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GUIDELINES SERIES

Workplace Sector Specific Risk Assessment

Volume 1

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Foreword

The COVID-19 pandemic is significantly impacting economies, social cohesion and health systems of African Countries. The effects of the pandemic, if not efficiently and effectively addressed, will have an adverse impact on the realisation of continental goals set in the African Union (AU) Agenda 2063, the Sustainable Development Goals and other developmental goals and targets at the continental, regional and national level.

In February 2020, the AU Member States adopted a strategy that aims to prevent severe illness and death from COVID-19 infection and to minimize social disruption and economic consequences of COVID-19 outbreak. The AU has so far established a Coronavirus fund with commitments to-date totalling USD20 million. At the national level, most African countries have implemented lockdowns, testing (of suspected cases) and contact tracing.

On the 4th of April 2020, the African Union Development Agency (AUDA-NEPAD) published a White Paper on AUDA-NEPAD Response to COVID-19 and other epidemics. The Paper features five key priorities with an aim of strengthening: health systems; food systems; skills development and employment; education; and national planning and data systems.

As part of AUDA-NEPAD's While Paper, particular focus has been placed on occupational safety and health (OSH) for both frontline health care workers and the working population at large. It is evident that the impact of COVID-19 on the working population is significant, especially the working population that have high exposure risks due to the nature of their work. This cohort includes healthcare workers, laboratory workers, border management teams, those in the food supply, logistics and public transportation industry, death-care workers, and waste management workers, amongst others. Similarly, the pandemic has posed significant risks to other workers, inter alia, increased absenteeism; loss of wages and jobs; loss of man-hours and productivity; increase in medical costs in the face of limited medical insurance cover and social protection; changes in the way of doing business; and interruption of supply chains.

There is, therefore, need for a coordinated response by the AU Member States to minimise the impact of COVID-19 on the working population. Such efforts will, amongst others, promote the efficient and effective deployment of expert support thereby making available technical support and evidence-based guidance and advice on occupational safety and health needs within the realm of AU's COVID-19 response Plan.

It is with the foregoing that AUDA-NEPAD in collaboration with the African Union Commission, the International Labour organisation and other partners have developed the COVID-19/OSH Guidelines for Specific Workplaces. The guidelines covering thematic areas such as Occupational Safety, Health and Wellness of Health Workers and Clinical Occupation Health, serve as key technical reference instruments for all stakeholders, including national and sub-national governments, regional bodies, civil society, academia and development partners, to work in a coordinated and coherent manner in addressing occupational safety and health at workplaces in the face of the Covid-19 pandemic.

It is our sincere hope that the values and imperatives that are framed in the guidelines will inspire all of us to promote occupational safety and health at workplaces as part of the concerted efforts to fight against the effects of the global pandemic and advance the Continent's development agenda encapsulated in Agenda 2063.

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Chief Executive Officer

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Definition Of Terms

COVID-19: The infectious disease bread by the SARS-CoV-2 virus (Severe Acute Respiratory Syndrome Coronavirus 2)

Decontamination: means to remove, as far as is reasonably practicable, all inanimate objects by way of sweeping, cleaning, washing, ventilating or any other process aimed at removing the contaminant;

Disinfect: means to render non-viable virtually all recognised pathogenic micro-organisms, but not necessarily all microbial forms.

Hazard: Is a source of risk. For example, a hole in the ground is a hazard, which carries with it the potential to cause injury. The risk associated with this hazard is the product of the likelihood that a person will accidentally fall into the hole and the severity of injury should the accident take place.

HBA (Hazardous Biological Agent): Micro-organisms that have been genetically modified pathogens, cells, cell cultures and human endoparasites that have the potential to provoke an infection or toxic effects.

Risk: Generally, has come to mean a factual estimate of the likelihood and severity of a deleterious effect. In mathematical terms "risk" is the probability or likelihood that an event will occur and the severity or consequences of the event.

Risk Assessment: Involves the identification and detailed evaluation of the hazards of any activity and a determination of the risk, stated as the probability and severity of injury as a result of human exposure to the hazard.

