Controlling OHS hazards and risks

A handbook for workplaces

HANDBOOK

Workplaces can be dangerous; there are many hazards that have the potential to kill, injure or cause ill health or disease.

Protecting the health and safety of people in the workplace is a community expectation that makes good business sense.

A safe and healthy workplace, and compliance with the law, does not happen by chance or guesswork.

This guide sets out the method that should be used to control OHS hazards and risks.

Introduction

Who should use this guide?

This guide is written for employers, self employed people and those with management or control of workplaces who have duties to ensure health and safety under the OHS Act and its regulations. These people are referred to in this guide as 'duty-holders'.

This guide can also be used by HSRs and workers to assist in resolving OHS issues in the workplace.

Controlling OHS hazards and risks

Workplaces can be dangerous; there are many hazards that have the potential to kill, injure or cause ill health or disease.

Protecting the health and safety of people in the workplace is a community expectation that makes good business sense. Workplace incidents can have a dramatic impact on people's lives (people in the workplace, families and friends), and they can have significant financial impacts on organisations through loss of skilled staff and lost production of goods or services.

Duty-holders have obligations under the *Occupational Health and Safety Act 2004* (OHS Act) to ensure the health and safety of people 'so far as reasonably practicable'.

A safe and healthy workplace and compliance with the law does not happen by chance or guesswork. Good health and safety is all about eliminating and controlling hazards and risks. This is best achieved by a proper consideration of the sources of harm and what can be done to prevent the harm from occurring.

This guide sets out the method that should be used to control OHS hazards and risks. The OHS Act duties anticipate, and WorkSafe expects, that the method set out in this guide will be used for the control of OHS hazards and risks.

The method does not require elaborate systems or large amounts of paper to support it. How the method is put into action depends on the complexity of the hazards or risks, the nature of the organisation and how its business is conducted.

In straightforward situations, the method is no more than a way of thinking through a problem and taking action. In complex situations or in large organisations, appropriate systems and procedures to support the method may be needed to ensure good health and safety outcomes and compliance.

This method, and the processes that surround it, should never be seen as ends in themselves. The method is a tool for arriving at controls for OHS hazards and risks that provide the highest level of protection for people that is reasonably practicable in the circumstances.

Consultation with HSRs and employees is critical

Consultation with Health and Safety Representatives (HSRs), employees and others is a critical part of controlling OHS hazards and risks.

Apart from it being required by law, involving HSRs, employees and others at the workplace in the method makes sense. The people who do the job often know and can provide insight into how hazards and risks can come about, and about the workability and effectiveness of potential controls. They also have to work with the control measures, and they will do this more effectively if they understand the reasons for them and how they work.

Consultation with HSRs, employees and independent contractors and their employees at the workplace in each step of the process is required by law; that is, when:
• Identifying and assessing hazards and risks.
• Making decisions about controlling risks.
• Making decisions about procedures for providing information and training to employees and monitoring the health of employees.

Consultation must involve sharing information with those people, giving them a reasonable opportunity to express their views, and taking those views into account.

If there is a Health and Safety Committee, it may be useful to engage the committee in the process as well.

Key concepts

There are four important concepts that need to be understood so that this guide makes sense:

1. A **hazard** is something currently in, or may in future be in, the work environment that has the potential to cause harm to people.
2. A **risk** is the chance (or likelihood) that a hazard will cause harm to people.
3. **Harm** is death, injury, illness (including psychological illness) or disease that may be suffered by a person from a hazard or risk.
4. A **control** is a thing, work process or system of work that eliminates an OHS hazard or risk or, if this is not reasonably practicable, reduces the risk so far as reasonably practicable.

Steps in controlling OHS hazards and risks

Figure 1 – Steps in controlling OHS hazards and risks

CONSULTATION

STEP 1
Identify Hazards

Know what hazards
are present

CONSULTATION

STEP 2
Assess Risks

Understand the nature
of risks, the harm that
could occur and
the likelihood

CONSULTATION

STEP 4
Check Controls

Review the implemented
controls to ensure they
are working as planned
and effective

CONSULTATION

STEP 3
**Control Hazards
and Risks**

Determine options for
eliminating or reducing risk,
selecting the best and
implementing it

Step 1 – Identify hazards

Identifying hazards involves finding all of the foreseeable hazards in the workplace and understanding the possible harm that the hazards may cause.

What to look for

A hazard is something in the workplace (or that will be in the workplace) that can cause harm to people. Table 1 below lists some common types of workplace hazards.

A piece of plant, substance or a work process may have many different hazards, and each of these hazards needs to be identified. For instance, a production line may have mechanical hazards, noise hazards, electrical hazards, body stressing hazards associated with manual handling and psychological hazards associated with the pace of work.

Table 1: Common workplace hazards	
Mechanical hazards	Plant, equipment and items (and parts of them) that have the potential to cut, rip, tear, abrade, crush, penetrate, produce projectiles or cause sudden impact.
Chemical and biological hazards	Chemicals, compounds, materials, powders, dusts and vapours that have the potential to impair health, have adverse effects on human reproduction, cause disease or have explosive, flammable, toxic or corrosive properties.
Sources of energy	A range of sources of energy that have the potential to cause harm, including electricity, heat, cold, noise, high powered light and damaging radioactive sources.
Body stressing or impact hazards	Activities that cause stress to the muscles and/or skeleton, including manual handling of people, animals, goods or materials and things or circumstances that can cause a person to slip, trip or fall at the same level.
Gravity	Activities that are carried out where a person can fall or an object can fall onto people.
Psychological hazards	Events, systems of work or other circumstances that have the potential to lead to psychological and associated illness, including work-related stress, bullying, workplace violence and work-related fatigue.

