

## Safety Services Guidance



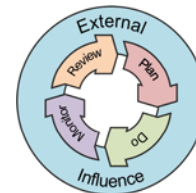
### Risk assessment – frequently asked questions

**Key word(s) :** Risk assessment, hazard, risk, dynamic risk assessment, competent, risk assessment form, action plans, generic and example risk assessments

**Target audience :** All those carrying out risk assessments, SSAs, senior managers reviewing or responsible for ensuring risk assessments are in place and control measures are being implemented.

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## 1. What is a risk assessment?

These are nothing more than a careful examination of what, in your work, could cause harm to people. The purpose of any health and safety risk assessment is to decide if sufficient precautions have been taken, or whether more should be done to prevent harm.

## 2. What does the law actually say?

Basically, the Management of Health and Safety at Work Regulations 1999 require all employers to assess the risks which may result from their work activities and to identify the measures they need to put in place to comply with their duties under health and safety law. You can view the regulations at

<http://www.legislation.hmsso.gov.uk/si/si1999/19993242.htm>

The assessment must be “suitable and sufficient”.

Several other regulations refer to the process of risk assessment e.g. COSHH, Display Screen Equipment. For more information on these topics see the [Safety Services Website](#).

Note: In the University the Head of School (or equivalent) has delegated responsibility for day-to-day health and safety management, therefore they are responsible for ensuring risk assessments are carried out for all activities associated with their area of responsibility

## 3. What does “suitable and sufficient” mean?

A suitable and sufficient risk assessment is one that:

- correctly and accurately identifies all hazards, including those arising from non-routine work such as one-off repairs, or servicing
- disregards inconsequential risks and those trivial risks associated with life in general
- determines the likelihood of injury or harm arising
- identifies the severity of the consequences and the numbers of people who would be affected
- takes into account existing control measures
- identifies any specific legal duty or requirement relating to the hazard
- will remain valid for a reasonable period of time
- provides sufficient information to enable the employer to decide upon appropriate control measures, taking into account the latest scientific developments and advances

- enables the assessor to prioritise remedial measures.

#### 4. What is the difference between hazard and risk?

A hazard is defined as something with the potential to cause harm (i.e. illness, injury or damage).

Risk is the likelihood of that harm actually occurring. The size of risk depends upon the likelihood of the harm occurring (e.g. highly likely, virtually impossible) and how severe (e.g. death, very minor injury or extensive damage,) the outcome will be.

#### 5. What steps do I take to carry out a risk assessment?

The table below will take you through the process.

	Action	Information
<b>Step 1</b>	Identify all reasonably foreseeable hazards, even those where you think the risk is low. Make sure all areas and activities are included and record findings on the University's risk assessment form ( <a href="#">see Safety Services risk assessment toolkit</a> )	Hazards can be identified from checklists, your own observations, the observations and contributions of others in your area, information about accidents or near misses, information from the School Safety Advisor / University Safety Coordinators / Head of Safety Services about legal requirements for certain hazards.
<b>Step 2</b>	For each hazard, consider who might be harmed and how the harm may occur. List the different groups and how they are affected	Remember users of equipment, maintenance staff, students, casual visitors, school children on organised visits, cleaning and security staff who might visit out-of-hours.  Remember also that some individuals may be particularly susceptible to certain hazards, for example, those with respiratory conditions, pregnant workers/nursing mothers, young or inexperienced individuals, etc.
<b>Step 3</b>	For each hazard firstly consider whether it can be removed completely or replaced by a less hazardous alternative. If not, write down any existing controls which you know are in place	Collective protection includes obvious physical provisions such as: <ul style="list-style-type: none"> <li>• fixed guarding</li> <li>• limited or interlocked access arrangements</li> </ul>

	Action	Information
	<p>already. Usually, there will be a mixture of several types of controls, but the Regulations require collective protection to be implemented so far as is reasonably practicable, before resorting to personal protective equipment</p>	<ul style="list-style-type: none"> <li>• safe systems of work or safe operating procedures (often referred to as local rules)</li> <li>• compliance with University Arrangements Chapters and Guidance (e.g. on display screen equipment) or with specific legislation (e.g. compliance with Pressure Systems Safety Regulations)</li> <li>• compliance with known industry or HSE good or best practice guidance documents (not prevailing or common practices)</li> <li>• routine maintenance or insurance inspections</li> <li>• training</li> <li>• supervision of less experienced persons</li> <li>• use of personal protective equipment (e.g. gloves, goggles, mask, lab coats etc)</li> </ul>
<b>Step 4</b>	<p>Assess the risk with the existing controls in place. i.e. how <b>likely</b> it is that harm will occur and how <b>severe</b> the outcome will be.</p> <p>You should then be able to answer the question – Are the existing controls adequate to prevent the harm occurring or is it reduced to an acceptable level, bearing in mind the risk, the legal obligations and standards of good practice?</p>	<p>The purpose of this stage is to identify shortcomings, prioritise any actions that have to be taken and draw up an action plan with timescales for outstanding work to be completed.</p>
<b>Step 5</b>	<p>Sign and date the risk assessment. If additional work is required, write an action plan and specify who is responsible for carrying out the actions listed and a timescale for their completion.</p>	<p>Typically, risk assessments should be reviewed annually, unless changes render the assessment invalid and prompt a more frequent review.</p> <p>Remember: Review doesn't always mean Re-Do!</p>

	Action	Information
	Finally indicate when the risk assessment should be reviewed.	If a review confirms that no changes are necessary, the risk assessment should be endorsed with this information, the date, and signed by the person carrying out the review. A review should always be carried out following an accident or near miss.

