

Tuberculosis and Bacillus Calmette-Guerin (BCG) vaccination information for Healthcare workers

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Section 1. Tuberculosis

1.1 What is Tuberculosis (TB)?

Tuberculosis (TB) is a disease caused by a bacterium called *Mycobacterium tuberculosis*. Anyone can catch TB by breathing in TB bacteria. These bacteria are in tiny droplets in the air coughed out by people with TB in their lung. In most people, if you breathe in TB bacteria your immune system – your body's natural defence - will control most of the bacteria and you will not get ill. However, if you do become ill, which can happen weeks, months or even years after you breathe in TB bacteria, this is called active TB. In most people, the body's immune system controls the TB bacteria, which stay in the body at a low level. You won't get ill and you're not infectious. This is called latent TB. In about five to ten out of every 100 people with latent TB, the TB bacteria can start to multiply again or reactivate and lead to symptoms of active TB.

1.2 Who is most at risk of developing TB?

You're most at risk of developing active TB if your immune system isn't working well. For example, you may have a condition like diabetes or HIV. If you get a confirmed diagnosis of TB, you will usually have tests for these conditions too. Or you may have had an organ transplant or treatment for conditions like cancer and rheumatoid arthritis. Excessive alcohol and drug use and smoking are also risk factors for developing active TB.

1.3 What are the symptoms and how is TB diagnosed?

If you develop TB symptoms, this is active TB. TB can affect any part of your body, not just the lungs. In the UK, just over half of people with active TB have TB in their lungs. The most common symptom of TB in the lungs (pulmonary TB) is a persistent cough. You might cough up phlegm, also called sputum, and it may have blood in it. TB can affect other parts of your body such as the lymph glands, bones, gut, kidney or brain. The second most common place for TB infection is in the lymph glands, often those in the neck. Lymph glands are small areas in your body that contain white blood cells that can swell up if they're infected.

Other possible symptoms of TB are:

- Feeling generally unwell
- Losing weight
- Losing your appetite
- Fever with sweating, particularly at night
- Extreme fatigue

1.4 How is TB infection diagnosed?

We use a simple skin test called the Mantoux test to aid diagnosis of TB but you may be referred for other tests including

- a blood test called an interferon gamma release assay (IGRA) that tests if your immune system has been exposed to TB bacteria
- a chest X-ray

If active or latent TB is suspected, you will be referred back to your GP or the respiratory team for a chest x-ray and further assessment/ advice.

1.5 Can I infect other people?

If you have active TB in your lungs, you can be infectious.

How infectious you are depends on:

- If you are coughing
- How much of your lung is affected
- How many TB bacteria are in your phlegm

If you have active TB but it is not in the lungs you are far less likely to be infectious to others.

If you have latent TB, you are not infectious.

1.6 What should I do if I think I've been exposed to TB?

To be infected, you would have to spend prolonged periods (several hours) in close contact with an infected person. You can only become infected by breathing in TB bacteria – you cannot get TB from someone's clothes, cutlery, glass, toilet, handshake or surfaces they've touched.

1.7 How is TB treated?

Active TB can be completely cured if you take a course of antibiotics against TB for at least six months. Very occasionally, the TB bacteria may be resistant to one or more of the usual antibiotics so you might have different treatment or treatment for longer. Before starting treatment, your TB specialist should check if you have latent TB, you may be offered a shorter course of treatment with fewer tablets. This aims to reduce your risk of developing active TB in the future. Treatment for TB in the UK is free for everyone, regardless of immigration status. TB can be cured completely but only if you take your tablets as prescribed when your TB team or doctor tells you it is safe to do so. TB can become resistant to treatment if you stop taking your drugs too soon or do not take them regularly.

1.8 What are the risks to me as a Health care worker?

Carriers of TB can pass infection to others including healthcare workers via air particles usually during prolonged patient contact. The risk of infection has been significantly reduced due to the availability of national vaccination program in the UK, However, TB can spread quickly in health care settings where patients may have reduced immunity. Awareness of TB signs and symptoms, adhering to infection prevention processes, workplace screening and vaccination reduce the risks of a health care workers being infected and spreading infection. **Health clearance for health care workers cannot be given until clinical evidence of TB status is confirmed.**

1.9 How can I get protected? The BCG vaccination helps your body's defences fight off TB. It is only given once. It is most effective at protecting young children from the severest forms of TB. Its protective effect wears off as you get older.

