NEBOSH International General Certificate

UNIT IGC1

MANAGEMENT OF INTERNATIONAL HEALTH & SAFETY

ELEMENT 4: HEALTH AND SAFETY MANAGEMENT SYSTEMS 3 - PLANNING

SAMPLE MATERIAL

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RRC
27-37 St George's Road London SW19 4DS United Kingdom
T +44 (0)20 8944 3100 F +44 (0)20 8944 7099
info@rrc.co.uk www.rrc.co.uk Skype ID rrctraining

Principles and Practice of Risk Assessment

Key Information

- Risk assessment is the formalised process of identifying hazards, evaluating risk and then either eliminating or controlling that risk to an acceptable level.
- A hazard is something with the potential to cause harm.
- Risk is the likelihood that a hazard will cause harm in combination with the severity of injury, damage or loss that might foreseeably occur.
- The main objective of risk assessment is the prevention of accidents and ill-health.
- There are five steps to risk assessment:
  1. Identify the hazards.
  2. Identify the people who might be harmed and how.
  3. Evaluate the risk and decide on precautions.
  4. Record the significant findings and implement them.
  5. Review and update as necessary.
- Hazards can be identified using various methods such as task analysis, legislation, manufacturers' information and incident data.
- Workers, contractors, visitors and members of the public must all be considered in the risk assessment process.
- Risk can be scored or rated using a simple Risk = Likelihood x Severity calculation where likelihood and severity are allocated numbers on a scale.
- If the risk is unacceptable then controls must be introduced to either eliminate hazards or create a safe place or a safe person. Any residual risk must be acceptable.
- Legal standards can often be used to indicate what level of risk is acceptable.
- Assessments must be reviewed on significant change, after an incident and perhaps periodically.
- Sometimes it is necessary to focus risk assessment on a vulnerable person or group of workers such as young persons, expectant women and nursing mothers, disabled workers and lone workers.

Legal Requirements

ILO Convention C155, Article 16, imposes a duty to ensure that a workplace is, so far as is reasonably practicable, without risk to employees. This has long been accepted to imply the need for risk assessment, as the concept of "reasonable practicability" requires the evaluation of the cost (in time, effort and money) versus the risk of harm. We will consider the meaning of the term "risk" in the next section.

Important Definitions

Jargon Buster

Hazard

Something with the potential to cause harm.

Hazards can be broadly classified as physical (e.g. electricity), chemical (e.g. mercury), biological (e.g. hepatitis), ergonomic (e.g. very repetitive handling) and psychological (e.g. stress).

Note that a hazard is the "something" that causes the harm. If an office worker receives an electric shock from an item of electrical equipment that has a damaged flex, then electricity is the hazard, not the damaged flex. It is electricity that causes the harm; the damaged flex is the failure in the controls or preventive measures. If the flex were not damaged then the hazard would still be present (electricity is still running through the equipment) but it would be properly controlled and the electric shock would not occur.

Jargon Buster

Risk

The likelihood that a hazard will cause harm in combination with the severity of injury, damage or loss that might foreseeably occur.

Risk can be described qualitatively using words such as "high", "medium" or "low". There will always be a degree of subjectivity to this qualitative description since the words represent one person's opinion of the risk level. Different individuals have very different personality characteristics and so two people may disagree on the level of risk inherent in a hazard.

Risk can also be defined quantitatively using probabilities and/or frequencies that have been derived from hard data. This type of quantified risk assessment is far more rigorous than qualitative risk assessment and is beyond the scope of this course.

Jargon Buster

Risk assessment

A formalised process of identifying hazards, assessing the risk that they generate and then either eliminating or controlling the risk.

Risk assessment is a process that people do automatically all the time. When you cross the road you carry out a risk assessment; when you drive a car you carry out a risk assessment; when you boil a kettle you carry out a risk assessment. But, of course, this assessment is normally done very quickly and without conscious thought or effort. If you are not very good at this process then you will not live long.

There are occasions in normal life, however, when you might become more aware that you are assessing risks. If you look after very young children you will consciously think about the particular hazards that present a risk to a child. If you start to take part in certain sports or activities such as rock climbing or scuba diving, you will start to assess risks in your conscious mind rather than doing it automatically.