## 6. How do I know I have identified all the hazards?

It is normally unreasonable to expect one person to identify all the hazards associated with a particular workplace activity. The joint involvement of supervisors and staff is crucial, as often each individual is aware of different aspects of the task and its associated hazards. It is important to have an effective system for identifying existing and emerging hazards. Only focus on the hazards which are likely to give rise to significant risks. This may involve:

- Observations from physical inspections of the workplace, equipment and work practices
- Analysis of how activities are performed
- Drawing up or using checklists to act as a prompt
- Referring to example or generic risk assessments
- Discussions with your Safety Advisor or Safety Co-ordinator
- Studying accident/incident/near miss reports
- Reference to specific legislation

## 7. How do I know if the risk is serious or not? How do I rate the risk?

All risk assessments are subjective to some extent but if the steps listed in Question 5 and the table below are followed then this will assist you to decide on the level of risk. Most commonly the risk rating is given as Low, Medium or High.

There is no legal requirement for a numerical assessment of risk (although these are often used and required in certain engineering and structural engineering design and build projects and for certain high risk industries such as off shore oil production).

By using the University's preferred model for risk assessments outlined in this Guidance this should enable all staff to work towards a consistent approach. This model will be

used in STDU training courses and by Safety Services to produce example risk assessments. The University model refers to other rating systems such as a 3 x 3 matrix, which will give numerical assessments of risk ranging from 1 – 9. An example is given in the table below with a suggestion of what the numbers mean in terms of risk control.

Where numerical systems are used it is important that users understand, a) what range of scores is being used, and b) how to use the numbering system. For example whether scores are multiplied or added as this may make a significant difference to the risk rating and controls required.

Please note however that there may be cases where low risks can be further reduced by the introduction of simple additional measures that are not costly and these should be introduced.

OUTCOME	INSIGNIFICANT Minor injury or illness (no absence from work)	MINOR Injury causing short-term incapacity from work or illness causing short term ill health (e.g. up to 3 days off work)	MAJOR Injury causing intermediate incapacity from work or medium term ill health (e.g. more than 3 days off)
PROBABILITY	Score 1	Score 2	Score 3
VIRTUALLY IMPOSSIBLE	LOW RISK Adequate control  Score 1	LOW RISK Adequate control  Score 2	MEDIUM RISK Check controls, consider additional control measures if reasonably practicable  Score 3
POSSIBLE (could happen, perhaps a few times a year)	LOW RISK Adequate control  Score 2	MEDIUM RISK Check controls, consider additional control measures if reasonably practicable  Score 4	HIGH RISK Stop work until controls checked, and additional measures introduced, Produce action plan to address risks. Score 6
LIKELY (likely to happen many times a year)	MEDIUM RISK Check controls, consider additional control measures if reasonably practicable  Score 3	HIGH RISK Stop work until controls checked and additional control measures introduced. Produce Action plan to address risks  Score 6	VERY HIGH RISK Stop work immediately. Seek advice from HSS. Do not proceed until additional control measures introduced,  Score 9

## 8. What should be recorded in the written risk assessment?

The written record should include the significant findings from the assessment process (See Q5 above) and these would usually be

- Any hazards that have been identified
- Who might be harmed and how the harm may occur. List the groups of people and how they may be harmed.
- Details of all the existing control measures in place,
- What the residual level of risk is e.g. low, medium, or high
- The final result i.e. whether the remaining risk is Trivial, Adequately Controlled, Not Adequately Controlled or, as in some cases, Unable to Decide
- Details of any additional control measures identified in the form of an action plan
- Action to be taken if things go wrong e.g. an emergency or if situation left unattended
- Date the assessment was carried out and when a review is required
- Signature of the assessor(s) and, where applicable, person who has checked and validated the findings

### **9. Am I competent to carry out risk assessments? What does 'competent' mean?**

A 'competent person' is someone with the skill, knowledge and practical experience of the work activity and relevant legislative requirements to be able to identify what may cause harm, how the harm might occur and what measures can be taken to remove or reduce the likelihood of harm to an acceptable level.

The competent person need not be an 'expert' but should be aware of their limitations and know when to seek help.

The person may also need training or additional information about e.g. legislative requirements, or the system of recording risk assessments used. Those with responsibility for carrying out risk assessments must receive as a minimum the course offered by the STDU or its equivalent. Any queries about alternative courses should be addressed to your University Safety Co-ordinator or STDU staff.

