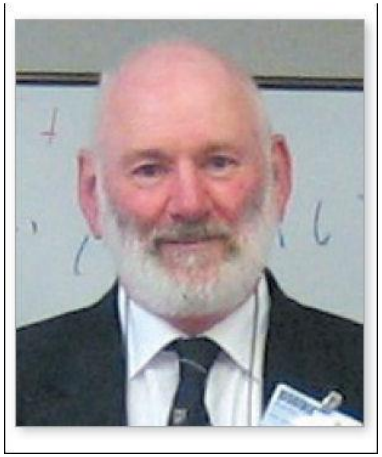


Dr Martin Reeve

Medical Officer

Communicable Diseases

Auckland Regional Public Health Service

Saturday, August 10, 2019

(Plenary)

15:20 - 15:40 TB in NZ - The Battle Rages On

TB IN NEW ZEALAND

Dr Martin Reeve Auckland Regional Public Health Service

Auckland Regional Public Health Service

Rātonga Hauora ā Iwi o Tamaki Makaurau

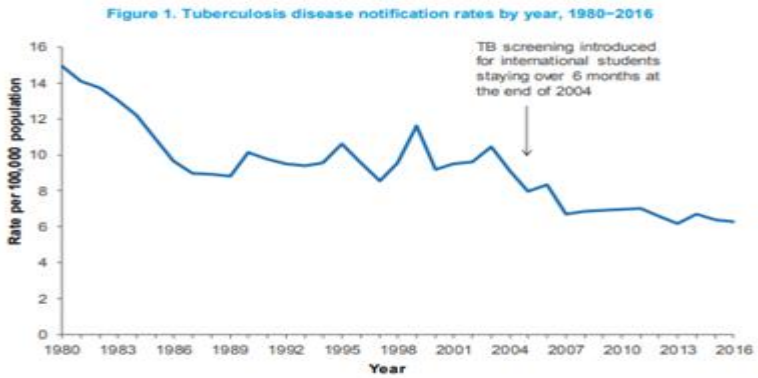
Working with the people of Auckland, Waitemata and Counties Manukau

TREATMENT OF ACTIVE TB

- Highly specialised
- Strict international guidelines
- Minimum 6 month course for simple TB, minimum two year course for multi drug resistant TB
- Start with 4 drugs, two months, then four months with two
- Isoniazid, Rifampicin, Pyrazinamide, Ethambutol
- P – DOT, E- DOT

HOW MUCH TB IN NEW ZEALAND

- About 300 new cases each year
- Rate 6/100, 000, comparable to other countries
- Rate dropping, but slowing
- Many of you will never see a case, but 85% found by GP's



WHO GETS TB?

Table 3. Numbers and rates of tuberculosis notifications (new case) by age group and sex, 2016

Age group (years)	Male		Female		Total	
	Cases	Rate[a]	Cases	Rate[a]	Cases	Rate[a]
<5	4	2.6	2	1.4	6	2.0
5–14	4	1.3	4	1.3	8	1.3
15–39	86	10.8	74	9.4	160	10.1
40–59	21	3.5	32	5.0	53	4.3
≥60	33	7.3	22	4.3	55	5.8
Total	**148**	**6.4**	**134**	**5.6**	**282**	**6.0**

[a] Rate per 100,000 based on 2016 mid-year population estimates; caution as rates shown for counts with less than 5 cases

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

Risk factor	Cases[a]	Total[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

[a] Number of cases with 'yes' recorded for the risk factor.
[b] Number of cases for which information was recorded for the risk factor. Cases can have multiple risk factors.

WHERE IN THE BODY DOES IT OCCUR?

- Born in New Zealand – 75% pulmonary, 25 % not
- Not born in New Zealand – 50% pulmonary, 50% not
- Extrapulmonary. Lymphatic, pleural, intra-abdominal not renal

WHAT CAUSES TB?

- 97% Mycobacterium TB, 3% M Bovis
- M Bovis first herd in New Zealand, now spread to possums
- Environmental mycobacteria AKA non-tuberculous mycobacteria AKA atypical mycobacteria occasionally cause TB like diseases, but they are not infectious.