Methods for identifying hazards

There are a number of methods for identifying hazards. The following are the most common:

Inspecting the workplace

A walk though the workplace is a direct way of identifying many hazards. This walk-through can be assisted by using a hazard checklist developed in consultation with employees to suit the workplace.

Inspections should not be limited to physical things such as plant, equipment or buildings and structures. The inspection should also look at systems of work and work procedures.

The walk-through may detect straightforward problems and action should be taken on these immediately:

- Some may be simple matters such as a risk control not being used or not working properly, or things being put in the wrong place. There is no need to do a formal risk assessment – action can be taken without delay to eliminate or control the risk – and consultation can take place on the spot with the employees or HSRs doing the inspections, and with the people doing the work.
- At the other end of the scale, a walk-through may detect a situation that represents an immediate or substantial danger to people doing work. The work causing the risk should either be stopped immediately or the people moved to safety.

Finding and applying available information

A large amount of information is readily available for particular industries, types of activity and job types. Sources of information include:

- WorkSafe publishes information on its website and in hard copy on a range of OHS topics and industries. Visit www.worksafe.vic.gov.au or read the WorkSafe publication *More information about Controlling OHS hazards and risks*.
- Industry associations and unions can provide information about hazards in particular industries or particular jobs.
- Manufacturers and suppliers can provide information about hazards associated with specific plant, substances or processes.
- Material Safety Data Sheets (MSDS) from manufacturers or suppliers of workplace substances.
- WorkSafe's workers' compensation insurance agents.
- Technical and OHS specialists.

Testing and measuring

Some hazards such as noise and atmospheric contaminants may require measurement to decide if further action is required. For instance, there are simple comparisons that can be made to estimate general noise levels (e.g. can people working within close proximity be easily heard?), and testing and measuring can provide a more accurate determination of the hazard (e.g. noise meters, atmospheric testing).

Surveys of employees and others at the workplace

Conducting a survey of employees and others who work at the workplace can provide valuable information about matters such as workplace bullying, occupational stress, as well as muscle and skeletal aches and pains that can signal potential hazards.

Analysing records and data

Records of injuries or incidents and the results of any investigations are useful sources of information about hazards. Larger organisations may even have records or data that show incident and injury trends.

WorkSafe and other workplace safety authorities publish data about the common sources of injury in particular industries. Similarly, some industry associations may have data about the hazards that have caused injuries in the industries that they cover.

Resources and tools

- Refer to Appendix 2 for a general form to assist in hazard identification and risk assessment.
- WorkSafe publishes guides and checklists to assist in the identification of specific hazards. Visit www.worksafe.vic.gov.au or read the WorkSafe publication *More information about Controlling OHS hazards and risks.*

Hazard identification outcomes

Hazard identification provides a complete knowledge of the hazards for the particular part of the workplace assessed. Keep a list of what the hazards were and where they were identified to ensure that nothing is forgotten.

▰▰▰ Step 2 – Assess risks

Risk assessment is a process for developing knowledge and understanding about hazards and risks so that sound decisions can be taken about control. A formal risk assessment is unnecessary if the knowledge and understanding already exist. However, there will be many times when a risk assessment is the best way of building knowledge and understanding.

Risk assessment assists in determining:
• what levels of harm can occur
• how harm can occur
• the likelihood that harm will occur.

A risk assessment will provide knowledge to make informed decisions about controlling hazards and risks. The risk assessment needs to be tailored to the situation and to the organisation in which it is conducted; it can be as simple as structured discussion during consultation or it can be more elaborate and formal.

When should a risk assessment be done?

A risk assessment should be done when:
• There is only limited knowledge about a hazard or risk, or about how the risk may result in injury or illness.
• There is uncertainty about whether all of the things that can go wrong have been found.
• The situation involves a number of different hazards that are part of the same work process or piece of plant, and there is a lack of understanding about how the hazards may impact upon each other to produce new or greater risks.

There are common events in the life of an organisation when a risk assessment should be done. These events typically result in a lack of understanding about OHS hazards and risks or what needs to be done to control them. Appendix 1 lists common events that should trigger a formal risk assessment.

When a risk assessment is not necessary

Many hazards and risks are well known and have well established and accepted control measures. A formal risk assessment is not required when:
• OHS laws require some hazards or risks to be controlled in a specific way. These requirements must be complied with.
• Other laws require specific risk controls to be implemented, e.g. gas and electrical safety and dangerous goods laws. These requirements must be complied with.

• A WorkSafe Compliance Code or other WorkSafe guidance sets out a way of controlling a hazard or risk and the guidance is applicable to the situation. In these instances, the guidance can simply be followed.
• There are well known and accepted controls that are in widespread use in the particular industry, that are suited to the circumstances in the workplace and provide acceptable control of the hazards or risks. These controls can simply be implemented.

Doing a risk assessment – work out what levels of harm can occur

The level of harm from a hazard will influence decisions about how much effort is needed to control the risks.

The hazards in the workplace should have been identified in Step 1. The first task in the risk assessment is to work out what harm each hazard can cause.

This involves looking at the potential of the hazard and making an assumption that a person will be exposed to it when the harm actually occurs. A hazard may have the potential to cause a range of different types of harm ranging from minor discomfort to a serious disabling illness, injury or death. The possible levels of harm need to be understood.

For example, liquefied petroleum gas (LPG) cylinders may be stored in a factory room. One of the hazards of LPG is its potential to catch fire or cause an explosion. If the LPG escapes:
• The gas may disperse harmlessly.
• If ignited the room could be set on fire, causing burns to anyone in the room.
• If enough gas escaped, there could be an explosion that could destroy the room, damage areas outside and kill or injure anyone nearby.

