



OUTBREAKS AND SAFE INJECTION PRACTICES

Infection Control in Long Term Care Facilities

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- No Disclosures



OBJECTIVES

1. Discuss the consequences of unsafe injection practices
2. Describe outbreaks
3. Discuss safe injection best practices
4. Describe One and Only Campaign



UNSAFE INJECTION PRACTICES CONSEQUENCES



Patient illness and death



**Legal charges/
malpractice suits**




**Loss of
clinician license**



Criminal charges



HEALTHCARE-ASSOCIATED HEPATITIS B AND C OUTBREAKS (≥ 2 CASES) REPORTED TO CDC 2008-2019

- Total 66 outbreaks-94% occurred in non-hospital settings
- Hepatitis B (total **25 outbreaks** including two of both HBV and HCV, **183 outbreak-associated cases, 13,246 persons notified for screening**):
 - Long-term care Facilities: 19 outbreaks
 - 133 outbreak cases of HBV and approximately 1,679 at risk persons notified for screening
 - **79% (15/19) associated with assisted monitoring of blood glucose (AMBG)**
- Hepatitis C (**43 outbreaks** including two of both HBV and HCV , **328 outbreak-associated cases, >112,406 at-risk persons notified for screening**):
 - 16 outbreaks in OP or LTC with 134 outbreak cases and >80,293 persons notified for screening

[Health care-Associated Hepatitis B and C Outbreaks \(\$\geq 2\$ cases\) Reported to the CDC 2008-2019 | CDC Archive](#)



NC VIRAL HEPATITIS OUTBREAKS: REPORTED TO CDC (2008-2017)

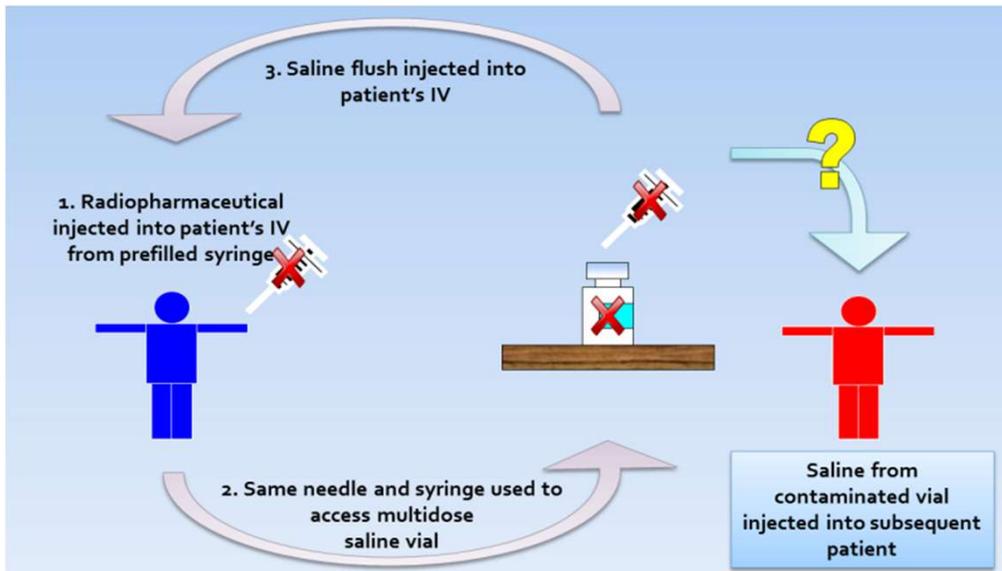
| | Year | State | Persons Notified | Persons Infected | Breach | Comments |
|--------------------------|------|-------|------------------|------------------|--|--|
| Assisted Living Facility | | NC | 87 | 8 | Use of fingerstick devices for >1 resident Use of blood glucose meter for >1 resident without cleaning and disinfection | 6 died as a result of Hepatitis complications |
| SNF | 2010 | NC | 116 | 6 | Unclear | |
| SNF | 2010 | NC | 109 | 6 | Unclear; however 4/6 received ABGM | |
| Cardiology Clinic | 2008 | NC | >1200 | 5 | Syringe reuse and contamination of MDV | An additional 2 new infections were identified in probable source patients |



*HIV/STD/Hepatitis Surveillance Unit
Division of Public Health North Carolina
Department of Health and Human
Services September 2025*

