

Biosafety Risk Assessment Template

This template can be used for biosafety risk assessment or general safety risk assessment of laboratory activities. Personnel on the risk assessment team may include laboratory and quality managers, laboratory technicians and biosafety officers. Active involvement of the laboratory and/or organizational leadership is important in the risk assessment process.

([https://www.who.int/publications/i/item/laboratory-biosafety-guidance-related-to-coronavirus-disease-\(covid-19\)](https://www.who.int/publications/i/item/laboratory-biosafety-guidance-related-to-coronavirus-disease-(covid-19)))

Institution/Facility name	
Laboratory name	
Laboratory manager/Supervisor	
Project titles/Relevant standard operating procedures (SOPs)	
Date	



STEP 1. Gather information (hazard identification)

Instructions: Provide a brief overview of the laboratory work and summarize the laboratory activities to be conducted that are included in the scope of this risk assessment.	
Describe the biological agents and other potential hazards (for example, transmission, infectious dose, treatment/preventive measures, pathogenicity).	
Describe the laboratory procedures to be used (for example, culturing, centrifugation, work with sharps, waste handling, frequency of performing the laboratory activity).	
Describe the types of equipment to be used (PPE, centrifuges, autoclaves, biological safety cabinets [BSCs]).	
Describe the type and condition of the facility where work is conducted.	
Describe relevant human factors (for example, competency, training, experience and attitude of personnel).	
Describe any other factors that may affect laboratory operations (for example, legal, cultural, socioeconomic).	





STEP 2. Evaluate the risks

Instructions: Describe how exposure and/or release could occur.	
What potential situations are there in which exposure or release could occur?	
What is the likelihood of an exposure/release occurring? <ul style="list-style-type: none"> • Unlikely: to occur in the near future • Possible: to occur in the near future • Very likely: to occur in the near future 	
What is the severity of the consequences of an exposure/release (negligible, moderate, severe)?	

Instructions: Evaluate the risk and prioritize the implementation of risk control measures. Circle the initial (inherent) risk of the laboratory activities before additional risk control measures have been put in place.				
<i>Note:</i>				
<ul style="list-style-type: none"> • When assigning priority, other factors may need to be considered, for example, urgency, feasibility/sustainability of risk control measures, delivery and installation time and training availability. • To estimate the overall risk, take into consideration the risk ratings for the individual laboratory activities/procedures, separately or collectively as appropriate for the laboratory. 				
		Likelihood of exposure/release		
		Unlikely	Possible	Likely
Consequence of exposure/release	Severe	Medium	High	Very high
	Moderate	Low	Medium	High
	Negligible	Very low	Low	Medium
Laboratory activity/procedure		Initial risk (very low, low, medium, high, very high)	Is the initial risk acceptable? (yes/no)	Priority (high/medium/low)



Select the overall initial risk.	<input type="checkbox"/> Very low	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High	<input type="checkbox"/> Very high
Should work proceed without additional risk control measures?	<input type="checkbox"/> Yes <input type="checkbox"/> No				



STEP 3. Develop a risk control strategy

Instructions: List any requirements that have been prescribed by international and national regulations, legislation, guidelines, policies, and strategies on biosafety and biosecurity.	
Describe the measures required by national legislation or regulations (if any).	
Describe the measures advised by guidelines, policies and strategies (if any).	

Instructions: Describe the resources available for risk control and consider their applicability, availability, and sustainability in the local context, including management support.	
Are resources sufficient to secure and maintain potential risk control measures?	
What factors exist that may limit or restrict any of the risk control measures?	
Will work be able to proceed without any of the risk control measures; are there alternatives?	



STEP 4. Select and implement risk control measures

Instructions: Describe where and when risk control measures are needed, the level of residual (remaining) risk when these risk control measures are in place, and an assessment of the availability, effectiveness, and sustainability of the risk control measures.				
Laboratory activity/procedure	Selected risk control measure(s)	Residual risk (very low, low, medium, high, very high)	Is the residual risk acceptable? (yes/no)	Are risk control measures available, effective, and sustainable? (yes/no)

Instructions: Evaluate the residual risk that remains after risk control measures have been selected, to determine whether that level of risk is now acceptable and whether work should proceed. Circle the residual risk of the laboratory activities after risk control measures are in place.

		Likelihood of exposure/release				
		Unlikely	Possible	Likely		
Consequence of exposure/release	Severe	Medium	High	Very high		
	Moderate	Low	Medium	High		
	Negligible	Very low	Low	Medium		
Overall residual risk:		<input type="checkbox"/> Very low	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High	<input type="checkbox"/> Very high
If the residual risk is still unacceptable, further action is necessary, such as additional risk control measures, based on the initial risk evaluated in STEP 2, redefining the scope of work such that it is acceptable with existing risk control measures in place, or identifying an alternative laboratory with appropriate risk control strategies already in place that is capable of conducting the work as planned.						
Should work proceed with selected risk control measures?		<input type="checkbox"/> Yes <input type="checkbox"/> No				
Approved by (name and title)						
Approved by (signature)						
Date						

Instructions: Describe how to communicate risks and risk mitigation strategies to personnel. Provide a mechanism of communication within the laboratory. Describe the process and timeline for ensuring all identified risk control measures and that associated SOPs and training have been completed before starting the laboratory work.	
Communication of the hazards, risks and risk control measures	
Implementation of risk control measures	
Training of personnel	
Operational and maintenance procedures	



STEP 5. Review risks and risk control measures

Instructions: Establish a periodic review cycle to identify: changes in laboratory activities, biological agents, personnel, equipment or facilities; changes in knowledge of biological agents or processes; and lessons learnt from audits/inspections, personnel feedback, incidents, or near misses.	
Frequency of the review	
Person to conduct the review	
Describe updates/changes	
Personnel/procedures to implement the changes	
Reviewed by (name and title)	
Reviewed by (signature)	
Date	

