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RCSI DEVELOPING HEALTHCARE LEADERS WHO MAKE A DIFFERENCE WORLDWIDE

This procedure aims to allow you to answer basic questions on risk assessments such as “the definition of risk assessment”, “why do risk assessments?”, “when to do a risk assessment?” and “how to do a risk assessment?”

What is Risk Assessment?

Risk Assessment is a careful examination of anything in your workplace that has a potential to cause you and / or others harm.

A risk assessment is a vital element for health and safety management and its main objective is to determine the measures required to comply with statutory duties under the Safety, Health and Welfare at Work Act, 2005, and associated regulations by reducing the level of incidents and injuries in the workplace.

Why do a Risk Assessment?

A risk assessment will protect you, your staff and RCSI business, as well as complying with the law. A Risk Assessment must be completed before you or any staff commence work, which may represent a risk of injury or ill health.

Risk Assessment workshop training is available to all staff. [Click here](#) to find upcoming courses.

How to do a Risk Assessment

There are no fixed rules on how a risk assessment should be carried out, but there are a few general principles that should be followed. Five steps to risk assessment is the best method to ensure that your risk assessment is carried out correctly:

1. List work tasks
2. Identify the hazards, risks and decide who might be harmed
3. Estimate the risks
4. Evaluate the risks
5. Record and review your findings

1. List work tasks

Review what you do on a daily basis e.g. walk around your work locations; review the steps of your task from start to finish. For each task, write up a list of items such as:

- Location(s) – area / bench / office where the work takes place
- Equipment – machinery / electrical items / computer
- Chemicals & biologicals agents
- Environment – lighting / steps / street / hot / cold

2. Identify the hazard, risk and decide who might be harmed

In order to identify hazards you need to understand the difference between a ‘hazard’ and ‘risk’.

A hazard is anything in your workplace that has a potential to cause harm. A risk is the likelihood of that potential harm happening. To identify hazards and risks simply, they can be placed in broad groups as per example below:



HAZARD CATEGORY	HAZARD TYPE	HAZARD	RISK
Physical hazards	Manual handling / ergonomics	Heavy boxes / equipment lifted by staff; Chair / desk equipment set up incorrectly.	Back injury; Repetitive strain injury.
	Fire	Flammable chemicals stored outside safety cabinet; Damaged electrical equipment / plugs/wiring; Poor housekeeping – buildup of paper / rubbish / material.	Fire/burns; Fire risk/burns; Fire risk of spreading/burns.
	Slips/trips/falls	Spillages on floors not cleaned up; Floor tiles loose.	Risk of person slipping; Risk of person tripping.
	Reproductive	Lifting heavy weights; Exposure to chemicals/biological agents; Poor posture at computer.	Injury to mother/foetus; Miscarriage; Discomfort and stress.
Chemical hazards	Inhalation Injection Absorption Ingestion	Working with flammable chemicals or equipment such as Bunsen burner; Working with chemicals that produce vapour; Working with needles / sharps; Not wearing correct/any PPE/poor hygiene/not washing hands before leaving lab.	Burns to skin; Respiratory illness – Inhalation; Infection-injection into skin; Infection-absorption through skin.
Biological hazards	Injection Absorption Ingestion Infection	Working with biological agents, animals, patient specimens, incl COVID-19. High temperature; shortness of breath; breathing difficulties; cough Sample COVID-19 risk assessment available here	Potential infection if absorbed, ingested, injected, inhaled.
Mechanical / Electrical hazards	Mechanical equipment	Moving parts not adequately protected; Interlock not working on centrifuge.	Entrapment/laceration or crush injury; Loss of limb.
	Gas	Excess cylinders in lab; Gas tap left on; Incorrect attachment of head.	Asphyxiation; Explosion/fire; Pressure impact – injury.
	Electrical equipment	Loose wires in plug could cause fire; Equipment not maintained annually; Electrophoresis power unit switched on when electrodes attached.	Electric shock; Death/electrocution.
	Pressurised vessel	Autoclave not tested annually could rupture; Vacuum flask without safety cage could implode.	Cause serious injury; Serious injury.



HAZARD CATEGORY	HAZARD TYPE	HAZARD	RISK
Climate hazards	Excessive heat	Working outdoors	Exposed to excessive heat
	ultraviolet radiation		Kidney disease
	extreme weather events	Exposed to ultra violet radiation in a lab setting	Skin cancer
	air pollution		Exposed to workplace air pollution
	Parasites		Exposure to parasitic and vector-borne diseases.

Sometimes however we cannot see hazards so easily. Think of other hazards such as:

- Noise – machine, workplace, outdoor noise
- Vibration – floors, equipment
- Dust – atmosphere
- Chemicals
- poor posture
- stress – workplace stress

Once you have identified the hazards in your workplace, it is time to **decide who might be harmed** for example:

- You
- Your fellow colleagues
- Others in your office, lab, building
- Members of the public

3. Estimate the Risks

After 'identifying the hazards' and 'deciding who might be harmed and how, you are then required to protect you and others from harm. Either the hazards can be removed completely from the work task or the risks controlled so that the injury is unlikely to occur. Therefore, identify the likelihood of the risk and determine its consequence from the tables below.