In some cases, additional specialist training will be required. For example, those working with high power lasers will need to attend the appropriate STDU course. Contact the STDU for details of training courses available.

### **10. When do I need to do a risk assessment?**

Before the activity commences!



**For new tasks/experiments/research:** At the planning stage or when making grant applications consider every step and think about whether you are introducing new hazards or risks into the work activities that will need controlling. You may need to ensure you have sufficient funding available e.g. for waste removal, ppe, specialist equipment.

**Before work commences or when devising protocols and standard operating procedures (SOPs):** use the findings of the risk assessment to develop a safe way of working, and include the control measures in your protocols or SOPs.

**Prior to refurbishment:** in order to consider if specialist equipment is required e.g. fume extraction.

**'On the job'** there will be occasions when it is necessary to do a dynamic risk assessment as the situation changes or develops. E.g. effect of changing weather on an outdoor activity, moving furniture in seminar room. The results from this type of assessment are not recorded immediately but where necessary used to update existing assessment or be formalized in a new assessment.

By completing the assessment before the activity commences you can consider all the identified known or potential risks. Suitable control measures to reduce the risks can be specified and put in place including the selection and provision of the correct type of personal protective equipment (PPE).

## **11. Can I use electronic means of recording my risk assessment?**

Both paper and electronic means of recording your assessments are acceptable. What is important is that they are given, and if necessary explained, to those involved in the work or activity. You should also comply with your local arrangements for keeping central records of what risk assessments have been done. Electronic copies have the advantage of the template being available off the web, that information is easily inserted or altered and that they can be made more readily available to those who may wish to inspect or audit your records.

When an assessment is reviewed and updated, ensure you keep a copy of the original version, don't simply overwrite it as you may need to refer back to it in the future.

## **12. Do I have to use the University's forms? What do I do if the University's forms don't suit my circumstances?**

You don't have to use the University's forms, but if you do you may find that a lot of the foundation work has been already done for you and that the factors to be considered will already be highlighted. You may also find it easier to respond to requests for documents during audit processes.

You are encouraged to use this format but you may need to tailor it to more readily suit your specific requirements and include information that is more appropriate to the task

in hand. You can discuss this with your University Safety Co-ordinator, and with your School or Local Safety Advisor.

It is a fundamental requirement though to include the following (see also Q8):

- The hazards present and their associated risks.
- The significant risks associated with the work / activity.
- Those persons at risk.
- The control measures identified to remove or reduce risk so far as is practicable, (this may include complying with specific Approved Codes of Practice (ACOPs) or other recognised University health & safety arrangements).

### **13. Do I have to transfer all my existing risk assessments onto the new forms?**

Throughout the University there are numerous risk assessment formats and methods of recording the outcome from different methods employed in Schools or from systems brought from former institutions.

This situation will increase the likelihood of confusion and consequently errors and incidents if multiple formats are used by one School to assess and control the risks associated with the same activity, particularly when people move between faculties, schools or groups.

It is preferable for auditing and reviewing purposes that risk assessments are in a similar format, as this will greatly reduce the time taken to undertake the task and increase accuracy. It is recommended that a common format of risk assessment is used in each School.

Where numerous assessments already exist, this transfer may be carried out gradually, following an initial check for duplication of assessments. Where the potential for confusion is identified, these risk assessments must be prioritised for urgent review.

As each assessment is revised and updated, and as new risk assessments are developed, the University's Risk Assessment Form should be used wherever possible. This should be completed within a maximum 2 year time period.

### **14. How can I avoid excessive paperwork for "one-off" or repeated activities?**

In some circumstances it is still necessary to carry out a risk assessment, but it may not always be necessary to write down the findings (See Q10 and the role of 'dynamic' risk assessment).

For example, a "generic" risk assessment should be developed for day-to-day activities, e.g. for routine manual handling tasks, which takes into account typical lifts, the level of training and expertise the individual has, the type of equipment available to them, and

length of time and effort involved, any relevant environmental factors such as lighting, steps, etc.

The outcome of such a risk assessment should allow the person to recognise a situation which is beyond their capabilities, and identify when they need assistance, or when a more detailed assessment of the risks is required.

### **15. How do I use example and generic risk assessments?**

The example risk assessments provided by Safety Services are a starting point for assessing risks associated with tasks or locations common across the University and can form the basis for your assessment in your workplace. They are available at <http://www.healthandsafety.manchester.ac.uk/toolkits/ra/example-ras/>

Generic risk assessments may be used by Schools etc in a similar way as the example risk assessment from Safety Services and can be very helpful for circumstances where the risks are very similar, e.g. where repetitive tasks are under taken on a regular basis, or for a set of offices, or experimental procedures They can also aid the development of more detailed and specific risk assessments.