A workplace risk assessment is simply an extension of this automatic self-preservation mechanism.

Objectives of Risk Assessment

The aim of risk assessment is to ensure that hazards are eliminated or risks minimised by the correct application of relevant standards.

The objectives of risk assessment are to prevent:

- Death and personal injury.
- Other types of loss incident.
- The occurrence of breaches of statute law which might lead to enforcement action and/or prosecution.
- The direct and indirect costs that follow on from accidents.

These objectives relate directly to the moral, legal and economic arguments we discussed in Element 1.

Different Types of Incident

A failure to adequately assess risk in the workplace will lead to incidents, which can be categorised into various different types depending on outcome:

- **Accident** – An unplanned, unwanted event which leads to injury, damage or loss. An accident is unplanned. Any deliberate attempt to cause injury or loss is therefore not an accident.
- **Injury accident** – an unplanned, unwanted event which leads to personal injury of some sort, e.g. a worker on the ground is struck on the head and killed by a brick dropped by another worker on a 5 m high scaffold.
- **Damage only accident** – an unplanned, unwanted event which leads to damage to equipment or property, e.g. a lorry driver misjudges the turning circle of his vehicle and knocks over a barrier at the edge of a site entrance, crushing the barrier beyond repair.
- **Near miss** – an unplanned, unwanted event that had the potential to lead to injury, damage or loss (but did not, in fact, do so), e.g. a worker drops a spanner from a scaffold narrowly missing a pedestrian, but no injury or harm was caused.

- **Dangerous occurrence** – a specified event that has to be reported to the relevant authority by statute law.
- **Ill-health incident** – an unplanned, unwanted event which leads to ill-health of some sort.

Accident Ratios

Accident ratios (often referred to as accident triangles) display the relationship between numbers of accidents with different outcomes. Research shows that this relationship forms a triangle, with the most serious outcomes being the least numerous (at the top) and those with proportionally higher numbers but less serious results forming the base. There are a number of different triangles used to display these relationships; one proposed by Bird is given in the figure below.

Frank Bird Accident Triangle

The important message of the accident triangle is that serious outcome accidents tend to happen rarely and randomly. They are notoriously difficult to predict (if they were not, it would be easy to prevent them from happening). Near misses/incidents, on the other hand, happen far more frequently (600 times more frequently according to Bird). Many near misses will be minor events of little or no consequence; if they happen again there would be no serious outcome. But some near misses will have the potential for very serious injury. These near misses should be thoroughly investigated and preventive measures put in place. In this way a serious outcome incident is prevented. You can also see that as near-miss events form the bottom of the triangle they form the greatest proportion of incidents – by taking action to understand this large body of data deficiencies in the safety management system can be identified and more serious outcomes prevented.

Note that accident ratio studies are based on statistical ratios. They cannot be used to predict exactly when a certain type of event might occur. For example, just because an organisation has had 600 near misses/ incidents reported does not mean that the very next type of event will be a serious injury accident. That is an over-simplification of the accident triangle.

The Risk Assessors

Risk assessments should be carried out by competent people. In this context the word "competent" would mean people who have sufficient training, knowledge, experience and other abilities. The exact training, knowledge and experience required will vary depending on circumstances. In some instances simply the ability to identify, read and correctly interpret guidance on a topic is sufficient. In others, a detailed understanding of background knowledge is essential to be able to correctly evaluate risk.

A risk assessment might be carried out by one person. This is not ideal in many instances since it relies on one person's opinion and judgment. Ideally, risk assessment will be carried out by a team. This allows for various views and opinions to be taken into account and so may result in a more successful assessment. The composition of a risk assessment team is not dictated, but might include:

- Workers familiar with the tasks and areas to be assessed.
- Health and safety specialists, such as safety practitioners and occupational health nurses.
- Technical specialists, such as mechanical and electrical engineers.
- Line managers responsible for the tasks or areas being assessed.
- Worker safety representatives.

