



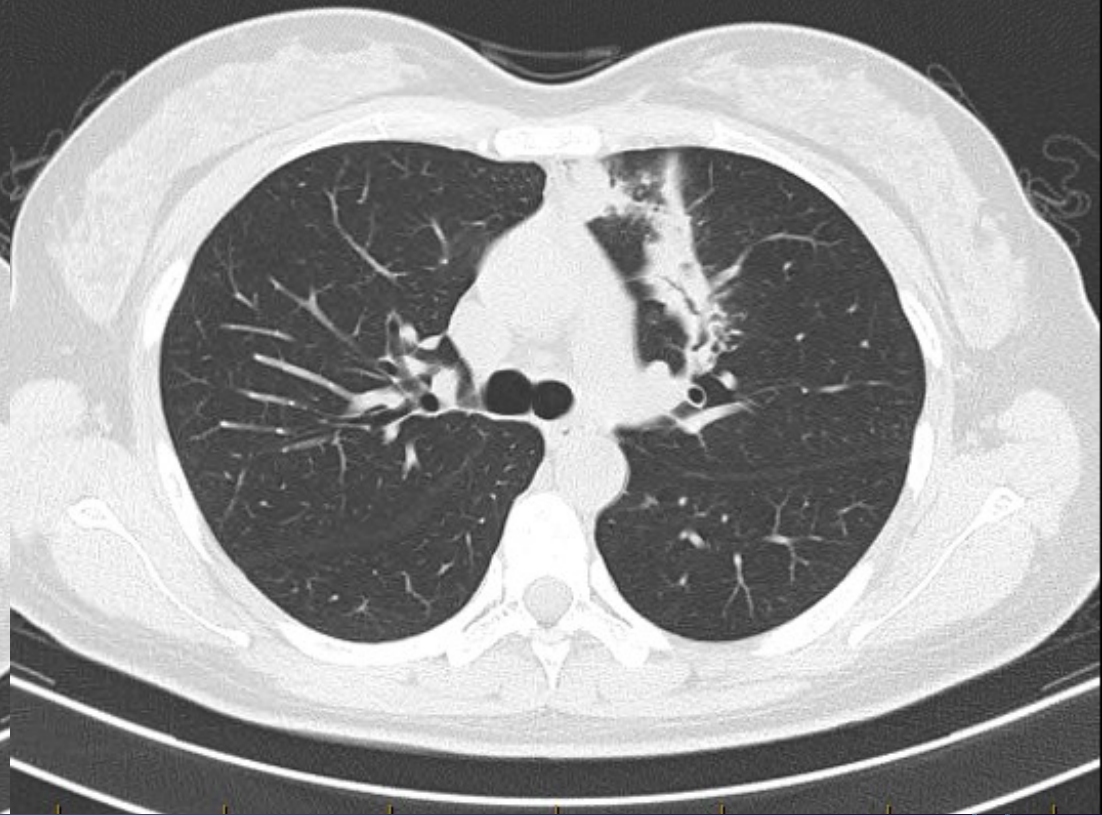
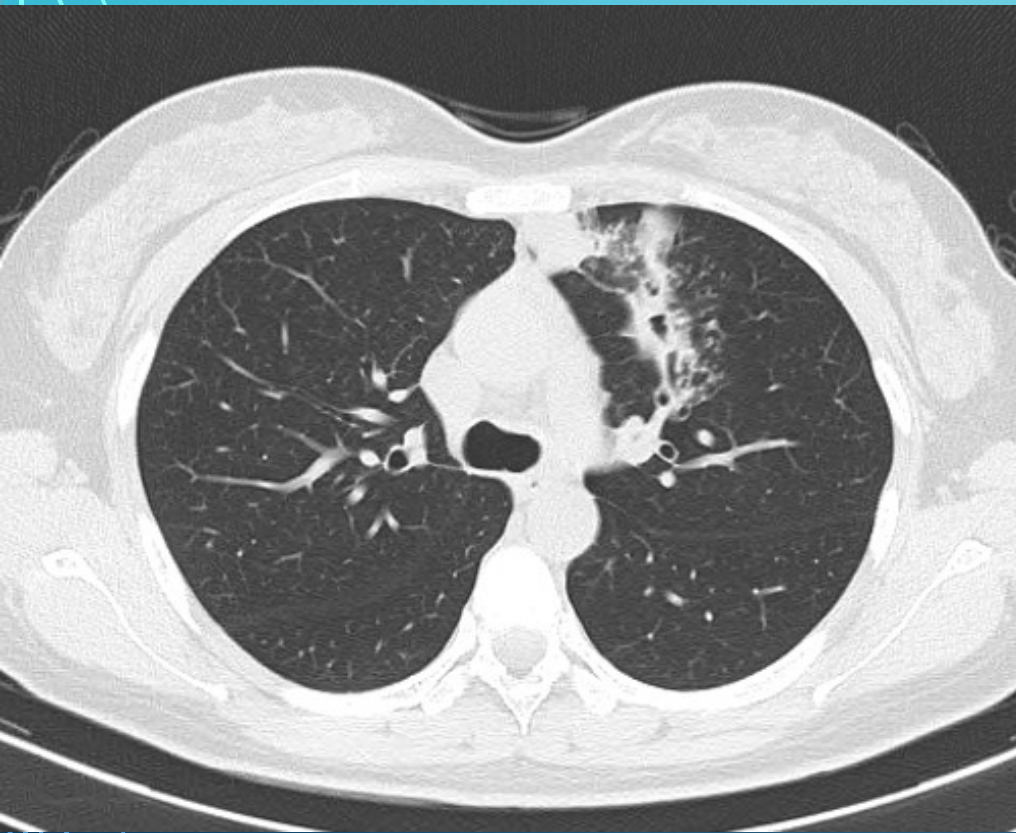
# RESPIRATORY GP CME: TB

