# Injection Safety

CARILION CLINIC

This presentation is produced and presented by Carilion Clinic through the Virginia Long-Term Care Infrastructure Pilot Project (VLIPP)

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# Disclaimer

- For educational purposes only
- No endorsement of products, software, or tools

# Target Audience

- Infection Preventionists
- Clinical Staff
- Providers

# Objectives

- To identify safe injection practices
- To list contributing factors to healthcare worker needlestick injuries
- To identify bloodborne pathogens associated with needle sticks
- To summarize proper use and storage of multidose vials
- To identify environmental infection hazards

# Introduction

Injections are frequently given in long-term care facilities for the prevention, diagnosis, and treatment of various illnesses

This is an invasive procedure, so conducting it in a safe manner is crucial

Causing harm through injectables is preventable if following the correct guidelines

A study by the American Journal of Infection Control found with 5446 respondents that 6% "sometimes or always" use single-dose vials for more than one resident and 15.1% reuse a syringe to enter a multidose vial

CDC (2012, May 2) Injection Safety. Retrieved from: https://www.cdc.gov/injectionsafety/index.html

AJIC (2021, January 8) Injection Practices Among Clinicians in United States Healthcare Settings. Retrieved from: https://www.ajicjournal.org/article/S0196-6553(10)00853-9/fulltext

# Importance of Injection Safety

- In 2009-2010, Hepatitis B outbreaks in 2 North Carolina nursing facilities
  - 12 Hepatitis B infections
  - 1 death
  - Linked to finger stick blood glucose tests, insulin injection, and poor hand hygiene

- CDC reports from 2008-2019
  - 66 Outbreaks of hepatitis
  - 19 Hepatitis B outbreaks from LTCF
  - 15 of these were due to blood glucose checks

- In October 2022, Florida nurse contracted monkeypox from needlestick injury

- Estimated 600,000 to 1 million needlestick injuries annually among healthcare workers

CDC (2020, May 11) Healthcare-Associated Hepatitis B and C Outbreaks Reported to Centers for Disease Control and Prevention 2008-2019. Retrieved from: https://www.cdc.gov/hepatitis/statistics/healthcareoutbreaktable.htm

CDC (2022, October 17) Monkeypox Virus Infection Resulting from an Occupational Needlestick – Florida, 2022. Retrieved from: https://www.cdc.gov/mmwr/volumes/71/wr/mm7142e2.htm

Sena, A. C., Moorman, A., Njord, L., Williams, R. E., Colborn, J., Khudyakov, Y., Drobenuic, J., Xia, G., Wood, H., Moore, Z. (2013, May 16) Acute Hepatitis B Outbreaks in Two Skilled Nursing Facilities and Possible Sources of Transmission – North Carolina, 2009-2010. DOI: 10.1086/670996

# What is Injection Safety

## Definition

- Injection safety, or safe injection practices, is a set of measures taken to perform injections in an optimally safe manner to prevent exposure and transmission of bloodborne pathogens
- It is a core element of standard precautions

## Goals

- Enhance employee and resident safety by preventing disease transmission from unsafe practices
- One and Only Campaign
  - This campaign is led by the Centers for Disease Control and Prevention and the Safe Injection Practices Coalition
  - Aims to raise awareness for injection safety by promoting one needle, one syringe, only one time

CDC (2019, December3) One and Only Campaign. Retrieved from: https://www.cdc.gov/injectionsafety/one-and-only.html#:~:text=Prevent%20disease%20transmission%20from%20unsafe,they%20receive%20an%20injectable%20medication.

CDC (2019, June 20) FAQs Regarding Safe Practices. Retrieved from: https://www.cdc.gov/injectionsafety/providers/provider_faqs.html#:~:text=Injection%20safety%2C%20or%20safe%20injection,%2C%20healthcare%20personnel%2C%20and%20others

# Elements of Injection Safety

- Important items to monitor to support injection safety include:
  - Sharps containers
  - Cleaning and disinfection supplies
  - Availability and appropriate use of single-use items
  - Dedicate multidose vials to a single resident when possible
  - PPE

CDC (2016, March 25) Safe Injection Practices. Retrieved from: https://www.cdc.gov/oralhealth/infectioncontrol/faqs/safe-injection-practices.html