Ask the following questions to estimate the degree of harm that could result from each hazard:
• What harm can occur? Could the hazard cause death, serious injuries, illness or less serious harm, such as minor injuries requiring first aid?
• What factors could influence the severity of an injury? For example, the distance someone might fall or the concentration of a particular substance will determine the level of harm that is possible. The harm may occur immediately something goes wrong (e.g. injury from a fall) or it may take time for it to become apparent (e.g. illness from long term exposure to a substance).

- How many people could be harmed? If something goes wrong, is one person affected or are many people affected? For example, a mobile crane collapse on a busy construction site has the potential to kill or injure a large number of people.
- Are there circumstances that could magnify the severity of an injury or incident? Using information about the nature of risks and the effectiveness of controls can provide an indication of the potential harm when more than one thing goes wrong.

When assessing how things may go wrong, look more broadly than the immediate effects. Can one failure initiate other failures? Is there something in the workplace that can be affected to cause the incident to become more serious?

For example, failure of electrical supply can cause risk controls that rely on electricity in the workplace to become ineffective unless they are 'fail safe'. The presence of large amounts of unnecessary combustible materials in a workplace can spell disaster in the event of an initial minor fire that is not controlled quickly.
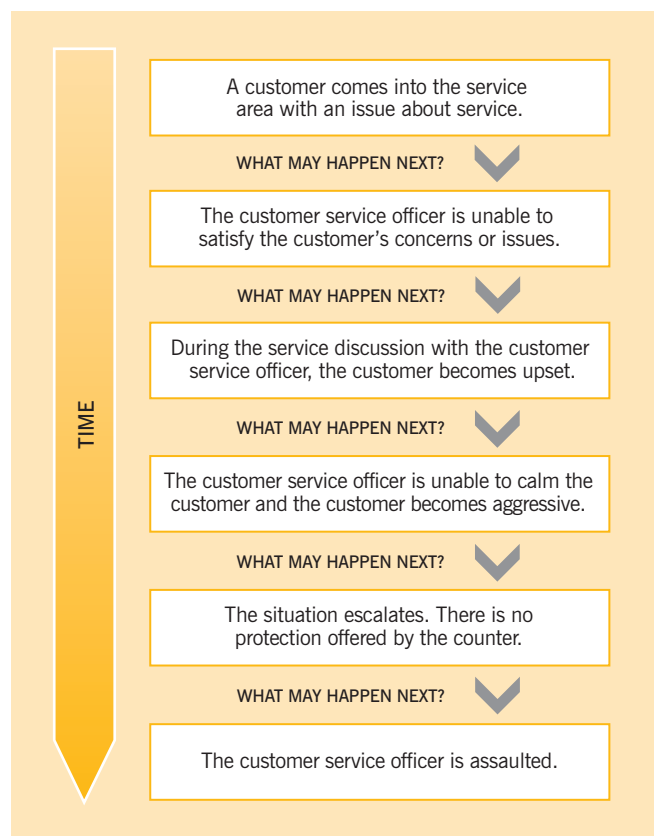
Doing a risk assessment – work out how hazards may cause harm

A sequence of events has to occur before a hazard will cause harm to a person. Understanding the sequence of events provides valuable information about how to control the risk from the hazard. If one or more of the events in the sequence can be stopped or changed, the overall risk may be eliminated entirely or reduced.

One way of working out the sequence of events is to determine the starting point where things begin to go wrong and then ask, 'If this happens, what may happen next?'. Continuing to ask this question will provide a list of events that results in the harm eventuating. *Figure 2* shows how this may be done.

Figure 2 – Working out a sequence of events

One hazard for a customer service officer dealing face to face with customers is assault. If an assault occurs, the officer may suffer shock, stress or physical injury. The sequence of events for the assault might be:

TIME

A customer comes into the service area with an issue about service.

WHAT MAY HAPPEN NEXT?

The customer service officer is unable to satisfy the customer's concerns or issues.

WHAT MAY HAPPEN NEXT?

During the service discussion with the customer service officer, the customer becomes upset.

WHAT MAY HAPPEN NEXT?

The customer service officer is unable to calm the customer and the customer becomes aggressive.

WHAT MAY HAPPEN NEXT?

The situation escalates. There is no protection offered by the counter.

WHAT MAY HAPPEN NEXT?

The customer service officer is assaulted.

Looking forward to the control step for this example, some of the potential control measures become clear. A counter area can be designed to make it difficult to reach officers, but still allow service to be delivered; escape routes can be provided; aggression management training could be provided to manage upset customers.

There may be other ways to prevent customers from becoming angry when experiencing the organisation's services in the first place.

Step 2 – Assess risks continued

Each of the identified risks associated with a hazard needs to be analysed to develop an understanding of how harm can be caused. In doing so:

- take account of existing health and safety controls
- look at how work is actually being carried out rather than relying on written manuals and work procedures
- look at abnormal situations, as well as how things are normally meant to occur. Consider maintenance and cleaning, as well as breakdowns of equipment and failures of health and safety controls.

Doing a risk assessment – work out the likelihood of harm occurring

The likelihood that a hazard will cause harm will influence decisions about how much effort needs to be taken to control the risks.

Estimating likelihood can be based on what is known about a risk, the actual circumstances of the workplace and the way work is really done. *Table 2* sets out questions that can help estimate likelihood.

It should be sufficient to simply rate the likelihood as one of the following:

- certain to occur
- very likely
- likely
- unlikely
- rare.

It is not usually necessary to quantify frequencies or probabilities to understand the likelihood of harm occurring.

Resources and tools

Refer to Appendix 2 for a general form to assist in hazard identification and risk assessment. WorkSafe publishes specific guides and checklists to assist in the identification of specific hazards. Visit www.worksafe.vic.gov.au or read the WorkSafe publication *More information about Controlling OHS hazards and risks.*

Risk assessment outcomes

Carrying out a risk assessment provides an understanding of what harm hazards can cause, how the hazards cause harm and the likelihood that harm will occur.