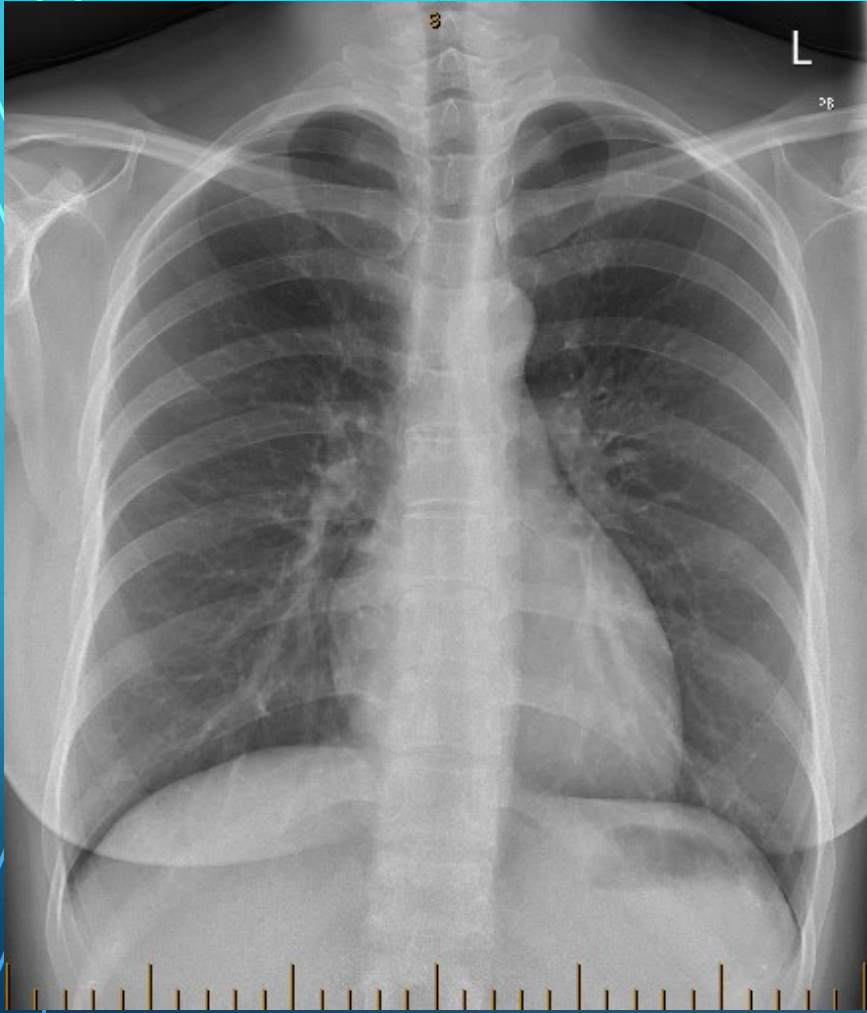
DONNY WONG RESPIRATORY PHYSICIAN

21<sup>ST</sup> SEPTEMBER 2020

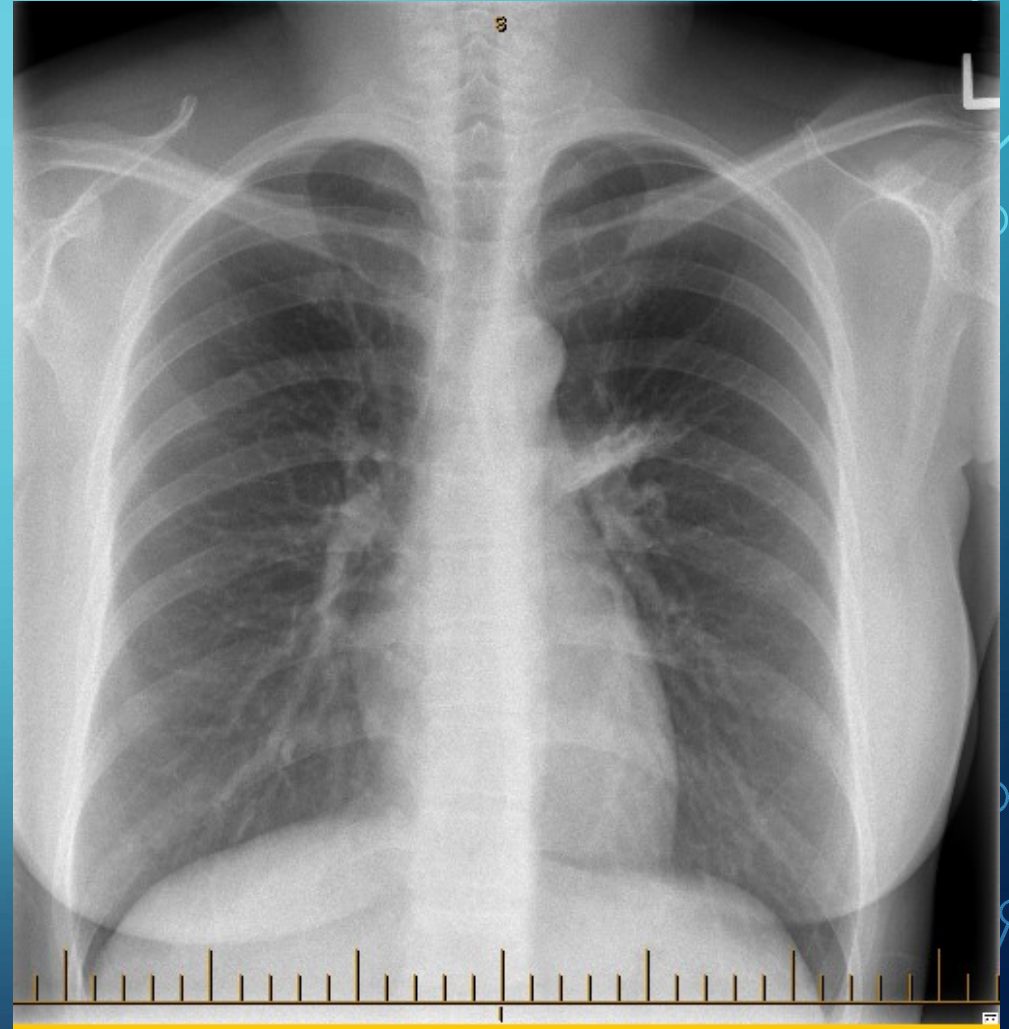
## CASE 1

- 32 yo oriental F, presents with coughing with minimal phlegm for months. Some left ear pain and sore throat for 1 month. No fevers, sweats or chest pain.
- Otherwise fit and well never smoker.
- Normal chest x-ray earlier
- Examination normal with normal clinic spirometry
- Proceeded to CT chest as per patient preference





