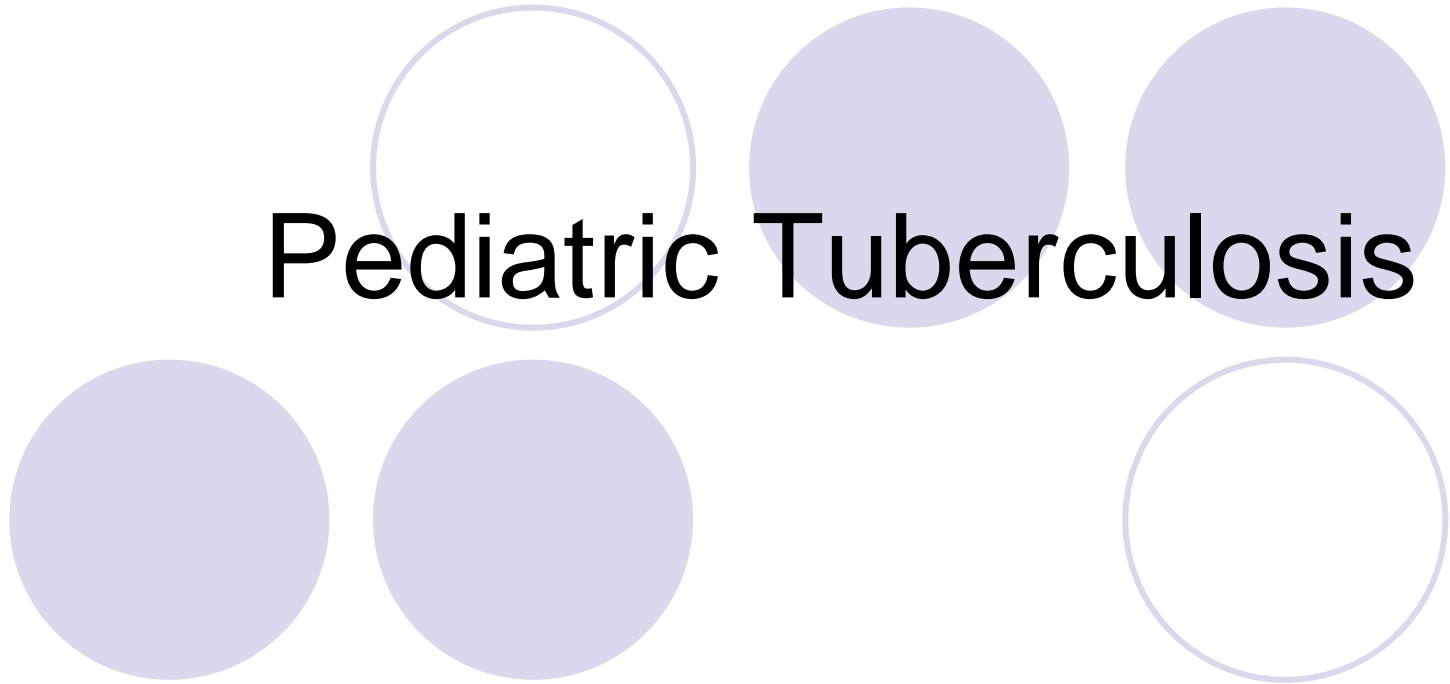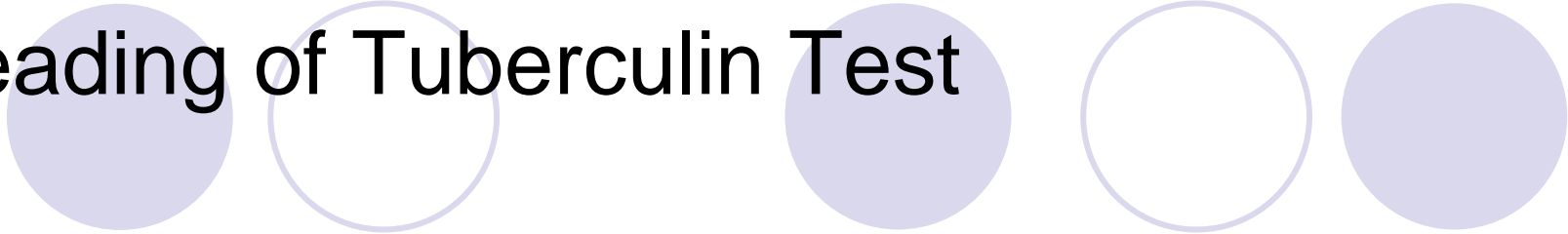# Pediatric Tuberculosis