Risk Management: Is the process which management makes decisions concerning control and minimisation of hazards and acceptance of residual risks. The distinction between risk assessment and risk management is that risk assessment involves the scientific qualifying and quantifying of risks, while risk management is a decision-making process whereby choices are made on risk reduction and acceptance of residual risk.

Reasonably Practicable: Means practicable having regard to:

a) the severity and scope of the hazard or risk concerned'

b) the state of knowledge reasonably available concerning that hazard or risk and of any means of removing or mitigating that hazard or risk;

c) the availability and suitability of means to remove or mitigate that hazard or risk; and

d) the cost of removing or mitigating that hazard or risk in relation to the benefits deriving there from

Acronyms

BSC	Biological Safety Cabinet
COID	Compensation for Occupational Injuries and Diseases
COPD	Chronic Obstructive Pulmonary Disease
COVID-19	Coronavirus disease 2019
FFP3	Filtering Face Piece
HBA	Hazardous Biological Agents
HEPA	High-efficiency particulate air
HR	Human Resources
ILO	International Labour Organization
OH	Occupational Health
OSHMS	Occupational Safety and Health Management Systems
OSH	Occupational Safety and Health
PARP	Poly ADP-ribose Polymerase
PPE	Personal Protective Equipment
RA	Risk Assessment
RPE	Respirator Protective Equipment
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SCID	Severe Combined Immunodeficiency
SHE	Safety Health and Environment
TB	Tuberculosis
UVGI	Ultraviolet germicidal irradiation
UV	Ultraviolet
WHO	World Health Organization

1. Background

The Corona Virus otherwise commonly known and referred to globally as COVID-19 was declared a global pandemic by the World Health Organisation (WHO) on 11 March 2020. COVID-19 is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

COVID-19 is primarily transmitted from symptomatic people to others who are in close contact through respiratory droplets, by direct contact with infected persons, or by contact with contaminated objects and surfaces. By their very nature, workplaces are ideal environments through which viral infections like COVID-19 can spread from person to person. It is therefore prudent to conduct a risk assessment in every workplace.

A risk assessment (RA) is a multi-disciplinary structured approach to identifying, evaluating and controlling health risks at work associated with exposure to hazards (biological, physical, psychological, ergonomic, safety, etc). The main purpose of RA is to recommend control measures that aim to protect the worker, visitors, contractors, the environment, public and property including ensuring business continuity. The risk assessment is an integral part of occupational safety and health management systems (OSHMS). The organisational OHSMS and occupational safety and health (OSH) policy must state how the risks will be assessed and managed in the context of the organisational/ business strategic plan.

The RA should consider vulnerable workers in the context of each hazard identified such as inexperienced workers, pregnant woman, people with compromised immune systems (underlying health problems) and more particularly elderly people in terms of COVID-19. Ideally, a risk assessment focusses on identification of hazards, however, if an organisation is reviewing or conducting a COVID-19 risk assessment, the emphasis must be on identifying the source of exposures. The process should focus primarily on high-risk areas / amplification points such as central entrances, canteens or meeting rooms, transportation, central working points such as printers, boardrooms, etc.

The RA process should identify the risks, rate their magnitude and identify appropriate controls. The RA forms the basis of any risk control strategy in any workplace. It requires a multi-disciplinary team which should include managers, human resources, medical doctors, occupational/industrial hygienists, occupational health nurses, wellness practitioners, safety specialists, engineers, employees, etc. It is possible to conduct a risk assessment without the availability of some of the experts listed and one can utilize the services of consultants.

It is worth noting that the RA should be conducted by competent persons. It should also focus on significant risks and not become overly trivial. Pathogens or biological hazards are classified into four risk groups as per their level likelihood of risk of infection, spread to the community and availability of prophylaxis. For the purposes of conducting a Covid-19 RA, and while there is no vaccine available, SARS-CoV-2 is classified as a Group 4 Hazardous Biological Agent based on the severity of the disease caused and the requirement that pathogens not listed, should be classified as the highest risk group amongst those that are classified. Table 1 below provides insight into the various HBA Groupings and their criteria for classification.