1.10 How do I arrange my TB screening consultation?

If on your preplacement form you have declared a clear TB screen and have provided evidence of BCG vaccination from your health care record, you will not usually be invited for further TB screening.

If you are invited to arrange an appointment the consultation may include:

OH TB/ BCG patient information SQH/22.09.21 vs 2 reviewed 5.12.22 KS

1. Your BCG scar being checked,
2. Reviewing documentation/ evidence of completion of TB treatment with a clear chest x-ray report from your doctor or respiratory team (in cases of previous TB infection)
3. have a mantoux test*

Section 2. TB screening

2.1 What is a mantoux test*?

The Mantoux test is used as a screening test for Tuberculosis infection and as an aid to diagnosis. The local skin reaction to Tuberculin Purified Protein Derivative (PPD) injected into the skin is used to assess an individual's sensitivity to tuberculin protein.

The mantoux test is administered via a small needle, placed under the skin layer in your forearm. A small, raised area should appear and this may or not disappear before the area is checked 48-72 hours later by the OH nurse.

If there is no reaction to the mantoux test (no palpable area), no previous TB vaccination or contraindications we recommend that you have the BCG vaccination for your protection. If the reaction is larger than 5mm you may be referred for further assessment with your GP/ respiratory team to rule out pulmonary TB prior to starting work. You may be offered treatment for latent TB.

Composition of PPD

Active ingredients; 2 T.U. 0.1ml; 0.04 micrograms tuberculin

Also contains; disodium phosphate dehydrate, sodium chloride, potassium dihydrogen phosphate,

2.2 What are the possible side effects of the Mantoux test ?

Common - immediately after the injection temporary itching, swelling, stinging, irritation or discomfort at the injection site – these are normal reactions that do not require any treatment.

Rarely – headache, fever and enlargement of regional lymph nodes.

Extremely rare – anaphylaxis.

2.3 How do I care for the test site?

To ensure accurate reading of the Mantoux test please observe the following advice until the test site is read.

- Avoid scratching the site, keep it clean and avoid putting creams, lotions or adhesive dressings on it.

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2.4 Is the mantoux test right for me?

You should tell the nurse if you have any of the following:

- Active or suspected Tuberculosis.
- Had previous tuberculosis disease.
- Previously been vaccinated with BCG vaccine.
- Allergy to any ingredients of the vaccine listed in the manufacturer's information sheet.
- Previous severe skin reaction to Tuberculin products.
- Had a past Mantoux reaction of 5mm or greater.
- Received a Mantoux test within the past year.

- Recent immunisation elsewhere of a live vaccine (measles, mumps or rubella) in the previous 4 weeks.
- Recent viral infection (particularly measles, mononucleosis, Varicella or Influenza).
- Currently unwell/febrile.
- Receiving treatment that lowers resistance to disease, e.g. steroids, radiotherapy or drugs used to treat cancer. Or has a medical condition that affects resistance to infection, e.g. cancer leukaemia, HIV, kidney failure. Or has received ultra-violet treatment recently.
- Have sarcoidosis.
- If you are pregnant, have HIV or a weakened immune system Mantoux testing is not recommended as a screening test for employment. Please discuss this confidentially with the nurse for further information.
- If you are at risk of being pregnant or having HIV due to unprotected sex or exposure to HIV risks, please have a pregnancy or blood test to confirm this prior to attending your appointment for the mantoux test where the results will be discussed.
- Please let the nurse know if you have any implants or medical issues affecting your left or right arm.

Section 3. BCG vaccination

3.1 What is the BCG vaccination?

UK Licensed BCG Vaccine The name of this vaccine is BCG (Bacillus Calmette-Guerin)

Manufactured by AJ Vaccines (AJV)

It is a vaccine used for protection against Tuberculosis. The active ingredient in BCG is live Mycobacterium bovis Danish strain 1331

List of excipients in solvent: Magnesium sulphate heptahydrate, Dipotassium phosphate, Citric acid monohydrate, L-asparagine, monohydrate, Ferric ammonium citrate, Glycerol 85%, Water for injections

3.2 How is the BCG vaccine administered?

The BCG vaccination is administered via a small needle under the skin layer but to your upper arm.

3.3 Do not have BCG Vaccine if any of the exclusions below apply:

If the BCG vaccination is indicated, it is important that you tell the doctor or nurse if any of the exclusion criteria points below apply to you. If you do not understand any of these ask us to explain.

