Principles of Risk assessment

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1. Introduction

LSHTM undertakes a diverse range of activities which involve varying levels of risk. This document is an introduction to the principles of risk assessment, which will help staff and students to identify which of their activities could pose a risk and how to conduct those activities in a safe manner.

2. Risk assessment: the main principles

2.1 What is a risk assessment?

A risk assessment is a logical way of looking at work activities and identifying sensible precautions (control measures) to control the risks created by these activities. There is no set way to carry out or record a risk assessment, although a suggested approach is outlined below. LSHTM has standard risk assessment templates which you can find on the LSHTM intranet. Locally developed risk assessment processes and templates may also be available. More information can be obtained from your lab-manager or local safety advisor.

2.2 Hazard versus risk

A **hazard** is something that has the potential to cause harm. Examples include a trailing cable, chemicals, pathogens etc.

A **risk** is the likelihood (high or low) that someone could be harmed by a hazard. For example the risk of tripping over a trailing cable on the floor of a busy office might be high.

2.3 Is a risk assessment needed?

If the work activities present a foreseeable risk of injury or ill health, a risk assessment should be carried out. In a relatively low risk environment (such as an office) a single risk assessment covering all the activities undertaken may be all that is required. In other workplaces, with higher risk

activities a more extensive risk assessment and separate subject specific risk assessments may be appropriate. Your local safety advisor will have further information on the arrangements for carrying out risk assessments locally.

An effective risk assessment:

- Enables the work to be carried out safely whilst supporting learning and innovation
- Focuses on significant risks (you are only expected to cover reasonably foreseeable risks, not trivial ones)
- Covers all groups of people who might be harmed (e.g. staff, public, students, visitors, contractors, etc.)
- Identifies sensible and appropriate control measures which reduce the risk to an appropriate low level.
- Has been produced in consultation with those carrying out the work and their representatives
- Records any actions required, with the highest risks being prioritised
- Is not about generating large amounts of paper work
- Does not aim to completely remove all risks - this is neither realistic nor desirable.

2.4 Managing risk dynamically

In some circumstances there may be a need to dynamically assess risks as an activity is carried out. This can be particularly useful where the activities carried out are inherently variable or unpredictable. This approach should not replace the risk assessment carried out before an activity takes place but is in addition to the risk assessment. If it is likely an activity will need to be dynamically assessed as the work is carried out, this should be covered in the standard risk assessment and details provided in the controls and comments sections.

Definition

"Dynamic risk assessment is a continuous process of identifying hazards and evaluating risks as they come up, taking appropriate actions to eliminate or reduce the risk."
(http://www.iosh.co.uk/ushaguide).

Some examples where risks may need to be managed dynamically include:

- Field work in a changeable location (this could be political, environmental etc.)
- Post mortem activities – where it is not possible to for see all potential hazards until the work has started.

Individuals using this approach must be competent to do so, for example have adequate training, experience and knowledge of the activity being undertaken. This will ensure any actions taken are appropriate. These might include:

- Stop the activity (for example if you or others feel unsafe, or the risks are too high to yourself and others)
- Request help or assistance (for example from a colleague or obtaining specialist advice)
- Use a different method, if safe to do
- Change equipment, if safe to do so

Actions after using dynamic risk assessment:

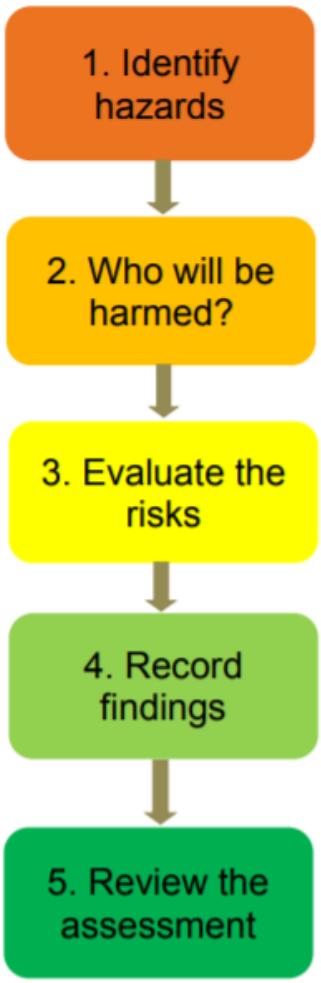
- Consider if the current risk assessment needs reviewing and amend if appropriate
- Depending on the level of risk it may be appropriate to record actions taken whist the activity was being dynamically assessed – this could be in the form of a report or other record