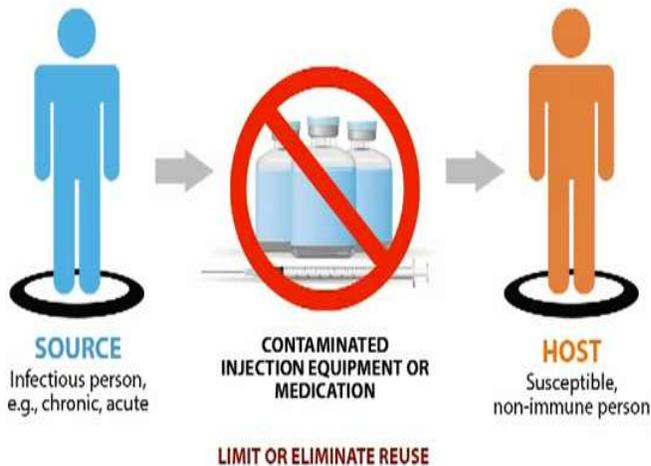


CLINICAL PICTURE: CARDIOLOGY CLINIC



STANDARD PRECAUTIONS: SAFE INJECTIONS

Unsafe Injection Practices Can Lead to Transmission of Life-Threatening Infections



The continued occurrence of outbreaks of hepatitis B and hepatitis C viruses in ambulatory settings indicated a need to re-iterate safe injection practice recommendations as part of Standard Precautions.

STANDARD PRECAUTIONS: INJECTION SAFETY PRACTICES



- All injections should be prepared and administered aseptically, in a dedicated clean area, avoiding touch or droplet contamination, away from potential sources of contamination (e.g., sinks)
- A syringe should only be used to administer medication to one patient
- Syringes should never be reused to access a medication container
- Medications that are labeled a single dose or for single-patient use should only be used for one patient

[One & Only Campaign | National Prevention Information Network](#)



STANDARD PRECAUTIONS: INJECTION SAFETY PRACTICES

- Do not enter a vial with a used syringe or needle
- Bags or bottles of intravenous solution not be used as a common source of supply for more than one patient (e.g. flush)
- Cleanse the access diaphragm of medication vials before inserting a device into the vial
- Dedicate multi-dose vials to a single patient whenever possible
- Dispose of used sharps at the point of use in a sharps container that is closable, puncture-resistant and leak-proof
- Use facemasks when placing a catheter or injecting material into the epidural or subdural space (e.g., during myelogram, epidural or spinal anesthesia)

INJECTION AND MEDICATION SAFETY

SAFETY STEPS
FOLLOW THESE INJECTION SAFETY STEPS FOR SUCCESS!

BEFORE THE PROCEDURE

Carefully **read the label** of the vial of medication.

- If it says single-dose and it has already been accessed (e.g. needle-punctured), **throw it away**.
- If it says multiple-dose, **double-check the expiration date** and the beyond-use date if it was previously opened, and visually inspect to ensure no visible contamination.
- When in doubt, throw it out.

DURING THE PROCEDURE

Use aseptic technique.

- Use a new needle and syringe for every injection.

- Be sure to clean your hands immediately before handling any medication.
- Disinfect the medication vial by rubbing the diaphragm with alcohol.
- Draw up all medications in a clean medication preparation area.

AFTER THE PROCEDURE

Discard all used needles and syringes and SDVs after the procedure is over.

MDVs should be discarded when:

- the beyond-use date has been reached
- doses are drawn in a patient treatment area
- any time vial sterility is in question

