

COVID-19: Occupational health and safety for health workers

Interim guidance
2 February 2021



Key points

- Health workers should continue to enjoy their right to decent, healthy and safe working conditions in the context of COVID-19.
- Primary prevention of COVID-19 among health workers should be based on risk assessment and introduction of appropriate measures.
- Other occupational risks amplified by the COVID-19 pandemic, including violence, harassment, stigma, discrimination, heavy workload and prolonged use of personal protective equipment (PPE) should be addressed.
- Occupational health services, mental health and psychosocial support, adequate sanitation, hygiene and rest facilities should be provided to all health workers.
- Health-care facilities should have occupational health programmes in conjunction with programmes for infection prevention and control.
- Employers have the overall responsibility to ensure that all necessary preventive and protective measures are taken to minimize occupational risks to health workers.
- Health workers are responsible for following established rules for the protection of their health and safety at work.

Introduction

This document is an update of the World Health Organization (WHO) interim guidance, *Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health*, from 18 March 2020 (1). This version, which is based on new and emerging evidence, provides guidance on occupational health and safety measures for health workers and occupational health services in the context of the COVID-19 pandemic. It also updates the rights and responsibilities for health and safety at work for health workers according to the standards of the International Labour Organization (ILO).

This document complements and should be used in conjunction with the following WHO interim guidance. [Prevention, identification and management of health worker infection in the context of COVID-19](#) from 30 October 2020, which provides recommendations for post-exposure risk assessment and management of infections in health workers (2), and [Health workforce policy and management in the context of the COVID-19 pandemic response](#) from 3 December 2020, which contains strategic policy recommendations for health workforce planning, support and capacity-building (3).

This guidance was developed on the basis of a review of existing WHO and ILO guidance documents, rapid reviews of evidence about occupational risks that have been amplified by the COVID-19 pandemic and expert opinion from an independent international group of experts. It is intended for employers and health-facility managers, health workers and their representatives, occupational health and safety experts, infection prevention and control experts in public and private health facilities and policy-makers at national and subnational levels

Background

Health workersⁱ may be exposed to occupational hazards that put them at risk of disease, injury and even death in the context of the COVID-19 response. These occupational risks include (a) occupational infections with COVID-19; (b) skin disorders and heat stress from prolonged use of PPE; (c) exposures to toxins because of increased use of disinfectants; (d) psychological distress; (e) chronic fatigue; and (f) stigma, discrimination, physical and psychological violence and harassment (4).

Mitigating these hazards and protecting the health, safety and well-being of health workers requires well-coordinated and comprehensive measures for infection prevention and control, occupational health and safety, health workforce management and mental health and psychosocial support (4). Insufficient occupational health and safety measures can result in increased rates of work-related illness among health workers, high rates of absenteeism, reduced productivity and diminished quality of care (5).

Occupational infections

Occupational exposure to SARS-CoV-2

The WHO interim guidance [Mask use in the context of COVID-19](#) from 1 December 2020 compiles the available evidence on the transmission of SARS-CoV-2, the virus that causes COVID-19 (6). According to this evidence, SARS-CoV-2 mainly spreads between people when an infected is in close contact with another person. The virus can spread from an infected person's mouth or nose in small liquid particles ranging from larger 'respiratory droplets' to smaller 'aerosols' when the person coughs, sneezes, sings, breathes heavily or talks. Close range contact can result in inhalation of, or inoculation with, the virus through the mouth, nose or eyes.

Aerosol transmission can occur in specific situations in which medical procedures that generate aerosols are performed. There is inconclusive evidence about aerosol transmission in health-care settings in the absence of aerosol generating procedures (6).

There is limited evidence of transmission through fomites (objects or materials that may be contaminated with viable virus, such as utensils, furniture, stethoscopes or thermometers) in the immediate environment around an infected person. Such transmission may occur through touching the fomites followed by touching the mouth, nose or eyes (6).

There is emerging evidence of transmission in settings outside of medical facilities, such as indoor, crowded, and inadequately ventilated spaces, where infected persons spend long periods of time with others. This suggests the possibility of aerosol transmission in addition to droplet and fomite transmission (6).

