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Tuberculosis

NICE CG117; 2011

This guideline offers advice on the care of people with, or at risk of contracting TB. It updates and replaces NICE CG33.

Definition of terms

BCG	Bacille Calmette-Guèrin vaccine
TB	tuberculosis
IGT	interferon-gamma test
DOT	directly observed therapy
CT	computed tomography
MRI	magnetic resonance imaging

Diagnosis of active TB – see full guideline

- Following diagnosis refer the person to the TB service.
- The TB service should include specialised nurses and health visitors.

Treatment and management of active* TB

- Give the ***standard recommended regimen*** for all sites except meningeal TB – see Box 1.
- Use fixed-dose combination tablets.
- Use daily dosing for all types of non-respiratory TB.
- See Table 1 for special considerations in non-respiratory TB.
- For respiratory TB, consider a three times a week regimen for DOT, if used. **Do NOT** use a twice-weekly regimen.

Box 1

Drug regimens for treatment of TB

Standard recommended regimen

2 months of isoniazid, rifampicin, pyrazinamide and ethambutol **then**, 4 months of isoniazid & rifampicin = 2HRZE/4HR

The accepted abbreviation consists of the number of months treatment followed by letters representing each individual drug:

H = isoniazid Z= pyrazinamide E= ethambutol
R = rifampicin S= streptomcin

Drug-resistant TB

- Carry out a risk assessment for drug resistance for each patient with TB.
- For people at significant risk, arrange urgent rapid diagnostic tests for rifampicin resistance – see full guideline.
- Monitor response to treatment closely in patients at increased risk of drug resistance.
- Review drug treatment in cases of treatment failure.

Improving adherence

- To promote adherence, emphasise its importance and involve patients in treatment decisions at the outset.
- Everyone with TB should know who their key worker is and how to contact them.
- TB services should consider interventions to improve adherence – see full guideline.
- Pharmacists should provide liquid preparations of drugs for those who need them e.g. children, people with swallowing difficulties.

DOT

- All patients should have a risk assessment undertaken for adherence to treatment.
- Use of DOT is not necessary in most cases of active TB.
- Consider DOT for patients with adverse risk factors;
  - street/shelter-dwelling homeless people with active TB,
  - patients with poor adherence, in particular a history of non-adherence.
- The person with TB and the key worker should be involved in setting up DOT arrangements.
- DOT should be supported by frequent contact with the key worker.

Table 1 Special considerations for active* non-respiratory TB

* Active TB – TB that is drug sensitive ie. not drug-resisant TB.

Site of infection	Drug regimen	Other issues
Meningeal	2HZRE/10HR, **AND** a glucocorticoid steroid. Give full dose steroid for 2 to 3 weeks before gradual withdrawal e.g. prednisolone as follows, **Adult**:20-40mg/day if on rifampicin, 10-20mg/day if not. **Child**: 1-2 mg/kg/day (max 40mg).	
Peripheral lymph node	***Standard recommended regimen*** – even if an affected lymph gland has been removed surgically	♦ Stop after 6 months, regardless of appearance of new nodes, residual nodes or sinuses draining.
Bone and joint	***Standard recommended regimen*** in people with; ➢ active spinal TB, ➢ active TB at other bone & joint sites.	♦ If neurological signs or symptoms carry out a CT or MRI scan. ♦ If direct spinal cord involvement manage as meningeal TB. ♦ Spinal TB: **Do NOT** routinely perform anterior spinal fusion. Consider only if spinal instability or spinal cord compression.
Pericardial	***Standard recommended regimen***, **AND** a glucocorticoid steroid. Give full dose steroid for 2 to 3 weeks before gradual withdrawal e.g.prednisolone **Adult**: 60mg/day. **Child**: 1mg/kg/day (max 40mg).	
Disseminated including miliary	***Standard recommended regimen*** If liver function deteriorates refer to specialist.	♦ If CNS signs or symptoms carry out a CT or MRI scan. ♦ In absence of CNS symptoms carry out a lumbar puncture. ♦ Treat as per meningeal TB if the CNS involved.

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Tuberculosis continued

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Diagnosis of latent TB

Contacts of people with TB N

- Household contacts aged 2 to 5 years:
  - perform Mantoux test initially. If positive, taking into account BCG history, refer to a TB specialist to exclude active disease **and** consider treatment of latent TB.
  - if negative but the child is a contact of a person with sputum-smear-positive disease, offer IGT after 6 weeks **and** repeat the Mantoux test.
- Household contacts aged ≥ 5 years and non-household contacts: perform Mantoux test. If positive consider IGT. If Mantoux test is inconclusive, refer to a TB specialist.