The size and composition of the team will vary depending on the nature of the workplace and the complexity of the risk assessment process being used. Note that it is not necessary for all members of the team to be competent in the risk assessment process, simply for some or one of the team members to be a competent person. The involvement of non-competent persons is useful for a number of reasons:

- Those team members may identify hazards and risks that might otherwise be missed (two pairs of eyes are better than one).
- They may ask questions and propose solutions that might otherwise not be considered.
- It allows experience to be safely gained in the practice of risk assessment.
- It facilitates employee awareness, involvement and consultation and so enhances the safety culture.

Criteria For a Suitable and Sufficient Assessment

A risk assessment should be "suitable and sufficient". In other words, it should be good enough to fulfil legal requirements and prevent foreseeable injuries and ill-health from happening. In particular it should:

- State the name and competence of the assessor (and any additional specialist help obtained in carrying out the assessment).
- Identify the significant hazards and risks arising out of or connected with the work, i.e. those which are most likely to occur and result in harm being caused, with any remaining risks being at an acceptable low level.
- Identify all those persons who could be at risk, including workers and others such as visitors. Vulnerable people such as young persons should also be identified.
- Evaluate the effectiveness of current controls.
- Identify other protective measures that are required to control the risk to an acceptable level.
- Enable the employer to identify and prioritise the measures that must be taken to protect people from harm, including complying with any relevant legal provisions.
- Record the significant findings of the risk assessment.
- Be appropriate to the nature of the work and remain proportionate to the risks.
- State the period of time for which it is likely to remain valid.

In other words, the assessment should be proportionate to the risks in the workplace.

- A low risk workplace with a few straightforward, often predictable hazards (e.g. a retail shop) should have a relatively simple risk assessment carried out by a competent person (perhaps the manager) by reference to some basic guidance documents.
- A high risk workplace (e.g. a chemical works) should have a far more complex risk assessment carried out by competent persons (PhD industrial chemists, etc.) using detailed, complex reference material.

The first assessment might take a few hours to complete; the second might take weeks.

Carrying Out a Risk Assessment

Topic Focus

Risk assessment can be described as a five step process:

1. Identify the hazards.
2. Identify the people who might be harmed and how.
3. Evaluate the risk and decide on precautions.
4. Record the significant findings and implement them.
5. Review and update as necessary.

Identifying Hazards

The first step in the risk assessment process is to identify all the significant hazards associated with the work. Hazards are the things with the potential to cause harm. It is important to identify both the **safety hazards** that might give rise to immediate physical injury (such as moving parts of machinery, vehicles and potholes in a pedestrian walkway), and the **health hazards** that might cause disease or ill-health (such as asbestos, loud noise and repetitive handling). The hazard identification might be done by task analysis, reference to guidance or manufacturers' information or by inspection of the workplace.

Remember that a risk assessment is a tool for identifying all the significant hazards that exist in a workplace – all the things that have the potential to cause harm. It is not a tool for only identifying those hazards that are poorly controlled. So, for example, in a new office with modern computer screens and keyboards where someone has left a pile of boxes in front of a fire exit door the hazards are electricity, DSE, fire and poor housekeeping. Not just the pile of boxes in front of the fire exit door, because that would ignore all the other hazards that exist in the office. In an office you are arguably at far greater risk from death by electric shock than death by boxes left in front of a fire exit door. The first assessment takes the electrical hazard into account, the second ignores it and therefore fails.

Hazard Identification Methods

There are various methods that might be used to identify hazards in a workplace as part of a risk assessment process:

- **Inspections**

  A formal inspection can reveal the various hazards that are present and that need to be considered in the risk assessment. One problem with this method is that it is being carried out in an existing workplace and so any identified hazards already exist. This is contrary to the general principle of safety management, which is that the hazard should not be introduced until after the risk assessment has been carried out and the controls put in place.

- **Task Analysis**

  This is a useful method for identifying hazards, since it allows hazards to be spotted before work starts, rather than after the work has started. Task analysis involves breaking a job down into component steps and identifying the hazards associated with each step, so that the safe working method can then be established to deal with each hazard. This can be done before work starts as part of the planning process, and is how Safe Systems of Work (SSWs) are developed.