Click for more information:
FAQs Regarding Safe Practices for Medical Injections

CDC, <https://www.cdc.gov/injectionsafety/providers.html>



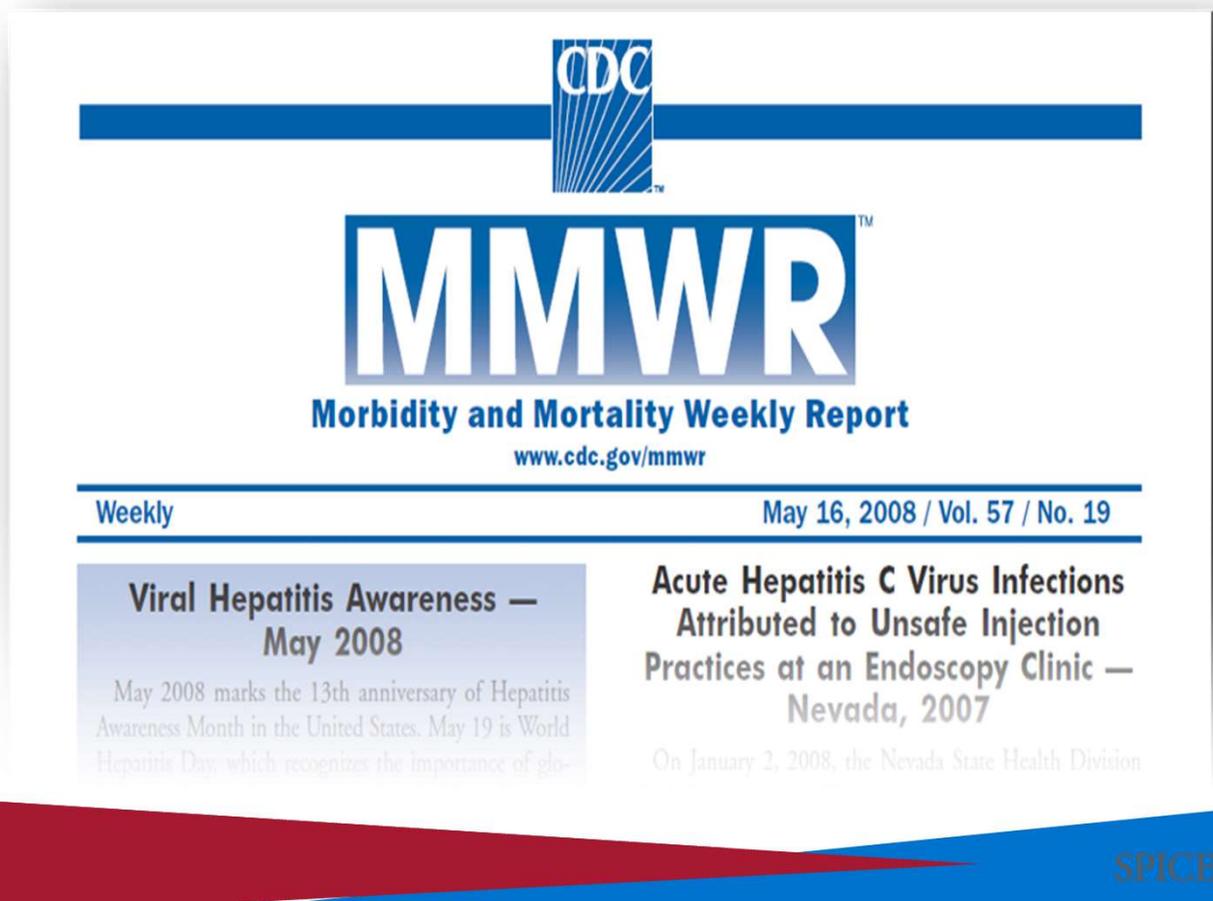
STANDARD PRECAUTIONS: INJECTION SAFETY/POINT OF CARE TESTING

- If blood glucose meters must be shared
 - Purchase glucose meters designed for healthcare use
 - The device should be cleaned and disinfected after every use, per manufacturer's instructions, to prevent carry-over of blood and infectious agents
 - If the manufacturer does not specify how the device should be cleaned and disinfected then it should not be shared
 - “The disinfection solvent you choose should be effective against HIV, Hepatitis C, and Hepatitis B virus. Outbreak episodes have been largely due to transmission of Hepatitis B and C viruses. However, of the two, Hepatitis B virus is the most difficult to kill. Please note that 70% ethanol solutions are not effective against viral bloodborne pathogens and the use of 10% bleach solutions may lead to physical degradation of your device. [View a list of Environmental Protection Agency \(EPA\) registered disinfectants effective against Hepatitis B](#)”
- Use single-use auto-disabling (retractable) fingerstick devices