Table 1: Biological Hazards Classification Group

GROUP 1	GROUP 2	GROUP 3	GROUP 4
• Unlikely to cause human disease	• May cause human disease and pose a hazard to exposed worker • Unlikely to spread human disease • Effective prophylaxis and treatment available	• Cause severe human disease and serious hazard to exposed worker • Can spread to the community • Effective prophylaxis and treatment available	• Cause severe human disease and serious hazard to exposed worker • Can spread to the community • No Effective prophylaxis and treatment available

2. Application

This is a generic risk assessment tool developed to assist all industries to perform an OSH/COVID-19 risk assessment. Employers and self-employed persons are legally required to conduct a risk assessment to identify hazards and protect their workers, themselves, visitors and thee community. The risk assessment must be conducted by a competent person(s) following relevant laws, regulations, codes or standards, as well as the organisational policies and procedures. Since the outbreak of the COVID-19 Pandemic, the baseline risk assessment should be reviewed. The findings of the risk assessment should be communicated to all employees, contractors and visitors and the employer must keep a register of all that have been informed of the risk assessment.

3. Objectives

This generic guide to assessing the potential risk of exposure to OSH/COVID-19 infection and control measures at workplaces. The main objectives of the Guide are:

- To identify and assess the potential risk of exposure to hazards (Biological, physical, safety, psychosocial, ergonomic) at workplaces
- To identify control measures (or the absence of control measures) and assess their effectiveness to reduce the risk of worker exposure in a workplace
- To raise awareness and communication to employer, employees, and contractors of the identified risks, control measures in place and those to be instituted and clear roles and responsibilities of each group
- To promote organisational occupational safety and health culture and improve compliance with legal requirements

NB: This template is a minimum guideline and should not be regarded as the gold standard, the organisation should adopt comprehensive RA tools that are relevant to their operational requirements and complexity of the process.

4. Workplace risk assessment process

The International Labour Organization outlines the Five steps of the risk assessment as follows:
Step 1: Identify the hazards;
Step 2: Identify who might be harmed and how;
Step 3: Evaluate the risk – Identify and decide on the safety and health risk control measures;
Step 4: Record who is responsible for implementing which control measure, and the time-frame;
Step 5: Record the findings, monitor and review the risk assessment, and update when necessary.

For more details on the 5 steps see the ILO the 5 steps STEP GUIDE for employers, workers and their representatives on conducting workplace risk assessments.

Workplace Risk Assessment

The employer is required to conduct a risk-based assessment covering all work activities as per the local regulatory framework and international OSH best practices in workplaces. The risk assessment should identify:

- Significant sources of COVID-19 exposures to which employees may be exposed to.
- Health effects associated with exposure to COVID-19.
- Nature of the key workplace operations and activities that pose the greatest potential for exposure to and spread of COVID-19.
- Occupations and number of employees who are likely to be exposed to and spread the COVID-19.
- Identifying the risk of exposure for vulnerable

employees (occupational diseases, communicable and non-communicable diseases) without singling out employees and compromising patient confidentiality.

- Determining if workers could be exposed to activities or materials where the virus may be encountered.
- Establishing appropriate control measures for each identified risk i.e. engineering, administration, personal protective equipment etc. (Note: Personal protective should not be the first form of control to be considered if there are other ways of controlling exposure).
- De-densification of employees on transport modes and other spaces.
- Frequency of any ongoing monitoring to assess the effectiveness of the controls.
- Identify any existing human resources policies that need to be revised to accommodate current national, regional and international disaster management, lockdown, prevention and control strategies
- Draft and communicate a clear supply chain standard operating procedure to suppliers: this will include a procedure for receiving of packages and parcels, clear mitigation measures should be provided such as a separate room with hygiene and sanitization of parcels and goods before they can be sent inside the main work area.
- WHO classifies the exposure risk of COVID-19 infection into 4 risk groups, (refer to Table 2 below).

  Note: Table 2 below presents information to assist on determining exposure Probability not exposure Severity. Exposure severity is more complex as it requires the risk assessor to understand how an exposed individuals' vulnerabilities / comorbidities impact on the relative risk of the employee in the situation. However, to make things easier, this RA guide assumes that all assessed situations are being attended to by a healthy worker with no known comorbidities (Low Vulnerability Group). The Risk Rating of an individual with Medium to Very High Vulnerability would require direct engagement with the employee as well as a health professional. For a summary of comorbidities that may influence the risk ranking of the situation, refer to Table 3 below.

