

EPIDEMIOLOGY OF PULMONARY TUBERCULOSIS

LEARNING OBJECTIVES

- State the diagnostic criteria of pulmonary tuberculosis
- Describe trend & state reasons for resurgence of pulmonary tuberculosis
- List population subgroups at risk of pulmonary tuberculosis
- Draw the cycle of infection of pulmonary tuberculosis
- Outline the procedures of diagnosis of pulmonary tuberculosis with emphasis on the limitation of each procedure
- Describe measures for the prevention and control of pulmonary tuberculosis
- Describe the Directly Observed Therapy short course for the treatment of pulmonary tuberculosis

PERFORMANCE OBJECTIVE

To decide on the best measure(s) for the prevention and control of pulmonary tuberculosis and to prevent its spread to susceptible population

PULMONARY TUBERCULOSIS

Respiratory tract infection

Caused by *M. Tuberculosis*

PULMONARY TUBERCULOSIS

Suspected cases present with

Cough & expectoration for 3 weeks

Low grade fever

Night sweating

Loss of weight

PULMONARY TUBERCULOSIS

SMEAR POSITIVE

2 Positive sputum smears
OR,

1 Positive sputum smear
+ positive radiology OR,

1 Positive sputum smear
+ positive culture

SMEAR NEGATIVE

3 Negative sputum smears
+ Suggestive symptoms

+ Positive radiology

+ Decision to treat as TB

OR,

Culture positive but
negative sputum smear

PULMONARY TUBERCULOSIS

INFECTION

Primary

First exposure

Post primary

Reactivation/re-infection

DISEASE

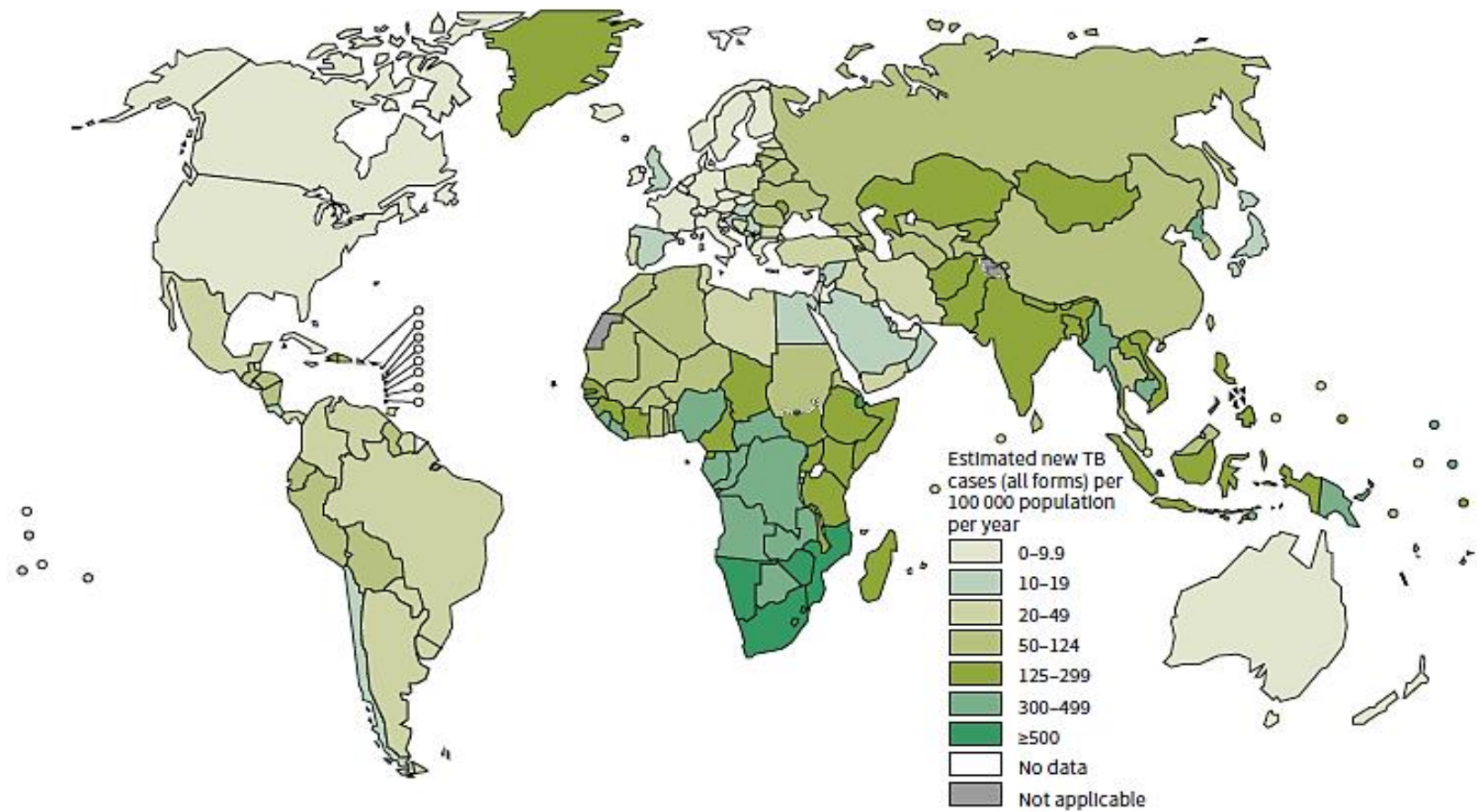
Active tuberculosis

Disease process

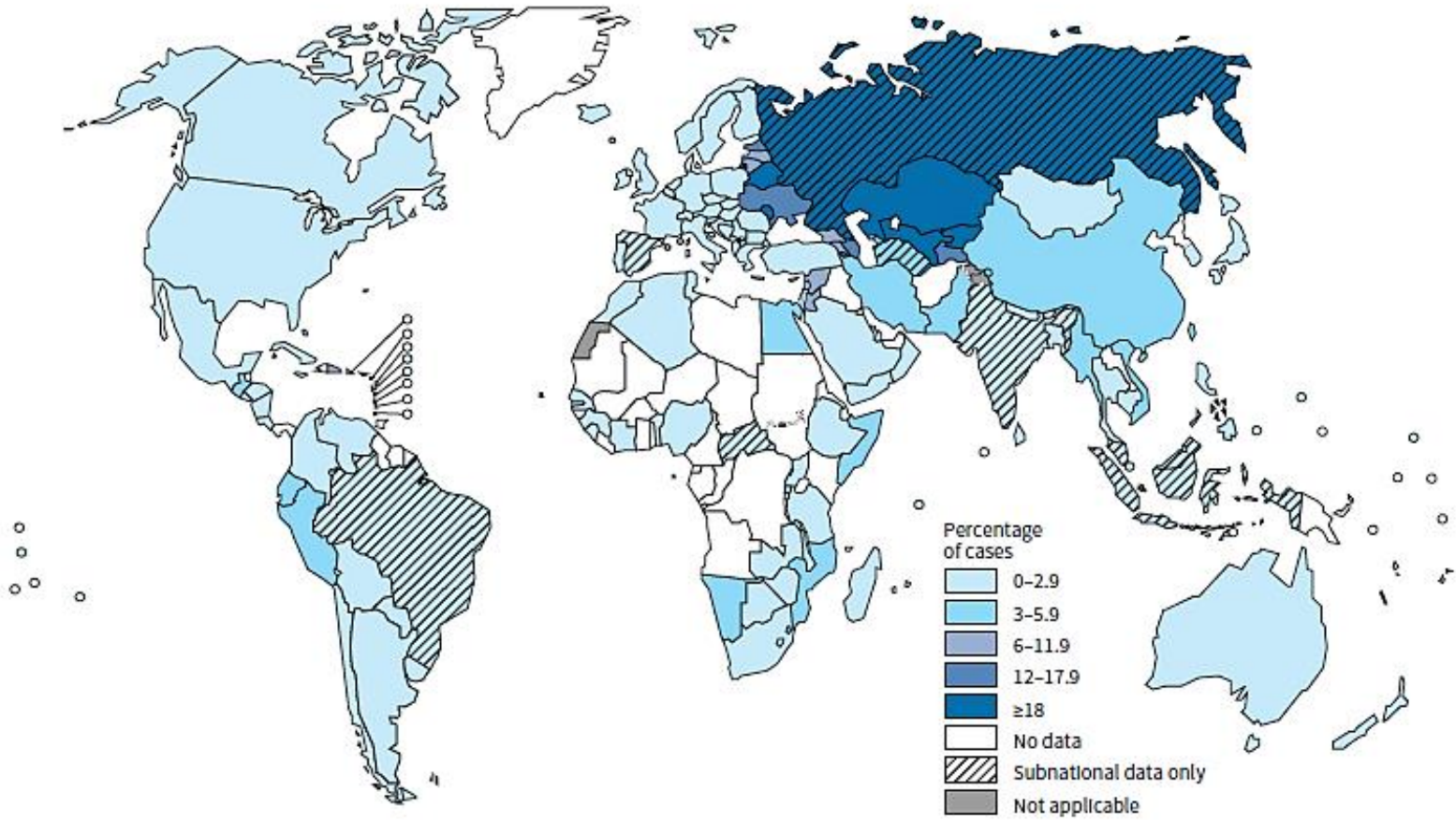
Latent tuberculosis

No disease yet

Estimated TB incidence rates, 2013



Percentage of new TB cases with MDR-TB^a