Topic Focus

There is a useful acronym for task analysis -

SREDIM:

- **S**elect the task.
- **R**ecord the steps or stages of the task.
- **E**valuate the risks associated with each step.
- **D**evelop the safe working method.
- **I**mplement the safe working method.
- **M**onitor to ensure it is effective.

- **Legislation**

  Knowledge of the legal standards that apply to a particular workplace is an important aid to identifying any significant hazards that need to be identified. For example, knowledge of the law relating to work at height will allow a competent assessor to identify what work might fall within the definition of work at height and what could be ignored. Legislation is often accompanied by guidance documents which can be very useful in the identification of hazards. For example, in the UK guidance documents exist

to spell out all the hazards that exist in engineering workshops.

- **Manufacturers' Information**

  When a new item of plant, machinery or equipment is purchased it usually comes with an instruction book that contains information about all the related hazards and instructions for safe use, cleaning and maintenance. Similarly, when a new substance is purchased it comes with labels and a Material Safety Data Sheet (MSDS) that clearly identifies the hazards of the substance.

- **Incident Data**

  Internal accident and near miss data can be useful in identifying hazards. The main limitation here is that a hazard may be very significant but may not yet have caused harm in the organisation and may therefore go unnoticed. External data, such as national statistics published by the authorities, can be more useful since it identifies the real hazards and risks based on a much larger population size.

Identifying the Population at Risk

When identifying people at risk, think not only of those carrying out particular activities, but also of those who may be affected by those activities. Individuals do not need to be named; rather general groups or populations identified.

- **Workers/operators** - may be directly involved with the activity, working nearby or passing by. Some hazards create risk only for the employee carrying out the work (e.g. a worker up a ladder is at risk from falling) whilst others create general risk for all employees (e.g. a vehicle traffic route that all employees may have to cross in order to reach a staff car park).
- **Maintenance staff** – are often involved in the removal of the usual safeguards present in the workplace because of the nature of maintenance work (e.g. the lift engineer who has to climb onto the top of a lift carriage in the lift shaft, or the engineer who has to remove machine guards to repair a breakdown). If the normal safeguards are being removed or bypassed then risk to these workers increases and other methods have to be found to control this risk.
- **Cleaners** – may be exposed to greater risk because cleaning work may involve the removal of safeguards or additional activities that create additional risk (e.g. window cleaning from an access cradle). Many cleaners also work alone, outside normal working hours, and therefore lone working becomes an issue.
- **Contractors** – may be carrying out work independent of the work being carried out by employees or may be working alongside employees. The workplace creates risks for these contractors and the contractors create risks for the workplace. All these risks have to be considered through the risk assessment process.
- **Visitors** – to the workplace may not be working but are still exposed to certain types of risk (e.g. fire).
- **Members of the public** – may simply be in the vicinity of the workplace, yet still affected by certain types of hazard. For example, a release of toxic chlorine gas from an industrial site will affect passers by and those who live near the site. In some instances trespassers (uninvited visitors) may get on to the site. This is particularly important with regard to the possibility of children coming onto the premises (e.g. playing on building sites or near railway lines).

In certain instances identifying general groups of people who might be harmed by hazards is inadequate and a more specific focus has to be applied to a particular person or type of person who is more vulnerable for one reason or another. Young people, new and expectant mothers, disabled workers and lone workers all present these special cases (see later in this element).

Evaluating the Risk and Adequacy of Current Controls

Having identified a particular hazard and the people who might be harmed by it the next step in the risk assessment process is to answer a simple question: Is the level of risk generated by the hazard acceptable or does it need to be reduced?

The question may be simple, but the answer can at times be complex.

Risk is a combination of the likelihood that a hazard will cause harm in combination with the foreseeable severity of injury should harm occur.

Risk can be qualitatively described using words such as "very high", "high", "medium", "low" or "insignificant". The problem with these or similar words is that they are opinion-based and it may therefore be difficult to achieve consistent outcomes from their use.

An alternative approach that is commonly adopted is to break risk down into its two component parts and define each separately:

Risk = Likelihood × Severity.