Health workers' occupational exposure to SARS-CoV-2 can occur any time in health-care facilities and in the community, during work-related travel to an area with local community transmission and on the way to and from the workplace. A systematic review suggests that occupational risk for health workers can increase in certain clinical settings or with suboptimal hand hygiene, long working hours, or improper or suboptimal use or non-availability of PPE (7).

Workplace risk assessment for SARS-CoV-2

The potential for health workers' occupational exposure to SARS-CoV-2 can be determined by the likelihood of coming into direct, indirect or close contact with a person infected with the virus. This includes direct physical contact or care, contact with contaminated surfaces and objects, through aerosol-generating procedures on patients with COVID-19 without adequate personal protection, or working with infected people in indoor, crowded places with inadequate ventilation (6). The risk of occupational exposure increases with the level of community transmission of SARS-CoV-2 (8).

Employers, in consultation with health workers and their representatives, and with support from experts in infection prevention and control (IPC) and occupational health, should carry out and regularly update a workplace risk assessment for SARS-CoV-2. The purpose is to determine the level of risk for potential occupational exposure related to different jobs, work tasks and work settings; and to plan and implement adequate measures for risk prevention and mitigation and for assessing the fitness for work, and return to work, of individual health workers (9).

ⁱ Health workers are all people engaged in work actions whose primary intent is to improve health. This includes health service providers, such as doctors, nurses, midwives, public health professionals, lab-, health- and medical and non-medical technicians, personal care workers, community health workers, healers and some practitioners of traditional medicine. It also includes health management and support workers, such as cleaners, drivers, hospital administrators, district health managers and social workers, and other occupational groups in health-related activities. Health workers include not only those who work in acute care facilities but also those employed in long-term care, public health, community-based care, social care and home care and other occupations in the health and social work sectors as defined by the [International Standard Industrial Classification of All Economic Activities \(ISIC\)](#), revision 4, section Q: Human health and social work activities.

The following workplace risk levels may be useful for employers and occupational health services when carrying out rapid risk assessments for potential occupational exposureⁱⁱ to SARS-CoV-2 for different jobs or tasks (10).

1. *Lower risk* – jobs or tasks without frequent, close contact with the public or others and that do not require contact with people known or suspected of being infected with SARS-CoV-2 (9).
2. *Medium risk* – jobs or tasks with close frequent contact with patients, visitors, suppliers and co-workers but that do not require contact with people known or suspected of being infected with SARS-CoV-2 (8).
3. *High risk* – jobs or tasks with high potential for close contact with people who are known to be or suspected of being infected with SARS-CoV-2 or contact with objects and surfaces possibly contaminated with the virus (9).
4. *Very high risk* – jobs and tasks with risk of exposure to aerosols containing SARS-CoV-2, in settings where aerosol-generating procedures are regularly performed on patients with COVID-19 or working with infected people in indoor, crowded places without adequate ventilation (6).

Levels of workplace risk, even in the same work setting, may vary based on health worker tasks and roles. Therefore, a workplace risk assessment should be carried out for each specific setting, as well as for each role, task or set of tasks.

The risk assessment should lead to prevention and mitigation measures to avoid exposure based on the level of risk, bearing in mind the local epidemiological situation, the specificity of the work setting and work tasks, the hierarchy of controls and the level of adherence to IPC measures (11, 12). The above-mentioned workplace risk levels can also be useful to identify priority groups as COVID-19 vaccine deployment is planned (13).

Table 1 gives examples of job tasks and measures for prevention and mitigation of health worker exposure to SARS-CoV-2 based on risk level, in accordance with the WHO guidance and recommendations for IPC and occupational health in the context of COVID-19 (6, 9, 11, 12, 14, 15).