4/12 ago



Now

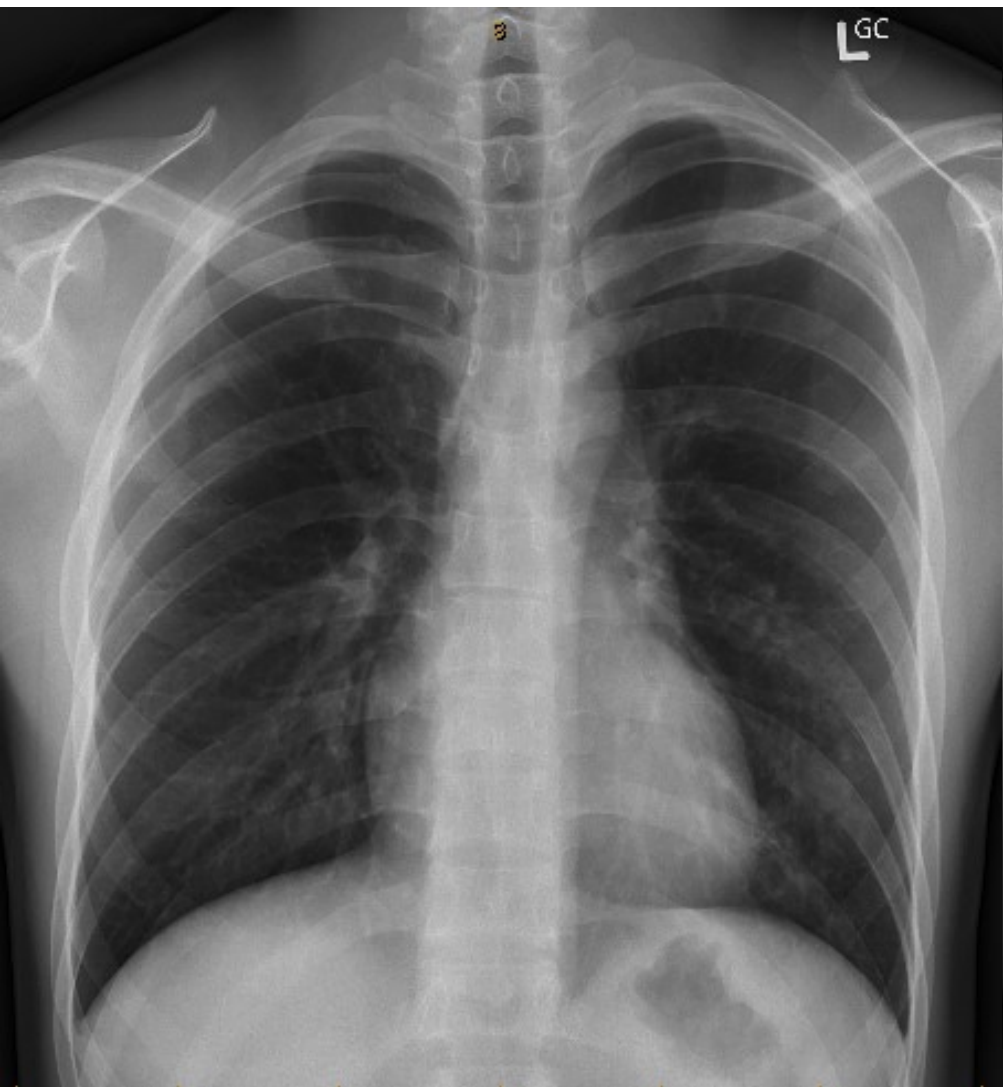


## Q & A FOR CASE 1

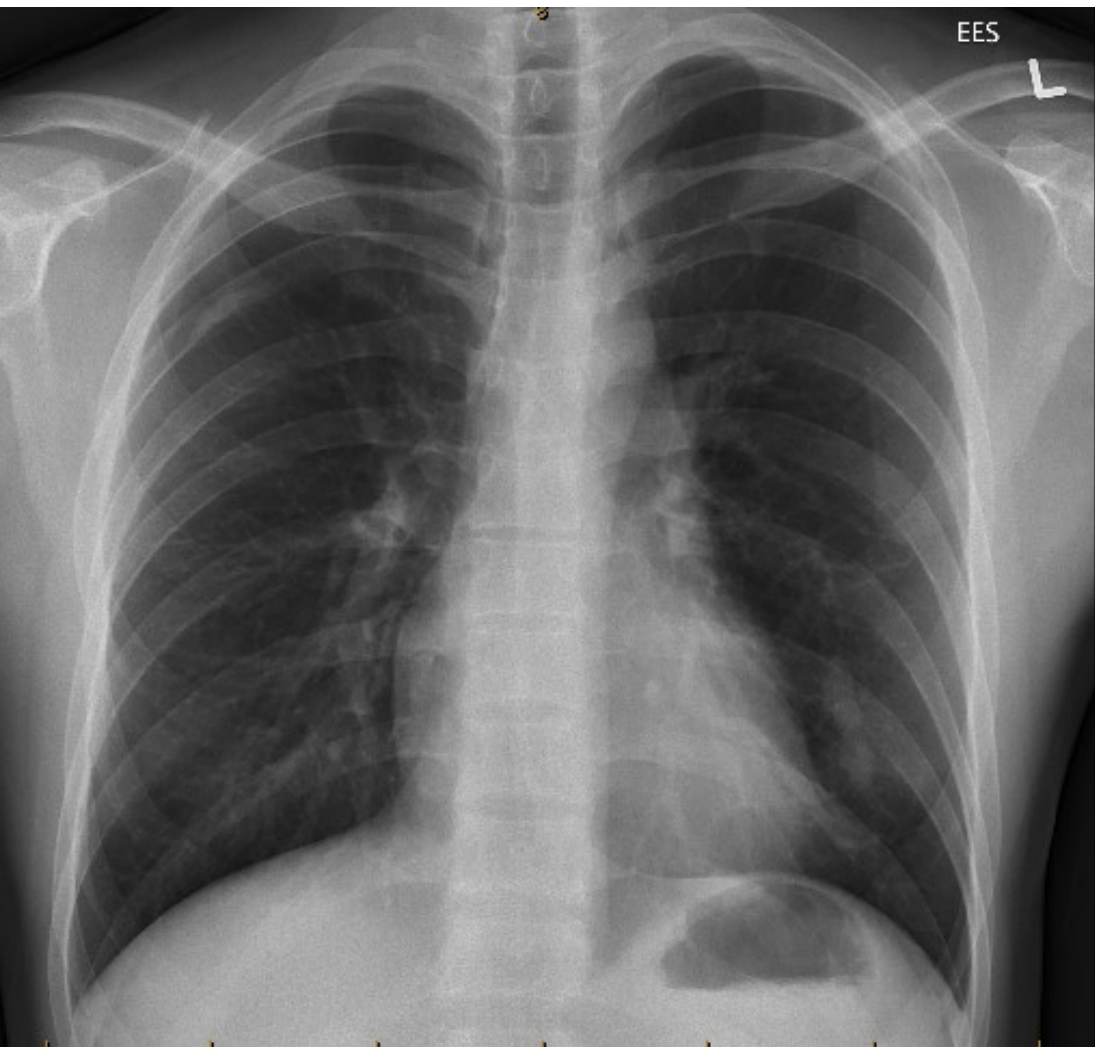
- What can this be?
  - Atypical pneumonia: walking pneumonia, mycobacteria infection (including TB), old bronchiectasis with exacerbation, ???cancer
- Does she need respiratory isolation?
  - Depending on -how productive the cough is, -how sick they are, -chest x-ray features (cavitating disease and miliary)
- What to do next?
  - Self isolate from public spaces and if productive for spontaneous AFB sputa
  - Refer to local respiratory service for discussion ?admission or clinic first