Remember – when using example or generic risk assessments risks will only be adequately controlled if the actions listed under 'Existing measures to control risk' are actually carried out in your location, or if your existing measures are equivalent to those given, or better. An action plan (See Q16) must be made to address any deficiencies before an assessment can be regarded as suitable and sufficient for your use.

These assessments should never be adopted without thinking of how relevant they are to the exact circumstances under consideration, and should be reviewed regularly to ensure that they are still relevant.

### **16. What is an action plan?**

In the context of risk assessment, an action plan defines what should happen to implement the outstanding control measures you have identified in your risk assessment. It will describe what steps need to be taken, by whom, and within what timescale. The person responsible for the risk assessment will use the plan to monitor progress towards adequate control of the risks. For example, the plan might specify a certain level of supervision and monitoring which the Principal Investigator will need to carry out and record the checks made.

Some action plans will describe a short term programme of work to be carried out before an activity can take place; others may refer to improvements to systems that are basically adequate at the moment, but where there are foreseeable maintenance or upgrades planned over the next few months, or even years.

In a different context, an action plan can refer to emergency situations, and describe a contingency plan, or the actions required to deal with situations such as

- Experiment becomes super critical
- Chemical spillage
- Fire
- Failure of safety controls
- Significant damage to equipment
- Accident / emergency procedures
- List of authorised persons / contact numbers.

When carrying out a risk assessment think about the above scenarios and, where relevant, decide on the action to take and ensure this is included in the risk assessment and any method statements/standard operating procedures.

### **17. How do I decide what controls to use?**

The Regulations require us to consider types of control in a particular order – the “hierarchy of controls”. We must start by looking at controls that eliminate the risk altogether (prevention). If we cannot do this, we move on to consider controls that provide collective protection (e.g. local exhaust ventilation). Only when we have used these options, so far as reasonably practicable, can we move onto controls that protect the individual, such as personal protective equipment.

The general principles are:

- Avoid the risk altogether by elimination or substitution
- Evaluate the risks which cannot be avoided
- Put suitable preventative measures in place to control these risks, starting with collective measures before considering personal protective measures
- Give appropriate instruction and training to staff about the risks and how to control them

### **18. How far do I need to go to control the risks?**

You need to take such steps so that harm from the work will be unlikely, and any specific legal requirements are met (i.e. that the risks are adequately controlled).

You must identify all the risks, prioritize them, then control them, usually so far as is “reasonably practicable”. This means that you have to weigh the costs of controlling the risk against the harm that could result. In other words, where there is a risk of serious injury or death, you need to do more to control that risk than if a minor injury could occur. You may even need to stop the work until you can find a safer way of doing it. This balancing exercise is independent of whether you can afford to control the risks. Otherwise, poorer employers would be able to implement lower standards of protection.

## **19. How do I know if the controls are adequate?**

For some risks, specific regulations prescribe what you need to do (e.g. Display Screen Equipment Regulations). Complying with these (or with the HSE's Approved Codes of Practice) will ensure adequate control of the risks.

In other cases, there are no specific regulations or approved codes of practice to help us define what is adequate. Here, we have to consider things like industry good or best practice (this is not necessarily the same as standard or customary practices!). Many industry bodies publish health and safety guidance.

For more assistance, contact your School Safety Advisor, University Safety Co-ordinator or Safety Services.

## **20. How do I make sure the controls are implemented?**

This can be done in many ways. The diligence and formality will be governed somewhat by the degree of risk. These "checks" could take the form of any or all of the following:

- Regular reviews and examination that the identified control measures are being adhered to and that the risk is actually being reduced.
- Use of "permits to work" for high risk work/activities.
- Regular inspection and monitoring of the work/activity by those responsible for supervising the task.
- Individuals being given a copy of the risk assessments.
- Talks or training sessions/research group meetings.
- Suitable and sufficient training to equip staff and students to undertake work activities safely.
- Use of standard operating procedures or of checklists before work commences.
- Use of authorised persons (to either sign off a work method or to be present when work is undertaken).
- Suitable degree of supervision
- Spot-checks of the activity.
- Investigation of the causes of accidents or incidents and reports of "near misses"
- Environmental monitoring e.g. in accordance with a Method for the Determination of Hazardous Substances. This is done in higher risk situations, e.g. for removal of asbestos

## **21. What if I can't afford to implement the controls I think are necessary?**

Ideally, you should plan your work in advance, and budget for any costs associated with ensuring you can work safely. This includes planning for any health and safety costs of

research projects.

If your risk assessment concludes that you need to spend money or resources on something you have not anticipated, you may need to consider a range of options:

- are there different ways of controlling the risk (remember that it is a duty to eliminate hazards where this is reasonably practicable, so think again about redesigning the work completely)
- can you make use of or borrow someone else's equipment which already has controls in place?
- what funding is available?

However, if these options are ruled out, then the work cannot proceed until the controls are properly resourced and implemented.

## **22. What do I do if the risk assessment shows that health surveillance might be necessary?**

Health surveillance is a legal requirement in certain circumstances. Individuals identified as needing health surveillance must contact Occupational Health, who will advise, assist and keep records.