Tuberculin Skin Test

- PPD TU -1/2/5

- RT23 and Tween 80

- Wheal of about 6 mm

- Read at 48-72 hours

- Ballpoint or palpatory methods

Reading of Tuberculin Test

- Positive

- Strongly Positive

- Negative

- False Negative

Grading of Positive Test

Induration (mm)	Grade	Reaction
10 to 14	1+	Mild
15 to 20	2+	Moderate
21 to 30	3+	Severe
> 30	4+	Very Severe

What if child returns beyond 72 hours

- By 7th day, a positive test can still be read.

- A repeat test may be needed, if there is no induration.

.

- Repeat tuberculin test when required should preferably be done on the other arm.

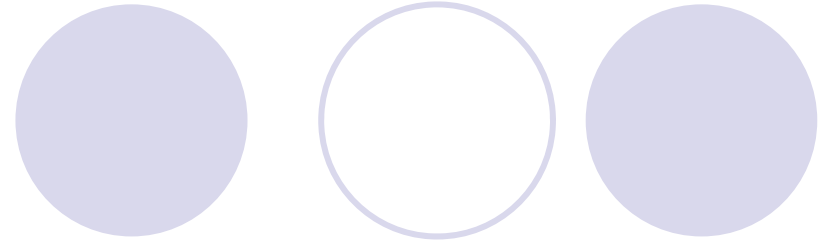- The reading of the same should be interpreted as in any other individual.

BCG Test

- Read on 3rd day (24 hrs to 10 days)

Negative:

- Papule with induration-2 weeks
- Pustule-4 to 6 weeks
- Healing with scab formation 7- to 10 weeks

BCG Test cont…

- Positive (accelerated reaction)

- 24-72 hours induration:

  5-9 mm: Mild (1+)
  10-20 mm: Moderate (2+)
  21-30 mm: Severe (3+)

- 5-8 days: Pustule formation

- 10-15 days: Healing with scab formation

Interpretation of BCG Test

Malnourished

- Induration of 5 mm or more in within 48-72 hours or accelerated reaction

- False positive: BCG in last 6 months

- Vaccinated : 2-3 +
- Unvaccinated: 1+

Investigations cont...

- CXR

- USG Chest

- CT chest

- BAL

- Bacteriological Diagnosis

- Histopathological Diagnosis

- DNA studies

- Serodiagnosis

IGRA's

- Measure the production of interferon gamma by the peripheral mononuclear cells

- These use two antigens, early secretion antigen target (ESAT 6) and culture filtrate protein 10 (CFP 10).

- Principle similar to skin test but do away with the need for a repeat visit by the patient for reading purposes)

- Quantiferon Gold and T spot are two of the commercially available IGRAs.

- Used in place of the skin test in low prevalence countries to detect latent TB infection.

IAP Guidelines 2010

When to suspect TB?

Fever

and / or

Cough > 2 weeks

with

Loss of weight

and

Recent contact with infectious case

What to do next?

- Chest X-ray and A/B

- In case of clinical and radiological non-response,

    Mantoux test
    and
    Sputum or GA for AFB

- AFB is positive, diagnosis is confirmed.
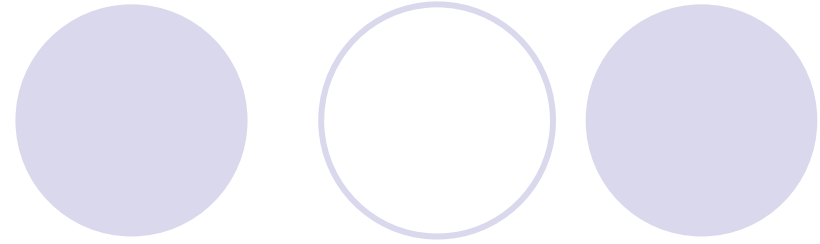
Don'ts

- BCG, ELISA & PCR tests recommended.