- Confirmed induration of 5mm or more following Mantoux tuberculin skin testing.
- If there is a reliable history of previous BCG immunisation or evidence of previous BCG (documentation or a scar).
- Currently receiving anti-tuberculosis medication.
- Past history of tuberculosis.
- Generalised skin infection. (Eczema is not a contraindication). Vaccine site should be lesion free.

- Immunocompromised by virtue of disease or treatment, e.g. patients receiving corticosteroid or other immunosuppressive treatment including general radiation. (Inhaled steroids are not a contraindication). Or those suffering from a malignant condition such as lymphoma, leukemia, Hodgkin's disease or other tumor of the reticuloendothelial system.
- Known or suspected to be HIV positive.
- Pregnancy.
- Allergic to any of the ingredients of the vaccine?
- Fever or generalised skin infection? If so vaccination should be postponed until the fever or infection has cleared.

Please inform your doctor or nurse if you are taking or have recently taken any other medicines.

If BCG vaccination is not indicated then temporary or permanent reasonable work adjustments may need to be arranged. This is to reduce risk of you contracting TB infection at work while you are unprotected.

3.4 Are there any risks in Pregnancy and breastfeeding?

Although no harmful effects to the foetus have been associated with BCG Vaccine. AJV, vaccination is not recommended during pregnancy or during lactation for health care workers where exposure risks can be controlled.

3.5 Are there any side effects of the BCG vaccination?

- The expected reaction to a successful vaccination with BCG Vaccine includes slight swelling at the injection site followed by a small ulcer which will heal over some months leaving a small, flat scar.

Uncommon side effects (happens to more than one in a thousand people but less than one in a hundred)

- Headache
- Fever
- A running ulcer at the injection site. If this happens, the ulcer should be allowed to dry and tight clothes avoided.

Rare side effects

- Inflammation of the glands, sometimes with abscesses.
- Infection with the bacteria in the vaccine can occur which can spread throughout the body, including the bones and has to be treated. This does not usually happen in people who are otherwise healthy.
- Severe allergic reactions can occur (such as redness of the face and neck, swelling of the face, throat or neck, skin rash, breathing difficulties and collapse). These often start very soon after the injection while you are still in the clinic. If the symptoms start after leaving the clinic, contact a doctor or visit the Accident and Emergency department urgently.

Inform your doctor or nurse if you have persisting swelling over the injection site, a slow healing ulcer or swelling of the glands in your armpit larger than 1cm across.

If you notice any side effects not mentioned in this leaflet, please tell your doctor or nurse.

3.6 How do I care for the BCG inject site after vaccination?

The expected reaction to successful BCG vaccination, seen in 90 to 95% of recipients, is induration at the injection site followed by a local lesion which starts as a papule two or more weeks after vaccination. It may ulcerate and then slowly subside over several weeks or months to heal, leaving a small, flat scar.

It is not necessary to protect the site from becoming wet during washing and bathing. The ulcer should be encouraged to dry, and abrasion (by tight clothes, for example) should be avoided. Should any oozing occur, a temporary dry dressing may be used until a scab forms. It is essential that air is not excluded. If absolutely essential (e.g. to permit swimming), an impervious dressing may be used but it should be applied only for a short period as it may delay healing and cause a larger scar.

Further observation after routine vaccination with BCG is not necessary,

If you can follow these directions, the ulcer will heal quickly and cleanly, leaving only a small scar. Please contact the Occupational Health Department on the above number if you have any concerns regarding your vaccination.

No further immunisation should be given in the arm used for BCG immunisation for at least 3 months.

Section 4 Confidentiality

4.1 Confidentiality

Your appointment with the OH advisor/nurse is confidential, and we encourage you to ask any questions to ensure your consent for vaccination is fully informed and you are aware of the benefits to you in preventing infectious diseases.

TB is a notifiable disease and positive cases are referred to Public Health England for follow up (usually by your GP or treating physician). Details of your health conditions are not shared with other parties without your consent or discussing this with you.

Reference :

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/731848/Greenbook_chapter_32_Tuberculosis_.pdf (accessed 5.12.22 SH)

<file:///H:/Occupational%20Health/Occ%20Health%20as%20from%203%20Mar%2005/All%20Staff/Sarah/Business%20planning/management%20projects/Banner%20and%20brochure/brochure%20and%20vaccination%20leaflets/TB%20downloadable%20PDF%20V4%202020.pdf> (accessed 5.12.22 SH)



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