Table 1. Workplace risk levels, job tasks and corresponding measures for primary prevention and mitigation of occupational exposure to SARS-CoV-2 among health workers

Risk level	Examples of job tasks	Sample prevention and mitigation measures ⁱⁱⁱ
Lower risk (caution)	Administrative tasks that do not involve contact with patients and visitors or close contact with other co-workers. For example, telehealth services, remote interviewing of suspected or confirmed COVID-19 patients or their contacts, working in individual or low-density offices.	<p>Health facilities:</p> <ul style="list-style-type: none"> • organize remote work and teleservices, wherever possible and appropriate; • provide natural or mechanical ventilation without recirculation; • organize regular environmental clean-up and disinfection; • introduce measures for avoiding crowding and social mixing and encourage workers to observe safe physical distancing; • introduce measures preventing the sharing of work stations and equipment; • establish flexible sick leave policies. <p>Workers:</p> <ul style="list-style-type: none"> • stay home if unwell; • observe hand and respiratory hygiene; • use fabric masks in common areas and face-to-face meetings.

ⁱⁱ In these risk levels, persons referred to as “known to be or suspected of being infected with SARS-CoV-2” may include pre-symptomatic or asymptomatic persons who may be infected but do not have obvious signs or symptoms.

ⁱⁱⁱ For details see the following WHO interim guidance documents: *Considerations for public health and social measures in the workplace in the context of COVID-19*, 10 May 2020 (9); *Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected or confirmed*, 29 June 2020 (11); *Rational use of personal protective equipment for coronavirus disease (COVID-19) and considerations during severe shortages*, 23 December 2020 (12); *Clinical management of COVID-19*, 27 May 2020 (14); *COVID-19: Recommendations for heating, ventilation, and air conditioning in health care facilities*, 21 May 2020 (15); *Mask use in the context of COVID-19*, 1 December 2020 (6).

Risk level	Examples of job tasks	Sample prevention and mitigation measures ⁱⁱⁱ
Medium risk	Jobs or tasks with close frequent contact with patients, visitors, suppliers and co-workers but that do not require contact with people known or suspected of being infected with SARS-CoV-2. In settings with known or suspected community transmission of SARS-CoV-2, this risk level may apply to workers who have frequent and close work-related contact with other people within a health-care facility or in the community where safe physical distance may be difficult to maintain. In settings without community transmission, this scenario may include close frequent contact with people coming from areas with known or suspected community transmission.	Health facilities: <ul style="list-style-type: none"> • consider alternatives to face-to-face outpatient visits using telehealth services wherever feasible and appropriate; • provide sneeze screens, barriers, workplace modifications and natural or mechanical ventilation without recirculation; • organize screening and triage for early recognition of patients with suspected COVID-19 and rapid implementation of source control measures; • organize regular environmental clean-up and disinfection; • introduce measures to avoid crowding and social mixing, such as restricting visitors and designating areas where patients are not allowed; • encourage workers to observe safe physical distancing when not wearing PPE (e.g. in break rooms and cafeterias); • provide IPC training and adequate PPE in sufficient quantity and quality; • establish flexible sick leave policies. Workers: <ul style="list-style-type: none"> • stay home if unwell; • observe hand and respiratory hygiene; • wear medical masks and other PPE according to their tasks and apply standard precautions in providing patient care. Patients, visitors and suppliers: <ul style="list-style-type: none"> • observe hand and respiratory hygiene; • in settings with community or cluster transmission, wear medical or fabric masks.
High risk	Clinical triage with in-person interviewing of patients with signs and symptoms of COVID-19; cleaning areas for screening and isolation; entering rooms or isolation areas occupied by patients with known or suspected COVID-19; conducting a physical examination and providing direct care <u>not involving aerosol-generating procedures</u> for patients with known or suspected COVID-19; manipulation of respiratory samples; handling respiratory secretions, saliva or waste from COVID-19 patients; transportation of people known or suspected of having COVID-19 without physical separation between the driver and the passenger; cleaning between transports of patients with suspected COVID-19.	Health facilities: <ul style="list-style-type: none"> • implement engineering, environmental and administrative controls for IPC, and provide adequate PPE in sufficient quantity and quality; • provide enhanced ventilation without recirculation, with “clean to less clean” directional design for airflows; • organize regular environmental clean-up and disinfection; • introduce measures for avoiding crowding and social mixing and restricting non-essential workers and visitors; • provide regular IPC training, including on the use of PPE; • establish flexible sick leave policies. Workers and caregivers: <ul style="list-style-type: none"> • use PPE based on transmission-based precautions (medical mask, gown, gloves, eye protection) and apply standard precautions in providing patient care; • stay home if unwell; • observe hand and respiratory hygiene. Patients, visitors and suppliers: <ul style="list-style-type: none"> • wear medical or fabric masks; • observe hand and respiratory hygiene.