Table 2: Typical questions to ask to estimate likelihood	
Typical questions to ask in determining likelihood	**Explanation and examples**
How often does a hazard have the potential to cause harm?	A risk may exist all of the time or it may only exist intermittently. The more often a risk is present, the greater the likelihood that it will result in harm. For example: Crushing is one of the hazards arising from meshing gears in an enclosed gear box. A crush can only occur if the gearbox is open during maintenance, and therefore the potential for harm will not occur very often. Body stressing is one of the hazards arising from continuously lifting heavy boxes, and there is always the potential to cause harm whenever the work is done.
How effective are current controls in reducing risk?	In most cases the risks being assessed will already be subject to some control measures. The likelihood of harm resulting from the risk will depend upon how adequate and effective the current measures are. For example: Four wheel drive vehicles have been introduced into a government department's fleet because of the need for officers to travel off road. Controls have been implemented for the current fleet, including safe driving procedures on good roads. Off road driving by inexperienced staff increases the risk of crashes/injuries and existing controls may need to be upgraded.
How could variations in an organisation's operating conditions increase the risk?	The demand for goods or services in many organisations varies throughout the year. Changes in demand may be seasonal, depend on environmental conditions or be affected by market fluctuations that are driven by a range of events. Meeting increased demand may cause unusual loads on people, plant and equipment and systems of work. Failures may be more likely. For example: Inner city restaurants and bistros are very busy in the period prior to Christmas, placing extra demands on kitchen and serving staff. The increase in volume of food to be prepared and serving a larger number of patrons increases the potential for human error and the likelihood that injuries will occur.
Can risks become more likely to cause harm because of the working environment?	The risk of injury or illness may become more likely if: • *Environmental conditions change.* For example, work performed in high temperatures in a confined space increases the potential for mistakes because workers become fatigued more quickly; wet conditions make walkways and other things slippery. • *People are required to work quickly.* The rate at which work is done (e.g. number of repetitions) can over-stress a person's body or make it more likely that mistakes will be made. • *There is insufficient light or poor ventilation.*
How long might people be exposed to the harm?	The longer that someone is exposed to a risk, the greater the likelihood that harm may result. For example: Noise causes hearing loss; the extent of which is dependent on the exposure time and noise levels. The longer a person is exposed to noisy work, the more likely it is that they will suffer hearing loss.
Could the way people act and behave affect the likelihood of a hazard causing harm?	The possibility that people may make mistakes, misuse items, act spontaneously or panic in particular situations needs to be taken into account. The effects of fatigue or stress may make it more likely that harm will occur.
Do the differences between individuals in the workplace make it more likely for harm to occur?	People with disabilities may be more likely to suffer harm if the workplace or process is designed exclusively for able people. New or young workers may be more likely to suffer harm because of inexperience. People who do not normally work at the workplace will have less knowledge than employees who normally work there, and may be more likely to suffer harm. These people include contractors, visitors or members of the public. If there are other organisations sharing the workplace, one employer's operations may affect their workers and vice versa, making harm more likely.

Step 3 – Control hazards and risks

Duty-holders are required to ensure health and safety by controlling risks. Risks must be controlled by eliminating them so far as reasonably practicable or, if this is not possible, reducing the risks that remain so far as reasonably practicable.

Arriving at appropriate controls involves:
• Identifying the options for controls. A control option may be a single control or it may be made up of a number of different controls that together provide protection against a risk.
• Considering the control options and selecting a suitable option that most effectively eliminates or reduces risk in the circumstances.
• Implementing the selected option.

Note: mandatory controls specified in the OHS regulations must be implemented regardless of the results of the method in this guide.

Reasonably practicable

Duty-holders are required to ensure health and safety so far as reasonably practicable. Determining what is reasonably practicable to protect people from harm involves weighing up all the following matters and making a judgement about what is reasonable in the circumstances:
• The likelihood of a hazard or risk occurring.
• The degree of harm that would result if the hazard or risk occurred.
• What the duty-holder knows, or reasonably ought to know, about the hazard or risk, and any ways of eliminating or reducing the risk.
• The availability and suitability of ways to eliminate or reduce the hazard or risk.
• The cost of eliminating or reducing the hazard or risk.

Step 1 and 2 will provide information about the hazards and risks in the workplace and their likelihood and degree of harm.

Figure 3 – Effectiveness and reliability of controls

HIGHEST   MOST

LEVEL OF PROTECTION

Eliminate the hazards or risks
• Eliminate the hazards or eliminate the risks

Change the risks to reduce them
• Substitute the risks with lesser risks
• Reduce the risks through engineering changes or changes to systems of work
• Isolate people from the risks

Change people to reduce the risks
• Reduce the level of harm using administrative actions
• Use personal protective equipment to protect people from harm

RELIABILITY

LOWEST   LEAST

Some controls are more effective than others

The various ways of controlling risks can be ranked from the highest level of protection and reliability to the lowest. *See Figure 3*.

According to this ranking:
• The most effective protection measure is to eliminate the risk, which can be done by eliminating the hazard. If the hazard cannot be eliminated, then eliminate as many of the risks associated with the hazard as possible.
• The second most effective measure is to reduce the risks that remain by changing the risk to reduce the likelihood and/or level of harm. These measures are more effective than those that rely on controlling the behaviour of people.
• The least effective measure is to change the way people expose themselves to the risk or their behaviour. This does nothing to change the risk itself, but relies on protecting people by controlling the behaviour or skill levels of people, limiting the chance of human failure, limiting exposure time or by providing personal protective equipment for people to use.

The OHS regulations contain requirements concerning the order in which the controls referred to in *Figure 3* must be considered. These regulations must be complied with.

Eliminating the hazard or risk

Eliminating hazards

A hazard can be eliminated if it is not really necessary to have the hazard in the workplace to start with.