## CASE 2

- 24 yo Chinese M presents with routine abnormal immigration CXR
- Asymptomatic, never smoker and been in NZ for 6 years
- Fit and well, no regular medications
- Abnormal chest x-ray compared with 3 years earlier
- Opted for CT chest



**3 years ago**



**Current one**

## Q & A FOR CASE 2

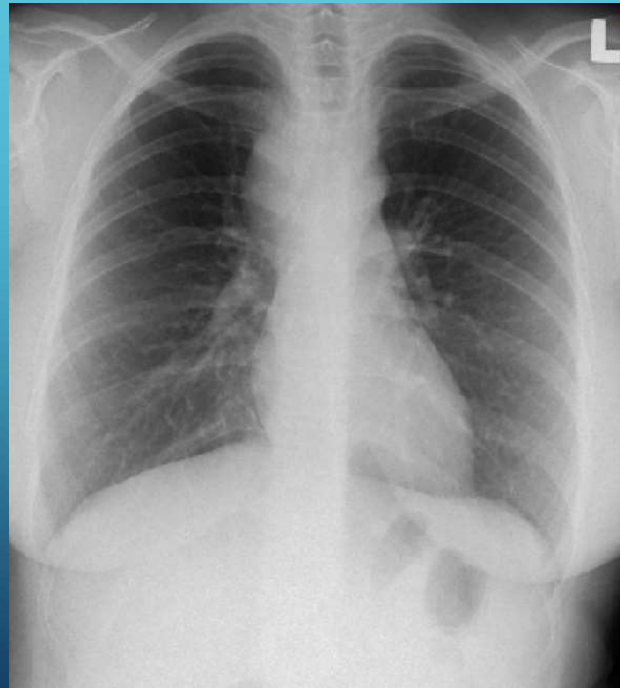
- What can this be?
  - Atypical infection including TB, malignancy or other lung disease
- What investigations are there to be done?
  - CT chest with contrast
- Any concerns for infectivity
  - If not coughing then low likelihood





## CASE 3

- 24 yo South Asian F, non-smoker, fit and well, immigration CXR abnormal
- What is it?
- What to do?
- Isolation?



## Q & A FOR CASE 3

- What is it?
  - Large right paratracheal mass: TB, cancers (lymphoma, lung and ?thymus) , ?sarcoid,
- What to do?
  - Biopsy is required, via bronchoscopy as less invasive first
- Isolation?
  - Not required if no pulmonary disease, as even if TB it is extrapulmonary

## CASE 4

- 28 yo male food service worker in the health sector with no heavy patient contact, as part of employment condition found to have Quantiferon TB Gold positive
- Questions
  - Does he have active tuberculosis because of this?
  - What is Quantiferon TB Gold?
  - Why is it done here?
  - When should it be done?
  - Who to refer?

# QUANTIFERON TB GOLD

- Positive test may mean active tuberculosis but cannot differentiate it from latent tuberculosis, but gold standard for latent TB
- It can be false negative or truly negative in those with active tuberculosis as well
- T cell stimulation assay (IGRA, interferon gamma assay), better than Mantoux test as not clouded by repeat testing or BCG status, immune status and more convenient
- Employment screening, presumed “high risk” exposure, but guidelines more relevant to do in high risk group of converting to active tuberculosis
- Refer either Respiratory or ID, depending on context



## The Online TST/IGRA Interpreter

Version 3.0

English

The following tool estimates the risk of active tuberculosis for an individual with a tuberculin skin test reaction of  $\geq 5$ mm, based on his/her clinical profile. It is intended for adults tested with standard tuberculin (5 TU PPDS, or 2 TU RT-23) and/or a commercial Interferon Gamma release assay (IGRA).

[Enter](#)



### Please select all the conditions that currently apply to the patient:

*(If none of these conditions apply, please leave boxes unchecked)*

- |   |   |
|---|---|
| <input type="checkbox"/> AIDS   | <input type="checkbox"/> Abnormal chest x-ray: granuloma  |
| <input type="checkbox"/> Abnormal chest x-ray: fibronodular disease                               | <input type="checkbox"/> Carcinoma of head and neck   |
| <input type="checkbox"/> Chronic renal failure requiring hemodialysis                             | <input type="checkbox"/> Cigarette smoker(>1 pack/day)  |
| <input type="checkbox"/> Diabetes Mellitus (all types)  | <input type="checkbox"/> HIV infection  |
| <input type="checkbox"/> Recent TB infection (TST conversion $\leq$ 2 years ago)                  | <input type="checkbox"/> Transplantation (requiring immune-suppressant therapy)                             |
| <input type="checkbox"/> Silicosis  | <input type="checkbox"/> Treatment with glucocorticoids   |
| <input type="checkbox"/> Tumor Necrosis Factor (TNF)-alpha inhibitors(e.g. Infliximab/Etanercept) | <input type="checkbox"/> Underweight (< 90 per cent ideal body weight or a body mass index (BMI) $\leq$ 20) |
| <input type="checkbox"/> Young age when infected (0-4 years)                                      |   |

## The Online TST/QFT Interpreter Results

[www.TSTin3D.com](http://www.TSTin3D.com)

(Version 2.0 March 10, 2011)

Review & Analysis:

Stephanie Law, MSc; Dick Menzies, MD, MSc; Madhukar Pai, MD, PhD

Design & Programming:

Stephanie Law, MSc

### [Print](#)

Below are the results for a patient with a **Positive** QFT Test, who is **28** years old, born in **India**, **Unknown**, **immigrated at age 26**, whose BCG status is **Vaccinated age < 2 years**, and who has had **no contact** with active TB.

The likelihood that this is a true positive test (PPV) is: **98%**

The annual risk of development of active tuberculosis disease is estimated to be **0.1%**.

The cumulative risk of active tuberculosis disease, up to the age of 80, is: **5.1%**

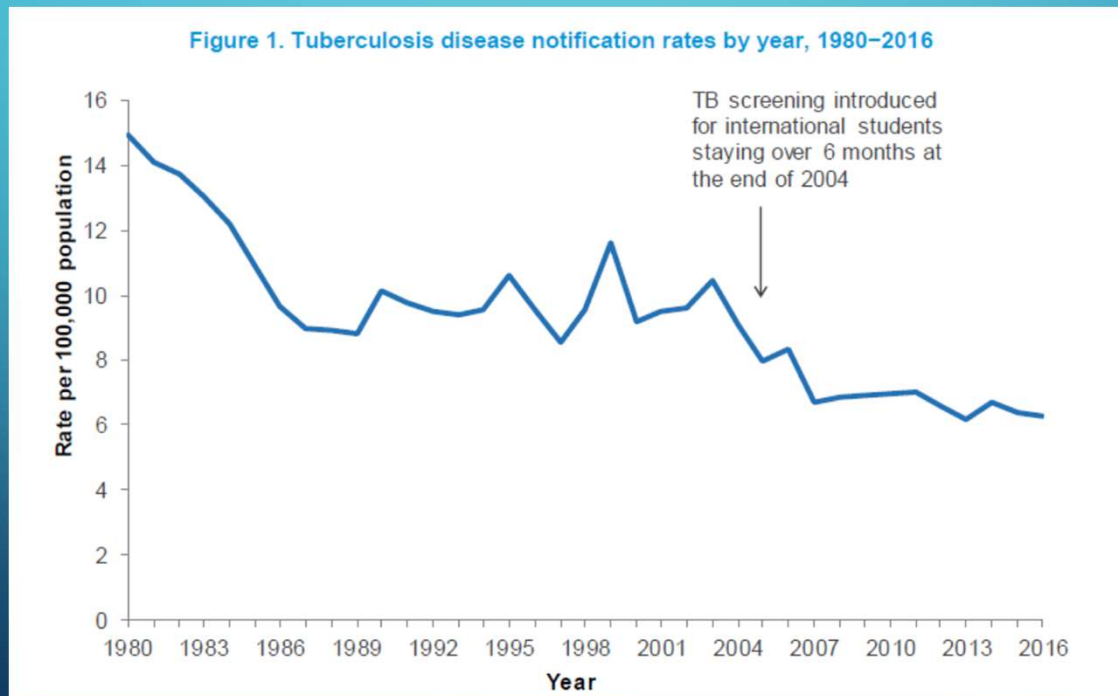
If treated with INH the probability of drug-induced hepatitis is **0.3%** and the probability of hospitalization for drug-induced hepatitis is **0.1%**.

