

Tuberculosis

Basic and risk groups

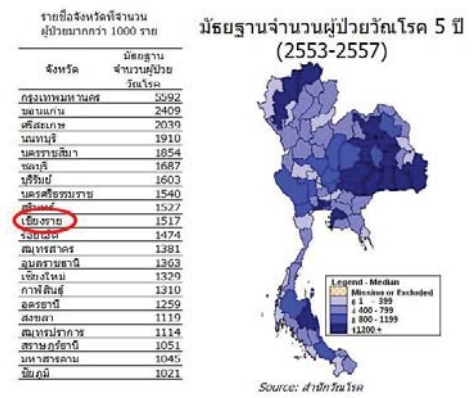
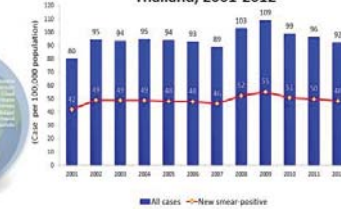
Worarat Imsanguan
03/02/2017

Burden of TB in Thailand

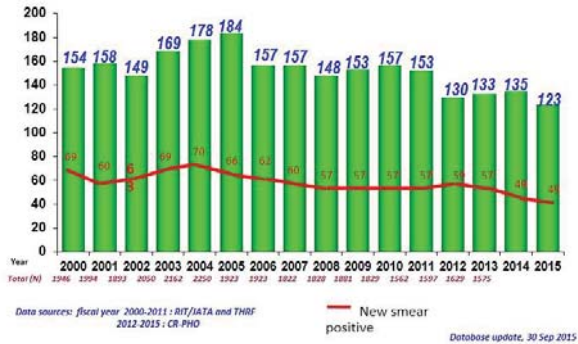
The three HBC lists of 30 countries each that will be used by WHO 2016-2020



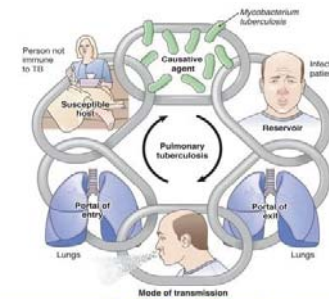
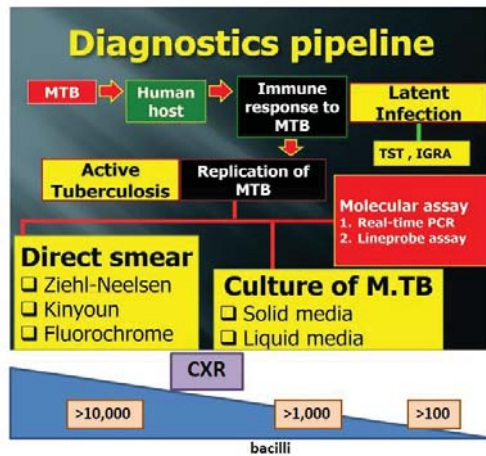
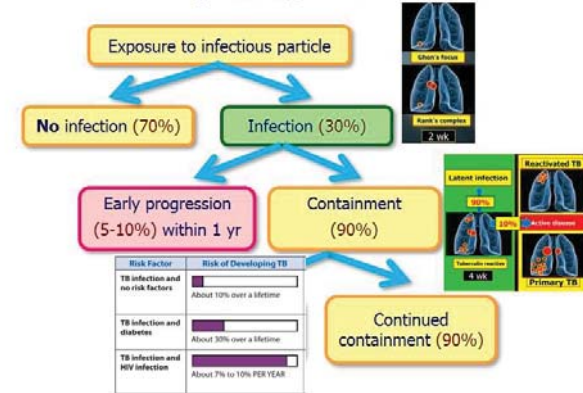
Tuberculosis Cases Notification Rate Thailand, 2001-2012



TB Notification rate per 100,000 population of all TB in Chiang Rai, 2000-2015

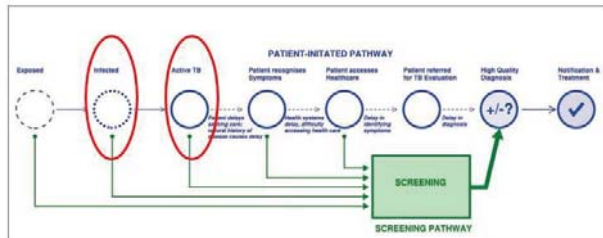


pathogenesis



Factors	Probability of Transmission
Susceptibility	Immune status
Infectiousness	number of tubercle bacilli
Environment	Concentration of organisms
Exposure	Duration, proximity and frequency

