	University of Otago
	ISO45001 Occupational Health and Safety Management System
	TITLE: OHSMS Risk Assessment Procedure
	OHSMS REF: Critical Risk – Identification and Processes

1. Overview of Hazard and Risk Management

DHSO	Departmental Health and Safety Officer
Hazard	A work related activity that may cause harm, injury, or ill health, such as chemicals, electricity, working from heights, etc.
HOD	Head of Department
Incident	Any occurrence that leads to injury or illness to people, danger to health and/or damage to property or the environment. It is an inclusive term for injuries, illnesses, and events.
Near miss	Any occurrence that might have led to injury or illness to a person, or damage to property or the environment.
Risk	The chance or likelihood that somebody could be harmed by one or more hazards, together with an indication of how serious the harm could be.
Risk management	Coordinated activities to direct and control an organisation regarding risk.
Student	Any person currently enrolled for study at the University of Otago.
Vault	The University's online H&S management system/reporting tool
Visitor	Any person who is not a student or staff member, who is present on the University of Otago campus.
Worker	Has the same meaning as in the Health and Safety at Work Act 2015: '*an individual who carries out work in any capacity for a PCBU'* and includes employees, contractors, and sub-contractors.

The University approach to the identification and management of hazards and risks is to reduce the risk to 'as low as reasonably practicable' (ALARP). This does not mean stopping all critical risk work – it is about a process to manage the risk to an acceptable level, to prevent harm. If this level cannot be achieved (e.g., travel to a high-risk country) then the ALARP process may identify not to undertake the travel as the only acceptable option. This is consistent with the H&S at Work Act requiring hazard and risk management through the hierarchy of:

- Elimination
- Substitution
- Minimisation including isolation

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The H&S team has developed systems, information, and support to enable staff and students to identify and manage risks. In some cases, the controls are specific and defined (e.g., occupational diving) and in other situations individual risk assessments must be conducted before the work is undertaken (for example, before a new experiment involving hazardous substances, as a part of fieldwork planning, etc.). Tools to meet these requirements are included within the OHSMS documentation.

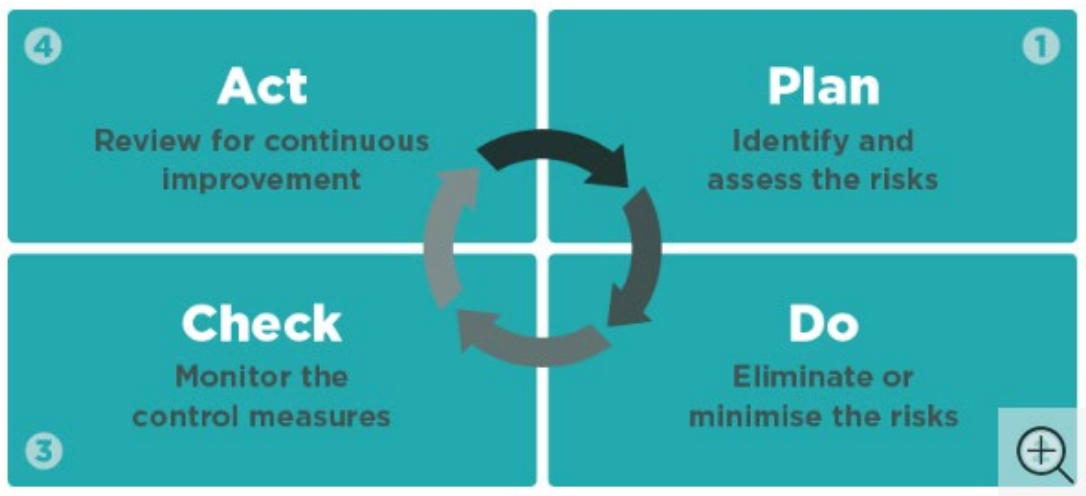The identified risks are managed through the critical risk management cycle as defined by WorkSafe:

Figure 1: WorkSafeNZ Critical Risk Management

These four steps involve:

1. Plan – assess the risk and identify control measures

- o Identify critical risk groups using data and analysis
- o Categorise by severity

2. Do – implement control measures

- o Completed a risk assessment for each risk group
- o Critical risk controls are documented within Vault, developed in consultation with workers, students, contractors, and visitors as appropriate, based on the legislative hierarchy of control
- o Adequately resource the critical risk control at various levels of the organisation

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3. Check – monitor performance of control measures

- o Review conformance with the critical risk control plan
- o Review critical risk related reported events and investigations to identify points of loss of control

4. Act – act on lessons learned

- o Update and review critical risk controls based on performance to continuously improve performance
- o Monitor resource availability, completion timelines and competing activities.

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1. PLAN - Critical Risk Groups

The H&S Team have reviewed the hazard and risk data and incident statistics (analysis) to identify the critical risk families within the University environment. The critical risk groups are:

Critical Risk Family	Sub-Risks
1. Construction & Maintenance	Asbestos Building Confined space Contractor management Electrical/high voltage power Hazardous substances Height work Hot work Isolation of services Lone worker/Remote Worker Plant and equipment Pressure/steam Sharps Stored energy Thermal comfort Traffic management
2. Emergencies & Natural Disasters	Active shooter Aggressive person/assault Bomb threat Hazardous substance spill Earthquake Environmental Fire Flooding, power outage, loss of critical services Medical emergency Pandemic Robbery Severe weather events Tsunami

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3. Fieldwork and Off Campus Activities	Boating Diving Driving including towing/transportation Drones Fieldwork locations/activities Hazardous substances International travel Lone worker/remote worker Placements Plant and equipment
4. Laboratory and Clinical Hazards	Animal handling Biological pathogens/blood and body fluids Compressed gases Fire Genetically modified organisms and uncleared biological substances Hazardous substances laboratory Lasers Lone worker/remote worker Needlestick Non-compliance Plant and equipment Radiation Sharps
5. Moving/movement and Events on Campus	Ice and weather conditions Organised events on campus Skateboards, scooters, and vehicles on campus Slips, trips, and falls Stairs/walkways
6. Occupational Health	Animal bite/sting non-laboratory Ergonomics Extreme temperatures Fatigue and shift work Manual handling Non-ionising radiation Occupational exposures: dust, noise, chemical Pathogens and infectious substances Zoonosis

7. Office and lecturing	Fatigue and shift work/hours of work
	Emergency response & working on site afterhours
	Manual handling
	Plant and equipment
	Workstation setup and related ergonomics (including Working from home)
8. Plant and Equipment	Compressed gas
	Electrical safety/high voltage power
	Guarding and maintenance
	Hazardous substances
	Lone worker/remote worker
	Plant and equipment
	Pressure/stored energy
	Sharps
9. Psychosocial Hazards (ISO 45003:2021)	Career development, support, and supervision
	Impairment
	Inherently stressful work
	Interpersonal relationships (bullying, etc.)
	Organisational change management
	Organisational/workgroup culture
	Remote/isolated work
	Work scheduling and structure, job demand, work/life balance

For each critical risk group, sub risks are recorded in Vault including the risk ratings. Copies of the required controls are documented in Vault, including the process for elimination, substitution, minimisation, and isolation.

2. DO – implement control measures

Each critical risk has the expected controls documented in Vault with supporting information readily available. This information may include policies, guidelines, codes of practice, general information, depending on the severity of the hazard or risk. Critical risks and controls are reviewed annually by the Central H&S Team and subject matter experts.

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Planning work, such as safety in design, refurbishments, purchasing of equipment, should all have a H&S component to identify opportunities and risk mitigation requirements. For example, the purchase of plant and equipment may have multiple benefits in addition to buying safe.

Identify each sub-risk that applies to your work or activity. Review the controls required and assess if the controls are applicable and suitable for your situation. If you are unsure, you can contact our DHSO, HOD or manager, or subject matter experts within the central H&S team.