<http://www.cdc.gov/injectionsafety/blood-glucose-monitoring.html>



WHY DO OUTBREAKS HAPPEN

The image shows the front cover of the Morbidity and Mortality Weekly Report (MMWR) from May 16, 2008. At the top center is the CDC logo, which consists of the letters 'CDC' in white on a blue square background with radiating lines. Below this is a thick blue horizontal bar. Underneath the bar is the large, bold, white text 'MMWR' with a blue shadow effect. Below 'MMWR' is the text 'Morbidity and Mortality Weekly Report' in blue, followed by the website 'www.cdc.gov/mmwr' in a smaller blue font. A horizontal line separates this header from the issue information. On the left side of this line, it says 'Weekly', and on the right side, it says 'May 16, 2008 / Vol. 57 / No. 19'. Below this line, there are two main article teasers. The left one is titled 'Viral Hepatitis Awareness — May 2008' and includes a sub-headline: 'May 2008 marks the 13th anniversary of Hepatitis Awareness Month in the United States. May 19 is World Hepatitis Day, which recognizes the importance of glo-'. The right one is titled 'Acute Hepatitis C Virus Infections Attributed to Unsafe Injection Practices at an Endoscopy Clinic — Nevada, 2007' and includes a sub-headline: 'On January 2, 2008, the Nevada State Health Division'. At the bottom right of the cover, there is a logo for 'SPICE' with a stylized arrow pointing upwards and to the right. The bottom of the cover features a decorative graphic with a red-to-blue gradient.

THE BIG FIVE



1. Syringe re-use, directly or indirectly



2. Inappropriate use of single dose or single use vials



3. Failure to use aseptic technique (contamination of injection equipment)



4. Unsafe diabetes care/ assisted blood glucose monitoring (ABGM)



5. Drug Diversion

1: SYRINGE RE-USE

Most common cause of outbreaks in the outpatient setting is inappropriate use of syringes:

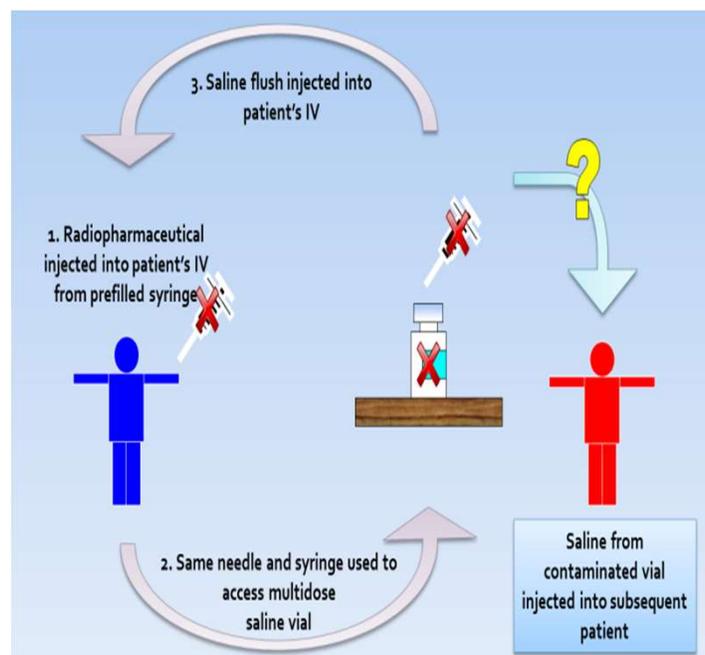
- Direct reuse:
 - Using the same syringe to administer medication to more than one patient, even if the needle is changed or the injection was administered through an intervening length of tubing