> Example: *Mezzanine floors or space above offices in warehouses and manufacturing areas are often used to store archived records and disused items. These areas can become fire hazards, and there are fall hazards if proper access arrangements are not made. These hazards are not necessary. Good records management and discipline concerning appropriate storage or disposal of unwanted items can eliminate these hazards.*

Eliminating risks

A hazard may not be able to be eliminated if doing so means that the end product or service cannot be made or delivered.

> Example: *A commercial kitchen that prepares fried food requires a deep fryer. If the fryer was not available, this type of food could not be prepared. This hazard is necessary for the operation of the kitchen.*

A hazard will normally have several different risks associated with it, and these should have been identified in the risk assessment. The hazard may have the potential to cause different kinds of harm or be capable of causing different levels of the same type of harm. These are different risks.

High temperature oil is one of the hazards of a deep fryer. There is a risk that a kitchen worker may be burned in various ways, including:

- Minor burns as a result of spitting oil when damp food is placed into it.
- Minor burns from oil dripping from cooked food.
- Serious burns to a hand or arm if the person's arm slips into the hot oil.
- Serious burns to the face and upper body if a pot of water is inadvertently spilled into the hot oil causing it to be violently ejected out of the fryer.

If the hazard cannot be eliminated, the next step is to find out how many of the risks associated with the hazard can be eliminated by making it impossible for a particular kind or level of harm to happen.

Review the sequence of events that leads to the harm occurring. Can the sequence of events be broken by a control in such a way that the harm can never happen?

> Example: *Continuing with the kitchen example above, the hazard from the hot oil cannot be eliminated. However, one of the risks – the risk of serious burns from water being spilled into the fryer – can be eliminated by ensuring that the kitchen is designed so that food preparation involving pots of water is done in another area of the kitchen away from the fryer.*

Step 3 – Control hazards and risks continued

Reducing risks

If it is not possible to eliminate the hazards or all of the risks, steps need to be taken to reduce the likelihood or degree of harm of the hazards and risks that remain.

Changing the risk to reduce it

Changing the risk is the most effective way of reducing it because this approach is less reliant on people performing faultlessly.

The three approaches to changing risk to reduce it are to:
1. substitute the risk with a lesser risk
2. reduce the risk by using engineering methods or changing the work process
3. isolating people from the risk.

Examples:

1. *Substitute the hazard with one that has lesser risks: For instance, the risks from body stressing (back and shoulder injuries) from lifting and moving 40kg bags of cement can be reduced by having cement delivered in 20kg bags. The likelihood and severity of injury will be reduced.*

2. *Using engineering controls or changes to systems of work: Engineering controls involve the use of mechanical or electrical devices to reduce risk – a guard on a machine is an example of an engineering control.*

   Changes to systems of work involve changing the way work is done. For example, in home care, a site visit may be needed to assess the needs of a new client. The new client and the circumstances are unknown and a team of two people (rather than a single person) may be used to control possible risks in the home environment. As a further measure, the carer's supervisor telephones the carers to check the situation soon after arrival.

3. *Isolating people from the source of risk: This involves physically separating people from the source of harm by space or by using barriers. For instance, a particularly noisy piece of equipment may be located in an area of a workplace where people do not normally work.*

Changing how people interact to reduce risk

This method of risk reduction does nothing to change the risk itself. It relies on changing the likelihood that a person may be harmed by changing how people interact with the hazard or risk, or how they behave.

On its own, this method of risk reduction is unreliable because it relies on people acting as expected. However, used in combination with more effective controls, it can be used to further reduce risk.

Examples:

1. *Administrative controls: One way is to control exposure time. For example, in a child care centre, a manual handling risk is ineffectively controlled by limiting the number of children that are lifted onto a change table each day by a child care worker.*

   Another way is to control exposure by trying to ensure that people do the 'right thing'. For example, a child care worker is trained and instructed on correct lifting techniques for lifting children onto a change table, in an attempt to control the manual handling risk.

   Note: There are engineering controls (e.g. steps) available that are far more effective than either of the two controls described above.

2. *Personal Protective Equipment (PPE): PPE limits exposure by reducing the harmful effects of the hazard. Examples include breathing protection, aprons and protective eyewear.*

Developing control options

Researching potential control measures

Information about risk controls may be obtained from:
- WorkSafe – Compliance Codes and guidance material
- industry associations
- unions
- manufacturers and suppliers of plant, substances and equipment used in your workplace.

In some cases, published information will provide guidance to whole work processes. In other cases, the guidance may relate to individual items of plant or how to safely use specific substances. The options can be implemented if they are appropriate to the situation and provide high levels of protection from the risk.

Developing specific control measures

Specific control measures may need to be developed if the available information is not relevant to the hazards and risks or circumstances at the workplace.

This can be done by referring to the sequence of events that were recorded during the risk assessment. For each of the events in the sequence, ask:

"What can be done to stop or change the event occurring?"

An example of this approach is shown in *Figure 4.*

Working through all of the events in the sequence will result in a list of all of the possible control measures that can be applied to eliminate or reduce the risk. There may be more than one measure for each of the events.

The control options that have been identified need to be evaluated. The control option that is selected must be:
- Available – that is, it or its parts can be purchased, made to suit or be put in place.
- Suitable for the circumstance in the workplace – that is, it will work properly given the workplace conditions, work process and the people who do the work, and have the least impact on the delivery of goods or services.
- One that provides the highest level of protection for people and is the most reliable – that is, controls that are towards the top of the hierarchy in *Figure 3.*
  Where there are options for control, the ones that have the most impact on the likelihood and/or the degree of harm (e.g. elimination) should be implemented in preference to options that have lesser impacts. Where the hazard or risk has the potential to cause high levels of harm (e.g. death, serious injury or serious illness), more emphasis should be given to those controls that eliminate or reduce the level of harm, than those that reduce likelihood.
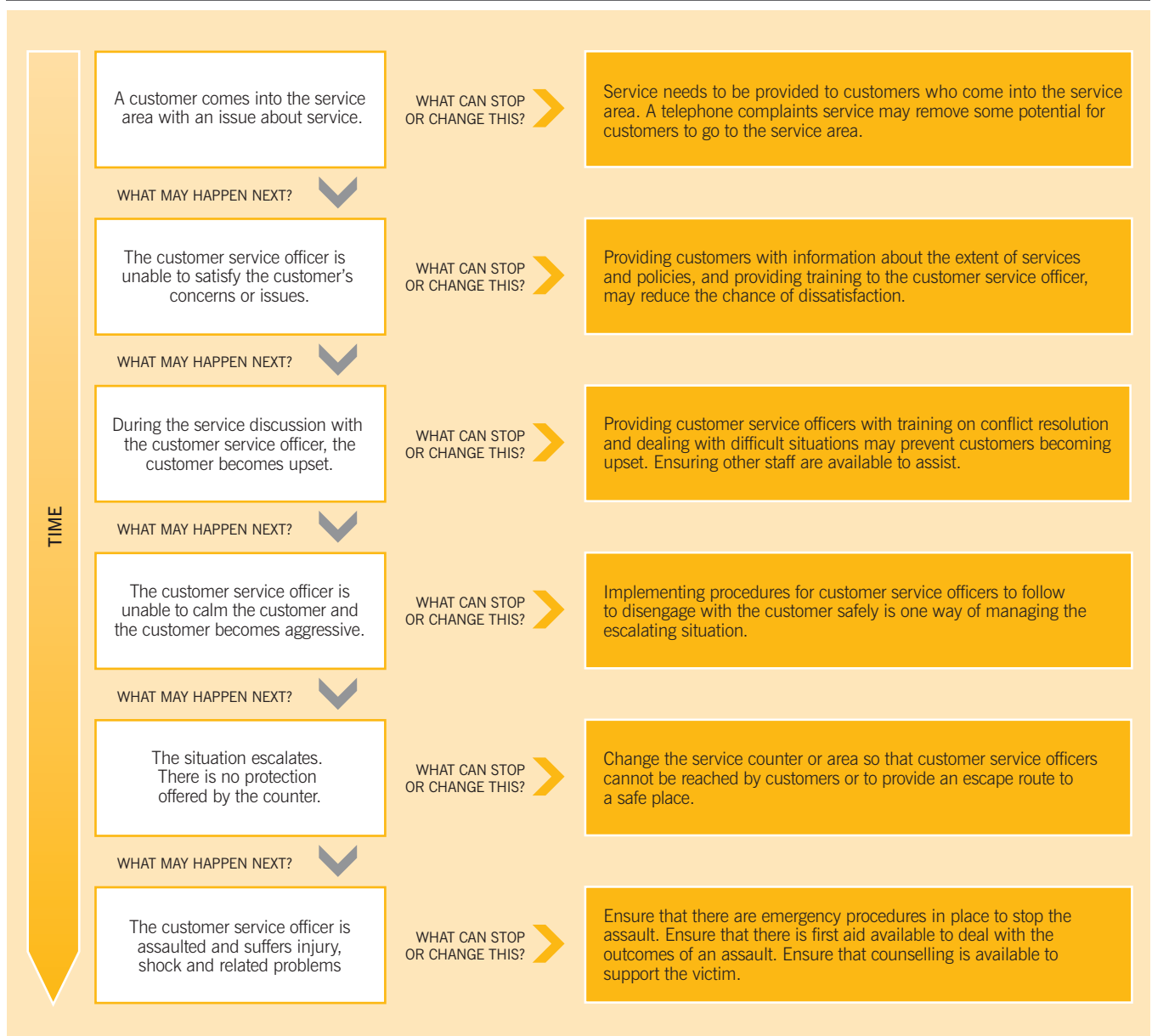
Controls must provide the highest level of protection that is reasonably practicable in the circumstances.

Step 3 – Control hazards and risks continued

Figure 4 – Developing risk control measures

One hazard for a customer service officer is assault by a customer. The officer may suffer shock, stress or physical injury. The potential ways of either eliminating or reducing the likelihood or degree of harm can be identified by asking what can stop or change the events.

TIME

A customer comes into the service area with an issue about service.

WHAT CAN STOP OR CHANGE THIS? → Service needs to be provided to customers who come into the service area. A telephone complaints service may remove some potential for customers to go to the service area.

WHAT MAY HAPPEN NEXT?

The customer service officer is unable to satisfy the customer's concerns or issues.

WHAT CAN STOP OR CHANGE THIS? → Providing customers with information about the extent of services and policies, and providing training to the customer service officer, may reduce the chance of dissatisfaction.

WHAT MAY HAPPEN NEXT?

During the service discussion with the customer service officer, the customer becomes upset.

WHAT CAN STOP OR CHANGE THIS? → Providing customer service officers with training on conflict resolution and dealing with difficult situations may prevent customers becoming upset. Ensuring other staff are available to assist.

WHAT MAY HAPPEN NEXT?

The customer service officer is unable to calm the customer and the customer becomes aggressive.

WHAT CAN STOP OR CHANGE THIS? → Implementing procedures for customer service officers to follow to disengage with the customer safely is one way of managing the escalating situation.

WHAT MAY HAPPEN NEXT?

The situation escalates. There is no protection offered by the counter.

WHAT CAN STOP OR CHANGE THIS? → Change the service counter or area so that customer service officers cannot be reached by customers or to provide an escape route to a safe place.

WHAT MAY HAPPEN NEXT?

The customer service officer is assaulted and suffers injury, shock and related problems

WHAT CAN STOP OR CHANGE THIS? → Ensure that there are emergency procedures in place to stop the assault. Ensure that there is first aid available to deal with the outcomes of an assault. Ensure that counselling is available to support the victim.

Cost

The cost of controlling risk is a factor that can be taken into account in determining what is reasonably practicable.

There are controls available for all risks, and cost is never a reason in itself for doing nothing; it is always possible to provide instructions to those exposed to the risk or to stop the activity that gives rise to the risk. There will normally be a number of different control options between these two extremes, and cost is **one** factor that may be considered in determining the best control option.

However:

• A duty-holder's own inability to afford the cost of a particular control option is not a factor in determining what is reasonably practicable. WorkSafe expects a duty-holder to incur the cost if other duty-holders in that particular type of enterprise do so.

Example: *The provision of canister respirators for workers involved with spray painting isocyanate paints is a well known and accepted means of controlling the risks that remain after engineering controls are implemented. A duty-holder who provides gauze masks because canister respirators are too costly will not be doing what is reasonably practicable to control the risk.*

• The cost of providing the highest level of protection should be borne unless it is unreasonable in the circumstances to do so. A decision not to implement controls should only be made where the cost far outweighs the safety benefits that will be achieved.

If two control strategies will result in the same levels of protection for people and have the same reliability, it is appropriate to adopt the least costly option.

Cost should not be used as a reason for adopting controls that rely exclusively on changing people's behaviour or actions when there are controls available that can change the risk through substitution, engineering or isolation.

Implementation of controls

After decisions have been made about the controls, an organised and managed approach needs to be taken to ensure that the controls are put in place. Good organisational or business management practice should be followed:

• develop plans
• allocate budget
• assign responsibility and accountability for the various steps in the plan
• assign responsibility and accountability for resolving problems and issues during the planned work
• monitor and report on progress of the work
• test controls once they are put in place.

The formality of the plan and the extent of it will need to match the organisation and the extent of work to be done.

Resources and tools

• Refer to Appendix 2 for a general form to assist in hazard identification and risk assessment.
• WorkSafe publishes specific guides and checklists to assist in the identification of specific hazards. Visit www.worksafe.vic.gov.au or read the WorkSafe publication *More information about Controlling OHS hazards and risks.*

Risk control outcomes

At the end of the risk control step, all of the reasonably practicable measures to either eliminate risk or reduce it should have been identified and implemented.

///// Step 4 – Check controls

Controls that are put in place to protect the health and safety of people need to be monitored to ensure that they work as planned. This requires checking them and ensuring that processes are put in place to identify and quickly fix problems.

Checking controls

Checking controls involves the same methods as in the initial hazard identification step (step 1), and creates the loop in which workplace health and safety measures are maintained. Common methods used to check the effectiveness of controls are:
• inspecting the workplace
• consulting employees
• testing and measuring
• using available information
• analysing records and data.

Any failures in current controls should become apparent if these checks are made on a regular basis.

Mandatory review of controls

There are certain situations where the OHS Regulations require hazard and risk control measures to be reviewed and, if necessary, revised. These situations generally arise when:
• The hazard or risk changes. This can occur if there is a change to the thing, work process or system of work that gives rise to the hazard or risk.
• The current control measures do not adequately control the hazard or risk.
• An HSR requests a review on reasonable grounds.

Refer to the OHS Regulations to find out more information about the mandatory review of controls.

Maintaining effective controls

Maintaining effective controls to withstand the impacts of changed operating conditions requires a number of things to be put in place. The following elements are necessary to maintain effective controls over time:
• *Allocated accountability for health and safety* – accountability must be clearly allocated at various levels of management to ensure procedures are followed and maintained.
• *Regular consultation* – risk controls are more effective where there is initial and ongoing consultation with employees and HSRs.
• *Effective communication* – risk controls are more effective where procedures are communicated in appropriate language, and signs and symbols are used.
• *Up to date training and competency* – risk controls, particularly lower level controls, depend on all workers and supervisors having the appropriate competencies to do the job safely. Training should be provided to maintain competencies and to ensure new employees are capable of working safely.
• *Up to date hazard information and risk assessments* – information about hazards, such as plant and substances, may be updated by manufacturers and suppliers from time to time, and needs to be checked to make sure controls are still relevant. Changes to operating conditions or the way activities are carried out may also mean that risk assessments need to be updated.

Checking control outcomes

A good process for checking controls should test the ongoing effectiveness of control measures. If problems are detected, go back to any point in the methodical approach, review your information and make further decisions about risk control.

Putting the method into action

Getting ready – implementing an approach that suits the organisation

WorkSafe expects duty-holders to establish a system for controlling hazards and risks that ensures effective controls are implemented and maintained, and which is suited to the organisation.

The method in this guide needs to be adapted so that it will work effectively in the workplace. This will be influenced by:
• what the organisation does
• the way the organisation is managed and organised
• the size of the organisation
• the number of hazards and hazardous processes
• the types of hazards and risks
• the level of harm hazards and risks may cause.

Large organisations with many hazardous processes, large numbers of staff and layers of management will benefit from establishing formal processes to ensure consistency and certainty of results.

Any organisation (small or large) that has highly complex hazards with the potential to cause significant harm should also have formal processes to ensure that the hazards and risks are rigorously analysed and understood, and that control measures are formally assessed for effectiveness.

For smaller organisations that do not have high risk processes, less formal approaches may be used that rely on a minimum set of procedures and documentation.

All people involved in the steps to controlling hazards and risks must have the necessary skills to contribute. This may mean providing briefings on the approach adopted for the workplace or it may mean providing training. In some circumstances, it may be necessary to engage an OHS specialist.

Visit www.worksafe.vic.gov.au or read the WorkSafe publication *More information about Controlling OHS hazards and risks* about specific techniques that can be used in the methodical approach to control of risk.

Managing the process

The process is likely to be more manageable if the workplace is divided into discrete areas and the method outlined in this guide applied to each. This could be done on the basis of:
• specific work processes (machining parts on a lathe or order picking)
• work locations (warehouse, office, kitchen)
• work roles (nurses, call centre workers)
• production or service delivery processes (waste collection, drum cleaning, class room teaching).

In doing this, make sure that a review is carried out to ensure that hazards and risks that impact on other areas are identified and controlled so as to protect both areas. Hazards and risks should not 'fall between the cracks', and actions to control hazards and risks in one area should not create risks in another area.

In determining priorities for action, focus first on those areas that have the potential to cause the greatest harm or to cause harm more frequently.

Example:
A rural hospital could be broken into the following areas:
• *one area for each ward*
• *the operating theatre*
• *radiography*
• *pharmacy*
• *outpatients area*
• *emergency*
• *laundry and delivery*
• *food preparation and delivery*
• *building services.*

A committee could be established with representatives from all areas to ensure that health and safety issues common to the various areas are identified and dealt with.

Keeping records

Documenting the results of hazard identification, risk assessment and risk controls has significant benefits. In some cases, the OHS Regulations will require certain records to be kept and this must be done.

In any case, keeping basic records:

• Provides a good way of detecting flaws and omissions during the process.

• Assists induction and specific training to be targeted at key hazards.

• Provides a basis for preparing safe work procedures.

• Enables a duty-holder to demonstrate how decisions about what is reasonably practicable were made.

• Provides a base level of information when any changes to legislation or business activities require a review of risk control measures.

• Allows new staff to understand why risk control decisions have been made.

• Can be used to demonstrate to others (e.g. investors, shareholders, customers and regulatory bodies such as WorkSafe) that OHS hazards and risks in the organisation are under control.

A note on other approaches to risk management

The techniques used in the methodical control of OHS hazards and risks are drawn from risk management methodology. Risk management is used to help make decisions about risks in other fields of an organisation's activities, including financial and reputation risk. The approach to these risks is similar; however, there is a greater emphasis on acceptable risk criteria, the ranking of risk priorities and the 'treatment' of risk. Treatments may include avoidance and transfer of risk though contracting or insurance arrangements.

A methodical approach to the control of OHS hazards and risks that is consistent with the law does not permit the avoidance or transfer of OHS risk through contracting arrangements. The most widely used risk management standard is the *Australian/New Zealand Standard on Risk Management (AS/NZS 4360:2004)*. The standard and its companion guide *HB 205:2004* sets out a much more detailed process than the OHS risk management process. It is essential to remember that these industry tools only support the OHS risk management process set out in this guide. They are not alternative methods for satisfying the legislative requirements.

To ensure that 'reasonable practicability' is properly determined and that all legal requirements are met in relation to controlling OHS hazards and risks, duty-holders should follow the four-step approach summarised in this guide.

Appendix 1 – Common events that should trigger a risk assessment

Event	Description
Commencing a new business from scratch	There are normally a lot of things that need to be done in setting up a new business – setting up a place to run the business from, registering the business, setting up financial systems, recruiting staff, bringing in plant and equipment that will be used to produce the goods and services, and setting up work systems and procedures. This is the time to use the methodical approach to controlling OHS hazards and risks as well. Time invested ensuring that safety is 'built into' the business will protect people and avoid having to fix problems after start up.
Purchasing a new business	Purchasing a new business normally involves a range of 'due diligence' tests to ensure that unknown liabilities are not inherited. A methodical approach should be one of those tests to ensure that the purchaser does not become legally responsible for an unsafe or unhealthy workplace.
When there are changes in the work done, changes in the work environment, etc.	When your organisation takes on a new work activity or makes changes it should use the methodical approach to ensure that appropriate prevention measures are used. This situation could arise where a business begins a new product line or where it undertakes contract work in a new field.
Purchasing new or used equipment or hiring equipment, or using new substances and processes	The methodical approach should be used to evaluate new plant, equipment, substances and processes before they are introduced into the workplace. The methodical approach provides a means of analysing these items before they are brought to the workplace. This assists with making choices between options and provides a basis for setting up safe systems of work, training and supervision.
Planning for the impact of new OHS legislation	When legislation changes, checks need to be made to ensure that current OHS measures are still applicable. One of the characteristics of the OHS law is that standards change over time, and what was acceptable 10 years ago may not be acceptable today. In other words, what is reasonably practicable will change as technologies and knowledge about hazards improve.
Responding to incidents	Incidents (whether they cause an injury or not) need to be investigated to work out how current measures may have failed. An incident may be an indicator that not all that is reasonably practicable is being done to prevent harm in the workplace.
Responding to issues	Issues may be raised by employees and their HSRs about health and safety in the workplace. These issues may be best resolved by working through the methodical approach. Responding to the results of monitoring of hazards, such as noise or fumes, is also best done by using the methodical approach.
To justify an alternative to recognised practices	Specific requirements are normally found in regulations, while recognised solutions are found in codes and guidance. In circumstances where there is no mandatory way of controlling a risk and the recognised solutions do not meet the particular circumstances in the workplace, the methodical approach to controlling OHS hazards and risks should be used to identify all alternatives. If you adopt a control measure that is an alternative to current methods, then that alternative must: • Achieve the safety objective. • Provide the highest level of protection that is reasonably practicable.

Appendix 2 – Control of OHS Hazards and Risks

Location:

Date:

Hazard	What are the risks?	What can make the risk worse?	What are the current controls?	What is the likelihood and harm?		What further controls are required?	How will the controls be implemented?		
				Likelihood	Harm		Action by	Due Date	When Completed

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