



Risk Management of Hazardous Biological Materials

Guidance for Heads of Service

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Guidance for Heads of Service

What are hazardous biological materials?

Hazardous biological material is any biologically-derived material or material which is or contains biological agents (e.g. bacteria, viruses, fungi or parasites) or hazardous multicellular organisms (anything from mosquitoes to mink) that can cause harm (i.e. infection, allergy or toxic reaction) to human health (or to animals or the environment). It also includes genetically modified organisms. Work in services where exposure to hazardous biological material may occur may include agriculture (zoonoses, animal wastes, contaminated dusts), food production (zoonoses and food poisoning bacteria), engineering (process waters and coolants), plumbing, printing (process waters and humidifiers), domestic waste and wastewater treatment (contaminated dusts, aerosols, zoonoses), textile handling (contaminated dusts and zoonoses), gardeners and emergency services (blood borne pathogens). If your work is outside of these areas but you think there may be contact with hazardous biological materials, or if you have questions at any stage of the risk assessment please don't hesitate to speak to the University Biological Safety Contact.

Staff:

- Make sure that nobody who is under the minimum school leavers' age is employed in work involving exposure to hazardous biological materials.
- If anyone becomes ill as a result of their work or is exposed to hazardous biological materials (for example, a needlestick accident or a rat bite) speak to University Biological Safety Contact and the [Occupational Health Service](#). You should also ensure it is recorded as usual through Sentinel, the University's online accident reporting system.

Health surveillance

- The need for health surveillance is usually identified through the risk assessment. As a general rule, this would mean anyone coming into contact with human material (e.g. vomit or faeces), needles or soil, and may include other staff too (e.g. new or expectant mothers).
- Where this is identified staff must be referred (and must attend) to Occupational Health Service who will decide on the next steps (e.g. tetanus vaccination for gardeners).
- Please note, this guidance refers only to health surveillance in relation to exposure to hazardous biological materials. Health surveillance may also be required for other reasons (e.g. chemical exposure) - speak to your Health and Safety Manager or University Biological Safety Contacts for more information.

Transporting hazardous biological materials

- The most likely way that this will impact on service staff is when they are disposing of materials (e.g. dead rats). This should be covered in the risk assessment and materials should be disposed of in line with University procedures – usually through healthcare waste stream (for human materials) or composting (for dead plants).
- Speak to your Health and Safety Manager if you need advice.

Training and induction

- All staff who come into contact with hazardous biological materials must be given suitable induction and training on how to deal with significant biological hazards. In practice this would mean for example, that a cleaner knows what to do if they need to deal with vomit, faeces etc that they may come across in their role.

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Risk Assessment

General

- Work in services that involves contact with hazardous biological materials **must be covered** by either a COSHH (Control of Substances Hazardous to Health) for work involving chemicals or an activity risk assessment (e.g. for plumbers repairing a blocked toilet).
- Any biological hazards deemed a significant risk **must be included** within the COSHH or activity risk assessment.
- In addition, individual risk assessments may also need to be produced for anyone who is a new or expectant mother, immune-compromised or has an allergy / sensitivity to hazardous biological materials they come into contact with.
- Speak to your Health and Safety Manager or University Biological Safety Contacts for specific details.

Assessing the risks

- Find out how staff might come into contact with the material – e.g. via contact with animals or tools.
- Find out if there are conditions that could allow infectious micro-organisms found in the natural environment to contaminate and grow, without steps to control them. E.g. legionella bacteria are as at home in cooling towers or dead-legs of hot and cold water services as in the natural environment.
- Identify which sources of infection may be present, and consider how likely it is that infection will result (e.g. how often is the task carried out, how many employees are exposed, and how much infectious material is handled?).
- If you decide that there is a significant risk, then are your existing controls sufficient or do you need to do more to minimise it?

Identifying the health risks

- Can it cause harm (e.g. disease, allergy etc), and how severe can that harm (disease) be?
- What available treatments, vaccines or medicines are there?
- There are a number of routes for micro-organisms to enter the body through incidental contact with hazardous biological materials:
 - Inhaling them - e.g. breathing in fungal spores from mouldy hay may lead to ‘farmers’ lung’.
 - Ingesting them - e.g. eating lunch after a plumbing job with unwashed hands may lead to gastroenteritis from salmonella.
 - Through the skin - e.g. a direct labour operative who cuts their hand on a rusty nail or pricks their finger on a rose-thorn, may be at risk from tetanus; a cleaner coming across used syringe needles may risk hepatitis or HIV/ AIDS; a groundsman who comes into contact with cat excrement by planting up flowerbeds and rubbing their eyes, may be at risk of toxoplasmosis.

How do I protect staff from risks to health?

- Controlling the risk of infection is relatively straightforward – usually, simple good personal hygiene measures, such as washing hands or wearing gloves, are sufficient.
- Biological hazards are usually controlled by good personal hygiene measures and Personal Protective Equipment (PPE). See the table below for more ideas on control measures.