Then by the simple substitution of a word for a score it is possible to calculate a risk rating for a particular hazard.

For example:

Likelihood	Severity
1 = extremely unlikely	1 = very minor injury
2 = unlikely	2 = first aid injury
3 = possible	3 = lost time injury
4 = likely	4 = hospital treatment
5 = very probable	5 = disabling injury

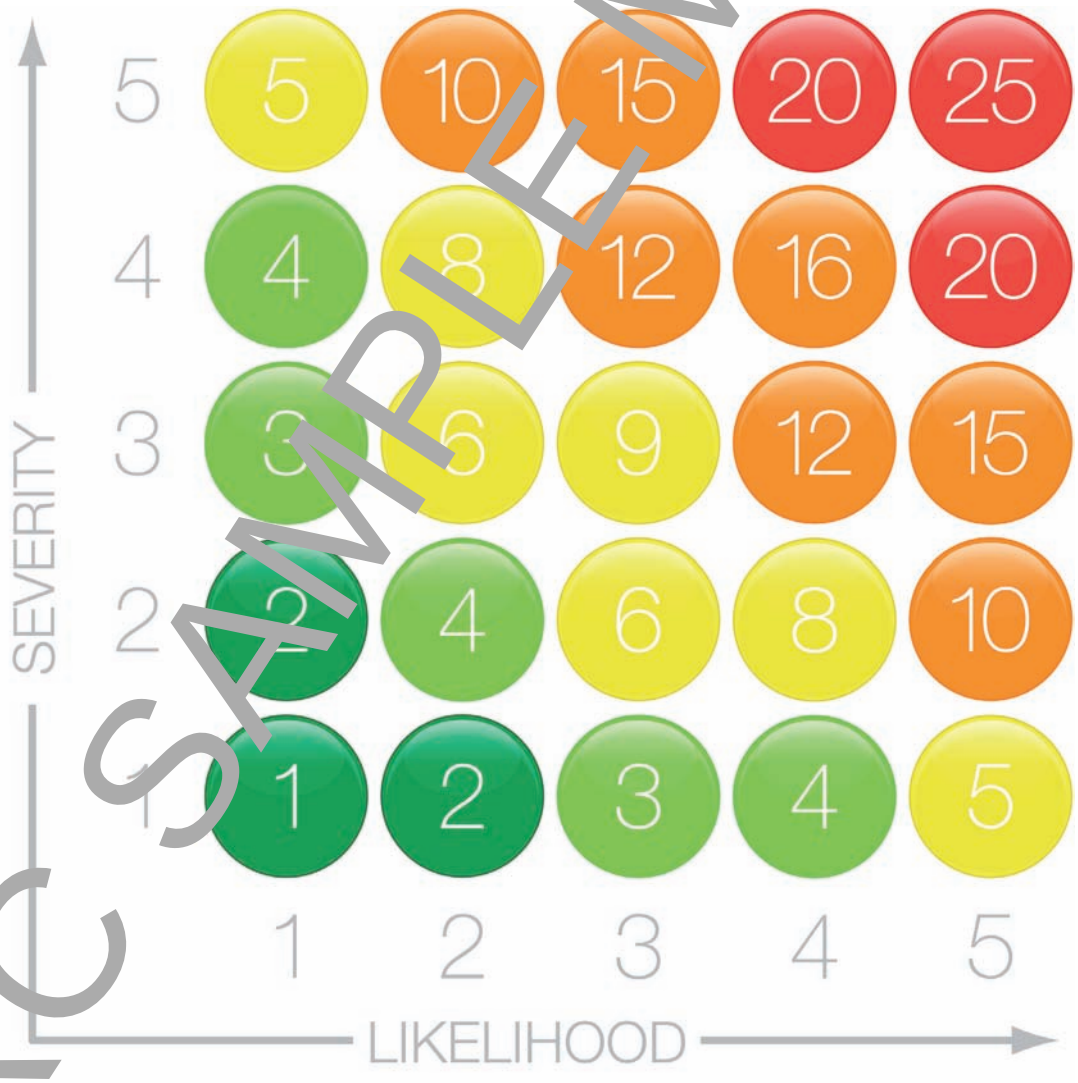
Using this scoring system the risk generated by a trailing electrical flex positioned across a busy corridor might be calculated as 5 x 4 = 20 (very probable x hospital treatment).