# Factors that Impact Injection Safety

Factors associated with healthcare worker injection injuries include:

- Improper sized gloves
- Lack of work experience
- Lack of knowledge of bloodborne pathogens
- Inappropriate handling of injections
- Lack of proper training to operate/engage retractable safety mechanism
- Improper sharps disposal

CCOHS (2022, December 23) Needlestick and Sharps Injuries. Retrieved from: https://www.ccohs.ca/oshanswers/diseases/needlestick_injuries.html

# Bloodborne Pathogens Transmitted Via Needlesticks

The most common bloodborne pathogens that are transmitted via needlesticks are Hepatitis B, Hepatitis C, and HIV

The majority of accidental needlesticks occur when recapping the needle

Recapping the needle is not always the recommended practice and varies depending on the style of the needle's cap

Needlesticks can be prevented when safety protocols are followed appropriately and needles are disposed of in puncture-proof containers

Joukar, F., Mansour-Ghanaei, F., Naghipour, M., Asghamezhad, M. (2018) Needlestick Injuries among Healthcare Workers: Why They Do Not Report their Incidence? DOI: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6111658/

CCOHS (2022, December 23) Needlestick and Sharps Injuries. Retrieved from: https://www.ccohs.ca/oshanswers/diseases/needlestick_injuries.html

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# Safe Injection Practices in LTCFs

1. Point of Care (POC) Testing

2. Administering Medications
   - Handling of Multidose Vials

3. Disposal of Sharps

# POC Testing



- Perform hand hygiene before and after procedure
- Wear gloves
- Change gloves between resident contacts
- Utilize single-use lancets
- Preferred to have 1 glucometer per resident
- Clean equipment after each resident use (per manufacturer instruction)
- Insulin pens are single-patient-use only
- Multidose insulin vials should be dedicated to 1 resident

CDC (n.d.) Injection Safety: Point of Care Testing. Retrieved from: https://www.cdc.gov/infectioncontrol/pdf/QUOTS/Injection-Safety-Point-of-Care-Testing-P.pdf

# Administering Injectables

- Process of injections
  - Prepare injections in a clean room using aseptic techniques
  - Use proper techniques when recapping needles
  - Routinely clean and disinfect preparation area
- Draw medications in dedicated areas
  - Medication storage area
  - Medication preparation room
- If medications are drawn near a sink, reduce the splash zone by installing splash guards

## INJECTION SAFETY CHECKLIST

The following Injection Safety checklist items are a subset of items that can be found in the *CDC Infection Prevention Checklist for Outpatient Settings: Minimum Expectations for Safe Care.*

The checklist, which is appropriate for both inpatient and outpatient settings, should be used to systematically assess adherence of healthcare personnel to safe injection practices. (Assessment of adherence should be conducted by direct observation of healthcare personnel during the performance of their duties.)

| Injection Safety | Practice Performed? | If answer is No, document plan for remediation |
|---|---|---|
| Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids or contaminated equipment. | Yes No | |
| Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices such as insulin pens). | Yes No | |
| The rubber septum on a medication vial is disinfected with alcohol prior to piercing | Yes No | |
| Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient. | Yes No | |
| Single dose (single-use) medication vials, ampules, and bags or bottles of intravenous solution are used for only one patient. | Yes No | |

CDC (2011, March 2) Infection Prevention during Blood Glucose Monitoring and Insulin Administration. Retrieved from: https://www.cdc.gov/injectionsafety/blood-glucose-monitoring.html

CDC Injection Safety Checklist. Retrieved from: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.cdc.gov/injectionsafety/pdf/Safe-Injection-Checklist-P.pdf

# Administering Medications – Multidose Vials

- Assign multidose vials to individual residents when possible
- Label vial with resident's name along with discard date
- If necessary to use for multiple residents, do not bring vial into patient treatment areas to limit contamination
- If vial is used for multiple residents, new sterile needle and syringe must be used for each resident
- If a vial does enter a patient treatment area, it should then be used only for that resident and discarded afterwards
- Opened/accessed vials should be dated, and discarded after 28 days unless a different duration is specified by manufacturer


CDC (2011, March 2) Infection Prevention during Blood Glucose Monitoring and Insulin Administration. Retrieved from: https://www.cdc.gov/injectionsafety/blood-glucose-monitoring.html