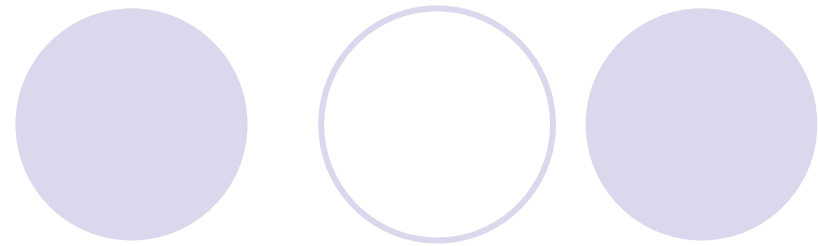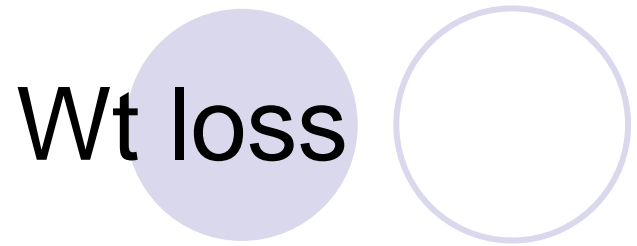- There is no place for trial of anti-tubercular therapy

- Routine LFTs

Do's

- Try to isolate AFB whenever possible.

- DOTS

- Rpt CXR at end of therapy.

TB Contact

- Within 2 years

- Sputum positive

Wt loss

- Recent wt loss

vs

- Not growing well/ not gaining weight

Risk Factors

- Recent history of measles or whooping cough.

- Immuno-compromised state including steroid therapy.

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┌─────────────────────────────────────────────────────────┐
│ 1.  Fever and/or cough for more than 2 weeks             │
│ 2.  Loss of weight or failure to thrive                  │
│ 3.  Recent contact with an infectious case               │
└─────────────────────────────────────────────────────────┘
                          │
                          ▼
              ┌───────────────────────┐
              │     Chest X-ray       │
              └───────────────────────┘
                          │
                          ▼
              ┌───────────────────────┐
              │ Pulmonary lesion seen │
              └───────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────────────┐
│        Broad spectrum antibiotics for 7-10 days             │
│                                                             │
│ May skip this step if: (a) Miliary shadows seen or (b) the  │
│ child has already taken adequate antibiotics, but is still  │
│                      symptomatic                            │
└─────────────────────────────────────────────────────────────┘
                          │
                          ▼
         ┌──────────────────────────────────────┐
         │ Clinical and radiological non-response │
         └──────────────────────────────────────┘
                          │
                          ▼
      ┌──────────────────────────────────────────────┐
      │ Sputum / gastric aspirate for AFB, Mantoux test │
      └──────────────────────────────────────────────┘
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                    Clinical and radiological non-response