• Use the action plan section of the risk assessment template to record any further actions required after

• Report accidents or near misses afterwards to enable learning from the incident

2.5 Risk assessment process overview

The risk assessment process can be broken down into the following steps, which is referred to as the five steps to risk assessment:



1) **Identify significant hazards associated with the activity.**

What could cause harm? Walk round your workplace, think about the activity, look at accident data and consider non routine activities like maintenance etc. Check manufacturers' instructions or data sheets for chemicals and equipment as they can be very helpful in spelling out the hazards and putting them in their true perspective. Remember to think about long-term hazards to health (eg high levels of noise or exposure to harmful substances) as well as safety hazards.

2) **Consider who might be harmed and how.**

Include staff, visitors, students, the public and contractors. Also think about individuals such as new or expectant mothers, young people, or disabled people.

3) **Evaluate the risk and decide on precautions**

Having spotted the hazards, you then have to decide what to do about them. The law requires you to do everything 'reasonably practicable' to protect people from harm. You can work this out for yourself, but the easiest way is to compare what you are doing with good practice.

4) **Record the significant findings and implement them**

Including the hazards, who might be harmed and how and what control measures are required. Findings may also be recorded in the form of an operating procedure or local rules where appropriate.

5) **Review the assessment and update if necessary**

Look at your risk assessment and think about whether there have been any changes to the activities. Are there improvements you still need to make? Have other people spotted a problem? Have you learnt anything from accidents or near misses? Make sure your risk assessment stays up to date. The review frequency should be based on the level of risk

2.6 Control measures

Control measures (referred to in step 4 above) are any measures in place to reduce the risk of harm. The types of controls are listed below (sometimes referred to the hierarchy of control). They should be considered in this order and preference should be given to controls higher up the list as they are generally more effective. Most risk assessments will have a combination of these types of controls.

1) Elimination: can the hazard be eliminated? For example, avoiding the need for working at height.

2) Substitution: for example, substituting a less harmful pathogen

3**) Engineering controls:** preventing access to the hazards (e.g. physical barriers to machinery or a microbiological safety cabinet

4) **Administrative controls:** organising your work to reduce exposure to the hazard (e.g. safe working procedures, signage, or access control to a lab)

5) **Personal protective equipment:** issuing protective equipment should be a last resort after the points above have all been considered.

Generally, the hazards presenting the highest risks should be focused on first and have the most robust control measures in place.

2.7 What happens next?

Carrying out a risk assessment is just the beginning. The aim of a risk assessment is to prevent harm, to ensure this continues to happens the following should be considered:

• The risk assessment can inform safe systems of work or operating procedures. This prevents risk assessments being filed away and not being working documents.

• Implementation of controls: checks on implementation of controls should be part of the workplace's health and safety management system

• Ensuring staff are competent to carry out their work: Providing information on how to work safely is a key part of this. It is not necessary to make staff read the risk assessment for the activities they carry out. In many cases more user-friendly documents are developed which include safety and other key information (see the point below).

• Safe working procedures: These are sometimes called method statements or safe systems of work but may also be part of a document like the Local Rules or more general standard operating procedures.

• Review of risk assessments: the frequency of review should be based on the level of risk and if there have been any changes to the activities being assessed. It is generally recommended that risk assessments are reviewed annually.