

Tuberculosis - Protecting Healthcare Workers From Workplace Exposure.

Information Sheet

September 2011

This information sheet gives guidance on preventing employee exposure to tuberculosis (TB) disease in healthcare settings. The information is aimed at healthcare managers but will also be of interest to employees.



How is tuberculosis spread?

Infectious tuberculosis is an airborne disease and because it can spread through the air it can present a risk to healthcare workers (HCWs). The main infection risk to staff (and patients) in healthcare settings is the undiagnosed or unsuspected patient or staff member with infectious TB disease. Under health and safety law, adequate measures must be put in place to prevent or minimise employee exposure to infectious diseases.

Who is at risk of being infected?

Not all HCWs are at an equal risk of being infected by TB. The most important risk factors for developing TB infection are the:

- extent of exposure: the intensity, frequency and duration of exposure such as the contact with the patient and the clinical procedures being carried out;
- infectiousness of the source case: people with active TB disease of the lungs or throat are infectious;
- susceptibility of the person in contact with the case: employees with diabetes or immune system deficiencies may be more susceptible to infection; and
- environment in which the contact occurs: such as the type of healthcare setting.

In general staff who:

- carry out procedures such as pathology examination, handling TB cultures in the laboratory, cough inducing procedures, autopsy, emergency dental procedures or any aerosol generating or producing procedures would be considered at high risk of infection;
- are in regular contact with the patient such as nursing, physiotherapy, nursing attendant, cleaning and catering staff would be considered at medium risk of infection;
- have minimal patient contact, such as administration and maintenance staff, would be considered low risk.

How do I prevent healthcare workers from being infected?

By law, employers must assess risk. This involves examining what in the workplace could cause harm to employees and other people such as patients and visitors. The employer must then weigh up whether they have enough precautions or controls in place to prevent harm or whether they should do more to prevent harm.

A risk assessment for TB will involve identifying who is at risk of infection including job classifications and how they are at risk such as what tasks put the employee at risk. Methods to reduce employee exposure must then be identified and implemented.

The risk assessment process is an integral part of managing infection control. The control measures required by health and safety law will usually already be in place as part of any infection control policy. The main aim of an infection control policy is to prevent the spread of infection within the healthcare setting and measures should protect both patients and employees.

How do I prevent the spread of TB?

The transmission of diseases that are spread through the air is usually managed and controlled through a combination of control measures such as engineering controls, administrative controls including safe systems of work and personal protective equipment including respiratory protective equipment.

• Engineering controls

Placing infectious TB patients in an airborne isolation room is an example of an engineering control measure. Where TB has been identified as a risk, healthcare facilities must ensure that they have adequate procedures in place to ensure appropriate provision of isolation facilities. If appropriate isolation facilities are not available, procedures should be in place to transfer the infectious patient to another suitable facility with adequate isolation facilities.

• Administrative Controls

Administrative controls include reducing the number of HCWs involved in direct care of infectious TB patients. In addition, documented safe systems of work should be in place for patient placement, transfer procedures, use of isolation rooms and maintenance of equipment and ventilation systems. Post exposure plans must be in place in the event of exposure to TB during the course of work or in the event of an isolation room failure.

All specimens and cultures of TB should be handled and transported in accordance with the current biological agents regulations and the carriage of dangerous goods regulations. In doing so, account should be taken of the Health Protection Surveillance Centre's "Guidelines on the Prevention and Control of Tuberculosis". These guidelines recommend that Containment Level 3 (CL3) facilities are used when working with *Mycobacterium tuberculosis* complex. In addition, they advise that the "recommended" containment measures in the Seventh Schedule of the biological agents regulations be regarded as mandatory.

• Vaccination and screening

The Safety, Health and Welfare at Work (Biological Agents) Regulations require that where vaccines are available, employers must offer vaccination, free of charge, to employees who are at risk of occupational exposure to biological agents such as TB. Workers, especially clinical staff working with patients or clinical specimens, who will be at risk of TB infection, should have pre-placement screening.

Taking account of current national immunisation guidelines, all healthcare workers who are at risk of occupationally acquiring TB and:

- are previously unvaccinated, that is without adequate documentation or a characteristic scar;
- will have contact with patients or clinical materials; and
- are Mantoux (or interferon-gamma, if available) negative;

should be offered *Bacille Calmette Guerin* (BCG) vaccination, irrespective of age. This includes those who will have contact with patients, clinical materials or derived isolates such as laboratory staff.

• Instruction, training and information

Staff who are at risk of exposure to TB infection (including agency or temporary staff) must have adequate instruction, information and training with respect to the signs, symptoms, transmission control and post-exposure procedures. Adequate signage should be in place to notify people of the possible risk of exposure to TB, for example on isolation rooms, and what precautions to take.

• Respiratory Protective Equipment (RPE)

When adequate exposure control measures cannot be achieved by other means, a respiratory protection programme is essential.

- As part of the respiratory protection programme, appropriate instruction, information and training must be provided to all HCWs who use face masks. Fit testing will form part of this training and ensure that wearers are able to put the masks on correctly themselves. Employees must be aware that masks will not be effective unless they form a seal against the face.
- Provide qualitative fit tests when workers are first fitted with disposable respirators and repeat as necessary, for example if the wearer loses or gains weight or develops facial changes such as scars or moles around the face seal area. Keep records of all fit tests.
- HCWs should check their mask fit, in accordance with their training, each time a mask is put on.

HCWs (including HCWs visiting a patient in their own home) should wear:

- FFP2 masks when caring for patients with suspected or confirmed infectious TB where Multi-Drug Resistant TB (MDR-TB) or Extensively Drug Resistant TB (XDR-TB) is not suspected;
- FFP3 masks when:
 - caring for patients with suspected or confirmed infectious MDR-TB or XDR-TB; and
 - undertaking cough-inducing procedures on all patients (fully susceptible and resistant strains included), for example, sputum induction, bronchoscopy, administration of aerosolised medications, airway suctioning, endotracheal intubation, caring for patients on mechanical ventilation and during treatment of lesions or abscesses when aerosolisation of drainage fluid is anticipated.

In addition,

- procedures should be in place to ensure that patients wear a surgical mask while they are infectious when they are outside their room for example, visiting the X-Ray or Out Patient Departments; and
- the supervising clinician should be consulted before the use of masks is discontinued.

A surgical mask is a protective barrier that is worn on the face and covers at least the nose and mouth. It is used to prevent the spread of airborne droplets and droplet nuclei generated by the person wearing the mask. They are not designed to seal to the user's face and do not provide HCWs with adequate respiratory protection against small inhalable particles such as the TB bacterium.

Reporting Requirements

In accordance with the Safety, Health and Welfare at Work (Biological Agents) Regulations, occupationally acquired cases of tuberculosis disease must be reported to the Health and Safety Authority. Reports can be submitted using the online incident report system or the IR1 incident report form.

Where can I get further information?

- Information on occupational health and safety including guidance on respiratory protective equipment is available on our website at www.hsa.ie or by contacting the Workplace Contact Unit at 1890 289 389.
- For information on tuberculosis, see the Health Protection Surveillance Centre's "Guidelines on the Prevention and Control of Tuberculosis in Ireland 2010" at www.hpsc.ie.

Further Information:

The Health and Safety Authority's web site www.hsa.ie
Contact the Health and Safety Authority at wcu@hsa.ie or LoCall 1890 289 389