^a Figures are based on the most recent year for which data have been reported, which varies among countries.

PULMONARY TUBERCULOSIS IN SAUDI ARABIA

64,345 reported cases; 48% non-Saudis for 2000 – 2013

Annual incidence rate (2013)

- Between 14 to 17 per 100,000 populations
- Between 8.6 and 12.2 per 100,000 Saudi population

RESSUREGENCE OF TUBERCULOSIS

- Deterioration of the living conditions
- Appearance of strains of *M. tuberculosis* resistant to anti-tuberculosis drugs.
- HIV/AIDS pandemic

Resurging diseases are Infectious diseases which its incidence has increased in the past two decades or threaten to increase in the near future after a considerable period of decline.

PULMONARY TUBERCULOSIS

Social factors: Unfavorable social conditions

Pre-pathogenic conditions: HIV/AIDS, diabetes

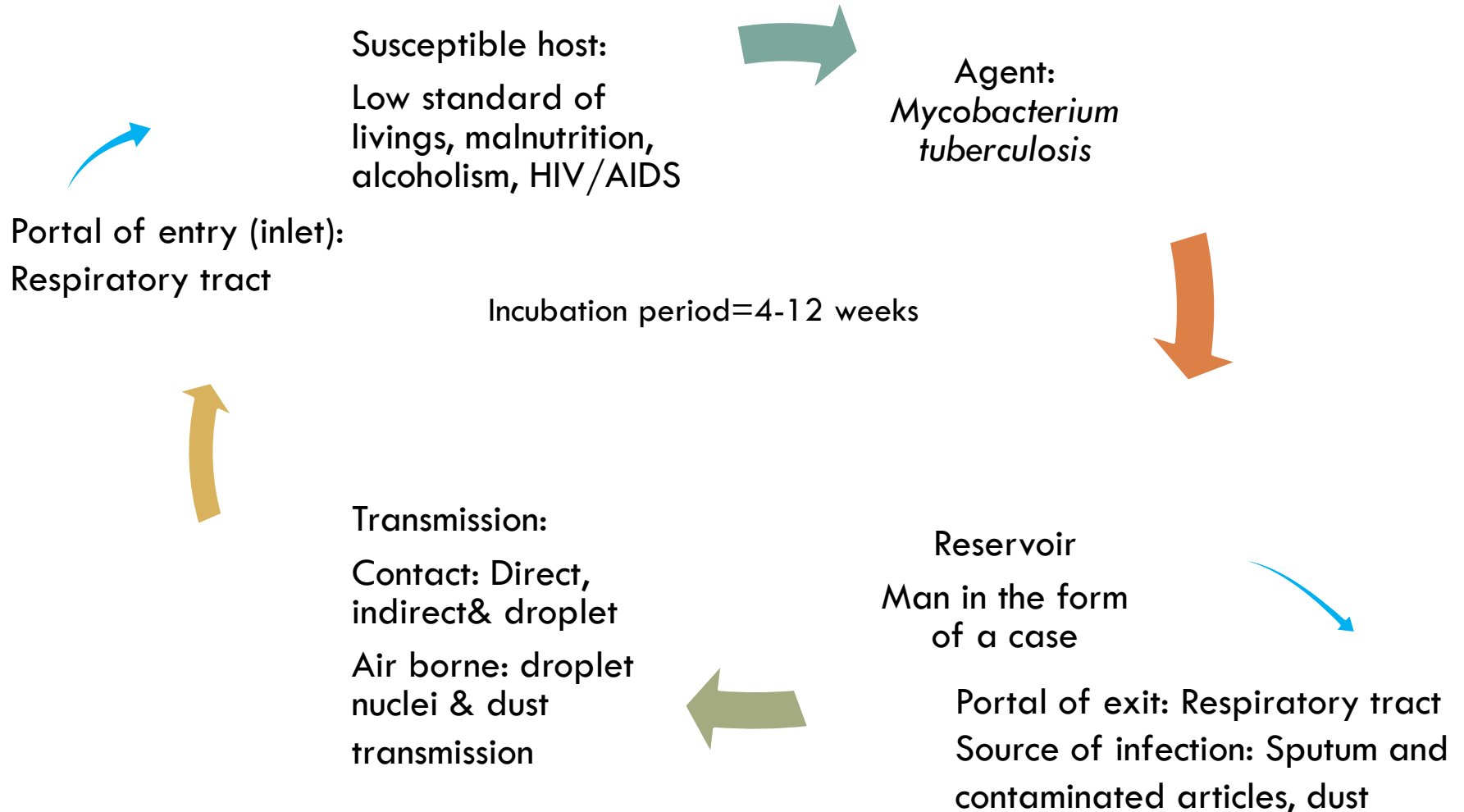
Occupation: Exposure & working conditions

