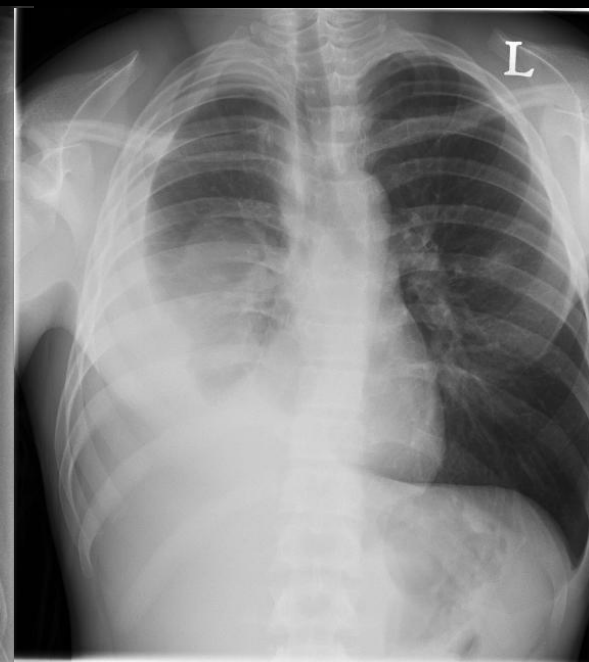
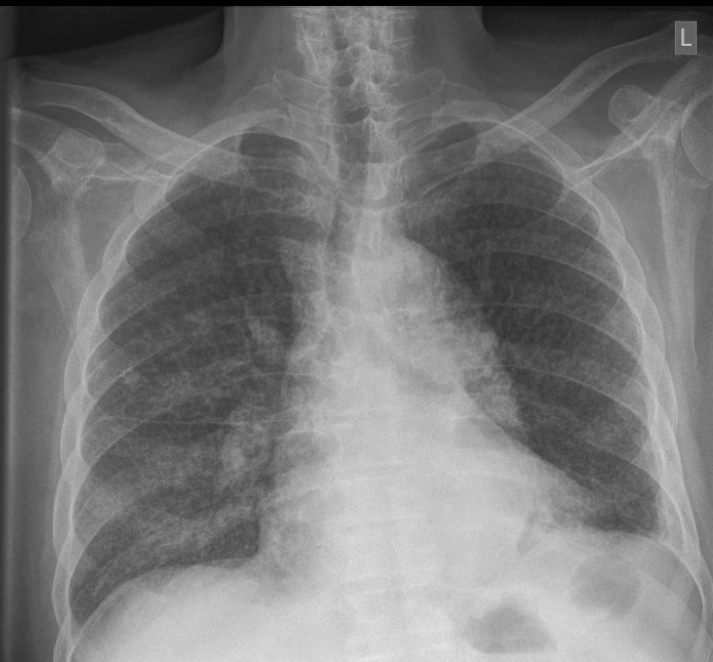
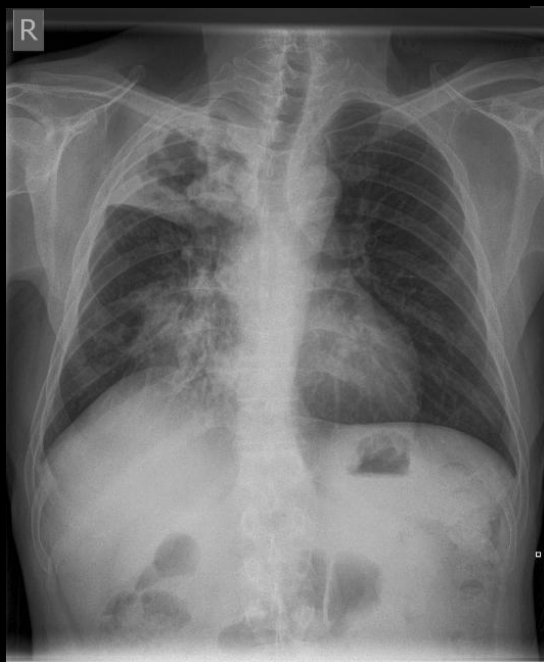


# Tuberculosis update



# 68 year old NZ European male

- Hypoglycaemia
- Intermittent cough
- Background:
  - Type II diabetes
  - Cognitive impairment - MMSE 24/30
  - Gout
  - Hypertension
  - Renal impairment



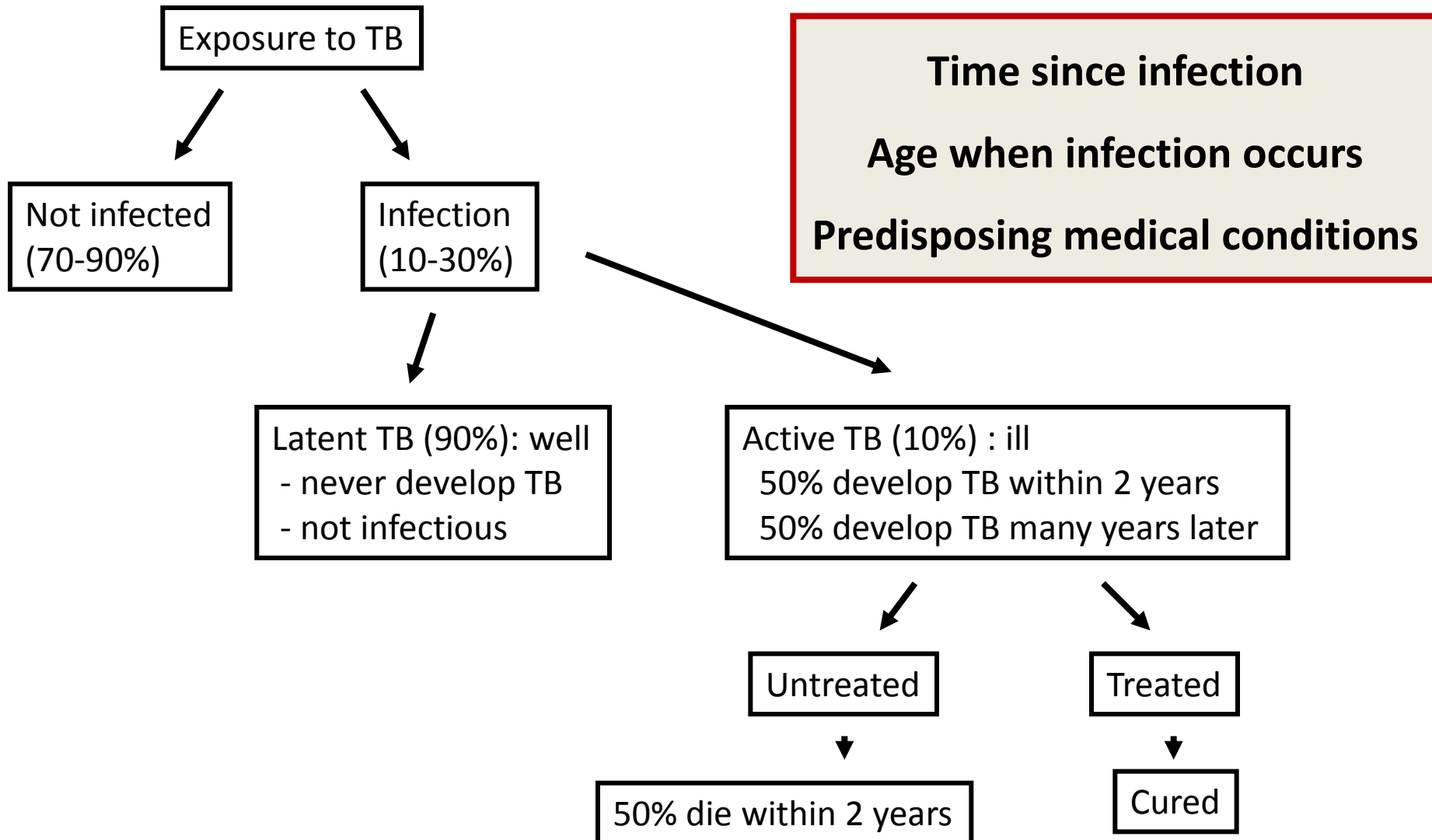
# Management

- Cognitive impairment / diabetes management
- Treated with IV cefuroxime
  - But persistent cough / fever
- Further investigations:
  - QuantiFERON-TB Gold - negative
  - Sputum - TB culture
    - 4+ AFB smear positive
    - Cultured *Mycobacterium tuberculosis*
  - HIV test - negative

# Reported TB Cases in NZ, 2010

- 661 cases of TB notified
  - 304 cases of TB disease (new/relapse)
  - 357 cases of TB infection (treatment of latent TB)
- Annual notification rate TB disease: 7.0/100,000
  - >50% of TB cases occur in the Auckland region
- 80% of TB disease cases born outside NZ

# Natural History of TB infection



# Clinical features of active TB

**Cough (>2-3 weeks)**

**Weight loss**

**Fever / night sweats**

**Fatigue**

**Chest pain**

**Dyspnoea**

**Haemoptysis**

**Non-specific symptoms**

**1/3rd of TB cases are  
diagnosed after admission  
for unrelated complaint**

# Drug resistant TB

28 cases of MDR-TB have been identified during the last 10 years in NZ

- Prolonged treatment/ monitoring
- Large cost incurred
- Major impact to individual health

**MDR TB = Multidrug resistant TB**

**Resistance to both isoniazid and rifampicin**



# Impact of HIV on TB



HIV status	Lifetime risk of developing TB
Negative	10%
Positive	>30%

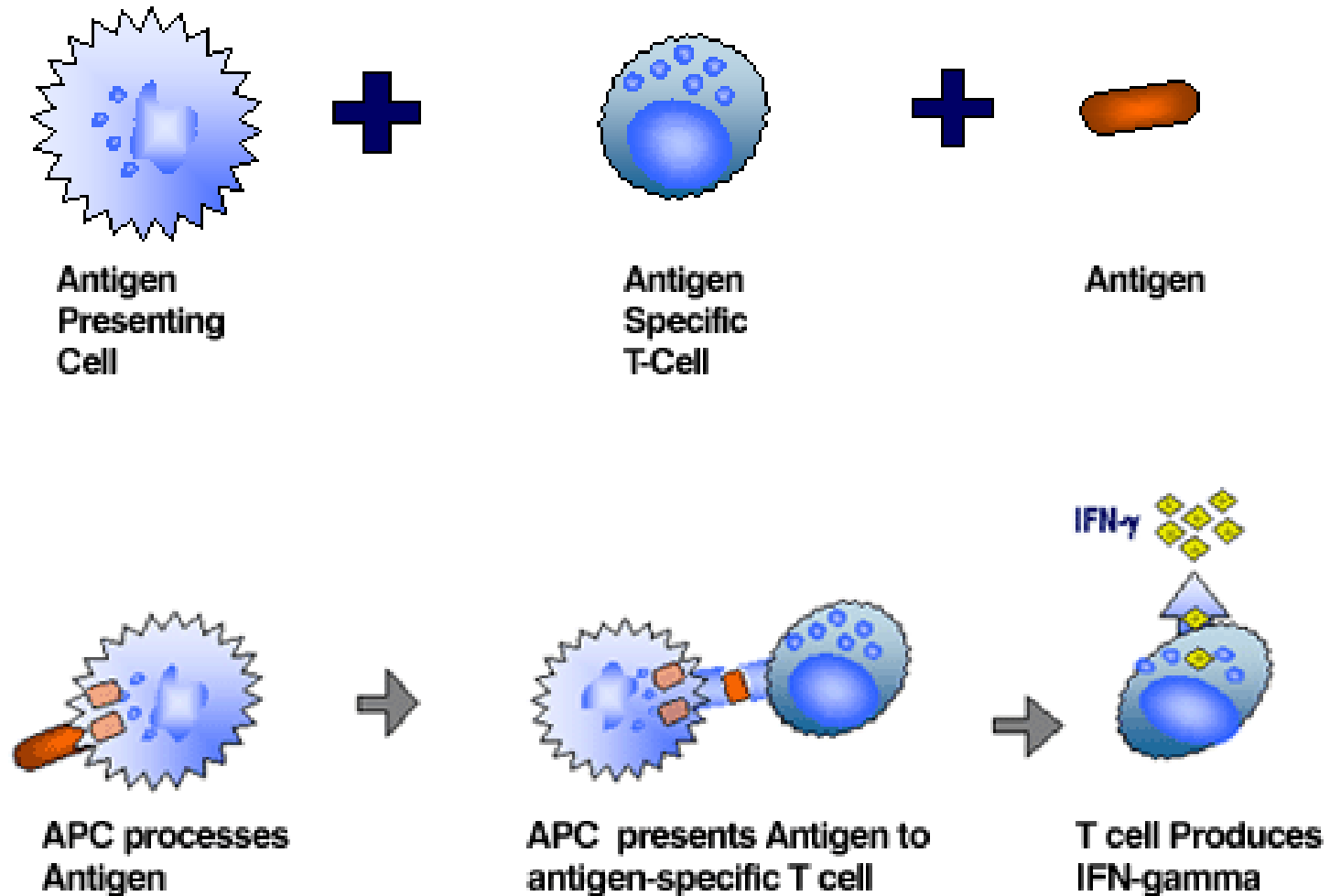
**HIV infection is the most powerful factor  
known to increase the risk of TB**