HOW IS TB SPREAD?

The three I's

- Inhalation – most important by far
- Ingestion – unpasteurised milk
- Inoculation – meat workers, possum trappers, BCG vaccination

- Extrapulmonary TB is not considered infectious – needs no contact tracing.

TWO PHASES OF TB – BIPHASIC ILLNESS

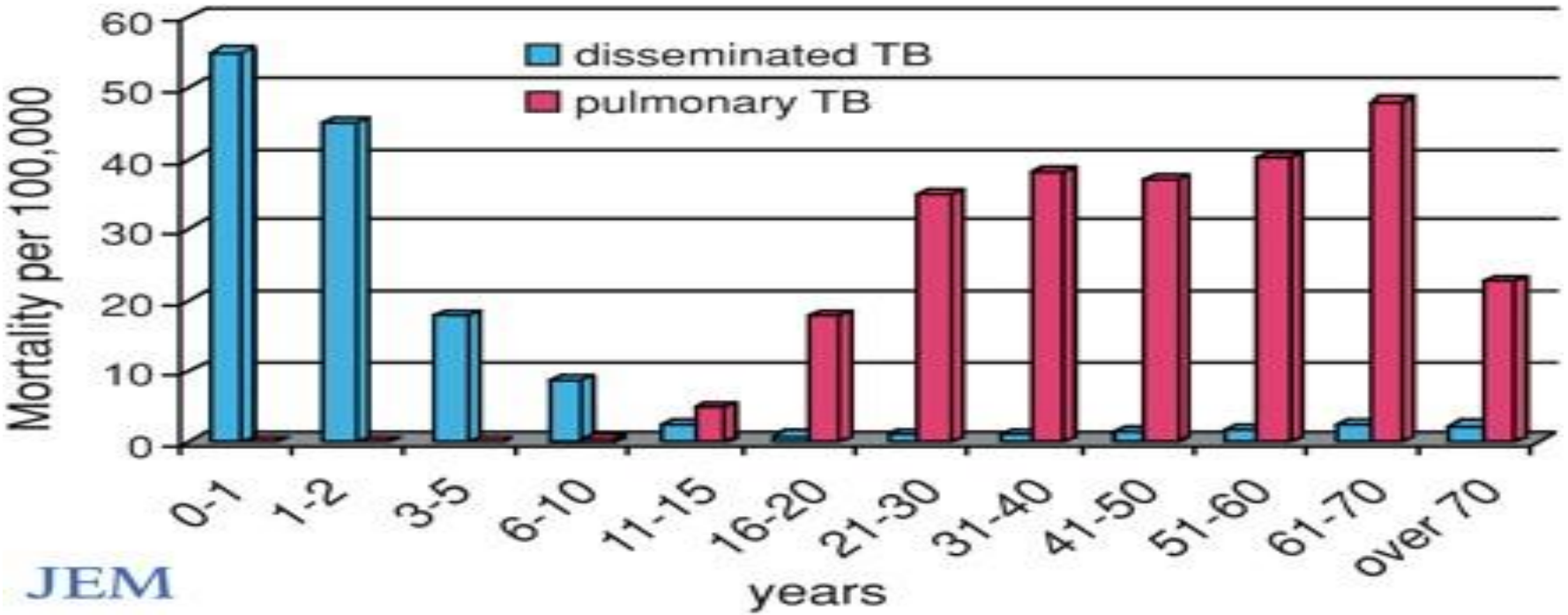
Primary – childhood

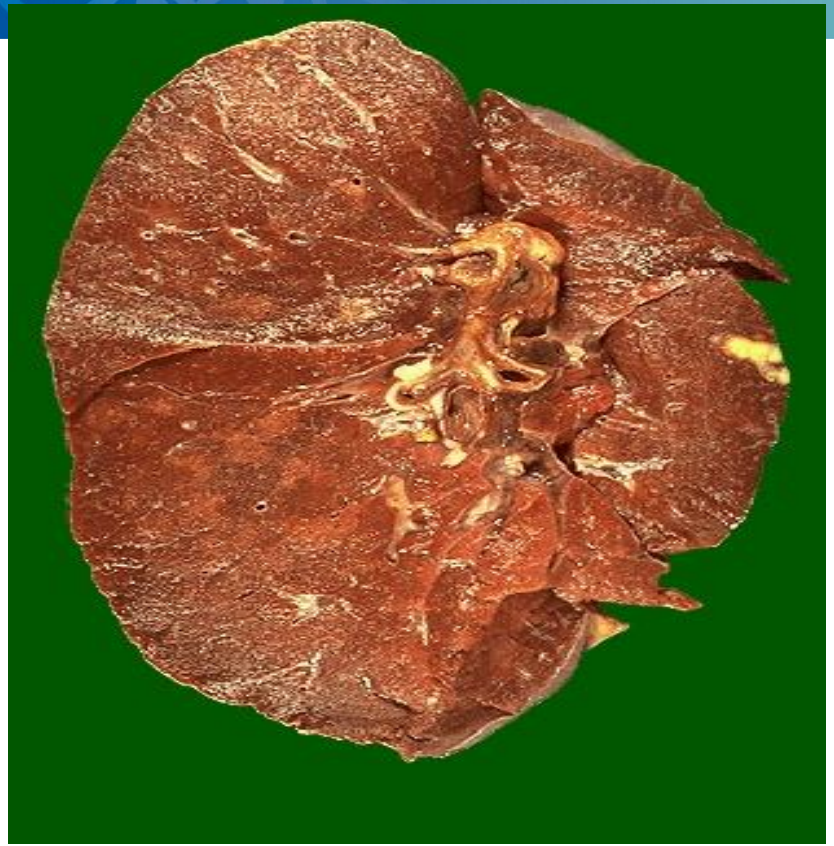
- Local – small lesion
- Regional – large nodes
- Systemic – spreads easily

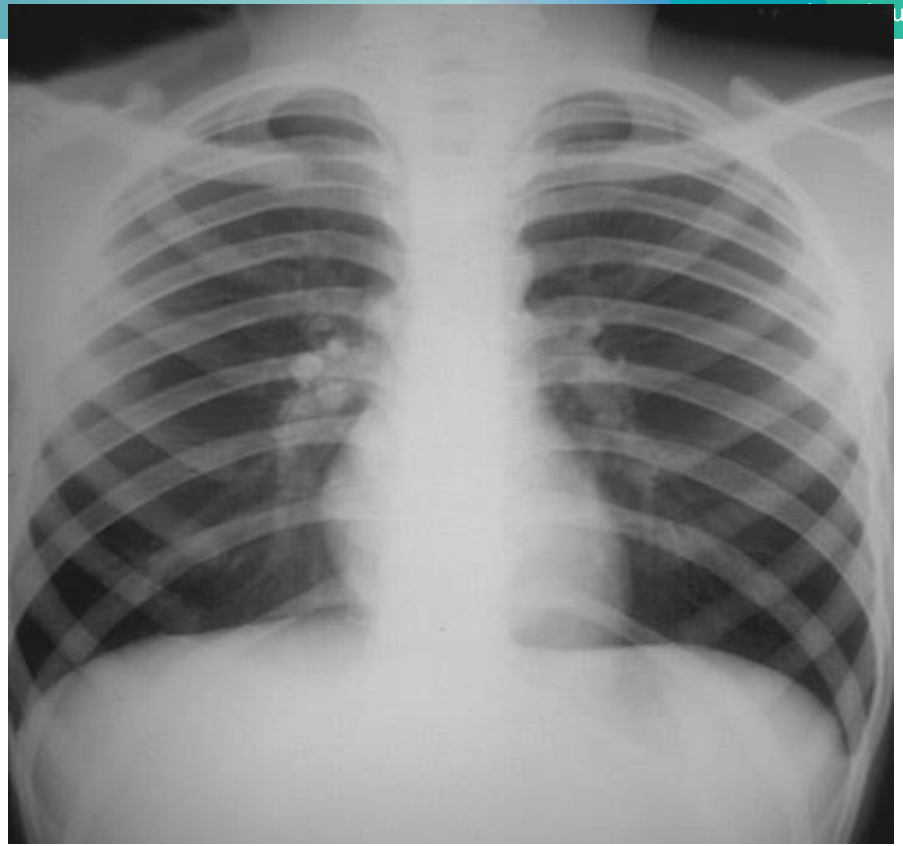
Secondary – adult

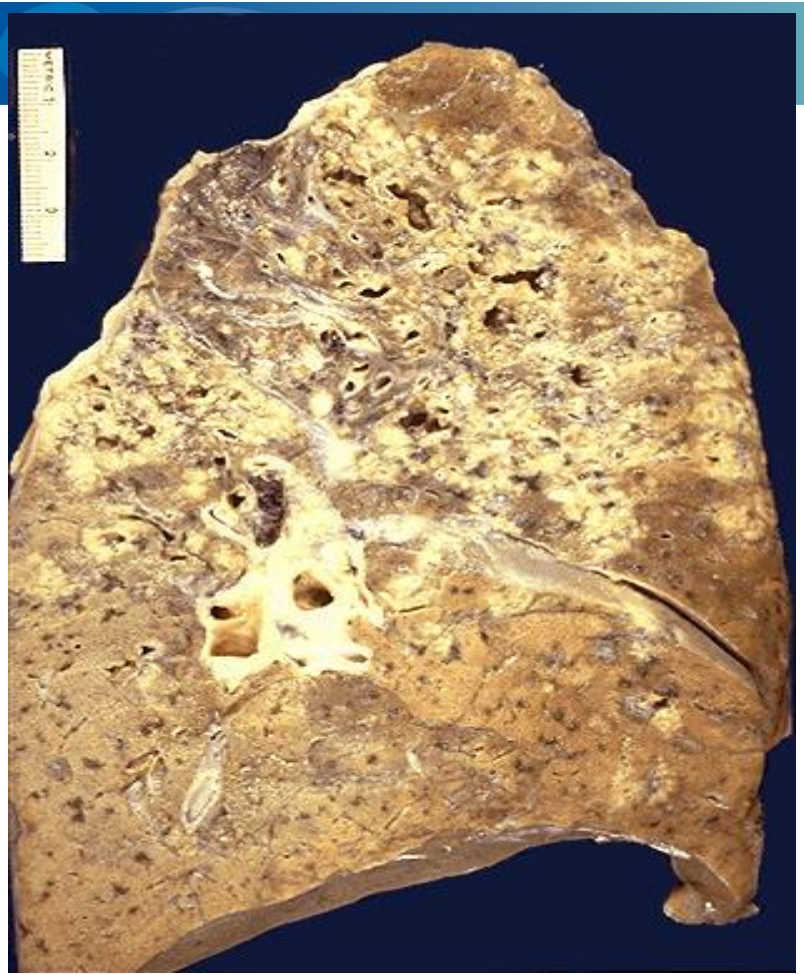
- Local – large lesion
- Regional – small nodes
- Systemic – does not spread easily