Habit: Smoking

PROGRESS

- Annual slow decline in the rates of tuberculosis
- An estimated of 37 million lives saved between 2000 and 2013 as a result of effective diagnosis and treatment.

CYCLE OF INFECTION OF PULMONARY TUBERCULOSIS



DIAGNOSIS OF TUBERCULOSIS

Non specific symptoms and signs (mimic chest infection)



Delay consultation + Delay diagnosis

DIAGNOSIS OF PULMONARY TUBERCULOSIS

Tuberculin skin test (Mantoux technique)

Chest radiography

Microscopic examination of sputum specimen

Culture of sputum specimen

TUBERCULIN SKIN TEST



0.1 ml PPD

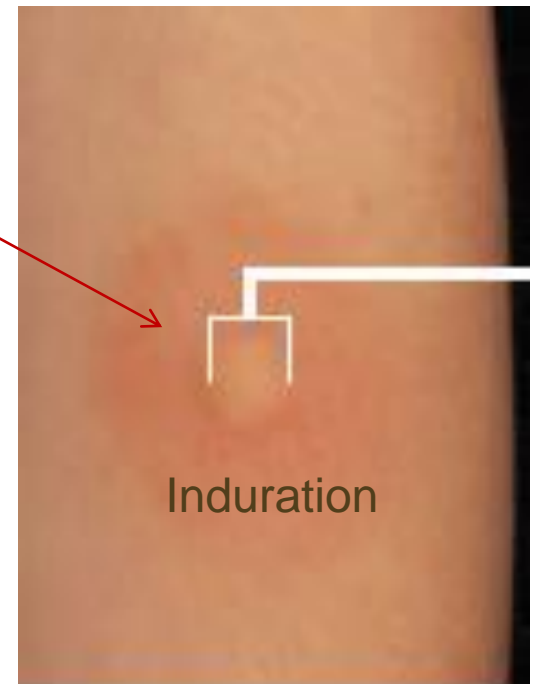
(1)



(2)



(3)



Erythema
Edema

Induration

(4)

