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Injection Safety for COVID-19 Vaccinators & Vaccine Administrators Preventing Needlesticks and Blood Exposures

Adapted from the National Clearinghouse for Worker Safety and Health Training, National Institute of Environmental Health Sciences Worker Training Program

Introduction

COVID-19 vaccines play a critical role in history, saving countless lives. Widespread participation in the vaccination program is needed for it to be fully effective. Delivering COVID-19 vaccines to millions of Americans will be challenging, and worker safety and health during the vaccination campaign must be a top priority.

Given that the current vaccines are two doses, tens of millions of syringes and needles will be used, increasing the risk of needlesticks and other sharps injuries and blood exposure.

The Occupational Safety and Health Administration Bloodborne Pathogens Standard (29 CFR 1910.1030) requires employers to protect workers from needlesticks. Strategies to protect vaccinators should be incorporated into other standard bloodborne pathogen and COVID-19 programs. These include adequate engineering controls, including ventilation and safe distancing, as well as personal protective equipment, including respirators, face coverings, eye protection and gloves.

Needlestick injuries (NSIs) can transmit bloodborne pathogens, including hepatitis B, hepatitis C and HIV. According to NSI surveillance data, NSI occur most frequently with disposable syringes in the hospital setting.^{1,2,3} NSI occur in other settings, including nursing homes, clinics, emergency care services and private homes.⁴ Underreporting of NSIs is well documented.^{5,6}



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There is limited information about the occurrence of NSIs during mass vaccination clinics because the scale of this type of program is unprecedented.

Mass vaccination clinics may pose greater risks for NSIs to healthcare workers, especially when performed in nontraditional settings and in high volumes. In one study, NSIs were 4.9 times higher during a tri-county pandemic influenza A (H1N1) mass vaccination clinic compared with other vaccination clinics. Inexperienced vaccinators had the highest rate of NSIs.⁷

The following factors are associated with NSIs:

- Distraction, including noise and crowded spaces;
- Difficulty removing the cap of the needle or recapping;
- Lack of an ideal setting;
- The patient jumps, jabs or moves;
- Inappropriate technique, pinching skin with opposite hand;
- Inappropriate selection of needle size, type;
- Lack of sharps injury prevention feature on syringe/needle;
- Improper disposal, leaving used syringe on surface; and
- Fatigue after immunizing for seven consecutive workdays.^{7,8,9,10}

Sharps Safety and Safe Injection

Safe injection practices should be in place at all times. An employer should:

- Comply with OSHA's Bloodborne Pathogens Standard, 29 CFR 1910.1030 <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030>
- Assess the risk of NSIs and blood exposures with frontline vaccinators at each vaccination location and include documentation in the Exposure Control Plan.
- The following are required, including, but not limited to:
- An exposure determination: a hazard assessment that evaluates the work environment and work practices conducted before the vaccination program is launched;
 - Engineering controls, including devices with sharps injury prevention features are evaluated, selected and used;
 - Safe work practices are being used, such as immediate disposal of used needles and other sharps, and prohibiting recapping;
 - Vaccinators are wearing appropriate gloves and other personal protective equipment based on the hazard assessment; and
 - The Exposure Control Plan is available for all workers to access at any time during their shift.

Safer Medical Devices, Work Practices and Sharps Containers

- Vaccinators must be trained on the vaccination process, including dilution and administration of the vaccine. Training should include device review and hands-on practice with devices (syringes and needles) that will be used in the clinic. All training should be conducted in advance of performing vaccinations.
- Devices with engineered sharps injury protection features can significantly reduce the risk of a needlestick injury and are crucial to a successful vaccine clinic program. All vaccinators should be trained in the proper activation of the sharps injury prevention feature prior to use.
- Puncture-resistant sharps containers must be located as close to point of use as possible to discard all used syringe and needle devices. The container should be labeled, color-coded, secured to prevent tipping over, and closed and replaced when three-quarters full.
- The National Institute for Occupational Safety and Health (NIOSH) provides valuable information on sharps containers available at <https://www.cdc.gov/niosh/docs/97-111/default.html>.



Figure 1 Portable Sharps Container

Injury Protocols, Reporting and Recordkeeping

- Organizations should ensure that all vaccinators and other personnel with potential exposures are familiar with and follow organizational policies and procedures for reporting a needlestick injury. These procedures must be documented in the organization's Exposure Control Plan.
- OSHA requires employers to record all needlesticks on a Sharps Injury Log. At a minimum, a log needs to include the following:

Date	Case Report No.	Type of Device	Brand Name of Device	Department or Work Area Where the Injury Occurred	Brief Description of How the Injury Occurred

- Additional helpful information that may be recorded on the log include: (1) occupation and (2) the type of sharps injury feature on the device, if any.
- Planning must include site-specific procedures to access medical follow-up for vaccinators who experience a needlestick. Employers should arrange for post-exposure care as soon as possible after the NSI, ideally immediately following the incident. The Centers for Disease

Control and Prevention states that post-exposure prophylaxis (PEP) for exposure to HIV should begin as soon as possible and must begin no later than 72 hours after the incident.

- The follow-up includes a medical assessment of the injury, source patient testing, counseling, and when warranted administration of PEP, and continued post-exposure follow-up by the medical provider at intervals designated by the U.S. Public Health Service. Guidance for occupational exposure is available from CDC:
 - HBV: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6210a1.htm>,
 - HCV: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5409a1.htm>, and
 - HIV: https://www.jstor.org/stable/10.1086/672271#metadata_info_tab_contents.
- Needlestick injuries are considered work-related in most state and federal workers' compensation systems. Organizations sponsoring vaccination programs should be prepared to help injured vaccinators navigate these complex systems that pay for medical follow-up, treatment and lost wages.
- If volunteers or contractors are mobilized as vaccinators, the sponsoring organization should clearly state that these workers are included in post-exposure protocols, including follow-up medical care.

Other safety and health concerns

- Administrators should schedule break periods for vaccinators. This will provide time for rest, stretching or adjustment of vaccination setups to help prevent strains and sprains that can result from awkward and/or static postures while giving vaccinations. Fatigue due to long hours of repetitive work can increase the risk of injury and medical errors.
- Vaccinators should be provided with proper PPE including a fit-tested, properly sized N95 or equivalent respirator. Surgical masks will not protect vaccinators or people being vaccinated. During accelerating community spread, a higher level of protection may be warranted. Additional appropriate PPE includes eye protection, a face shield and/or goggles, and gloves.
- Site-specific precautions should remain in effect during the vaccination program, including mask wearing for non-vaccinators and those receiving the vaccine, physical distancing, increased ventilation and filtration, and worker and patient surveillance for COVID-19 symptoms.
- Administrators should actively solicit input and evaluation from vaccinators to improve practice and address concerns; this information should be documented in the Exposure Control Plan.



- Administrators should ensure that vaccinators and other personnel know their safety and health rights and how to file a confidential complaint. Information is available from OSHA at <https://www.osha.gov/workers/file-complaint>.

Resources

CDC: <https://www.cdc.gov/vaccines/covid-19/index.html>

FDA: <https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines>

OSHA Bloodborne Pathogens and Needlestick Prevention: <https://www.osha.gov/bloodborne-pathogens>

NIOSH, Selecting, Evaluating and Using Sharps Disposal Containers: <https://www.cdc.gov/niosh/docs/97-111/default.html>

NIOSH Stop Sticks Campaign: <https://www.cdc.gov/niosh/stopsticks/default.html>

U.S. Department of Veterans Affairs: <https://www.va.gov/health-care/covid-19-vaccine/>

General Best Practice Guidelines for Immunization: Best Practices Guidance of the Advisory Committee on Immunization Practices: <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/administration.html>

Free Four-Part Series Webinar, continuing education course: Preventing Occupational Exposure to Bloodborne Pathogens in Healthcare: <https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-education-and-research-center-for-occupational-safety-and-health/ce/preventing-occupational-exposure-bloodborne-pathogens-healthcare>

International Safety Center: <https://internationalsafetycenter.org/resources/>

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