MTB/RIF)

The efficiency of the diagnostic process is not determined by diagnostic tools **alone**

Yield of microscopy investigations
Example from Nepal

The performance and yield of tuberculosis testing algorithms using microscopy, chest x-ray, and Xpert MTB/RIF

Jacob Creswell[a,*], Zhi Zhen Qin[a], Rajendra Gurung[b], Bikash Lamichhane[c], Deepak Kumar Yadav[b], Mohan Kumar Prasai[c], Nirmala Bista[d], Lal Mani Adhikari[d], Bishwa Rai[d], Santat Sudrungrot[d]

The examinations for TB have different yield or performance.

In Nepal 929 persons with symtoms examined at a district hospital
- Positive smear microscopy   121/929=   13%
- Positive GeneXpert MTB/RIF   161/929=   17%
- Chest X-ray suggestive TB   187/929=   20%

Many with chest X-ray suggestive of TB had not bacteriological finding!

Keep in mind that ALL tests have some false positive and false negative results!

"Intensified case finding" for TB

Contacts of TB patients (especially bacteriologicaly positive) MUST be screened
- Children
- Whole household
- Workplace?

Clinical risk groups that need attention from health workers, consider screening
- HIV
- Previous TB
- Malnourished
- Smoker
- Diabetic
- Drug user

Risk population to consider for screening examinations
- Prisons
- Poor areas
- Migrants
- Workplace
- Elderly
- Infants

Potential pitfalls in the care pathway of patients in routine health systems

- Person with symptoms may not attend a health facility
- Doctor may not suspect tuberculosis
- Doctor may use incorrect investigations
- The symptomatic may not submit sample for examination
- The symptomatic may submit a poor sputum sample
- The examination may be "False negative"
- Laboratory report by mistake a positive to be negative
- The symptomatic may be diagnosed but not treated
- The patient treated may not be notified to the program.

Initial lost-to-follow-up

A patient identified by examinations should of course be treated as soon as possible.

Patients who are NOT initiated on treatment after a positive lab. results are called

"Initial lost to follow up" or

"pretreatment lost to follow up".

They often appear only in the **laboratory register** and are not found in the **tuberculosis treatment register**

Examples of studies showing various high pretreatment loss to follow up are here:

Patients with positive test but not registered for treatment:

*   Andhra Pradesh, India (2008)   5%
*   Chennai India (2018)   12%
*   Cape Town, South Africa (2008)   16%
*   Cameroon (2018)   17%

Int J Tuberc Lung Dis 2008; 12:820-3
Int J Tuberc Lung Dis 2008; 12:1055–8
BMC Infecious Diseases 2018; 18:142
Int J Tuberc Lung Dis 2018; 22(4):378-384

Conclusion

TB programs should find TB cases by:

- Investigate all chest symptomatics
- Investigate all household contacts.
- Investigate all HIV-patients
- Investigate other risk groups if budget allows

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