The same electrical flex trailing on the floor close to the rear wall of a rarely visited plant room might be rated as 1 x 4 = 4 (extremely unlikely x hospital treatment).

Note that in both instances the severity of injury is the same. This will sometimes be the case when the same hazard is being considered, but not always. For example, put the trailing flex in an old persons care home and the foreseeable injury becomes more severe simply because the elderly have brittle bones and suffer severe injuries when they fall over.

There is no one right or wrong way to apply this semi-quantitative risk evaluation process. Different organisations use different numbers and descriptions of likelihood and severity. It is the general principle that is important here, not the exact words and meanings.

The following graphic demonstrates how risk levels can be categorised using numbers and colour coding. In this example green identifies a low risk, and red identifies a high risk, and intermediate risks are shown in between.



Risk Assessment Matrix

Using a semi-quantitative risk rating system such as our example above can be useful for several reasons:

- **Clarity of thinking** – people tend to think more carefully about likelihood and severity of foreseeable injury when they are asked to use this type of scoring system, giving a more accurate end result.
- **Consistency of approach** – different people can use this system and will get similar results.
- **Prioritisation** – since risk is now represented by a number, and the higher the number the greater the risk, it is possible to easily separate out the various risks presented by several hazards and rank them in order.
- **Timescale** – it is even possible to allocate particular timescales to the risk ratings that are calculated using this type of system. This approach is not universal, but is used by some organisations.

  For example, a construction company uses the following timescales in relation to the risk rating system outlined above:

Risk Rating	Action and Timescale
15 and above	Unacceptable. Work may not start. Additional controls must be introduced to reduce below 9.
9 to 14	Tolerable. Additional controls must be introduced as soon as possible and no later than 24 hours after assessment.
5 to 8	Tolerable. Must be reduced to below 5 within one week.
4 or below	Acceptable. If simple action can reduce further then must be done within one week.

Residual, Acceptable and Tolerable Risk

When carrying out a risk assessment the actual situation that really exists within the workplace must be assessed - not the general hazards that would normally apply to the type of work typically, and not the way that the company policy document says that the work should be carried out. To be effective the risk assessment has to be based on the workplace that really exists.

The assessment can also take into account all the current controls and precautions that exist. What is being assessed is the real situation with all the current controls in place. For example, an assessment considering electrical safety in an office environment should take into account whether there is a system in place for the routine inspection and testing of portable electrical appliances. If there is, that may indicate that the risk is being controlled to an acceptable standard; if there is not, that may indicate that the risk is not being controlled to an acceptable standard, even though all the portable appliances look as if they are in a safe working [illegible].

When existing controls are taken into account the current risk level can be estimated as described above - Likelihood x Severity.

The risk that remains once these existing controls have been taken into account can be referred to as the **residual risk**.

- If the residual risk is low then it might be considered **acceptable** - the existing controls are adequate. Nothing more need be done. In effect the risk assessment has confirmed that the current situation is acceptable.
- If the residual risk is high, a decision has to be made about whether this residual risk is **tolerable** or **unacceptable**:
  - **Tolerable** implies that it is not acceptable but it can be tolerated for a short time while interim controls are put into place.
  - **Unacceptable** implies that the risk level is too high for work to be allowed.

In the case of both tolerable and unacceptable risk additional controls will need to be put in place to reduce the risk down to an acceptable level. Once these controls have been implemented a new residual risk level is created.

Use of Guidance

The semi-quantitative risk rating system we described earlier is very useful as a practical tool for the day-to-day management of risk in a fast changing workplace. It allows for a simple and consistent approach to the management of risk and the decision-making process.

The one thing that this system does not allow for, however, is consideration of legal standards. If there are clear legal standards about the controls that should be applied to a particular hazard in a workplace, then the use of a scoring system and risk prioritisation and timescales, etc. becomes largely redundant. The only question that really matters is: Are we doing what the law requires? Yes or no?