TUBERCULIN SKIN TEST

Report induration size in mm

Induration = Previous exposure to *M.* protein

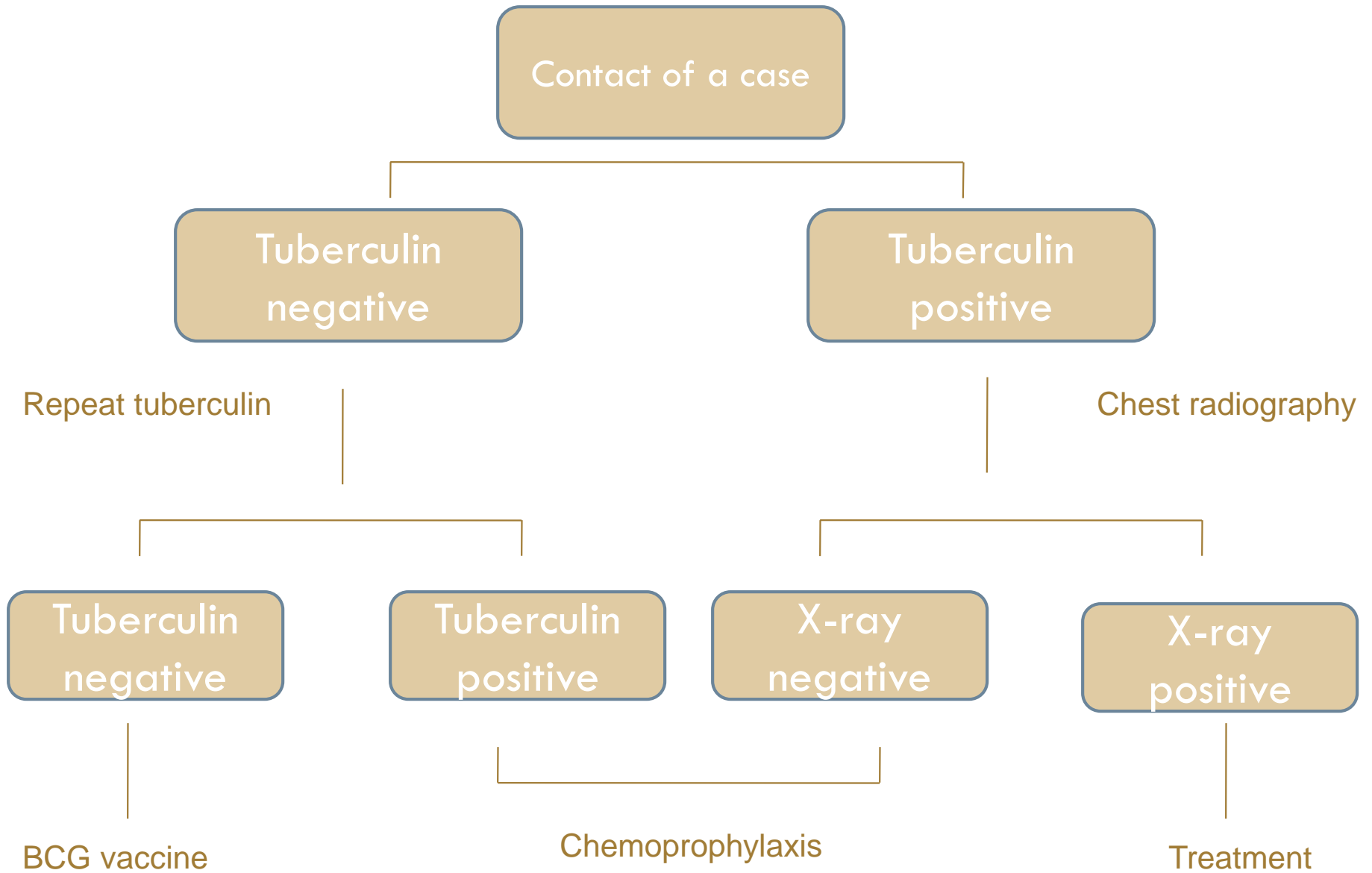
Size

10 + mm = positive

5 - <10 mm = positive in immune compromised

≥ 15 mm = suggestive of infection rather than BCG





□ **TUBERCULIN TESTING IN MANAGING CONTACTS**

CHEST RADIOGRAPHY

Chest radiography findings

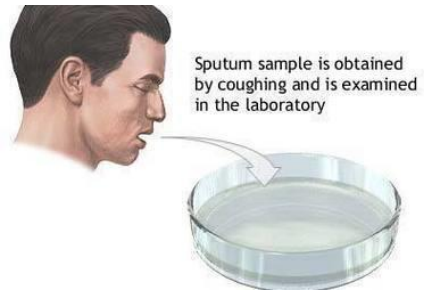
Enlarged mediastinal LN

Consolidation (area of opacity)