# Diabetes impacts on TB by.....

- Tripling the rate of developing active TB from latent TB infection
- Increasing mortality and severity of disease
- Slowing the response to effective TB treatment

# QuantiFERON-TB Test

## Interferon- $\gamma$ release assay (IGRA)



# QuantiFERON-TB Gold Test

- Advantages:
  - Only one visit required
  - Objective and reproducible
  - No cross reactivity with BCG, little cross-reactivity with non-tuberculous mycobacteria
  - Controls for low or no immune response
  - No risk of ulceration
- Disadvantages:
  - Blood must be received in lab within 12 hours
  - Labour intensive for the lab
  - Limited data for some patient groups

# QuantiFERON-TB Test possible results

- Positive: TB infection
  - does not differentiate between TB disease and TB (latent) infection
- Negative: TB infection unlikely
- Indeterminate:
  - Infection status cannot be determined

# QuantiFERON-TB Gold

- Latent TB infection:
  - Sensitivity approximately 80%
  - Specificity >95%
- TB disease
  - Sensitivity is reduced because of temporary anergy due to acute illness

Pai M et al. 2008

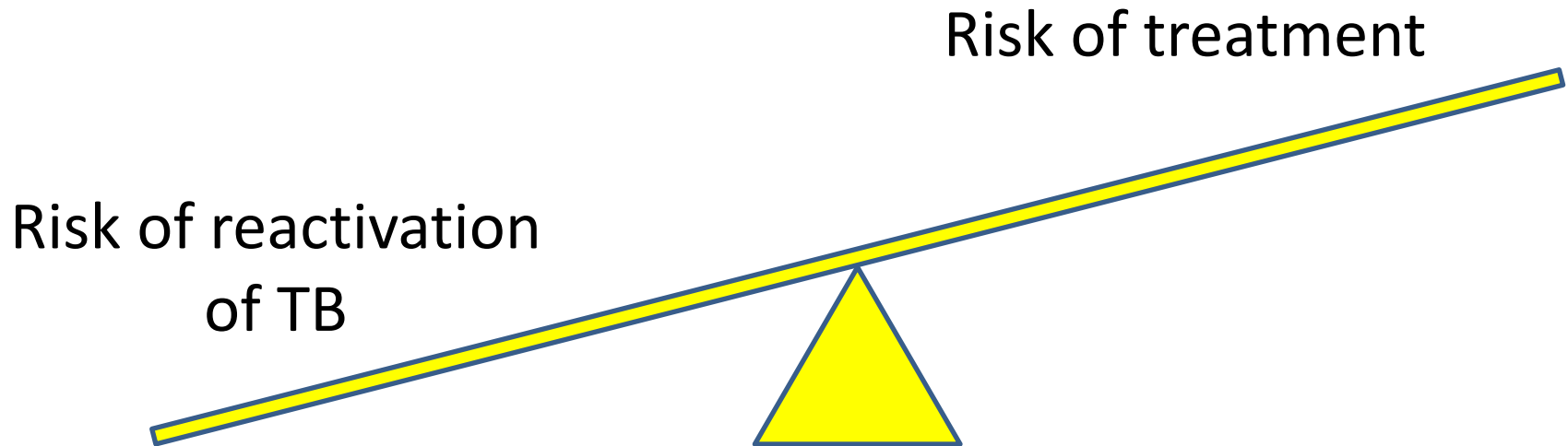
**Does not distinguish between latent TB infection or TB disease**

**A negative QuantiFERON-TB Gold does not exclude TB disease**

# Treatment for latent TB infection (LTBI)

- 1) Rule out TB disease
  - clinical examination, chest x-ray
- 2) 6 to 9 months of isoniazid (or 3RH) if indicated

But need to consider:



A 24 year old nursing student has a positive Quantiferon-TB Gold test

What advice do you give her?