# Disposal of Sharps

- All needles and sharps should be disposed of according to your facility's guidelines
  - Can include proper recapping techniques depending on the sharps

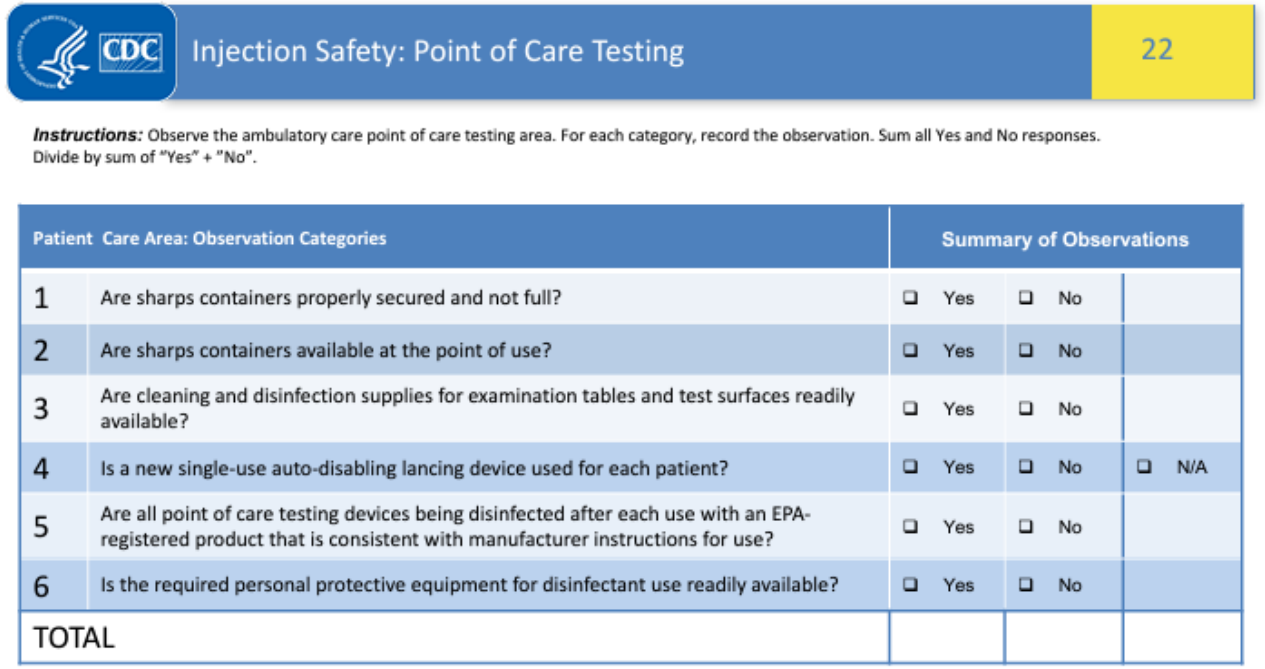
- Sharps should immediately be discarded in a puncture-proof disposal container
  - Sharps containers should be properly disposed of when they are roughly ¾ full


CDC (2021, August 17) Strategies for Sharps Disposal Container use During Supply Shortages. Retrieved from: https://www.cdc.gov/vaccines/covid-19/training-education/strategies-sharps-disposal-container.html

# How to Increase Staff Compliance

- Audits
- Training
- QAPI
  - Interdisciplinary process

# Injection Safety Audit Tools



Injection Safety: Point of Care Testing 22

***Instructions:*** Observe the ambulatory care point of care testing area. For each category, record the observation. Sum all Yes and No responses. Divide by sum of "Yes" + "No".

| Patient | Care Area: Observation Categories | Summary of Observations | | |
|---|---|---|---|---|
| 1 | Are sharps containers properly secured and not full? | ❑ Yes | ❑ No | |
| 2 | Are sharps containers available at the point of use? | ❑ Yes | ❑ No | |
| 3 | Are cleaning and disinfection supplies for examination tables and test surfaces readily available? | ❑ Yes | ❑ No | |
| 4 | Is a new single-use auto-disabling lancing device used for each patient? | ❑ Yes | ❑ No | ❑ N/A |
| 5 | Are all point of care testing devices being disinfected after each use with an EPA-registered product that is consistent with manufacturer instructions for use? | ❑ Yes | ❑ No | |
| 6 | Is the required personal protective equipment for disinfectant use readily available? | ❑ Yes | ❑ No | |
| TOTAL | | | | |