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- Where the risk assessment identifies the need for Personal Protective Equipment (PPE) you need to make sure that it is maintained as a matter of routine to ensure it can effectively protect staff.
- Sometimes, your staff may need to enter a restricted area (e.g. cleaners going into a laboratory) where there is a significant risk that they will be exposed to hazardous biological materials. If this is the case, they should receive induction and any Personal Protective Equipment necessary to protect them.
- Speak to the University Biological Safety Contacts if an emergency requiring statutory notification to the Health and Safety Executive, Environment Agency, Police or DEFRA occurs. This could include a legionella outbreak or tetanus infection.

Suggested control measures

Hazardous biological materials are classified into four 'hazard groups' based on the potential level of harm that they can cause to humans, animals or the environment. The table on the next page sets out each hazard group along with ideas for control measures which can be used to minimise the significant risks.

This can help you to complete the control measures section in an activity or COSHH risk assessment. Speak to the [University Biological Safety Contacts](#) for help in identifying the hazard groups for the biological materials you may come across, or with any other questions.

	Definition and examples	Control measures and suggested actions
Hazard Group 1	<p>These materials are unlikely to cause disease or harm to people, animals or the environment.</p> <p>Examples include green algae.</p>	<p>Required</p> <ul style="list-style-type: none"> • Good personal hygiene procedures e.g. hand-washing.
Hazard Group 2	<p>These materials can cause disease; and may be a hazard to people; the disease is unlikely to spread from you to the community and there is usually effective treatment available.</p> <p>It is also unlikely to be spread between animals or within the environment.</p> <p>Examples of diseases include: <i>Through wounds or skin punctures:</i> Tetanus <i>Through hand-to-mouth contact / poor hygiene:</i> Salmonella, Toxoplasma, Norovirus (otherwise known as Winter vomiting bug), <i>Through airborne aerosols:</i> Legionella; <i>Through skin contact:</i> Ringworm;</p>	<p>Required</p> <ul style="list-style-type: none"> • Good personal hygiene procedures e.g. hand-washing. • Not eating and drinking whilst carrying out the activity. • Health surveillance and vaccinations where appropriate e.g. tetanus. <p>As identified</p> <ul style="list-style-type: none"> • Appropriate Personal Protective Equipment (PPE), this may be gloves (e.g. nitrile, marigold, stab-proof) or other protective clothing (e.g. catering chefs whites or a plumber wearing a work uniform (coveralls or overalls)) appropriate to the job. • Use of equipment to reduce potential exposure – separating the person from direct contact e.g. pickers for collecting waste, a spade to pick up faeces. • Possible use of face mask to prevent inhalation. • Staff awareness of symptoms and what to do should they start experiencing them. • Cleaning of contaminated clothing - allowing for separation from everyday clothing, and supplied by the University.

	Definition and examples	Control measures and suggested actions
Hazard Group 3	<p>These materials can cause severe disease and may be a serious hazard to employees; the disease may spread from you to the community, but there is usually effective treatment available.</p> <p>It may also spread to and between animals and within the environment.</p> <p>Examples of diseases include: <i>Through wounds or skin punctures:</i> Hepatitis C, Hepatitis B, HIV. <i>Through hand to mouth contact / poor hygiene:</i> Anthrax <i>Through airborne aerosols:</i> TB, Anthrax.</p>	<p>Please note – exposure to these is unlikely.</p> <p>Required</p> <ul style="list-style-type: none"> • Good personal hygiene procedures e.g. hand-washing. • Not eating and drinking whilst carrying out the activity. • Health surveillance- vaccinations where appropriate e.g. tetanus, Hepatitis B. • Appropriate Personal Protective Equipment (PPE), this may be gloves (e.g. nitrile, marigold, stab-proof) or other protective clothing (e.g. catering chefs whites or a plumber wearing a work uniform (coveralls or overalls)) appropriate to the job. • Possible use of face mask to prevent inhalation. • Use of equipment to reduce potential exposure – separating the person from direct contact e.g. pickers for collecting waste, a spade to pick up faeces. • Staff awareness of symptoms and what to do should they start experiencing them. • Cleaning of contaminated clothing - allowing for separation from everyday clothing, and those supplied by the University.
Hazard Group 4	<p>These materials cause severe disease and are a serious hazard to employees; it is likely to spread to the community, and there is usually no effective treatment available.</p> <p>It is highly likely to spread to and between animals and within the environment.</p> <p>Examples of a disease include: <i>All routes (airborne, skin contact etc)</i> Foot and Mouth. <i>Through wounds or skin punctures, or hand to mouth contact:</i> Ebola.</p>	<p>Please note – exposure to these is highly unlikely.</p> <p>Required</p> <ul style="list-style-type: none"> • Speak to the University Biological Safety Contacts.

Help and support

If you have any questions regarding hazardous biological materials, hazard groups or control measures please don't hesitate to speak to the [University Biological Safety Contacts](#) directly, or through Health and Safety Services on 0113 34 34201.