Patient-initiated vs Provider-initiated screening pathways



NTP guideline 2013 : Intensified Case Finding (ICF)
 1. HIV infection 2. Contact cases 3. Prisoners



Screening	
Active TB	Latent TB infection
Goals 1. reducing the risk of poor treatment outcomes 2. reducing TB transmission 3. Identifying LTBI	- Increase risk of progression to active TB disease - Test and treat

persons at high risk for developing TB disease

Recently infected	Weaken immune system
- Close contacts - Children < 5 years old - high rates of TB transmission's group; homeless persons, drug users, HIV infection - immigrants from high rates of TB area	- HIV infection - Substance abuse - Silicosis - Diabetes mellitus - Severe kidney disease - Low body weight - Organ transplants - Head and neck cancer - Corticosteroids Rx - Organ transplant - Anti-TNF treatment

Latent TB infection

Risk group	HIV infection and children < 5 years old who are household or close contact Anti-TNF Rx, silicosis Dialysis, transplantation patients
R/O active TB	Symptoms, CXR
Test	TST, IGRA
Treat	IPT (INH Preventive Therapy) 6-9 Mo IR weekly 3 Mo IR 3-4 Mo R 3-4 Mo

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.

Systematic screening for active tuberculosis, WHO 2013

Screening for Active TB disease

A systematic process intended to identify previously undiagnosed cases of TB among the contacts of an index case.

early identification

household and close contacts when the index case

- has sputum smear-positive
- has MDR-TB or XDR-TB
- is a PLHIV
- is a child < 5 years of age

Recommendations for investigating contacts of persons with infectious tuberculosis in low- and middle-income countries, WHO 2012

Active TB disease

Factors associated with infectiousness

- Cough, especially > 3 weeks
- Pulmonary TB, TB larynx
- Failure to cover the mouth and nose when coughing
- Inappropriate or inadequate treatment

- Cavitation on CXR
- Positive AFB sputum smear result
- Positive culture for *M. tuberculosis*

Procedures (bronchoscopy, sputum induction, aerosolized medications)

Tuberculosis risk groups	
Community	Geographical areas with a high prevalence and subpopulations with poor access (poor populations, urban slums, remote areas, refugees, homeless, etc)
	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 jejunioileal 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
	Prisoners and prison staff
	People residing in shelters
	Other congregate settings (such as the military)
Residential institutions	
Immigration and refugee services	Immigrants from settings with a high prevalence of TB
	People in refugee camps
	Health-care workers
Workplaces	Miners or others who are exposed to silica
	Other workplaces with a high prevalence of TB

Systematic screening for active tuberculosis, WHO 2013

DM and TB

- Increase risk 1.7 - 8.3 fold
- Increase the risk of active TB and associate with higher risks of TB treatment failure, relapse and mortality
- Good glycemic control could potentially modify the risk of TB

CKD and TB

- Increase risk 6.9 - 52.5 fold
- TB screening and diagnostic is suboptimal in the CKD
- Extra pulmonary TB
- Non specific symptoms: anorexia, fever and weight loss
- The prognosis is dependent on early diagnosis and treatment

Chronic liver disease and TB

- Increase risk 2.8 - 7.4 fold
- Extra pulmonary TB
- more frequently with treatment-related hepatotoxicity.

COPD and TB

- Increase risk 3 fold
- COPD and TB have common risk factors
 - smoking
 - low socioeconomic status
 - dysregulation of host defense functions
 - Corticosteroid use
- Keeping a high suspicion and regularly monitoring for the development of active TB in COPD patients

COPD and the Risk of Tuberculosis - A Population-Based Cohort Study 2010

Healthcare workers and TB

Risk

Contact	<ul style="list-style-type: none">- OPD med/TB, Medical Ward- Duration of contact- Procedures- Environment/ Hospital policy- Airborne precautions
Infection	<ul style="list-style-type: none">- Infectiousness- Treatment- Environment
Disease	<ul style="list-style-type: none">- Immune system

Take Home Message

- ค้นหาผู้ป่วยเชิงรุก โดยเฉพาะกลุ่มเสี่ยง ได้แก่
 - Contact cases
 - HIV infection
 - Diabetes Mellitus
 - Cirrhosis
 - CKD
 - COPD
 - *ผู้สูงอายุ*
- ค้นหา LTBI ในผู้ที่สัมผัสใกล้ชิดผู้ป่วยวัณโรค โดยเฉพาะเด็กอายุน้อยกว่า 5 ปี และผู้ป่วย HIV infection
- ประชากรทั่วไป ผู้ป่วยโรคอื่นๆ ค้นหาด้วยการซักประวัติ ไข้ต่ำๆ ไอเรื้อรัง น้ำหนักลด

CXR