## TB FACTS FROM 2018 (2019 WHO REPORT)

- Estimated global TB incidence was 132 per 100,000 population.
- 10 million newly incident TB cases worldwide
- TB deaths one of the top 10 causes of death. 1.45 million deaths (250K with HIV)
- Eight countries accounted for two thirds of the global total: India (27%), China (9%), Indonesia (8%), the Philippines (6%), Pakistan (6%), Nigeria (4%), Bangladesh (4%) and South Africa (3%).
- 1.7 billion have latent tuberculosis

# NZ NUMBERS FROM 2016 REPORT

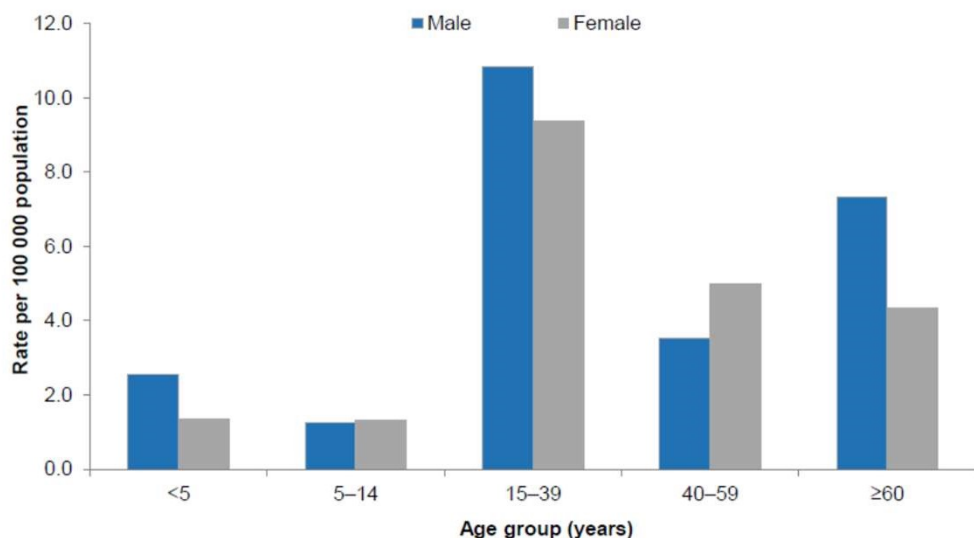
- The 2016 TB disease notification rate was 6.3 per 100,000 population,



**Table 2. Tuberculosis (new case) notification by basis of discovery, 2016**

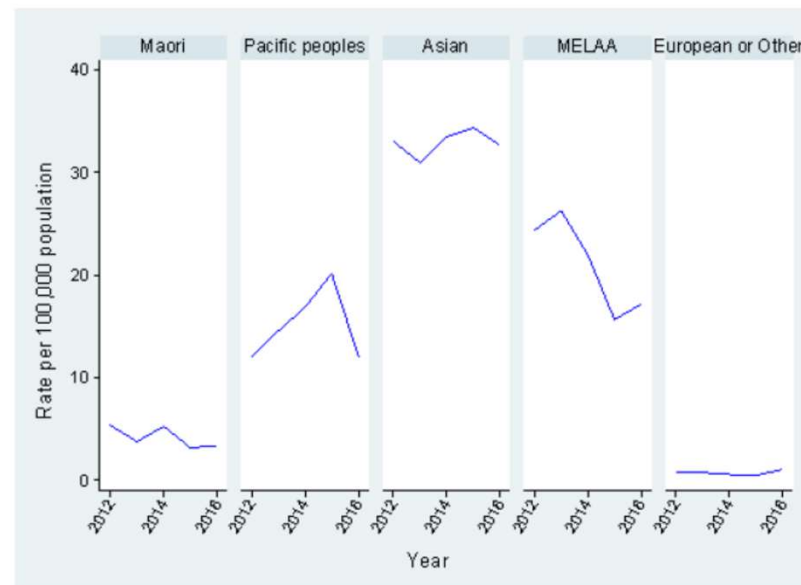
Basis of discovery	Cases	%
Symptomatic case presented to health practitioner	225	79.8
Immigrant/refugee screening	24	8.5
Contact follow-up	20	7.1
Other	13	4.6
<b>Total</b>	<b>282</b>	<b>100.0</b>

**Figure 3. Notification rates of tuberculosis (new case) by age group and sex, 2016**



Note: Rates not calculated for males and females <5 years and females aged 5-14 years as numbers are too small.

**Figure 6. Tuberculosis (new case) notification rates by ethnic group and year, 2012-2016**



MELAA: Middle Eastern/Latin American/African.

**Table 5. Risk factors reported for tuberculosis (new case) notifications, 2016**

<b>Risk factor</b>	<b>Cases<sup>a</sup></b>	<b>Total<sup>b</sup></b>	<b>%</b>
Born outside New Zealand	224	282	79.4
Current/recent residence with person born outside New Zealand	183	255	71.8
Contact with confirmed case	72	248	29.0
Has immunosuppressive illness	40	269	14.9
Exposure in a healthcare setting	22	264	8.3
On immunosuppressive medication	15	274	5.5
Current/recent residence in an institution	5	273	1.8

<sup>a</sup> Number of cases with 'yes' recorded for the risk factor.

<sup>b</sup> Number of cases for which information was recorded for the risk factor. Cases can have multiple risk factors.



# FURTHER NZ EPIDEMIOLOGY

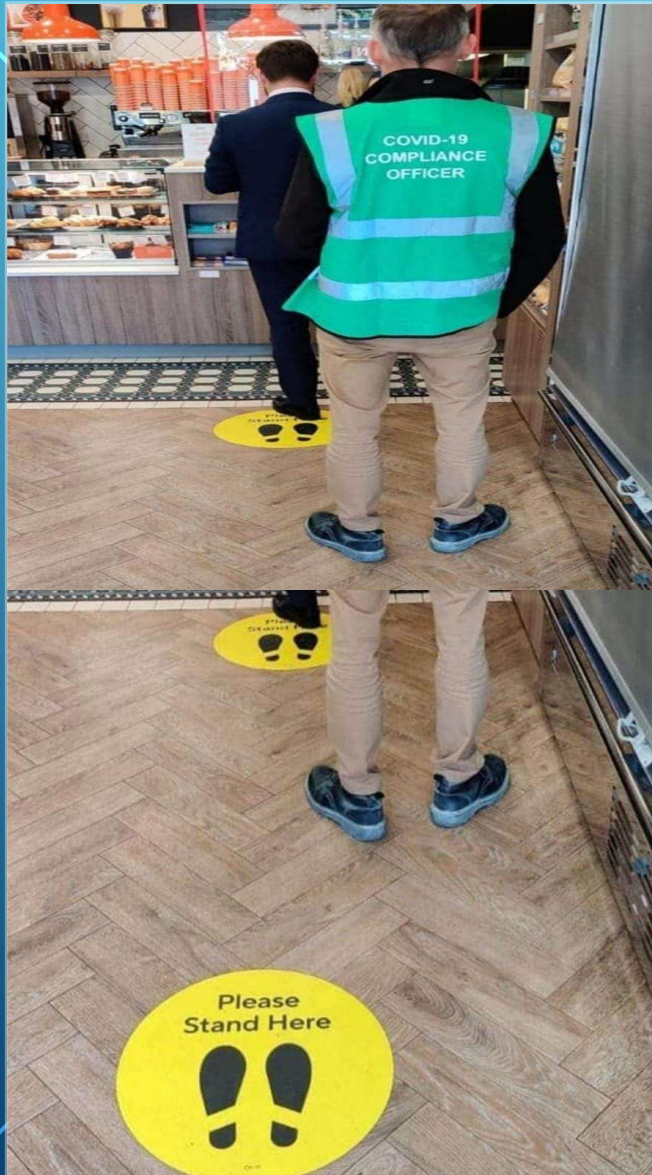
- The highest notification rates were for
  - Counties Manukau (11.6 per 100,000, 62 cases)
  - Auckland (10.6 per 100,000, 54 cases) DHBs
- 53.2% (150/282) were hospitalised.
- In the last 10 years (2007–2016), 43 deaths among the notified new TB cases were reported, giving a case-fatality rate of 1.5%.
- Lag in years after migrating
- Presents with 50% pulmonary Tb for those born out of NZ, but for those born in NZ 75% pulmonary TB (Excludes pleural and lymph node)
- Median from symptoms to treatment is 76.5 days

## SUMMARY

- Chest x-rays and AFB sputa always helpful if query TB especially migrants
- NZ rates are high in ADHB and CMH, males, migrants (though 50% pulmonary only)
- Don't do Quantiferon unless planning to treat/discuss implications

## LINKS

- <https://www.health.govt.nz/publication/guidelines-tuberculosis-control-new-zealand-2019>
- [www.tstin3d.com](http://www.tstin3d.com)
- [https://www.who.int/tb/publications/global\\_report/en/](https://www.who.int/tb/publications/global_report/en/)



QUESTIONS?