- Using audit tools allows you to determine if protocols are being followed and ways to improve staff efforts
- CDC Injection Safety: Point of Care Testing
- CDC Injection Safety Checklist

CDC. Injection Safety: Point of Care Testing PDF. Retrieved from: https://www.cdc.gov/infectioncontrol/pdf/QUOTS/Injection-Safety-Point-of-Care-Testing-P.pdf

# Injection Safety Training

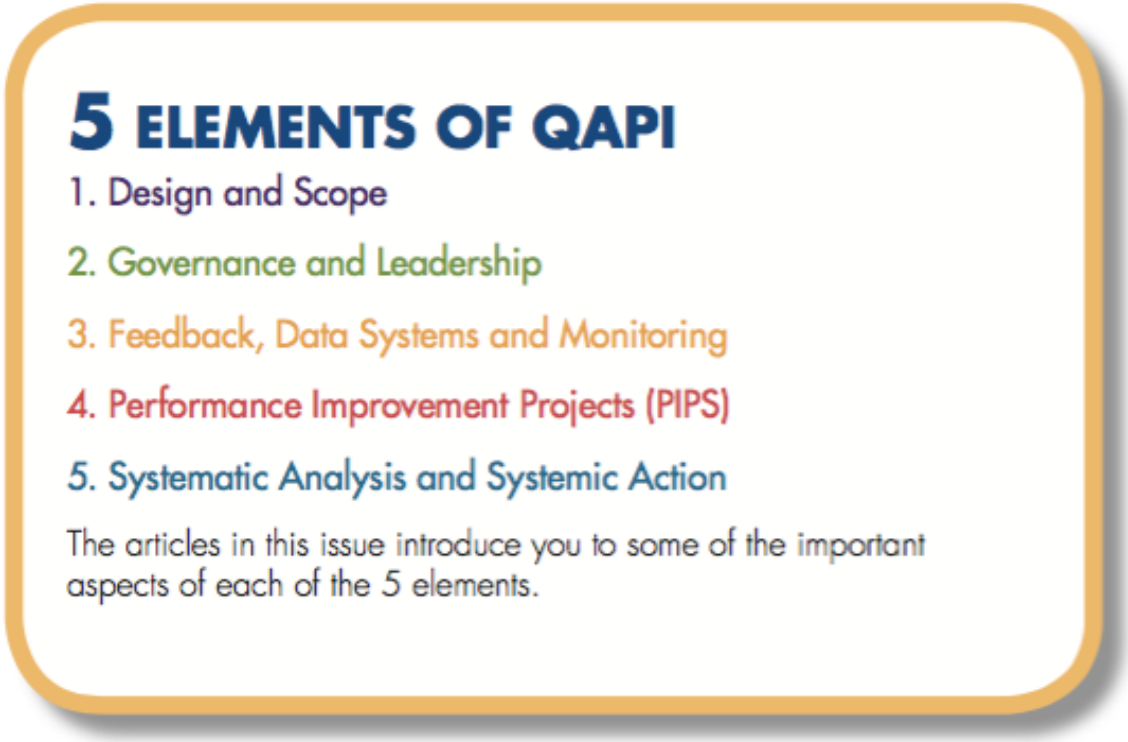
- Nursing staff should be routinely checked with their injection safety competencies to certify their knowledge
- General education should be provided along with competencies to provide updated information on safety protocols and best practices
- Training modules can also be found through various platforms such as the CDC, American Nurses Association, and WHO

ANA. Injection Safety Course: Retrieved from: https://www.nursingworld.org/continuing-education/injection-safety-a-focus-on-infection-prevention-/

# Quality Assurance and Performance Improvement

- QAPI is a data driven approach to quality improvement that is used to ensure processes are achieving a certain level and meeting quality standards

- An interdisciplinary approach allows for multiple viewpoints to be considered, resulting in greater performance improvements




CMS. Five Elements of QAPI. Retrieved from: https://www.cms.gov/medicare/provider-enrollment-and-certification/qapi/downloads/qapifiveelements.pdf

# Resources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