Table 2: COVID-19 Minimum Exposure Probability Risk Classification

i. Very high exposure risk	High potential for exposure to known or suspected sources of COVID-19 during specific medical, post-mortem, or laboratory procedures. The very high-risk exposure activities include performing aerosol-generating procedures for example intubation, cough induction procedures, bronchoscopies, or invasive specimen collection) on known or suspected COVID-19 patients
i. High exposure risk	High exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19. In the case of the mining industry, medical surveillance procedures such as spirometry and breathalysers fall into this category.
ii. Medium exposure risk	Medium exposure risk jobs include those that require frequent and/or close contact with i.e., within 2 meters of people who may be infected with COVID-19, but it is unknown. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travellers who may return from international locations with widespread COVID-19 transmission. In areas where there is ongoing community transmission, workers in this category may have contact with the general public for an example in schools and high-population-density work environments
i. Low exposure risk	Low exposure risk jobs are those that do not require contact with people known to be or suspected of being infected with COVID-19 nor frequent contact (within 2 metres) with the general public. These workers have minimum contact with the general public and co-workers

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Table 3: Classification of employee by vulnerability

Very high vulnerability

This group includes employees who are likely to develop severe, rapidly progressive, and fulminant disease. Examples include:
• Solid organ transplant recipients on immunosuppressive treatment
• People with specific cancers or receiving immunosuppressive treatment for their cancer
  o undergoing active chemotherapy or radical radiotherapy for lung cancer
  o cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment
  o receiving immunotherapy or other continuing antibody treatments for cancer
  o receiving targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or Poly ADP-ribose Polymerase (PARP) inhibitors
• People who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppressive drug.
• People with severe respiratory conditions including l cystic fibrosis, severe and unstable asthma and severe Chronic Obstructive Pulmonary Disease (COPD), or current active tuberculosis of the lung.
• People with rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as Severe Combined Immunodeficiency (SCID), homozygous sickle cell).
• People on immunosuppressive therapies not otherwise mentioned above, sufficient to significantly increase risk of infection. (e.g. high doses of steroids)
• Pregnant women who have significant heart disease, congenital or acquired.
• People who are older than 65 years, although healthy elderly can be handled on a case by case basis

High vulnerability group
Employees who fall in this group include employees who are more likely to develop severe disease. Examples include: • Those of age 60 – 65 years • Those with moderate chronic lung disease or severe asthma • Those with previous pulmonary TB with confirmed significant structural damage on imaging or impairment on spirometry • Those with serious heart conditions • Those who are moderately or intermittently immunocompromised • Those with severe obesity (body mass index [BMI] ≥40) • Those with poorly controlled chronic medical conditions, such as diabetes, renal failure, hypertension or liver disease • Pregnant women over 28 weeks gestation

Medium vulnerability group
Employees who fall in this group include those conditions that place them at risk, but which are controlled. Examples include: • Pregnant women fewer than 28 weeks gestation but otherwise healthy • Those of age 40 – 60 years, with controlled medical conditions such as hypertension, diabetes, cardiovascular disease, etc. • Those with a previous history of TB, who have recovered with no or minimal residual impairment or structural lung damage • Those with moderate obesity (BMI >35)
Medium Low vulnerability group
Employees who fall in this group include those who do not have a condition places them at an unknown (but presumed increased) risk, or they suffer a condition for which there is no evidence, but first principles (physiology, pathophysiology) suggests that they may likely be at a theoretically increased risk. Examples include: • Those under the age of 40 with controlled medical conditions such as hypertension, diabetes, cardiovascular disease, etc • Those who are obese (BMI >32)
Low vulnerability group
Employees who fall in this group include those without specified risk factors.