If the risk is not covered by the critical risk group, then an individual departmental risk assessment is required. In some situations, this will be standard, such as fieldwork where a risk management plan is required for every trip.

The Departmental risk assessment process is defined within this document.

3. Check – monitor performance of control measures

Critical risks have controls identified within the risk assessment process. Where the controls are specified by policy, COP, guidelines or documented processes, auditing or monitoring of compliance with controls should be established. Where there are multiple controls or processes, such as chemical storage in a laboratory, laboratory design, an audit checklist is provided. Some audits are completed at department level, some are centrally management, and some are external. The full audit schedule and process is documented as a part of the OHSMS.

4. Act – act on lessons learnt

When events occur, or the findings of an audit are less than ideal, identify the corrective actions required. In the case of events, corrective actions are recorded in Vault with allocated responsibilities. Local investigations should involve those workers in the area and improvements identified. Record any improvements on Vault within the risk register. If the lessons learnt are wider than a department, contact H&S to generate a safety alert.

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Risk Assessment Procedure

There will be situations where the critical risks do not apply specifically, such as the purchase of new equipment, or specific departmental procedures. In these situations, the department may be required to complete a risk assessment, or you can ask the H&S office for assistance.

This risk assessment process is a practical and proactive technique that can be used by departments to conduct risk assessments for plant and equipment, activities performed regularly, complex operations and for the most common causes of injury, illness, or concern within the department (including students' feedback). Risk assessments can be entered into Vault, either by the DHSO or the H&S Team.

Risk assessments must be carried out by a competent person, in consultation with those who are exposed to the risk. This can be through a workshop, meeting, or desktop review. The use of photos or diagrams helps with identifying and clarifying the risks. Even with existing controls in place, reviewing a common risk may identify other practical controls that can be applied.
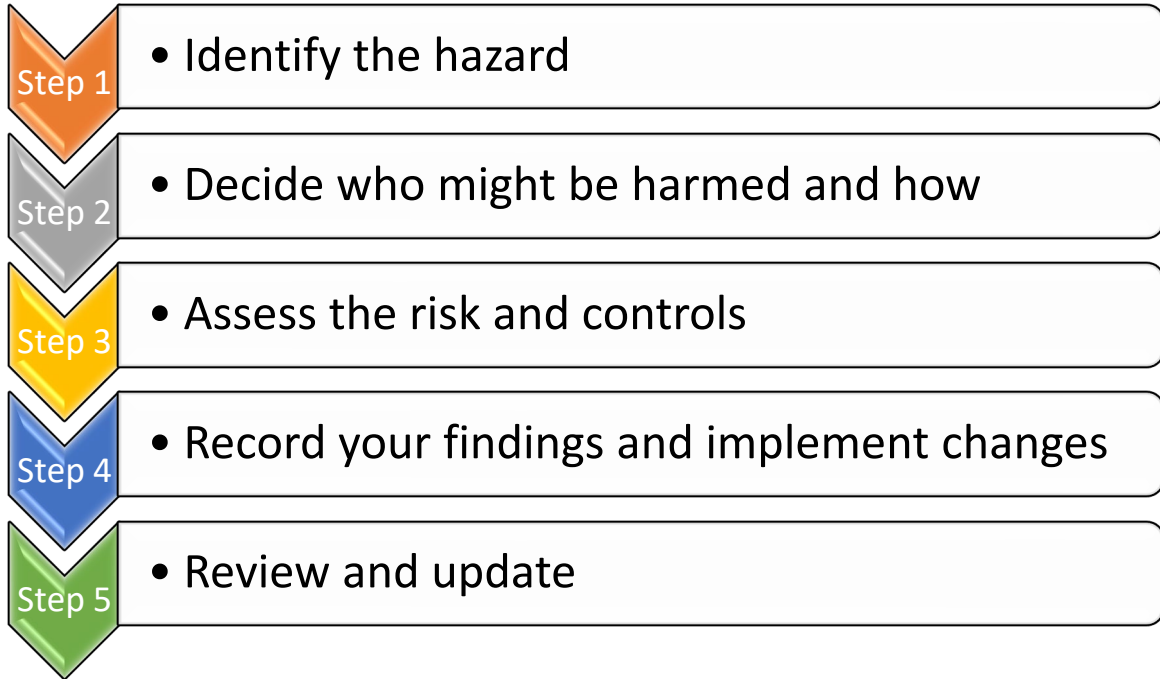
Identify the hazards/risks