Cavitations (dark area)

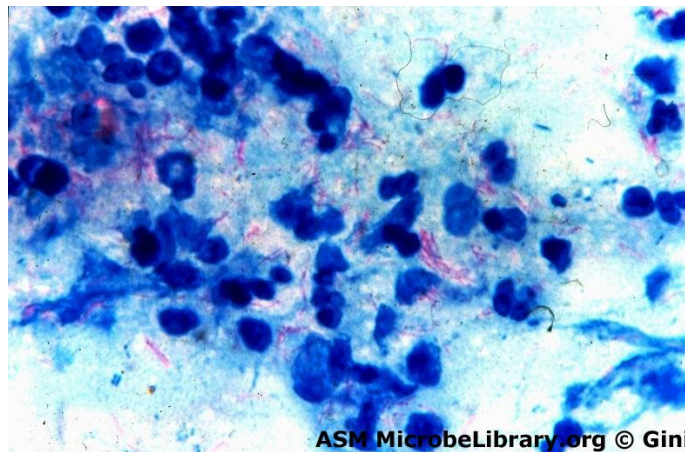
Negative (not uncommon)

SPUTUM SMEAR & CULTURE

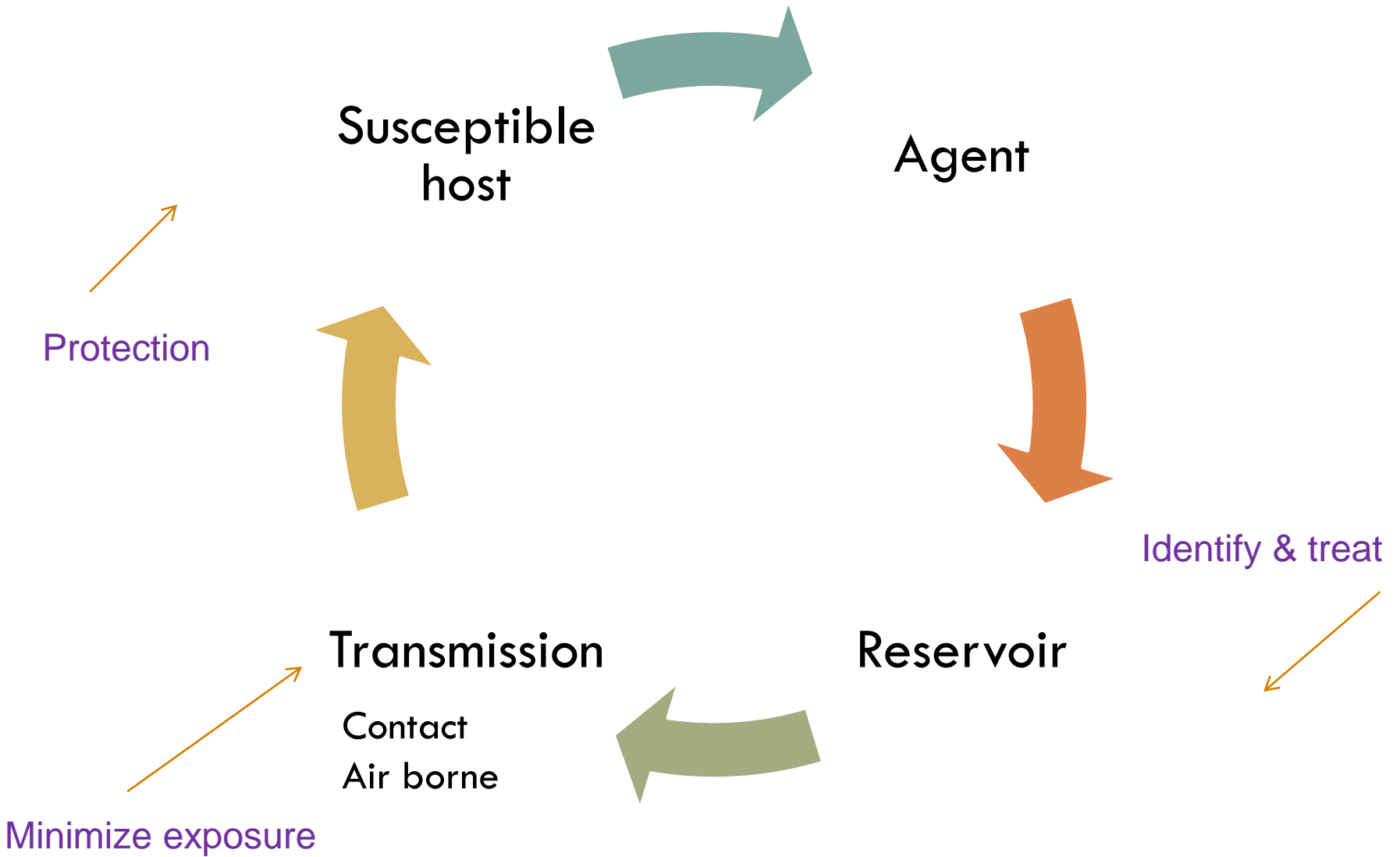


Collection

Microscopy



Culture



□ PREVENTION AND CONTROL OF RIs

PREVENTION & CONTROL OF RIs

Minimize exposure

- Isolation of case
(respiratory precautions)
- Concurrent disinfection
(patients' items)
- Ventilation & exposure
to sunlight
- Cleaning floor with
disinfectant

Control transmission