Workplace Risk Assessment Review.
The principle is always to review the current risk assessment for those organisations that currently have a risk assessment in place. If not, then a baseline risk assessment is warranted. The principles of risk assessment within the OHSM dictates that risk assessment should be reviewed whenever circumstances arise or change at the mine that could have an impact on the original assessments. The international best practice suggests the following circumstances:

- When a new risk has been introduced or suspected to be introduced (in this case, the COVID-19 pandemic);
- When outcomes of medical surveillance programmes indicate the need for it;
- When new or revised legislation is introduced (in this case the activation of Disaster Management Laws);
- When a new control has been introduced or the results of the occupational hygiene survey show a high exposure (case of COVID19);
- When process changes are introduced (e.g. in process plants);
- When new types of machinery, technology, processes or methods are introduced; and
- When the current risk assessment has expired and is up for review.

An employer or a self-employed person must cause the risk assessment to be conducted by persons competent based on all available information as far as is reasonably practicable, including:

i) classification of SARS-CoV-2 virus into the relevant risk group, according to its level of risk of infection;

ii) recommendations from Organisations such as the World Health Organization (WHO) or a competent person regarding the control measures necessary to protect the safety and health of employees against SARS-CoV-2 virus as a result of their work; and

iii) knowledge of diseases from which employees might be suffering and which may be aggravated by the workplace conditions.

For risk assessment template please refer to annexe 1 and annexe 2 for the hierarchy of controls and recommendations.

Workplace Risk Control

After investigating and identifying hazard and risk at the workplaces, the employer should eliminate the hazards or reduce the risk by employing appropriate measures, including the removal of hazards, or changing of the organization or schedule of the work performed. The hierarchy of risk controls include elimination, substitution, engineering, administrative and Personal Protective Equipment (PPE). Annexe 2 presents the hierarchy of control for OSH/COVID-19.

Elimination

- Elimination is the most effective control measure because it removes the hazard and incident of exposure.
- Workers suspected of or who tested positive to COVID-19 should immediately be isolated.
- Workers, contractors and visitors with symptoms of COVID-19 should not be allowed in the workplaces.
- Workers who recently travelled should self-isolate for 14 days before entering the workplace.
- International knowledge exchange programme or learning visitors and travel should be prohibited and if allowed, then the 14 days self-isolation policy should apply

Substitution

- Substitution involves replacing high exposure activity to less exposure activity.
- Encourage teleworking and providing resources for workers working from home reduce the exposure risk to COVID-19, such as internet, access to databases, computers, etc.
- Minimize contact among workers and visitors by replacing face-to-face meetings with virtual communications e.g. skype, conference calls, zoom, etc.
- Minimize contact between workers and suppliers including control and sanitization of parcels delivered

Engineering Control

- Install efficiency air filters.
- Increase ventilation rates in the workplace.
- Install UV lights
- Automate processes wherever possible which reduce person-person interaction

Administrative Controls

- Screen all workers and visitors upon arrival at the workplace for COVID-19 symptoms
- Instruct sick workers to stay at home and refer them to COVID-19 testing facilities where necessary.
- Minimize the number of workers at workplace at a given time through shift work.
- Provide workers with education and training on hazards associated with their work including COVID-19 risk factors.
- Train workers on how to use protecting clothing and equipment.
- Revisit workplace procedures to include issues of social distancing
- Stagger arrival time to work, tea or lunch breaks and time to leave for home
- Place COVID-19 signs encouraging personal hygiene and providing useful information

Personal Protective Equipment (PPE)

- The provision of PPE should be regarded as a last resort and considered when all the other controls in the hierarchy of controls have been exhausted.
- Employers should provide workers with at least two face masks during COVID-19. The PPEprovided to workers should recognise other hazards that the worker is exposed to at work.
- The types of PPE required during a COVID-19 outbreak should be based on exposure risk and in accordance with relevant guidelines as issued by relevant authorities.
- All types of PPE must be:
  - ✓ Selected based upon the hazard to the worker.
  - ✓ Consistently and properly worn when required.
  - ✓ Regularly inspected, maintained, and replaced, as necessary.
  - ✓ Properly removed, cleaned, and stored or disposed of, as applicable, to avoid contamination of self, others, or the environment.