If there is no clear legal standard, or where the legal standard is open to interpretation, there may still be guidance published by the authorities that clearly identifies the controls that are expected. Reference to the law, any semi-legal codes of practice, and guidance published by enforcement agencies is therefore important in determining what the precautions should be for a particular hazard in the workplace.

Principles of Prevention

When hazards are identified through the risk assessment process it is necessary to decide on the precautions needed to control those hazards to an acceptable level. This is the most important part of the risk assessment – identifying the further action that is needed and taking that action.

When trying to decide what further precautions might be appropriate to a particular situation a useful approach can be to use a prevention hierarchy. We will look at the control hierarchy in greater detail later in this element, but the general principle is:

Eliminate the hazard	Remove the source of the risk. This is the most effective option since removal of the hazard eliminates the risk associated with that hazard.
Create a safe place	Use engineering controls to change the hazard itself or guard or enclose the hazard in some way to prevent people coming into contact with it.
Create a safe person	Develop safe working methods or systems of work so that people are exposed to the hazard in a controlled manner. This requires the provision of information, instruction, training and supervision along with good enforcement of safe behaviour.

It is clear that eliminating a hazard is the best option available since the risk associated with a hazard is then also eliminated. Unfortunately this is often not a viable option. The next best option is to engineer safety into the workplace. The least effective option is to rely on the safe person approach, and the reason for this relates directly back to the human factors discussed in Element 3. Workers do not behave in an ideal way in the workplace - they break rules knowingly and are subject to human error. The safe person approach is prone to the frailties of human nature.

Priorities and Timescales

A straightforward link can be made between the level of risk associated with a particular hazard and the prioritisation of that hazard: the higher the risk the higher the priority.

You might also assume that a high risk demands a short timescale for corrective action and a low risk can be allowed to persist for a longer period of time, but there are two problems with this simple link:

- A low risk level might be low priority, but it might also have a very simple, low cost remedy. A law court might not accept that a long timescale could be applied to a simple, low cost remedy; it should be implemented immediately because it can be done immediately.
- A medium risk might demand a medium priority, but that does not necessarily mean that a law court would accept that an intermediate timescale would be acceptable. The level of risk to workers should always be acceptable - not just acceptable after 24 hours of working.

This may mean that some interim precautions are put in place which control tolerable risk to an acceptable level but do not represent to be an ideal long-term solution to the problem.

Recording Significant Findings

The significant findings of a risk assessment should be recorded to provide a statement of the hazards in the workplace, the extent of the risks that they present and the action taken to control those risks.

There is no standard format for risk assessments so different organisations can adopt a format that is most appropriate to their circumstances. Typical content would include:

- Identification of the activity/area assessed and of the significant hazards.
- Identification of groups at risk and those especially at risk.
- Evaluation of the risks and the adequacy of existing control measures.
- Action plans for implementing further precautions needed.
- Date of assessment and name of the competent person carrying out the assessment.
- Review date.

A typical risk assessment form

Risk Assessment Review

Topic Focus

There are a number of situations that might trigger a review of a risk assessment:

- Significant change to a matter that the risk assessment relates to:
  - Process
  - Substance
  - Equipment
  - Workplace environment
  - Personnel
  - Legal standards.
- There is reason to suspect that the assessment is not valid:
  - Accident
  - Near miss
  - Ill-health.

It is also good practice to review risk assessments on a regular basis. This is often done by determining a frequency of review based on the level of risk associated with the activity in question. An annual review of risk assessments is common practice in many workplaces.

Special Cases and Vulnerable Workers

There are times when a risk assessment has to focus on one person or one specific group of workers because they are more vulnerable to particular hazards (or more at risk).

Young Persons

A young person is often defined by local law (e.g. in the UK a young person is anyone under the age of 18 years).

There are several reasons why a young person might be more vulnerable to risk in a workplace:

- Lack of experience in workplaces in general.
- Physical and, perhaps, mental immaturity.
- Poor perception of risk.
- Heavily influenced by peer group pressure.
- Eager to show a willingness to work.
- Less developed communication skills.