## **23. What do I do if the controls have to be implemented by others outside my influence?**

Where two or more schools or employers share a workplace, it is a requirement under health and safety law that each party must co-operate with the other(s). All managers (including non-university personnel where necessary) must be informed of any risks to their employees arising out of the undertakings of the other party and the agreement recorded. Control measures that involve others should be co-ordinated to best effect.

To deal with such situations: -

- Identify the problem and the actions required to control the risks.
- If the risks have been created by those outside your influence then make sure the other party has considered what control measures are necessary to protect your staff and students
- Meet to discuss how to implement the control measures
- Work should not start until the agreed control measures are in place.

## **24. What should be done with a completed risk assessment?**

You need to make sure everyone who could be affected by the risk is informed about the risk assessment, understands the control measures, and what they need to do to make sure the controls work effectively. You can do this, for example, by providing them with

copies, talking it through in a team meeting or tutorials, observing practices and checking that these are consistent with the risk assessment.

Copies of the completed risk assessment need to be lodged in the school risk assessment register, and kept safely until 5 years after the work has been completed (see Q 26)

### **25. How do I tell people about the risk assessment? Who needs to know?**

It depends on the circumstances. In the simplest of cases, information can be given by word of mouth. More usually, it will need to be written down, and copies made available. Frequently risk assessments will lead to the production of written 'safe systems of work' e.g. standard operating procedures, method statements etc. These must be readily available to people engaged in the work.

You need to tell anyone who may be affected by the risk(s). This includes staff and students, but might also include people like cleaners, estates staff or contractors or carry out maintenance work, etc. This is also particularly true for large, open-plan laboratory areas or in multidisciplinary environments (e.g. Research Institutes) where the occupants may be unfamiliar with the work being undertaken and the associated hazards and risks.

### **26. How long do I need to keep a risk assessment?**

Most risk assessments should be kept (and kept under review) for as long as they are relevant and relate to a work activity, and then for an additional 5 years. The reason for this is that claims for accidental injury at work can be lodged for up to 3 years after the injury or effect is diagnosed, which may take some time after the work activity has ceased. Solicitors acting for the injured person and the University will wish to see evidence that the risks were adequately assessed and controlled.

Any assessments involving chemicals that could cause adverse health effects should be kept for 40 years in accordance with the COSHH Regulations.

Assessments for work with genetically modified materials should be kept for 10 years. See the University's [Record Retention Schedule](#) for further details.

### **27. When do I need to review my risk assessments?**

Risk assessment is not a "one-off" exercise but an ongoing process. It is a legal requirement that all risk assessments be reviewed and, if necessary, modified in the light of changes which take place.

It is good practice to review all risk assessments once a year (or perhaps once every 2 years, in low risk situations such as in many administrative areas) whether or not you are aware of significant changes.

However, they should also be reviewed in the light of:

- an adverse incident (e.g. accident, near miss, ill health, dangerous occurrence, discovery of a defect)
- a change in the legislation or known good practice
- as the appreciation of hazards and their associated risk develops
- proposed changes to experimental procedures or conditions (e.g. new method, new equipment)
- publication of information about changing risks (e.g. knowledge that a particular substance has been designated a carcinogen)
- developments suggest it is no longer valid or can be improved
- change in personnel: to reflect any change in risk due to the age, experience, sex, disability, susceptibility, physical characteristics of the people working with the risk.
- as a result of health surveillance information
- monitoring of health and safety arrangements

Risk assessments and the controls applied to the risks must remain relevant to the actual activities taking place, not those assessed many years ago!

## **28. Why do I need to keep a register of risk assessments?**

The University's arrangements [Chapter 9 on risk assessment](#) places a responsibility on Heads of Schools and their equivalents to establish and maintain a register of all risk assessments. This applies particularly to risk assessments for activities which do not change daily e.g. manual handling, work at height, use of particular types of equipment etc.

It is recognised that maintaining a register of all risk assessments may be impractical for some activities in certain areas e.g. Chemistry and Pharmacy, where Chemical Risk Assessments are undertaken on a daily basis. Under these circumstances it will be acceptable for these documents to be archived locally in a form which is readily accessible.

The benefits associated with maintaining a register include:

- consistency of risk control throughout the School/Directorate through maintaining a library of generic risk assessments
- undertaking generic risk assessments which may be co-ordinated and shared between individuals, thus reducing an individual's workload
- it avoids the duplication of effort
- helpful in managing the review process
- it is used to facilitate efficient monitoring and audit work, and help to establish whether risk assessments have been carried out comprehensively across all school activities.



### **29. What do I need to do if the risk assessment is for a young person?**

The University currently follows the HSE's guidance on this topic and this information is at <http://www.hse.gov.uk/youngpeople/index.htm>

### **30. How should I review my risk assessments if I find out that someone is pregnant, or that they are new mothers or breast-feeding?**

If a member of staff advises you that they are pregnant, are a new mother or are breast-feeding then all the risk assessments relating to their daily work must be reviewed. Where it is found that there is a risk to the mother or child any changes identified need to be recorded in a revised assessment for that person.