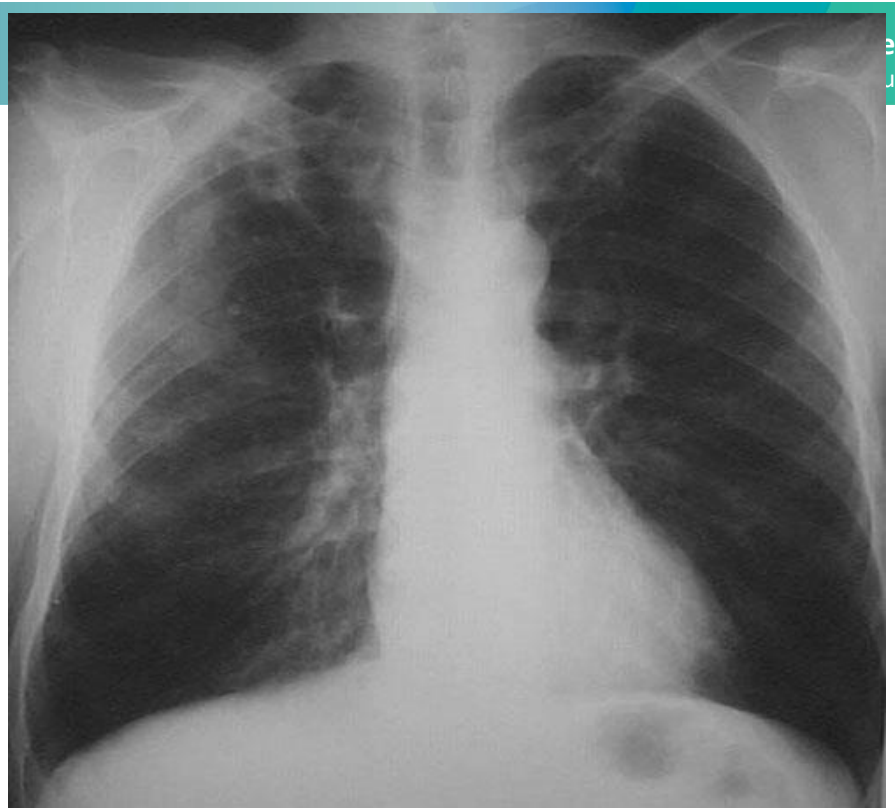
Cause of death in untreated cases – Bavaria 1905