                    Sputum / gastric aspirate for AFB, Mantoux test

Bacteriology positive for AFB              Bacteriology negative for AFB

        Confirmed case                          If radiology is suggestive

                                    Positive skin test          Negative skin test

                                    Probable Case          Rule out alternative diagnosis
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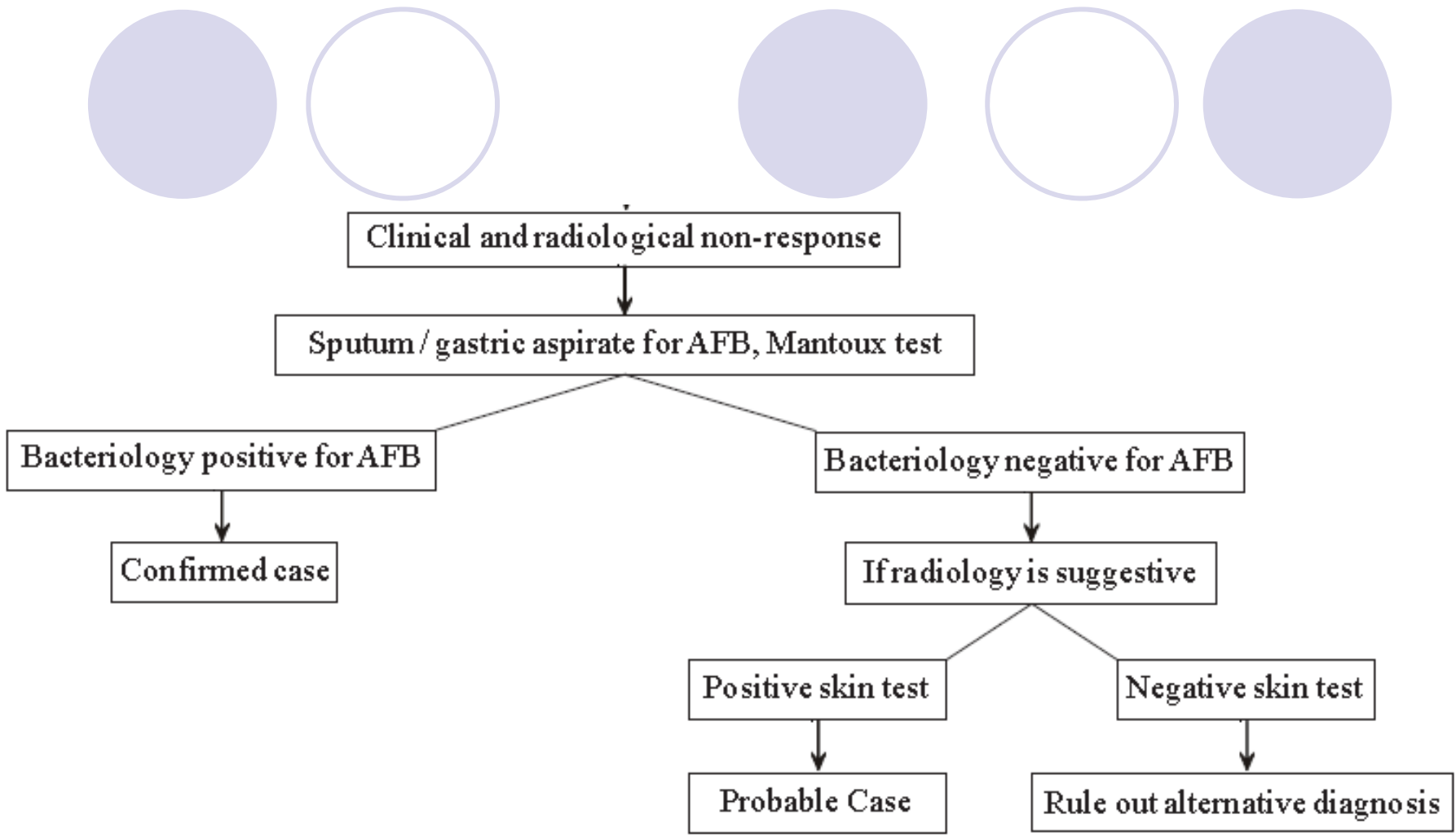
TABLE I DEFINITIONS FOR CATEGORIZING FOR TREATMENT OF PEDIATRIC TUBERCULOSIS

A. Case definitions for site

Pulmonary: Refers to disease involving lung parenchyma. Extra Pulmonary: Refers to disease involving sites other than lung parenchyma Both pulmonary and Extra pulmonary constitutes Pulmonary Extra- Pulmonary involving several sites is defined by most severe site.

B. Case definitions for severity

Pulmonary TB

Severe Pulmonary TB

  All other except PPC e.g.

      o   Progressive primary disease

      o   Fibro-cavitatory disease
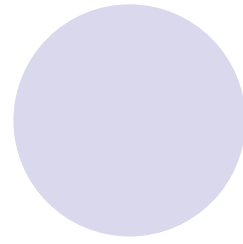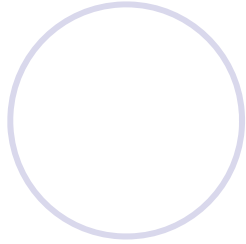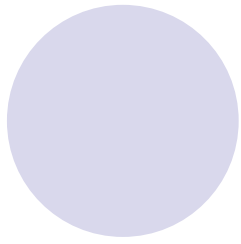
      o   Miliary

Less severe Pulmonary TB

- Primary Pulmonary complex (PPC)

Case Definitions

- **New Case:** A patient who has had no previous ATT or had it for less than 4 weeks.

- **Relapse:** Patient declared cured/completed therapy in past and has evidence of recurrence.

- **Treatment Failure:** Patient who fails to respond/deteriorates after 12 weeks of compliant intensive phase.

- **Treatment after default:** A patient who has taken treatment for at least 4 weeks and comes after interruption of treatment for 2 months and has active disease

Thanks