## Diagnostic Test Cases

- Initial evaluation process
- Decision on TB treatment initiation

# Diagnostic process The first step: Risk Assessment

### ◆ Exposure risk:

- Those from high TB incidence countries
- Homelessness, correctional facilities, institutional residence, substance abuse

### ◆ Progression risk:

 HIV and other immunosuppression (e.g., TNF-alpha inhibitors)

## Diagnostic process

- Epidemiologic or medical risk factors
- Clinical presentation
  - symptoms suggestive of TB?
- Imaging
- Obtain appropriate specimens for AFB smear, culture, and NAAT/PCR (Lab confirmation)

## **Laboratory Diagnosis for Pulmonary TB**

	Sensitivity	
AFB smear	<b>EB smear</b> 50-70%	
AFB culture	90-95%	
PCR / NAAT	Smear positive 95%	
	Smear negative 65%	

## Initial evaluation process

- Goals:
- 1. Prompt diagnosis and treatment initiation
- 2. Interrupt TB transmission in the community
- Actions:
- 1. Further diagnostic specimens and/or procedures
- 2. Empiric TB treatment
- 3. Isolation

# Diagnostic process: consideration and urgency

- Epidemiologic info
- Clinical presentation
- Pulmonary vs. Extrapulmonary
- Community risk (environment where the patient spends their time)

## Isolation

- Home isolation
- "TB motel"
- Isolation at a hospital

# Approach to a smear-negative patient when the lab reports AFB growth

•Review TB risk factors (epi risk and medical risk for progression) and imaging → Level of clinical suspicion

High	Uncertain/Unclear	Low
<u>Initiate Rx</u> Isolation	Consider Rx if benefits>risks  1. Risk of progression  2. Risk of transmission	No treatment Wait for final ID ?isolation
	3. Risk of adverse effects	

Re-evaluate for other diagnoses while ID is pending

e.g., Repeat a CXR Additional sputum for AFB smear/culture and NAAT

**Favors Treatment Initiation** 



Official American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America Clinical Practice Guidelines: Treatment of Drug-Susceptible Tuberculosis

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Favors Delayed or No Treatment

Patient	Risk for progression/dissemination (eg, HIV, TNF alpha inhibitor)  Age < 2years  TB exposure risk (eg, contact, born in higher TB incidence country)	Elevated concern for adverse treatment events (eg, severe liver disease, pregnancy)  No TB exposure risk
Laboratory / Radiographic	Radiographic imaging consistent with TB Evidence of Mtb infection	Radiographic imaging not consistent with TB
	(ie, positive TST or IGRA)  Extended time to microbiologic confirmation (eg, Rapid molecular test not available)	
	Pathologic findings consistent with TB	
	AFB smear positive,	AFB smear positive,
	Rapid molecular test positive	Rapid molecular test negative
	AFB smear negative,	AFB smear negative,
	Rapid molecular test positive	Rapid molecular test negative
Clinical Status / Suspicion	5 Life-threatening disease	Clinically stable
	Symptoms typical for TB	Symptoms not typical for TB
O 8	Alternative diagnosis less likely	Alternative diagnosis
Public Health	Concern for loss to follow-up	
	High transmission risk (eg, congregate setting, corrections)	Low transmission risk

### CDC definition: "Confirmed TB Case"

#### Laboratory case definition

- M. tuberculosis by culture or NAAT, or
- AFB smear + (if culture not obtained)

#### <u>OR</u>

#### Clinical case definition

- 1. Positive TST or IGRA, AND
- 2. Compatible signs/symptoms/imaging findings, AND
- 3. Response to treatment with 2 or more TB meds, AND
- 4. Completed diagnostic evaluation

## Miliary TB

- TB spreads via a hematogenous or lymphatic route.
- Mortality: 20-30 %
- Specimens:
  - Blood culture
  - Lymph node biopsy (if present, high yield)
  - Transbronchial lung biopsy
  - Bone marrow
  - Liver