Risk level	Examples of job tasks	Sample prevention and mitigation measures ⁱⁱⁱ
Very high risk	Work with COVID-19 patients where aerosol-generating procedures (e.g. tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, sputum induction, bronchoscopy, autopsy procedures, dental procedures that use spray-generating equipment) are frequently performed; work with infected people in indoor, crowded places without adequate ventilation.	<p>Health facilities:</p> <ul style="list-style-type: none"> • implement engineering, environmental and administrative controls for IPC and provide adequate PPE in sufficient quantity and quality; • provide mechanical ventilation with high efficiency particulate air (HEPA) filters without recirculation; • introduce measures for avoiding crowding and social mixing and for restricting access of non-essential workers and visitors; • provide regular IPC training, and training in donning and doffing PPE; • establish flexible sick leave policies. <p>Workers:</p> <ul style="list-style-type: none"> • stay home if unwell; • observe hand and respiratory hygiene; • use PPE (respirator N95 or FFP2 or FFP3, gown, gloves, eye protection, apron) and apply standard precautions in providing patient care.

IPC: infection prevention and control; PPE: personal protective equipment.

Transparent and timely dissemination of information on the transmission of SARS-CoV-2 in health facilities and in the community should be an integral part of primary prevention in all risk categories.

Some health workers may be at higher risk of developing severe COVID-19 illness because of older age, pre-existing medical conditions or pregnancy (14). Such workers should not be required to carry out tasks with medium, high or very high risk levels in accordance with WHO recommendations (3).

Some health workers, especially those who are students, volunteers, interns, newly-graduated or are returning to the workplace after time away, may be at greater individual risk because they are unfamiliar with IPC procedures or make errors while practising newly acquired skills. Appropriate task delegation and role assignment should be considered, with provisions for regular supportive supervision in line with WHO and ILO recommendations (3, 16).

All health facilities should consult with experts to assess the effectiveness of their ventilation systems. Any decision on whether to use natural, hybrid (mixed-mode) or mechanical ventilation should consider: the climate, including prevalent wind direction; the floor plan; and, the need for and cost of the ventilation system (15). Aerosol-generating procedures should be performed in rooms with appropriate special air exchange capacities and considerations (11).

Health workers should be encouraged to report if they have had occupational or non-occupational exposure to COVID-19 without adequate protection. Such exposures should be investigated, assessed and managed case by case using the WHO recommended protocol (17). Follow-up actions for managing the infection and return to work should be decided in line with WHO recommendations for prevention, identification and management of health worker infections (2).

Other occupational infections

While providing care to COVID-19 patients and delivering essential health services, health workers may be exposed to other infectious hazards, such as bloodborne pathogens and tuberculosis. Therefore, the prevention and control of occupational infections among health workers requires a comprehensive approach, bearing in mind the hierarchy of controls and close collaboration between occupational health services and IPC programmes staffed with trained professionals (2, 18, 19). Box 1 sets out the hierarchy of hazard controls to prevent occupational infections.

Box 1. Hierarchy of hazard controls to prevent occupational infections

Measures for the prevention of occupational infections should aim to align with the hierarchy of controls commonly used for preventing exposures to occupational hazards. The hierarchy of controls gives priority to highly effective measures, such as protection of all workers through engineering and administrative control, instead of relying only on measures dependent on individual behaviour, such as adherence to personal protection (20).