In some instances, you will need to change control measures or working arrangements to protect the mother and child. The assessment should take into account any medical advice received regarding the health of the employee.

Issues that should be considered include:

- Physical risks including movement, posture, confined spaces, manual handling, shocks and vibration, noise, ionising radiation and non-ionising radiation
- Biological and chemical agents
- Working conditions, facilities, working hours, mental and physical fatigue, stress, smoking, temperature, display screen equipment, lone working, working at height, travel, personal protective equipment.

Further guidance can be found in the University's Guidance for New and Expectant Mothers at Work or on the HSE website at <http://www.hse.gov.uk/mothers>

### **31. How do I do a risk assessment for a research proposal?**

Research work is not, and never has been, exempt from health and safety legislation. However, the characteristics of laboratory or practical research work inevitably mean that risk assessments and risk control measures may differ in form from those appropriate in other work situations such as a full scale production / manufacturing unit.

The difficulties usually lie in the extent to which there are unknown or new risks, the relative short-term duration of work, and the need for researchers to characterise aspects of a process which may bring them into closer contact with hazards. Whilst these difficulties undoubtedly exist, the basic principles remain the same – suitable and sufficient risk assessment must be carried out by competent persons, records must be kept, information, instruction, training and supervision must all be provided.

The purpose of a preliminary risk assessment in these circumstances is to:

- identify high risk areas so that safer ways of carrying out the work can be designed in, if possible

- identify areas where the proposer has insufficient expertise or experience to assess the risks or carry out the work, and where s/he will need to engage competent assistance from elsewhere, either within the University or through external consultancy. This is particularly important for multi- and inter-disciplinary work, or work which is beyond the normal range of research carried out by the school or centre
- identify equipment which has to be procured (whether new or second hand) and what health and safety implications there are in procuring it
- identify expenditure or other resources required to carry out the research in accordance with any health and safety legal requirements
- identify other stages in the research programme where more information will be available on which to base a more detailed assessment
- identify expenditure associated with the safe disposal of materials, contaminated equipment or samples

During the lifetime of a technically complex research programme, it will usually be necessary to review and adjust risk assessments on several occasions. The following schematic representation indicates appropriate stages.

## Risk assessment during a research programme.

Actions by researcher (Principal Investigator, Research Supervisor)	<b>Lifetime of programme</b>	Actions by School (Head of School)	Actions by the University
<p>Preliminary risk assessment to identify major items of expenditure.</p> <p>Detailed risk assessments, with research team, technical support, SSA (external expertise if required)</p> <p>Risk assessment reviewed in light of:</p> <ul style="list-style-type: none"> <li>- experience</li> <li>- significant changes to rig / personnel, etc</li> <li>- advice from safety advisers</li> <li>- new legislation</li> <li>- accident or near misses</li> <li>- annually</li> </ul> <p>If research to be continued, risk assessment reviewed to build into future programmes</p>	<p><b>Germ of idea</b></p> <p style="text-align: center;">↓</p> <p><b>Project proposal</b></p> <p style="text-align: center;">↓</p> <p><b>Applications for financial support</b></p> <p style="text-align: center;">↓</p> <p><b>Research set up and carried out .....</b></p> <p style="text-align: center;">↓</p> <p><b>.....research</b></p> <p style="text-align: center;">↓</p> <p><b>Write up</b></p> <p style="text-align: center;">↓</p> <p><b>Proposal to extend/continue</b></p>	<p>HOS signs/supports proposal and applications for funding, with appropriate risk assessment available.</p> <p>Throughout programme, routine monitoring and inspections by School Safety Advisors, Safety Representatives, members of School safety committee and managers – to include checks that risk assessments have been done, remain valid and control measures implemented (in accordance with departmental procedures, and at least annually)</p>	<p>Papers proceed to Research Committee, with indication that risk assessment carried out and available on request.</p> <p>Throughout programme, audits by Safety Services on departmental arrangements (in accordance with University policy on auditing, and risk).</p>

### Preliminary risk assessment for research work

The following section is for researchers who are in the early stages of putting proposals together, and who need to consider whether health and safety legislation requires the

purchase of major items of equipment, or will entail the commitment of other expenditure or resource. It is not intended to cover the wide range of “day-to-day” hazards that would be addressed through laboratory, workshop and workplace risk assessments.

In all cases, the research funding application form, which is signed by the Head of School, should include a tick box to confirm that a preliminary health and safety risk assessment has been carried out.