Risk Management

- Train workers and their representatives on the safety and health and adopted measures to prevent risks of exposure to the virus and on how to act in case of COVID-19 infection.
- Inform workers about their right to refuse to work in hazardous workplaces as per the local laws and international best practices
- Promote teleworking, as appropriate, to minimize the spreading of COVID-19 in educational institutions
- Assist workers to manage any emerging psychosocial risks and new forms of work arrangements.

Key relevant documents

- African Union Mining Vision (2009)
- SADC Protocol on Mining (1997)
- Safety and Health in Mines Convention, 1995 (No. 176)
- Occupational Safety and Health Convention, 1981 (No. 155),
- Occupational Health Services Convention, 1985 (No. 161),
- ILO Code of Practice on Occupational Safety and Health in Coal Mines (2009)
- ILO Code of Practice on Occupational Safety and Health in Open Cast Mines (1991)
- National Mining and Health OSH policies, laws, regulations and guidelines

Further reading material

- The Department of Employment and Labour: Workplace Preparedness: COVID-19 (SARS-CoV-19 virus); 2020. Available online: http://www.labour.gov.za/DocumentCenter/Publications/Occupational%20Health%20and%20Safety/COVID-19%20Guideline%20Mar2020.pdf
- National Institute for Occupational Health. A Risk Assessment Guideline for General Workplaces. 2020. Available online: http://www.nioh.ac.za/
- International Labour Organisation. A 5 STEP GUIDE for employers, workers and their representatives on conducting workplace risk assessments (2014). Available online: https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_232886.pdf

Annexe 1: Risk Assessment

Actions should be taken based on the risk score. Assign a priority (very high, high, medium or low) based on existing and required control measures, in consultation with your supervisor or relevant committee.

PART I	**General aspects of the work environment and duties or activities of the worker**		
COMPANY:		**DATE OF ASSESSMENT:**	
ASSESSOR NAME:		**APPROVED BY:**	
SIGNATURE:		**SIGNATURE:**	
SCOPE OF WORK:		**LOCATION:**	
REVIEW DATE:			

PART II **RISK MATRIX**		**LIKELIHOOD OF EXPOSURE TO SARS-COV-2**		
		Minimal Exposure Infrequent contact at low levels	**Moderate Exosure** Infrequent contact at high levels, or frequent contact at low levels	**High Exposure** Frequent contact at high levels
CONSEQUENCE OF EXPOSURE TO SARS-CoV-2	**Severe (High to Very High Vulnerability)** Fatal or permanent disability	Medium	High	Very High
	Moderate (Medium to Medium Low Vulnerability Group) Medical attention >14 days and complete recovery	Low	Medium	High
	Negligible (Low Vulnerability Group) Near miss or unlikely to happen	Very low	Low	Medium

Keep monitoring the process	Keep the process going, but monitor regularly and consider a control plan	Keep the process going, and implement a control plan as soon as possible	Investigate the process and implement controls immediately	Stop the process and implement controls

PART III	Identification of risk and proposed preventative measures to reduce risk

HAZARD	WHO MAY BE AT RISK	TASK or ACTIV-ITY	ROUTE OF EX-POSURE	HEALTH EFFECTS VERY LOW	FINAL RISK LEVEL = C x L					EXIST-ING CON-TROL MEA-SURES	PROCEED WITH EX-ISTING CONTROLS		ADDI-TIONAL CON-TROL MEA-SURES	ACTION BY	DUE DATE
					LOW	MEDIUM	HIGH	VERY HIGH							
											YES	NO			
											YES	NO			
											YES	NO			

KEY: C – consequence (severe, moderate, negligible); L (unlikely, possible, likely)