How likely will the hazard occur?

Likelihood Category	Definition
1	Practically Impossible
2	Not Likely
3	Possible
4	Likely
5	Very Likely

If the hazard does occur what will be the consequence?

Consequence Category	Definition
1	First Aid treatment required
2	Off work for 1 Day and / or Medical (GP, Hosp treatment) treatment required
3	Off work for 3 consecutive days (incl weekend, regardless if no weekend work) or a dangerous occurrence occurs (click here for dangerous occurrence definitions in Appendix 1)
4	Single Fatality
5	Multiple Fatalities



4. Evaluate the risks

The evaluation of the risk is identified by using a multiplier of the likelihood and consequence categories you chose in the table above. The Risk Matrix below is a graphical portrayal by shaded areas of high, medium and low risk. Calculate your chosen likelihood and consequences categories in the below table to determine your risk rating number.

LIKELIHOOD	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	CONSEQUENCE					

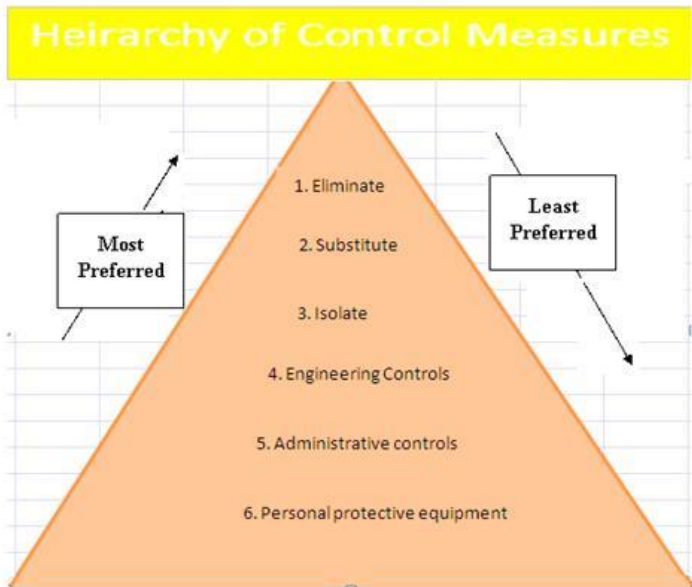
5. Record & review your findings

Once you have identified the risk rating number above, you can then decide on an action plan to take. Place your risk rating number in the relevant box below and follow the details. Use the risk assessment template form on the next page to record all your findings and action plan. All risk assessments should be kept on file (either soft/hard copy) for a period of 10 years.

RISK RATING NUMBER	ACTION PLAN	REVIEW PLAN	RESPONSIBLE PERSONS TO HELP/IMPLEMENT CONTROLS
Low Risk (1 - 5)	This is an acceptable level of risk. The risk is controlled as low as reasonably practicable .	The existing control in place to be continuously monitored / implemented . Carry out a full review of the risk assessment every 2 years if no changes to the task within that time.	Owner of the task / risk assessment
Medium Risk (8 - 10)	If possible, aim to reduce the risk further too as low as reasonably practicable – use the 'hierarchy of control' (pyramid diagram) below.	The controls in place to be continuously monitored / implemented . Carry out a full review of the risk assessment on a quarterly basis if no changes to the task within that time.	Owner of the task / risk assessment Supervisor / Principle Investigator (PI)
High Risk (12 - 25)	Make a conscious effort to remove the hazard or reduce the risk as low as reasonable practicable – use the 'hierarchy of control' (pyramid diagram) below.	The controls in place to be continuously monitored / implemented . Carry out a full review of the risk assessment on a monthly basis if no changes to the task within that time.	Owner of the task / risk assessment Supervisor / PI Head of Dept (HOD) Health & Safety Office



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1. **Eliminate** = remove the hazard.
2. **Substitute** = change it with something less hazardous but does the same job.
3. **Isolate** = put a 'barrier' between you & the hazard.
4. **Engineering controls** = machine does the job for you.
5. **Administrative controls** = training, SOP's, etc.
6. **Personal Protective Equipment** = wear protective clothing (least preferred as you are relying on people to wear it).



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NAME THE WORK TASKS	HAZARDS	RISKS	PERSONS AFFECTED	INITIAL RISK RATING (before controls/action plan in place)	Control Measures/Action Plan	RESIDUAL RISK RATING (after controls in place)	PERSONS RESPONSIBLE (for implementing control measures)
Date Risk Assessment Carried Out:				Signature of Risk Assessment author:			Next Review Date: