

Infection prevention and control (IPC) principles and procedures for COVID-19 vaccination activities

This document summarizes the key IPC principles to consider and the precautions for safely delivering COVID-19 vaccines.

The principles and recommendations provided in this document derive from World Health Organization (WHO) IPC and immunization standards and other guidance in the context of COVID-19 and are the result of consultations and consensus with the United Nations Children's Fund (UNICEF) and the ad hoc WHO COVID-19 IPC Guidance Development Group (COVID-19 IPC GDG).

This document is intended for policy makers, immunization programme managers, IPC focal points at national, sub-national, and facility level, as well as for health workers involved in COVID-19 vaccination delivery.

Key overall IPC principles for COVID-19 vaccine deployment

- Standard precautions¹ to be applied during any vaccination activity are also valid for COVID-19 vaccine delivery, considering that the population to be vaccinated consists of individuals not presenting signs and symptoms of infection.
- However, additional IPC precautions are necessary in the context of the COVID-19 pandemic to reduce the risk of SARS-CoV-2 transmission (e.g. mask use)^{2,3}.
- It is critical to provide health workers with specific training and the public with targeted

information regarding IPC measures for safe COVID-19 vaccine delivery.

- A clean, hygienic and well ventilated environment^{4,5,6}, appropriate waste management^{5,6,7} and adequate spaces that facilitate best IPC practices (e.g. physical distancing) are necessary for COVID-19 vaccination activities.
- National guidance and protocols for IPC measures including those related to COVID-19, should be consulted and adhered to.

Preparation and planning phase

Staff

- Appoint a facility IPC focal point⁸ for the planning, deployment and monitoring of the vaccination activities.
- Identify an adequate number of vaccinators to ensure there is sufficient staff and time to support correct implementation of the IPC practices required to safely administer the vaccine.
- Identify trained staff to deliver IPC training to those involved in vaccination activities (including managers, logisticians, vaccinators, cleaners and health workers dedicated to screening) and to provide information for clients to be vaccinated.
- Identify health workers for the supervision of vaccination activities and define a monitoring and evaluation process of IPC practices, including providing feedback to vaccinators and other staff as required.

¹ Standard precautions in health care. Aide memoire. Geneva: World Health Organization; 2007 (<https://www.who.int/csr/resources/publications/standardprecautions/en/>, accessed 5 January 2021).

² Mask use in the context of COVID-19: interim guidance, 1 December 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/337199>, accessed 5 January 2021).

³ Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected or confirmed: interim guidance, 29 June 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/332879>, accessed 5 January 2021).

⁴ Cleaning and disinfection of environmental surfaces in the context of COVID-19: interim guidance, 15 May 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/332096>, accessed 5 January 2021).

⁵ Immunization in Practice. A practical guide for health staff 2015 update. Geneva: World Health Organization; 2015 (<https://apps.who.int/iris/handle/10665/193412>, accessed 5 January 2021).

⁶ Injection providers' guide for safe injections. Geneva: World Health Organization; 2017 (http://158.232.12.119/infection-prevention/tools/injections/IS_providers-guide.pdf, accessed 14 January 2021).

⁷ Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19: interim guidance, 29 July 2020. Geneva: World Health Organization & United Nations Children's Fund (UNICEF); 2020 (<https://apps.who.int/iris/handle/10665/333560>, accessed 5 January 2021).

⁸ Minimum requirements for infection prevention and control programmes. Geneva: World Health Organization; 2019 (<https://apps.who.int/iris/handle/10665/330080>, accessed on 5 January 2021).

Guidance

- Develop local IPC guidance and standard operating procedures for COVID-19 vaccination, outlining the following:
 - screening policies for COVID-19 signs and symptoms of staff and individuals arriving for vaccination with clear exclusion criteria;
 - key IPC measures to be taken by anyone in the vaccination area or clinic (see below);
 - key IPC measures for safely administering COVID-19 vaccines;
 - cleaning and disinfection of the environment;
 - appropriate waste management also considering the increase of waste associated with COVID-19 vaccination activities, including environmentally friendly treatment methodologies and solutions to minimize both general and medical waste at point of use, segregation, disposal and collection;
 - visual reminders emphasizing hand hygiene, safe injection practices, safe use of medical masks, respiratory hygiene, and other IPC measures;
 - training materials for relevant staff and educational and informational materials for the public.

Environmental considerations and engineering controls at the vaccination site

- Assess the layout of the building or area identified for vaccination delivery and ensure that the following features are in place to support appropriate IPC implementation:
 - clearly marked one-way foot traffic flow with clear entry and exit areas through the vaccination clinic; these should be separated when the vaccination area or clinic is located in a health care facility;
 - adequate screening area (ideally, private spaces) at the entry where people are assessed, including questioning for signs and symptoms of COVID-19 and other criteria for inclusion;
 - sufficient space to allow at least 1 metre physical distance between all individuals including between health workers at all stations (at the entrance, at the screening stages, while waiting to be vaccinated and during the observation period post-vaccination) and between staff;
 - adequate ventilation (mechanical, natural or hybrid) of all areas, including the screening, waiting, post-vaccination observation, and vaccination areas; if a mechanical ventilation system is operating

in these areas, the ventilation rate should be 6 air changes per hour⁹ or according to national or local requirements;

- medically equipped post-vaccination observation area for dealing with possible vaccine adverse reactions;
- adequate number of hand hygiene stations in strategic areas to support appropriate hand hygiene for the public and staff (i.e., at the entrance and exit areas, in the waiting areas, and in each vaccination station);
- signage/posters to include reminders about:
 - reporting COVID-19 signs and symptoms;
 - mask wearing;
 - hand and respiratory hygiene;
 - physical distancing (e.g. floor markings, seating arrangements, tape, ropes, and cones);
- adequate space for vaccine storage and preparation (e.g. clean and hygienic environment, adequate ventilation and equipment to adhere to specific COVID-19 vaccine cold chain requirements);
- vaccination stations a least 1 metre apart (ideally with installation of physical barriers between vaccination stations);
- adequate cleanability of screening areas, vaccination stations, waiting areas (e.g. removal of items that cannot be readily decontaminated and minimizing clutter to aid effective cleaning);
- appropriate waste management system including safe disposal of waste (such as vials and masks) and sharps at each vaccination station.

IPC supplies

- Ensure continuous and sufficient availability of the following:
 - adequate supplies of medical masks for health workers and for individuals to be vaccinated who may not have a mask;
 - sufficient supplies of other personal protective equipment (PPE), including eye protection, gloves and gowns, in case it is required for health workers' protection when dealing with vaccine adverse events, to prevent exposure of non-intact skin to blood or body fluids or if a suspected case of COVID-19 is identified during the screening process;
 - other supplies:
 - soap, clean water, Veronica Buckets (if sinks are not available) and disposable or clean towels;

⁹ ANSI/ASHRAE/ASHE Addendum a to ANSI/ASHRAE/ASHE Standard 170-2017 Ventilation of Health Care Facilities (<https://www.ashrae.org/technical-resources/>)

[standards-and-guidelines/standards-addenda/ansi-ashrae-ashse-standard-170-2017-ventilation-of-health-care-facilities](https://www.ashrae.org/standards-and-guidelines/standards-addenda/ansi-ashrae-ashse-standard-170-2017-ventilation-of-health-care-facilities), accessed on 11 January 2020).

- alcohol-based hand rub products;
 - thermo-scans for temperature screening;
 - tissues;
 - waste bins/waste bags;
 - safety boxes, preferably puncture- and leak-proof;
 - cleaning and disinfection equipment and products;
 - visual reminders and signage/floor markers;
 - physical barriers to aid spatial separation.
- Identify suitable areas for supply storage.

Operational phase

- Use a daily checklist to monitor and ensure that the IPC and other safety measures are adhered to.
- Screen all staff for signs and symptoms of COVID-19 at the start of the shift.
- Screen all individuals arriving for vaccination for COVID-19 signs and symptoms.
- Implement a robust scheduling process for vaccination appointments to avoid overcrowding and facilitate physical distancing and adherence to IPC practices.
- Limit the number of people accompanying individuals coming for vaccination to one person and only for those needing assistance.
- Ensure infrastructure described above is always in place to support adequate implementation of IPC measures.
- Consider organizing a regular staff safety huddle (a short multidisciplinary briefing) to enhance teamwork (including daily check-in, discussing monitoring data, agreeing actions and improving situational awareness of safety concerns).

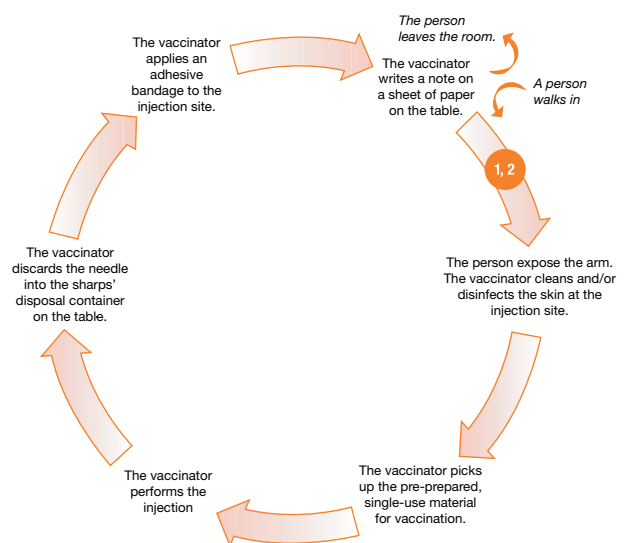
Key IPC measures to be implemented

Hand hygiene^{10,11,12}

- All staff should wash their hands with soap and water on arrival at the start of the shift and when leaving.
- Clients to be vaccinated should be encouraged to perform hand hygiene on arrival and when leaving.
- Functioning hand hygiene stations should be available at the entrance and exit areas and at each vaccination station.

- Vaccinators should always perform hand hygiene before putting on and removing PPE (e.g. mask), before preparing the vaccine and between each vaccine administration (see Figure 1), preferably using alcohol-based hand rubs, which have advantages for logistics, efficacy and tolerability¹².
- Gloves are not required and, if used, do not replace the need for performing hand hygiene between each vaccine administration and for other indications^{5,13}.
- Applying alcohol-based hand rubs on gloved hands is strongly discouraged. If gloves are used, they should be removed, hand hygiene performed and a new pair of gloves donned between vaccinees.

Figure 1 - Minimum requirements for hand hygiene in an immunization session



According to minimum requirements^{10,11}, the indications for hand hygiene by a vaccinator in this sequence are: moment 1 (before patient contact), and moment 2 (before an aseptic task). These can be met by one single action of hand hygiene that can be performed between the two vaccination administrations.

PPE

- Select PPE (e.g. mask, eye protection, gloves, gowns) based on risk assessment as part of standard precautions¹.
- In the context of the COVID-19 pandemic, staff administering the vaccine should wear a medical mask, and the individual being vaccinated should wear a medical or a non-medical/fabric mask².
- For screening activities and vaccine administration, PPE additional to mask use is not indicated, since there is no splash or body fluid exposure risk during an intramuscular injection^{2,3}.

¹⁰ Hand hygiene in outpatient care, home-based care and long-term care facilities. Geneva: World Health Organization; 2012 (<https://apps.who.int/iris/handle/10665/78060>, accessed 5 January 2021).

¹¹ "Your Moments for Hand Hygiene" – Vaccination campaign, poster. Geneva: World Health Organization; 2012 (<https://www.who.int/gpsc/5may/vaccination.pdf?ua=1>, accessed 5 January 2021).

¹² Hand hygiene for all initiative: improving access and behaviour in health care facilities. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/336023>, accessed on 5 January 2021).