- a) *Hazard elimination.* Eliminating exposure to the infectious hazard in the working environment is the most effective control. This may be through working remotely, provision of telehealth services from individual offices or teleconferencing.
- b) *Engineering/environmental controls.* If the hazard cannot be eliminated from the workplace, measures should be taken to avoid or reduce the spread of the pathogen and its concentration in the work environment. For example, through adapted structural design conducive to patient flow and spatial separation for isolating patients, and design and repurposing of wards (11, 21). Adequate ventilation, sanitation practices and infrastructure, ‘touch-free’ technology, sneeze guards and barriers, safer needle devices and safe health-care waste management are other critical elements (22, 23).
- c) *Administrative controls.* Measures may need to be taken to change the way people work such as: restricting workplace access to essential workers with specific training and skills for protection; ensuring appropriate working hours; rostering and, where possible, avoiding workers being shifted from high to low transmission settings.

Other helpful controls include the addition of surge personnel to meet work demands; rest breaks; time off between shifts; appropriate task delegation; supportive supervision; ‘just-in-time’ and refresher training on IPC practices; procedures for monitoring performance and giving feedback (24); paid sick and holiday leave; and, policies for workers to stay home if unwell, or in self-quarantine and self-isolation, without loss of income.

- d) *Optimal use of PPE.* Measures should be in place to protect individual health workers from exposure, including provision of adequate and appropriately fitted PPE based on risk assessment, the type of procedure to be performed and the risk of infection during a procedure. Appropriate training and monitoring on proper use and disposal of PPE is also important (12). The PPE used for protection against occupational infections should comply with standard technical specifications (25).

In all patient care settings, standard precautions should be applied to reduce the risk of transmission of bloodborne and other pathogens from both recognized and unrecognized sources in accordance with WHO recommendations (26).

During the COVID-19 pandemic, health workers should continue to receive recommended vaccinations as specified in the national immunization programme and WHO recommendations (27). WHO also recommends that health workers be encouraged to take a seasonal influenza vaccine (28).

Prolonged use of PPE

In principle, PPE is intended to be used for short periods of time when the exposure to hazard cannot be avoided or otherwise controlled. In the context of COVID-19, heavy workload, patient flows and shortages of PPE may require health workers to wear PPE for extended periods of time.

Research suggests that prolonged use of gloves and frequent hand hygiene may cause or aggravate existing hand eczema (29). If a health worker has a latex allergy, use of non-latex or nitrile gloves is advised. Frequent application of moisturizing creams is a good practice to decrease hand irritation. Products containing petroleum can damage the integrity of latex gloves and should be avoided for skin care (30). Health workers with sustained rashes or inflammatory skin symptoms should be referred to medical care.

There is evidence that prolonged use of PPE for respiratory and eye protection (masks, respirators and goggles) can also cause skin damage: itching, rash, acne, pressure injury, contact dermatitis, urticaria and aggravation of pre-existing skin diseases (31). To decrease the risk of skin damage, it is a good practice to provide health workers with properly fitted PPE, to avoid sustained friction or pressure on the same site; to apply moisturizers or gel before wearing facial protective equipment to lubricate and reduce friction between skin and masks or goggles; and to avoid using over-tight goggles, which can damage the skin and generate fogging (31).

Prolonged use of full PPE (gowns, masks, head coverings, coveralls) traps heat and sweat, limits evaporative cooling of the body and can lead to heat stress (heat rash, muscle cramps, fainting, exhaustion, breakdown of skeletal muscle and heat stroke) (32). Coveralls, double layering of gowns, shoe protection, or hoods that cover the head and neck such as those used in the context of filovirus disease outbreaks (e.g. Ebola virus), are not required when caring for patients with COVID-19 (12).

WHO and the ILO recommend that health workers at risk of heat stress should be advised to monitor for symptoms of heat-related illness, including monitoring the colour and volume of urine output (33). The time spent in full PPE should be limited and rest should be arranged in a cool area. Sufficient safe and cool drinking-water should be provided to all health workers.

Use of disinfectants

The increased use of disinfectants in health facilities and in public places may cause toxic effects among health workers, cleaners and sanitation workers. Nasal and eye irritation, chest tightness, wheezing, difficulty breathing, and skin irritation may result. Disinfectant solutions must be prepared and used according to the manufacturer's recommendations in well-ventilated areas, avoiding mixing of different disinfectants.