A hazard or risk is anything that can cause harm, injury, or illness. Common hazards or risk categories may include the following:
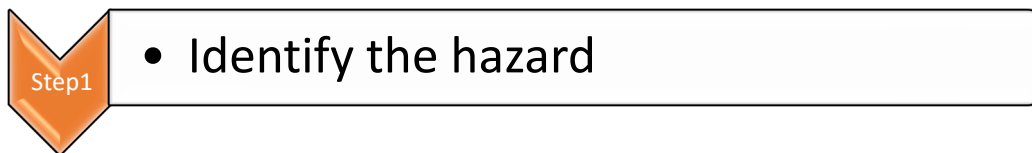
Types of hazards include:	Examples:
Gravity	Falling objects, people falling
Nip points	Caught between things
Struck by	Being hit by something
Kinetic energy	Projectiles, penetrating objects
Hazardous substances	Skin contact, inhalation, absorption, spills
Thermal energy	Spills and splashes of hot matter
Extremes of temperature	Effects of heat or cold
Radiation	Ultraviolet, arc flashes, microwaves, lasers
Noise	Hearing damage
Electrical	Shock, burns
Vibration	To hands or body
Biological	Micro-organisms, pathogens
Human factors	Drugs, alcohol, stress, fatigue

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The five-step risk assessment process

Step 1 • Identify the hazard

Step 2 • Decide who might be harmed and how

Step 3 • Assess the risk and controls

Step 4 • Record your findings and implement changes

Step 5 • Review and update

Each step is described in more detail below.

Step1 • Identify the hazard

Have a look around your workplace and see what could cause harm. Often, we get very used to our work environment and can easily overlook hazards, so it is useful to take a new staff member or a colleague from another work area to help with the risk assessment. Ways of identifying hazards include:

o Walk around the workplace.
o Review incidents, reports, and investigations.
o Ask staff and students what they think could cause harm/injury.

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- In specialist areas, ask other departments or staff who complete similar tasks, such as lab workers.
- Review WorkSafe and industry information and hazard alerts.
- Read up on equipment manuals or instructions.
- Consider health effects as well – for all individuals ages and stages.

For new plant and equipment, ideally pre-purchase, see the plant and equipment section including the risk assessment tool.

Step 2 • Decide who might be harmed and how

Think about who might be harmed, including students, visitors, specific groups of staff, people who may not be familiar with the environment. Consider specific groups:

- New and young workers/students.
- International staff and/or students.
- New or expectant mothers.
- People with disabilities.
- Cleaners, visitors, and contractors.
- Shared workspaces – how does your work affect them and vice versa?

Identify how they may be harmed (i.e., the type of injury or ill health that may occur).

Step 3 • Assess the risk and controls

Using the University of Otago risk framework, calculate the risk rating. This step helps focus the priorities of your risk assessment and what needs to be managed first. You may not always complete the risk assessment as the higher risks and hazards may be obvious (such as a lack of machine guarding).

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Overall Risk	Likelihood (L)	Impact (I)	Health and Safety
Very High ≥ 15	(5) Almost Certain	(5) Very Serious	Life threatening: • Loss of life(s) • Major health and safety incident involving staff or members of the public • Permanent disability • Permanent ill-health
High 10 - 14	(4) Probable	(4) Serious	Extensive injuries: • Loss of life • Significant health and safety incident involving staff or members of the public • Multiple serious injuries • Long term illness/disability
Medium 5 - 9	(3) Likely	(3) Moderate	Minor injuries: • Possible hospitalisation • Numerous days lost • Short term illness
Low 3 - 4	(2) Unlikely	(2) Minor	Potential for injury: • Medical/ First Aid treatment required • Some days lost
Near Miss 1 - 2	(1) Rare	(1) Negligible	No injuries: • Report, record and review.