**Funding applications for high risk work** - generally, where research involves the “high risk” indicators in Column 3 of the following table, consideration of health and safety issues will be necessary at the earliest possible stage, to ensure that the funding application covers the cost of compliance with all relevant legislation and University policies. The preliminary risk assessment should be prepared by the proposer, and counter-signed by a person competent in the area of risk. This might be the SSA, Biological Safety Officer, School Laser Supervisor, Radiation Protection Supervisor, a senior academic with experience in this area, or indeed, more than one such person. It must be provided to the Head of School before he/she signs the documentation.

**Funding applications for lower risk work, or for repeat applications** - it will normally be possible to submit the applications to the Head of School without copies of risk assessment documentation, but with an indication that the preliminary risk assessment has not identified any issues which cannot be dealt within existing departmental procedures, (or that a risk assessment has been submitted on a previous occasion).

**Research carried out without external funding** (e.g. through post graduate studies) - risk assessment is an essential part of the process, and should be fully integrated into routine school procedures.

Please note: the following table is an attempt to indicate relevant legislation and likely implications. It is only intended to indicate areas where there are high capital costs or other resource implications in complying with the legislation. *It is not exhaustive*; all hazards are covered by the general duties in the Health & Safety at Work etc Act 1974 and the Management of Health and Safety at Work Regulations 1999, but in some cases, there are additional, specific regulations or University policies and arrangements.

In all cases, researchers will need to ensure that they have the means to control the risks adequately, ie as far as reasonably practicable, and in accordance with specific legal requirements where these exist. They will also need to ensure that they are competent, or that they engage competent assistance, to assess the risks. This may involve discussion with experts from other schools (especially for inter-disciplinary work), or with external consultants.

The high risk indicators will be reviewed from time to time, to ensure that they remain relevant and up-to-date.

<b>Hazard</b>	<b>Specific legislation or University Chapter</b>	<b>High risk indicators</b>	<b>Likely cost/resource implications</b>
Biohazards	Control of Substances Hazardous to Health Regulations 2002 (COSHH) and Approved Codes of Practice (ACOP)  University Arrangements <a href="#">Chapter 3</a>	Containment Level 2, 3 or 4 (as defined by the HSE's Advisory Committee on Dangerous Pathogens).	Need to classify containment level; no facilities at University for CL 4 work. Access to biological safety cabinet of appropriate specification. If chemical hazard as well, fume cupboard access. Local autoclave for contaminated waste (preferably in same lab).
Biohazards - genetically modified organisms	Genetically Modified Organisms (Contained Use) Regulations 2000  University Arrangements <a href="#">Chapter 3</a>	CL 2, 3 or 4	Submission of project risk assessment (includes containment level assessment) and environmental risk assessment to University GM & Biohazards Safety Advisory Group which meets 2-3 times per year.  Submission of work for CL2 and above to HSE (fee and time delay).  Provision of containment requirements, including biological

Hazard	Specific legislation or University Chapter	High risk indicators	Likely cost/resource implications
			<p>safety cabinet, disinfection and testing procedures, etc.</p> <p>Disposal of waste or contaminated material.</p>
Chemicals	<p>COSHH &amp; ACOP</p> <p>Dangerous Substances and Explosive Atmospheres Regs 2002 (DSEAR) &amp; ACOP</p> <p>University Guidance documents and <a href="#">chemicals toolkit</a></p> <p>(Occasionally, specific legislation may apply, e.g. for lead, researching ozone depleters, or the environmental effects of polychlorinated biphenyls.)</p> <p>Complex legislation on transport of hazardous chemicals</p>	<p>Chemicals classified as : Very toxic or toxic (which includes categories 1 &amp; 2 carcinogenic, mutagenic and toxic to reproduction)</p> <p>Explosive, extremely or highly flammable</p> <p>Sensitising</p>	<p>Consider safer alternatives first.</p> <p>Access to fume cupboard with appropriate containment performance, or other local exhaust ventilation.</p> <p>Consider safety of electrical installation in presence of flammable substances.</p> <p>Some may require monitoring and/or health surveillance programmes (the presumption is for health surveillance if using carcinogenic material unless risk is eliminated or insignificant).</p> <p>Personal protective equipment.</p> <p>Disposal costs</p>
Dusts and Fumes in	COSHH & ACOP	Explosive Atmospheres	Consider safer alternatives first.

Hazard	Specific legislation or University Chapter	High risk indicators	Likely cost/resource implications
Workshops	DSEAR & ACOP  University Guidance documents and <a href="#">chemicals toolkit</a>	from wood dusts, flour, other finely divided organic dusts.  Carcinogenic wood dust	Access to local exhaust ventilation.  Some may require monitoring and/or health surveillance programmes (the presumption is for health surveillance if using carcinogenic material unless risk of exposure is eliminated or insignificant). Personal protective equipment.  Disposal costs
High power lasers	University arrangements chapters 4, 26& 27, and <a href="#">Radiation Safety Unit webpages</a> .	Class 3B and 4 lasers (outputs over 0.5 mW), pulsed lasers, invisible laser radiation	Total enclosure of the beam required; if not practicable, a case will need to be made to the Radiation Protection Advisory Group.  Training of users.  If lasers are new to School, appointment and training of School Laser Safety Advisor
Load bearing structures, construction and demolition	Construction, (Design and Management) Regs 1994 (Planning permission?)  University Arrangements <a href="#">Chapter 29</a> on Construction,	Design and build of all load bearing structures	Design calculations and building techniques must be validated by a competent person

Hazard	Specific legislation or University Chapter	High risk indicators	Likely cost/resource implications
	<p>and <a href="#">Chapter 23</a> on the Interface between Building Occupiers and Estates &amp; Facilities</p> <p>Safety Services toolkit on <a href="#">Welding</a></p>		
Work with nanomaterials	<p>COSHH and General duties apply; HSE guidance advocates a precautionary approach.</p> <p>University Arrangements <a href="#">Chapter 28</a></p> <p>Guidance for researchers at <a href="http://www.safenano.org/uk-nanosafety-group/">http://www.safenano.org/uk-nanosafety-group/</a></p>	<p>Limited knowledge on health effects.</p> <p>Public concern</p>	<p>Costs associated with complying with Chapter 28 (variable, depending on physical form, etc).</p>
Pressure systems	<p>Pressure Systems Safety Regulations 2000 University</p> <p>Safety Services toolkit on <a href="#">Pressure Systems</a></p>	<p>Design and build of all pressure systems</p>	<p>Vessels and system must be designed, constructed, tested by competent person (with no exceptions). Specific requirements for safety devices. Insurance company inspections for vessels over 250 bar litres.</p>
Radiation	<p>Ionising Radiation Regulations 1999</p> <p>Strict controls over disposal of wastes</p> <p>Non-ionising radiation subject to general legislation</p> <p>See <a href="#">Radiation Safety Unit</a></p>	<p>All work with sealed and unsealed sources; x rays, emf, uv or ir radiation</p>	<p>For sources of ionising radiation, detailed specific requirements. Need to consult Radiation Protection Supervisor or University's Radiation Protection Officers and to comply with holding</p>



Hazard	Specific legislation or University Chapter	High risk indicators	Likely cost/resource implications
	<a href="#">website.</a>		<p>licence conditions.</p> <p>In some cases, precautions specified by HSE for “ prior authorisations” for X-ray machines and accelerators.</p> <p>For non-ionising radiation, need to consider engineering control measures before resorting to administrative controls or personal protective equipment</p>

**32. What can I do if I suspect someone’s work is being affected by alcohol, and there are associated health and safety risks?**

Line managers are responsible for ensuring risk assessments are carried out for work under their control. Any risk assessment must address the issue of whether those doing the work are competent to carry out the work safely and without risk to themselves or others.

This part of a risk assessment normally considers factors such as training, experience, extent of supervision, whether there is any uncertainty about the work, and so on. It should also take into account an individual’s aptitude and attitude – for example, case law tells us that employers can be held liable for injuries caused by practical jokers whose persistent and uncontrolled activities are known to managers. Similarly, when developing their risk assessments, managers need to take into account the effects of staff consuming alcohol - to the extent that it is reasonably practicable to do so, and in accordance with other policies at <http://www.staffnet.manchester.ac.uk/human-resources/atoz/>

For example, it would be reasonable for risk assessments for the following activities to state that employees should not drink during the working day when:

- using dangerous machinery or equipment (e.g. gravity food slicers, knives, machine tools)

- working with hazardous chemicals where spillages could be highly dangerous by virtue of their toxicity, flammability, carcinogenicity, etc.
- working in locations or environments where an unimpaired sense of balance is essential (ladders, work on roofs, working at height),

(This list is for illustration, and should not be construed as exhaustive.) If a manager suspects that an employee is drinking, or is under the influence of alcohol, they should refer to the HR policy on Alcohol.

The Health & Safety Executive publish free on-line guidance on the health & safety implications of alcohol at <http://www.hse.gov.uk/pubns/indg240.htm>

This includes the statement :

“You have a general duty under the Health and Safety at Work etc Act 1974 to ensure, as far as is reasonably practicable, the health, safety and welfare of your employees. If you knowingly allow an employee under the influence of excess alcohol to continue working and this places the employee or others at risk, you could be prosecuted. Similarly, your employees are also required to take reasonable care of themselves and others who could be affected by what they do.”

<b>Document control box</b>	
Title	Risk Assessment – frequently asked questions
Link to Policy or Chapter	University Health & Safety Arrangements <a href="#">Chapter 9</a>
Date issued:	April 2017
Issued by:	Safety Services
Implementation date:	April 2017
Version:	v1.0 November 2004 v1.1 September 2006 v1.2 April 2009 v1.3 Mar 2010 Question 30 updated v 1.4 January 2015 Reformatted. Updated table in Qu 31, and addition of line on nanomaterials. V1.5 April 2017 – personnel update & HR link updated
Next review date:	Upon significant change.
Owner of this document:	Head of Safety Services, Dr Patrick Seechurn
Lead contact:	Catherine Davidge