Protection of susceptible

- BCG vaccine:
Live attenuated
vaccine, 0.1 ml
IM injection in
the left deltoid
within 40 days
of birth
- Improve nutrition
status

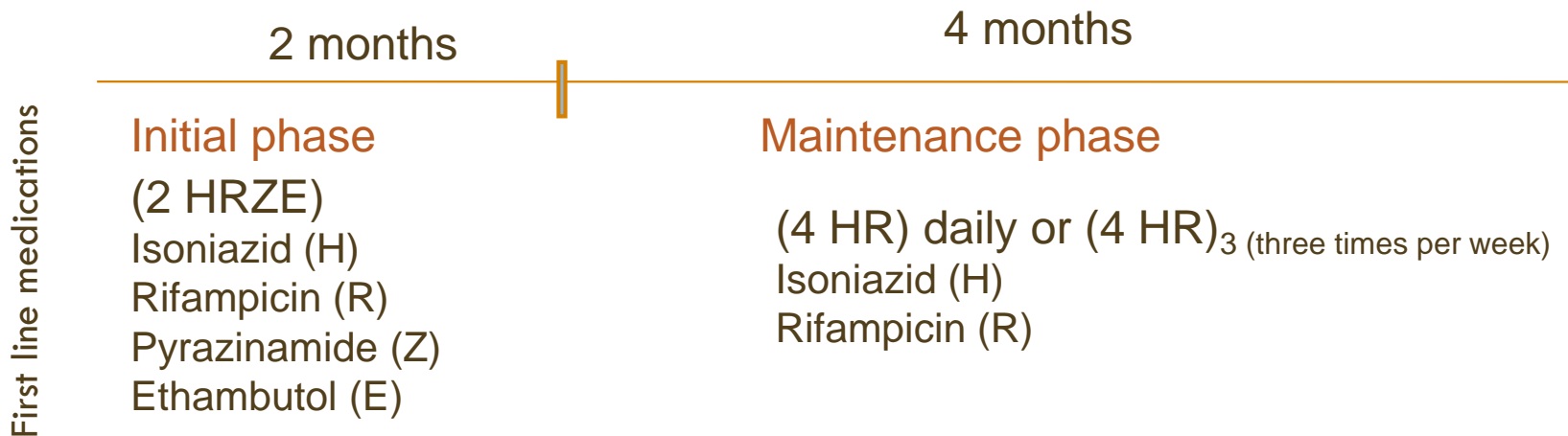
Increase host resistance

Identification and treatment

Anti-tuberculosis drugs

Eliminate reservoir

DIRECTLY OBSERVED THERAPY SHORT COURSE (DOTS)



DIRECTLY OBSERVED THERAPY SHORT COURSE (DOTS)

Strategy to improve compliance

Fixed Dose Combination therapy (FDC) - ALL IN ONE tablet