Annexe 2: The Hierarchy of Controls for COVID-19

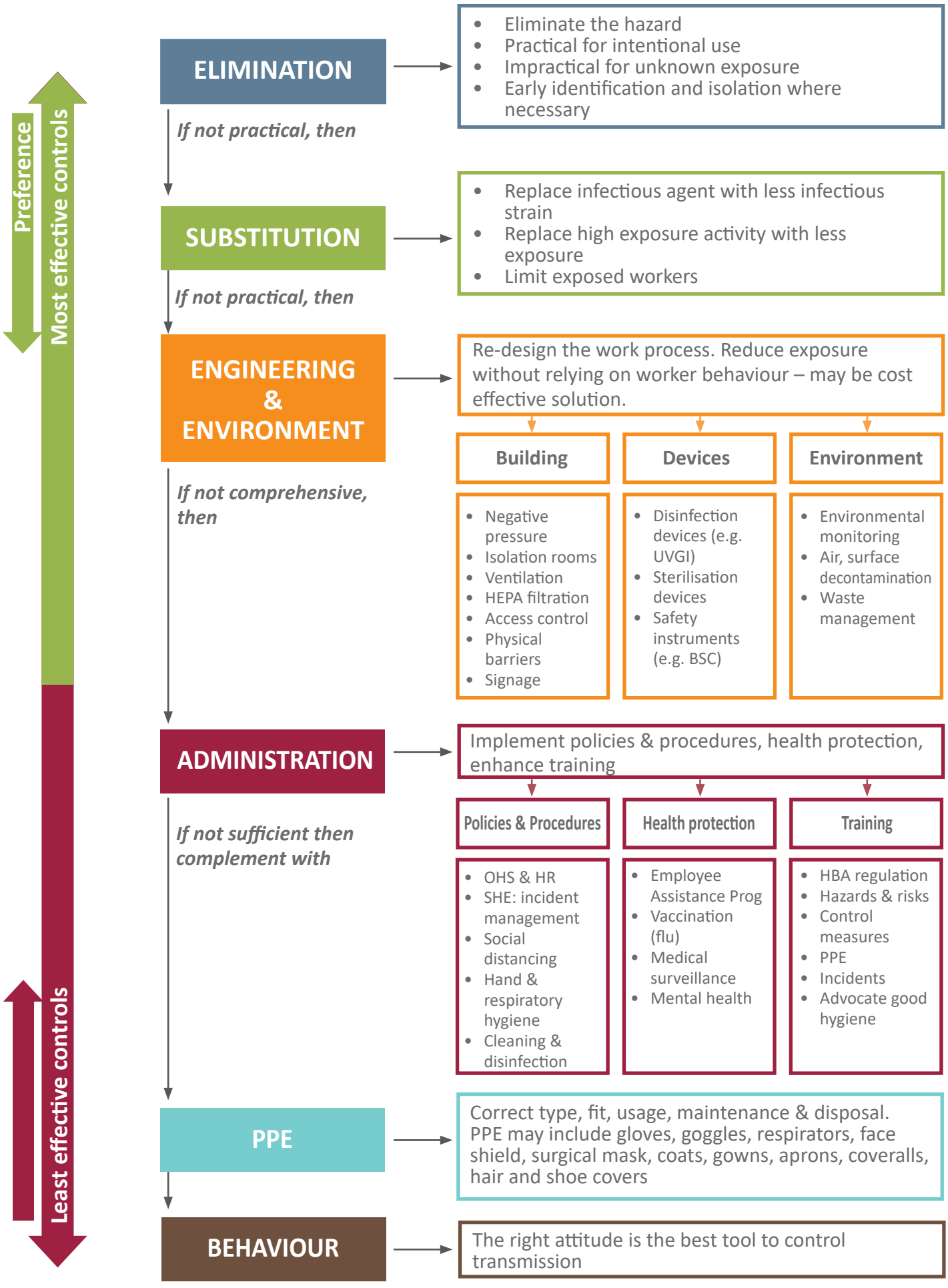

Figure 1. Flow diagram of the pillars of the hierarchy of controls and possible recommendations.

SOURCE: NIOH RISK ASSESSMENT GUIDELINE FOR GENERAL WORKPLACES

Annexe 2: The Hierarchy of Controls for COVID-19 (continued…)