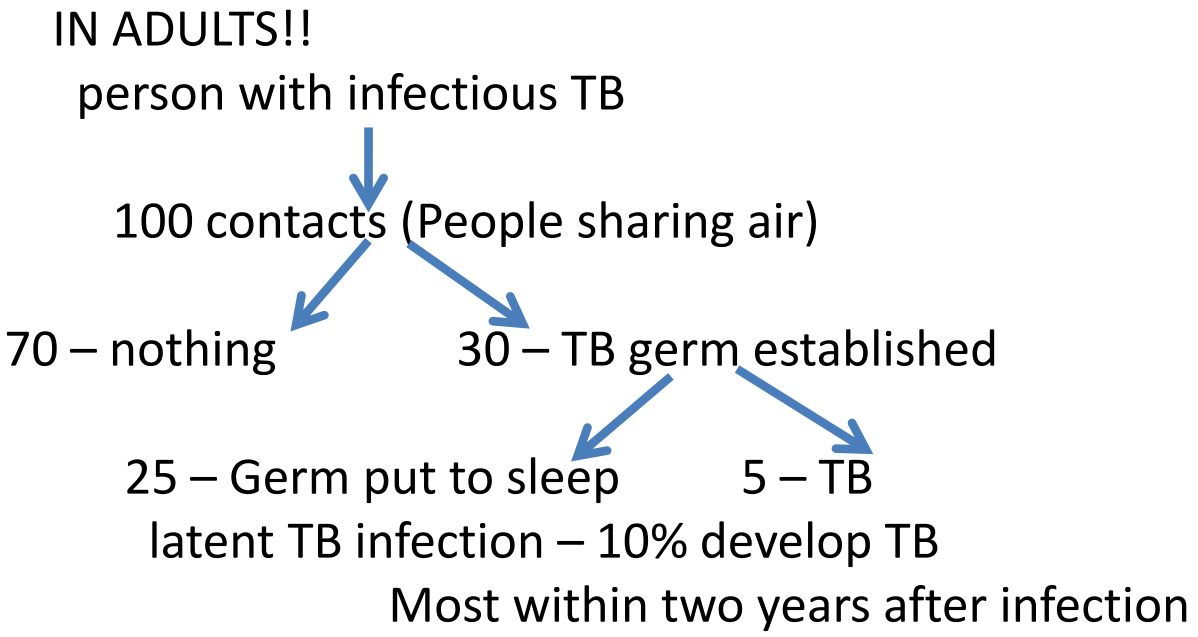




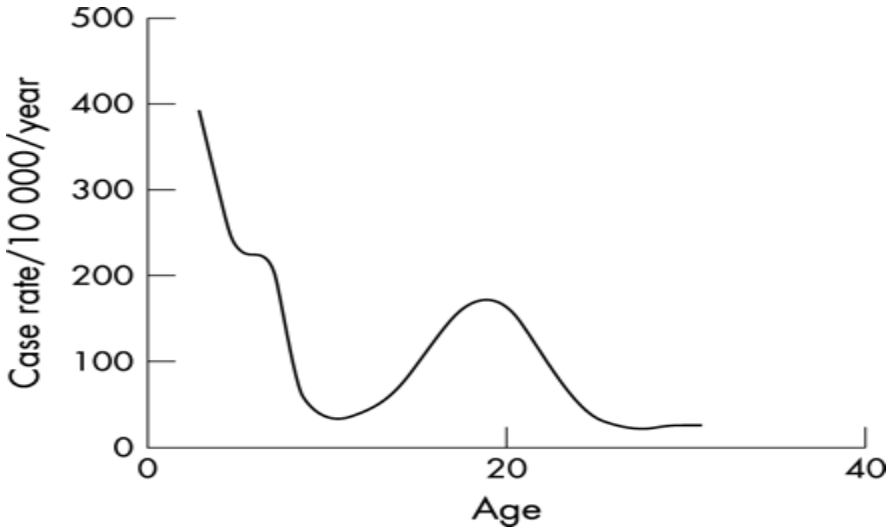


What happens if someone inhales TB germ?

Not very infectious – shared air for minimum of 8 hours



Likelihood of latent TB infection becoming active TB by age
BCG reduces chance in under 5's



Lubeck disaster – 1929 – 251 neonates given oral BCG contaminated with live TB bacteria

- 100% infected
- 85% developed TB disease
- 30% died

How is it controlled?

Contact tracing, looking for

- Origin of disease
- Those infected – treated for LTBI, but number needed to treat may be large.
- Those vulnerable, particularly young children – started on meds

Immigrant screening – CXR

Contact tracing testing

- Mantoux test – skin test
- Antigen testing – Quantiferon blood test
- Cannot distinguish between TB disease and LTBI
- Usually two tests done 8 weeks apart as it takes that long for body's immune system to react
- Mantoux probably more sensitive in young childen

Contact tracing

- Extent based on infectiousness of case
- Extra-pulmonary – confined to asking if anyone with symptoms in family
- Pulmonary microscopy –ve, (smear –ve), culture +ve, family only
- Pulmonary microscopy +ve, culture +ve, all those who have shared air for more than 8 hours since the person started coughing. Concept of concentric circles

BCG vaccination

- All strains developed from M Bovis strain which was attenuated in 1929 in Germany
- Protection when given in those older than 5 years varies – probably depends on background rate of non-TB mycobacteria.
- Given routinely only to neonates or children <5 at increased risk of TB – see Immunisation Handbook
- Needs only to be given correctly, no need for mantoux or blistering.
- Lesion appears after weeks and lasts weeks, up to 1cm is acceptable
- If concerned, leave it alone and consult specialists.

IF YOU THINK SOMEONE HAS TB

- Don’t do mantoux or quantiferon. Person with acute illness and +ve mantoux does not have TB
- Chest xray, sputum, isolate, consult

IF YOUR PATIENT IS A CONTACT OF TB

- Public health should follow up – may take some time, eg culture +ve TB
- Not all contacts need follow up
- Don’t do testing yourself, if you think person has been overlooked, contact public health

OLD TB ON CHEST XRAY

- Infectiousness of non-acute TB cannot be determined by CXR
- Only by induced sputum, bronchoscopy
- Any suggestion of old TB, no matter how minor, consult with Chest clinic

THE END