	Very serious (5)	Serious (4)	Moderate (3)	Minor (2)	Negligible (1)
Almost certain (5)	Very high	Very high	Very high	High	Medium
Probable (4)	Very high	Very high	High	Medium	Low
Likely (3)	Very high	High	Medium	Medium	Low
Unlikely (2)	High	Medium	Low	Low	Low

Rare (1)	Medium	Low	Low	Near miss	Near miss

The legislation requires everything 'reasonably practicable' to be done to protect people from harm, using the hierarchy of controls.
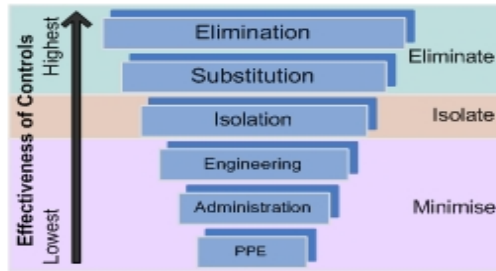
Elimination
Remove the hazard, or practice, altogether (e.g. can the job be done from outside the confined space)

Substitution
Reduce the risk to the user by using a safer alternative (e.g. less toxic chemicals for cleaning)

Isolation
Isolate the source, transmission path or receiver by barriers, screens, walls, partition, separate storage and work areas

Engineering (Minimisation)
Minimise, enclose and contain the hazard (e.g. Lock Outs, Fume cabinets or Fume Extractors for gases)

Administrative (Minimisation)
JSA, Safe Work Procedures, Job Rotation, Training, Safety Rules and Signage

PPE (Minimisation)
Seen as the "Last line of defence" against hazardous situations. It should only be considered if all other methods are impractical.

Look at what is already in place and what you are doing. Compare this with best practice or industry guides if you have any.

Consider:

- Can I eliminate the hazard?

If not, then isolation and/or minimise by:

- Reduce the risk, such as using a less hazardous substance.
- Prevent access to the hazard, through guarding, locking access, security.

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- o Organise work to reduce exposure – put barriers up to separate people and hazards.
- o Issue personal protective equipment – last on the list, all other options must be considered first.

Involve staff and students that use the equipment or perform the task frequently. Get a fresh set of eyes to help.

Step 4 • Record and implement your findings

Complete the risk assessment form and use that as a guide throughout the process. Your DHSO can directly enter the information into Vault, or you can provide the completed form to your DHSO or the H&S Team for entry. This process includes corrective actions that will be escalated as appropriate for changes to be made.

Some of the changes will be easier to implement than others. Do what you can at a departmental level. If significant changes are needed, such as building changes or extra equipment, these corrective actions need to be confirmed with the H&S Team as the right thing to do, and who is going to be responsible. Consult with your DHSO and HOD/Manager in the first instance and refer to the H&S Team for assistance and advice. If there are multiple actions to implement, develop a plan focussing on the most critical controls first. For significant risks that have the potential to apply to other areas of the University, the H&S Team may initiate a review for inclusion in an existing critical risk group or establish a new group.

Share findings with all affected staff, students, visitors, cleaners, and others. Updates of risk assessment should be forwarded to the appropriate Operational H&S Committee (see the Worker Participation Framework) for discussion and noting.

You need to be able to show that:

- o a proper check was made;
- o you asked who might be affected;
- o you dealt with all the obvious significant hazards, considering the number of people who could be involved;
- o the precautions are reasonable, and the remaining risk is low; and
- o you involved your staff and students in the process.

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Step 5

- # Review and update

When you have identified and implemented the controls, set a date to review the effectiveness of these controls. Audit and review that the controls are being applied, review any incidents that have occurred, and gather information on how the controls are viewed by staff and students. Should additional risks be identified, or the controls are not being applied, start investigating the reasons to identify improvements. If you need assistance, please contact H&S.

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