ELIMINATION		
Aims to remove the hazard altogether		
Universal	Workplace disinfection	• Rigorous routine workplace disinfection, using chemical agents appropriate for SARS-CoV-2. See appendix 2. • Rigorous routine employee sanitiser on human contact points (hands, PPE, fomites), using chemical agents appropriate for SARS-CoV-2. • Identify potential amplification points (fomites) and target these.
Universal	Employee vaccination	• Effective vaccination would render the virus harmless (e.g. for polio, measles, mumps, rubella, hepatitis, etc). • No SARS-CoV-2 vaccine available at this time. • The standard seasonal influenza vaccine is recommended as an interim proxy till a specific vaccine is available
ENGINEERING		
Aims to break the chain of transmission		
Universal	Isolation	• Personal (source) isolation (non-certified fabric masks) to all employees, to be worn at work whenever 1.5m proximity control cannot be assured • Social distancing (>1.5m proximity controls) • Identify a separate area for temporarily holding a suspected COVID-19 case • Identify & separate COVID-19 related waste streams (masks, gloves, etc)
Specific	Isolation	• Work from home if possible, especially vulnerable employees • Barriers (glass panes in reception areas, at security, at cashiers) • Where possible, isolate high-risk activities (e.g. in the OH Clinic, establish a separate area for dealing with patients with COVID-like symptoms)
Specific	Ventilation	• Sufficient ventilation should be provided in all working areas, but in particular if high-risk procedures are performed (breathalyser, lung function testing, viral swab collection)) • High risk procedures should not be performed in enclosed spaces if possible. If unavoidable, employees should use appropriate PPE.
ADMINISTRATIVE CONTROLS		
Aims to mitigate viral transmission by regulating the ways people work and behave.		
Specific	Safe Work Practices, Procedures, Policies. (Training)	Ensure procedures & training in place for: • High risk tasks e.g. breathalyser use, lung function testing • correct use of PPE • management of waste • disinfection • incidents & post incident decontamination • legally required reporting & COID submission requirements (what constitutes an “occupational disease” in respect of COVID-19) Travel restrictions (as local & world borders re-open) • aligned with local & international legal restrictions • employees medically cleared for travel • employees trained on traveller health & safety • med-evac and related support structures in place

Specific	Medical screening	• Medical screening of employees to ensure those with individual vulnerabilities are not placed in jobs with high exposure probability • Employees to conduct symptom monitoring where appropriate (post 14-day quarantine, "casual contacts" at work, recovered COVID-19 cases)
Universal	Behavioural etiquette & workplace culture	• Entrench a culture of good hygiene practices, social distancing, use of mask, etc. • Good attitude goes a long way to mitigate viral spread.
Universal	Communication & awareness	• All forms of media (posters, TV screens, emails, toolbox talks, etc) • Use of signage (e.g. at site entry, in bathrooms, where people gather) Topics to cover: • Personal hygiene practices & social etiquette • How to protect yourself from COVID-19 • Symptoms of COVID-19 & actions to be taken if they occur • Actions to take in the event of coming into contact with a COVID-19 case • What to do if you have symptoms of a cold or flu
Universal	Staffing Proximity Controls	• The number of employees working in the same working area should be reduced to the minimum necessary for safe and effective performance of their work • Various shift systems may need to be introduced to reduce exposure time, or reduce staff movement • Staff canteens or common eating areas may need to remain closed or carefully rationalised
Universal	Prevent ingress of virus	• Site entry screening (temperature, symptoms) • (Disinfection tunnels) (See appendix)
Specific	Work related risks not in the workplace	• Commuting risk; employees may be exposed to risks of COVID-19 disease when they travel to work (e.g. when they are required to use public transport). The employer could consider issuing high quality personal fabric masks to these employees.
Universal	Workplace discipline	• The OHSA requires the employer to "enforce such measures as may be necessary in the interest of health and safety". • This would particularly apply to employees who repeatedly fail to comply with measures provided to prevent the spread of SARS-CoV-2.
PERSONAL PROTECTIVE EQUIPMENT		
Aims to prevent exposure through personal barriers at the level of the worker		
Specific	COVID-19 specific	• Typically include RPE (masks & respirators), face (eye) shields, gloves, gowns & aprons, although other PPE may be necessary. • The effectiveness depends on good fit & safe use, including donning (putting on) & doffing (taking off) • See Technical Guideline on RPE.
Specific	Not COVID-19 specific	• Tasks that require respiratory protection for non-COVID reasons (e.g. reusable FFP3 respirator for chemical exposure) are potentially fomites • Procedures may be required to ensure their safe use (training, disinfection)

Thank you to all our partners for making this project a success

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