For these reasons you often need to think more carefully about the work that a young person is doing. It may be necessary to:

- Carry out risk assessments specifically with young persons in mind.
- Prohibit a young person from carrying out certain high risk activities (e.g. operating high risk machinery).
- Restrict their work patterns and hours (no night shift work or overtime).
- Train and supervise them to a greater degree than other workers.
- Provide mentors to monitor and supervise young persons more closely than other workers and to provide clear lines of communication.
- Provide specific health surveillance.

Young people carrying out an experime

Expectant Women and Nursing M thers

Pregnant women and women who are nursing are more at risk from certain types of hazard. In most of these instances the hazard presents a risk not only to the woman but also to the baby. Many of these hazards can cause miscarriage, birth defects or ill-health in the baby.

Topic Focus

Hazards that present greater risk to pregnant women:

- Certain hazardous chemicals (e.g. lead).
- Certain biological agents (e.g. the rubella virus).
- Manual handling, especially later in pregnancy.
- Extremes of temperature.
- Whole body vibration.
- Ionising radiation.
- Night shift work.
- [illegible]
- Violence.

In certain rare instances it may be necessary to prohibit women of child-bearing capacity from certain types of work, e.g. handling certain types of chemical that are toxic to reproduction, on the basis that any exposure may cause harm.

In all cases where a woman reports that she is pregnant a risk assessment should be carried out focusing on the work that she is doing and the hazards that might increase risk to her and the child. It may then be necessary to:

- Change the type of work or the way that it is done.
- Change the hours of work.
- Suspend the woman from the workplace.

These options are usually subject to local statute law, and remember that there will usually be other general employment and anti-discrimination legislation that should be considered, not just health and safety law.

Disabled Workers

People with disabilities may be at greater risk from particular hazards depending on the nature and extent of their disability. For example, a visually-impaired worker may be able to carry out a packaging operation at their workstation without any risk to themselves or others, but they may find it very difficult to evacuate from the building during a fire using an escape route that is unfamiliar to them. In this instance they may need some assistance in the form of an "evacuation buddy".

During the risk assessment process it may be necessary to:

- Identify certain health and fitness criteria for some jobs and then screen staff against these criteria. This

may have the effect of excluding those with a certain disability from doing these jobs, e.g. forklift truck drivers should have their eyesight checked before being allowed to drive.

- Identify workers with known disabilities and consider what the implications of their particular type and level of disability might be.

Again, remember that there is usually other employment and anti-discrimination legislation that should be considered at the same time as any relevant health and safety law.

Lone Workers

People who work entirely on their own for periods of time, or those who are not alone but are not with colleagues whom they can rely on for help, might be classified as lone workers. For example, a service engineer who spends four hours alone in a plant room servicing machinery is a lone worker; but so is a health care worker who travels around in the local community visiting elderly patients to provide care (even though they may be in sight of other people at all times during their working day).

Lone workers are a group of workers who are especially vulnerable in certain instances:

- They may be more at risk of violence, particularly if the worker is exposed to members of the public, has to travel out into the community or is involved in work that brings them into contact with violent people, e.g. prison staff or mental health nurses.
- They may be more at risk if they are injured or fall ill. Certain types of work involve a high risk of personal injury or ill-health (e.g. confined space entry). In these situations lone working may be inappropriate or additional precautions may be necessary to protect the individual. We will discuss precautions that might be adopted to safeguard lone workers in more detail later in this element.

Lone worker in a public place

More...

http://www.hse.gov.uk/risk/index.htm

Hints And Tips

Try to see the bigger picture and the general principles in the course material rather than focusing too intently on the detailed application of an idea in just one specific workplace.

Revision Questions

2. Why is the distinction between hazards and risks so important to health and safety management?
3. State the purpose and objectives of risk assessment.
4. What do accident triangles show?
5. What techniques are used for identifying hazards?
6. State the five steps involved in risk assessment.
7. Apart from operators, what particular staff groups require special consideration during a risk assessment?
8. What factors are used to evaluate risk?
9. What is residual risk?
10. What conditions might trigger a risk assessment review?

(Suggested Answers are at the end of Unit IGC1.)