¹³ Glove Use Information Leaflet. Geneva: World Health Organization; 2009 (https://www.who.int/gpsc/5may/Glove_Use_Information_Leaflet.pdf, accessed on 5 January 2021).

¹⁴ WHO guideline on the use of safety-engineered syringes for intramuscular, intradermal and subcutaneous injections in health care settings. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/250144>, accessed on 5 January 2021).

- Gloves are not indicated for intramuscular or intradermic injections¹³. Single-use gloves are indicated if there is any skin breakdown.

Injection safety^{5,14,15,16}

- Procure and use prequalified (or equivalent) safety-engineered injection devices (auto-disabled syringes, ideally with a sharps injury protection feature)¹¹ if possible. If these are not available, sterile single-use syringes and needles should be used.
- Perform hand hygiene before preparing injection material.
- Prevent contamination of the vials by wiping the access diaphragm (septum) with 70% alcohol (isopropyl alcohol or ethanol) on a swab or cotton wool ball before piercing the vial and allow to air dry.
- Pierce the septum with a sterile needle every time it is used.
- If multidose vials are used, ensure measures to avoid contamination are consistently implemented.
 - A sterile needle should be used every time the septum of a multi dose vial is pierced.
 - Never leave a needle in the stopper of the vial.
 - Label the multidose vial with the date it was first used and discard at the required time
 - Discard the multidose vial immediately if sterility is questioned or compromised or if it is not properly labeled with the original entry date.
- Follow any additional injection safety practices and specific instructions provided by the manufacturer in the vaccine product information for preserving, reconstituting and administering the vaccine.
- For skin preparation at the site of injection, clean visibly dirty skin with water, and if recommended by national or local policies, disinfect with a 60–70% alcohol-based solution. Ensure the alcohol is dry on the skin prior to injecting the vaccine.

Environmental cleaning and disinfection and waste management^{3,4,5,6,7}

- Prepare each injection in a clean, designated area.
- Perform regular environmental cleaning and disinfection of the areas and site where the vaccination is administered at least twice daily, with special attention to high-touch surfaces, using procedures recommended in the context of COVID-19.
- Discard used syringes as a single unit into a sharps container immediately. To minimize

sharps waste at the point of use, use needle or hub cutter tools.

- Collect used syringes and needles at the point of use in an enclosed sharps container that is puncture and leak-proof, and seal once ¾ full.
- Seal full sharps containers and store in a secure area in preparation for transport and final disposal.
- After closing and sealing sharps containers, secure and dispose of as soon as possible. Do not open, empty, re-use, or sell.
- Manage sharps waste in an efficient, safe and environmentally friendly way.

Additional supporting WHO guidance

World Health Organization. (2020). Infection prevention and control health-care facility response for COVID-19: a module from the suite of health service capacity assessments in the context of the COVID-19 pandemic: interim guidance, 20 October 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/336255>, accessed 5 January 2021).

Key planning recommendations for mass gatherings in the context of the current COVID-19 outbreak. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/10665-332235>, accessed 5 January 2021).

World Health Organization COVID-19 vaccine introduction readiness assessment tool, 21 September 2020. Geneva: World Health Organization & United Nations Children's Fund (UNICEF); 2020 (<https://apps.who.int/iris/handle/10665/336188>, accessed 5 January 2021).

Rational use of personal protective equipment for COVID-19 and considerations during severe shortages (<https://apps.who.int/iris/handle/10665/338033>, accessed 5 January 2021).

WHO continues to monitor the situation closely for any changes that may affect this Aide Memoire. Should any factors change, WHO will issue a further update. Otherwise, this document will expire 2 years after the date of publication.

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¹⁵ How to give a safe injection - an educational video for health care workers. Geneva: World Health Organization; 2017 (<https://www.who.int/infection-prevention/tools/injections/training-education/en/>, accessed on 5 January 2021)

¹⁶ Safe injection practices leaflet. Geneva: World Health Organization; 2017 (https://www.who.int/infection-prevention/tools/injections/IS_HealthCareProviders_Leaflet.pdf, accessed on 5 January 2021)