Health workers involved in the preparation and application of disinfectants should be evaluated for medical contraindications, trained in the safe use of disinfectants, provided with adequate PPE and instructed in its proper use. WHO does not recommend spraying individuals with disinfectants (such as in a tunnel, cabinet or chamber) under any circumstances (22).

Workload, work time and work organization

During the COVID-19 pandemic, health workers may be working long hours with heavier workloads and insufficient time for rest and recuperation. These demands can result in chronic fatigue and lack of energy, with decreased alertness, coordination and efficiency; increased reaction time; impaired cognition and emotional blunting or mood changes.

Strategic health-workforce planning, support and capacity-building are required to ensure safe staffing levels, fair allocation of workloads, and management of working time and work organization according to recommendations in the WHO interim guidance, *Health workforce policy and management in the context of the COVID-19 pandemic response*, from 3 December 2020 (3).

In the case of a declared public emergency, such as the COVID-19 pandemic, exceptions to the provisions on normal working hours should be authorized only temporarily in accordance with ILO recommendations (34). Measures should be taken for the optimal organization of working hours, shifts and rests, as practically feasible, based on the local situation (Box 2).

Box 2. WHO and ILO recommendations for prevention of fatigue during an emergency situation

Shift lengths. Five 8-hour shifts, or four 10-hour shifts, per week are usually tolerable. Longer shifts represent a risk factor for fatigue. Depending on the workload, 12-hour days may require more frequent interspersed rest days. During the evening and night, shorter shifts (e.g. eight hours) are better tolerated than longer shifts. Fatigue is intensified by night work because of night-time drowsiness and inadequate daytime sleep (33). Preference should be given to shift rotation in a forward direction (morning to afternoon to night), bearing in mind workers' preferences and local conditions (35).

Workload. Balance shifts of lighter and heavier work tasks. Examine work demands with respect to shift length. Twelve-hour shifts are more tolerable for 'lighter' tasks (e.g. desk work). Shorter work shifts help counteract fatigue from highly intense work, physical exertion, extreme environments or exposure to other health or safety hazards (33).

Rest and recuperation. Establish policies regarding duration of working hours and rest breaks (e.g. at least 10 consecutive hours per day of protected time off to obtain 7–8 hours of sleep, and 48 hours off after 14 consecutive days of work). Providing frequent brief rest breaks (e.g. every 1–2 hours) during demanding work is more effective against fatigue than a few longer breaks. Allow longer breaks for meals. Plan one or two full days of rest to follow five consecutive 8-hour shifts or four 10-hour shifts. Consider two rest days after three consecutive 12-hour shifts (33).

As necessary, and if possible, provide accommodation for health workers during emergency operations with access to food services or ready-to-eat meals, sanitary facilities and recreational opportunities, while maintaining physical distancing and other public health measures to prevent COVID-19 (33).

Violence, harassment, discrimination and stigma

Incidents of violence and harassment^{iv} against health workers have been increasing during the COVID-19 pandemic. The most widespread risk factors for workplace violence in the health sector include stress and fatigue, long patient waiting times, crowding, the burden of transmitting negative prognoses, COVID-19-specific prevention and control measures (such as placing individuals in quarantine or isolation facilities), contact tracing or not allowing access to the bodies of deceased loved ones. These can all lead to additional tensions and violence (36).

Because of their proximity to potentially infected people, health workers may also be seen as infection threats within the community and thus face stigma and discrimination. Health workers are at risk of violence and harassment at the workplace as well as on their way to and from work and in the community (37). Wearing work clothes, or other signs that make health workers easy to identify, may increase the risk of experiencing stigma, discrimination or violence and harassment by the public (37).

Workplace violence and harassment has been shown to have negative effects on the organization of health services and retainment of staff, the mental and physical well-being of health practitioners and the quality of health-care delivery. A systematic review (38) found that health workers in service delivery roles, such as nurses, first responders, emergency room staff and physicians, and those working long hours or night shifts, are at higher risk. Male providers are slightly more likely to be victims of violence and harassment, while female providers have a higher risk of experiencing sexual

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