Contacts – outbreak situation N

- If large numbers of people need to be screened consider a single IGT for people aged ≥ 5 years.

New entrants from high-incidence countries* N

- Aged < 5 years; perform Mantoux test initially. If positive, taking into account BCG history, refer to a TB specialist to exclude active disease and consider treatment of latent TB.
- Aged 5 to15 years; perform Mantoux test initially. If positive perform an IGT.
- Aged 16 to 35 years; offer either IGT alone or a Mantoux test followed by IGT if Mantoux test is positive.
- Aged ≥ 35 years; consider the individual risks and benefits of likely subsequent treatment before offering testing.

*Country with > 40 cases TB per 100,000 per year. Search for TB rate bands at www.hpa.org.uk

N = new recommendation

People who are immunocompromised N

- If latent TB is suspected in children and young people refer to a TB specialist.
- For people with HIV and;
  - CD4 counts of < 200 cells/ mm^3, perform an IGT and a concurrent Mantoux test.
  - CD4 counts of 200 to 500 cells/ mm^3, perform an IGT alone **or** an IGT with concurrent Mantoux test.**
- For other people who are immunocompromised offer an IGT test alone or with concurrent Mantoux test.**

**If either test is positive, and active TB excluded, consider treating for latent TB.

Healthcare workers N

- For new NHS employees who will be in contact with patients or clinical materials and:
  - are not new entrants from high incidence countries,* and have not had a BCG; offer a Mantoux test. If positive, offer IGT. If negative see Green book.
  - have recently arrived from high incidence country,* or have had contact with patients in settings where TB is highly prevalent; offer an IGT test.

Hard-to-reach-groups: offer a single IGT test. **N**

Treatment and management of latent TB – see Table 2

- Exclude active TB by chest X-ray and clinical examination before starting treatment.

BCG vaccination – see full guideline

Contact tracing – see full guideline

Table 2: Treatment of latent TB

Group	Criteria for treatment	Treatment regimen
16 to 35 years***	♦ Has **NOT** had BCG and is Mantoux positive (>6mm),**OR** ♦ Has had BCG, is strongly Mantoux positive (>15mm), and IGT positive	**3RH** (3 months of rifampicin and isoniazid) **OR 6H** (6 months of isoniazid) as initial drug regimen. **6R** (6 months of rifampicin) for contacts of people with isoniazid-resistant TB aged ≤35 years.
Healthcare worker – any age		
TB scars on chest X-ray and no history of adequate treatment – any age		
Has HIV – any age	♦ Has NOT had BCG and is Mantoux positive (>6mm), **OR** ♦ Has had BCG, is strongly Mantoux positive (>15mm), and IGT positive	**6H**
Child 1 to 15 years identified through opportunistic screening	♦ Has **NOT** had BCG, is strongly Mantoux positive (>15mm), and IGT positive	**3RH OR 6H**
Neonate	♦ In close contact with people with; sputum-smear-positive TB who have not received at least 2 weeks TB treatment	♦ Give **H** as initial treatment then perform Mantoux test after 3 months treatment; if positive (≥ 6mm), and active TB excluded, give further 3 months of isoniazid. ♦ If negative (<6mm), repeat Mantoux and do IGT. If both tests negative, stop H and give BCG.
Child: > 4 weeks but < 2 years	♦ Has **NOT** had BCG ♦ In close contact with people with sputum-smear-positive TB	♦ Give **H** as initial treatment then perform Mantoux test; if positive (≥ 6mm), and active TB excluded give treatment for latent TB. 3RH **OR** 6H ♦ If Mantoux test negative (< 6mm), continue H for 6 weeks, then repeat Mantoux and do IGT. ♦ If repeat tests negative, stop H and give BCG. ♦ If either repeat test is positive, assess for active TB and if excluded consider treating for latent TB.
Child: > 4 weeks but < 2 years	♦ Has had BCG ♦ In close contact with people with sputum-smear-positive TB	♦ Perform Mantoux test; If positive (≥15mm), and active TB excluded, give treatment for latent TB. 3RH **OR** 6H ♦ If result as expected for prior BCG (<15mm), repeat test after 6 weeks and do IGT. ♦ If repeat Mantoux < 15mm and IGT negative; no further action. ♦ If repeat Mantoux more strongly positive (≥15mm & increase of ≥5mm over previous test), or IGT positive, and active TB excluded, give treatment for latent TB. 3RH **OR** 6H

***Older people are at increased risk of hepatotoxicity