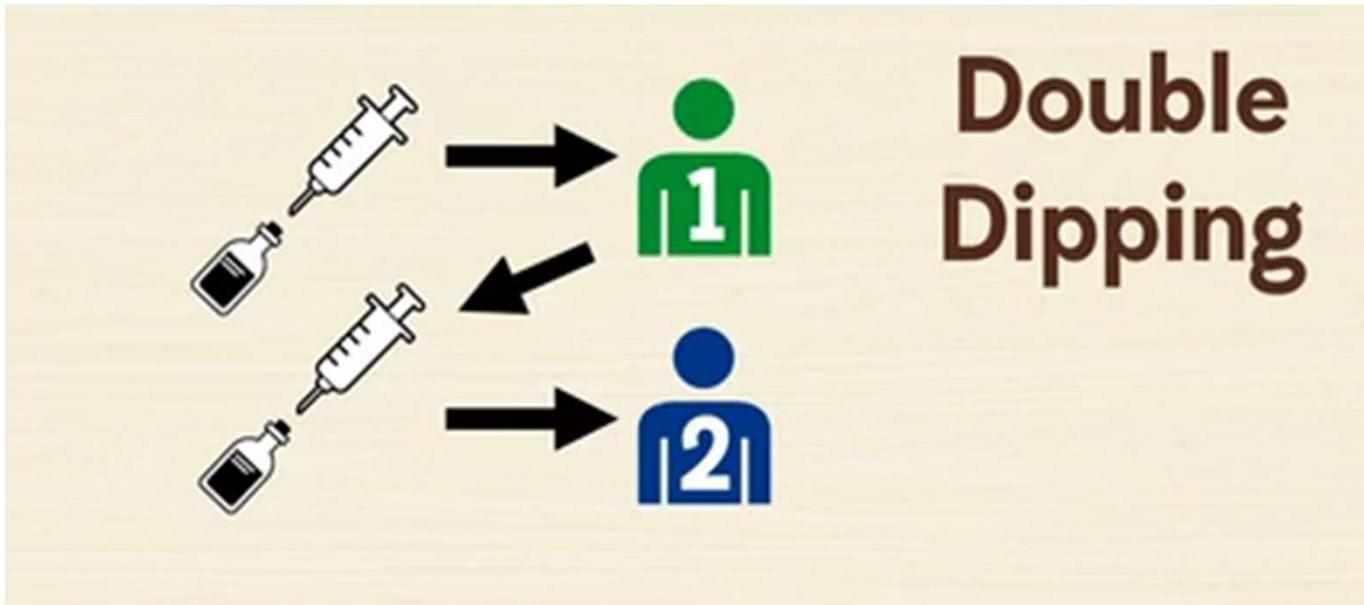
SYRINGE RE-USE



- Indirect reuse or “double dipping”:
 - Accessing a medication vial or bag with a syringe that has already been used to administer medication to a patient, then reusing the contents from the vial or bag for another patient



UNSAFE PRACTICE: DOUBLE DIPPING



ENDOSCOPY CENTER, NEVADA (2008)

- 9 clinic-associated hepatitis C virus cases
- 106 possible clinic-associated cases
- 63,000 potential exposures
- \$16–21 million total cost



MMWR

Morbidity and Mortality Weekly Report

www.cdc.gov/mmwr

Weekly

May 16, 2008 / Vol. 57 / No. 19

Viral Hepatitis Awareness — May 2008

May 2008 marks the 13th anniversary of Hepatitis Awareness Month in the United States. May 19 is World Hepatitis Day, which recognizes the importance of global commitments to prevent liver disease and cancer

Acute Hepatitis C Virus Infections Attributed to Unsafe Injection Practices at an Endoscopy Clinic — Nevada, 2007

On January 2, 2008, the Nevada State Health Division (NSHD) contacted CDC concerning surveillance reports

SPICE 

DANGEROUS MISPERCEPTIONS



1. Changing the needle makes a syringe safe for reuse.



2. Syringes can be reused as long as an injection is administered through an intervening length of IV tubing.



3. If you don't see blood in the IV tubing or syringe, it means that those supplies are safe for reuse.

Once they are used, both the needle and syringe are contaminated and must be discarded!

2: INAPPROPRIATE USE OF SINGLE-DOSE/SINGLE-USE VIALS



- Vials labeled as single use:
 - **NO PRESERVATIVE**
 - Can be accessed one time only and for one patient only and remaining contents must be discarded
- CDC is aware of at least 19 outbreaks involving single dose vial use
 - All occurred in outpatient setting with almost half in pain remediation clinics

SINGLE DOSE VIALS: CDC POSITION STATEMENT, 2012



- Vials labeled by the manufacturer as “single dose” or “single use” should only be used for a single patient.
- Ongoing outbreaks provide ample evidence that inappropriate use of single-dose/single-use vials causes patient harm.
- Leftover parenteral medications should never be pooled for later administration
 - In times of critical need, contents from unopened single dose vials can be repackaged for multiple patients in accordance with standards in United States Pharmacopeia General Chapter <797>

3: FAILURE TO USE ASEPTIC TECHNIQUE



- Two women diagnosed with HBV infection, receiving chemotherapy at the same physician practice
- Multidisciplinary team investigation
- Office closed; physician license suspended
- 2,700 patients notified
- 29 outbreak-associated cases of HBV



NEW JERSEY – ONCOLOGY OFFICE



IV bags used as sources of fluid to flush catheters for multiple patients

IV bags with stoppers removed



NEW JERSEY – ONCOLOGY OFFICE

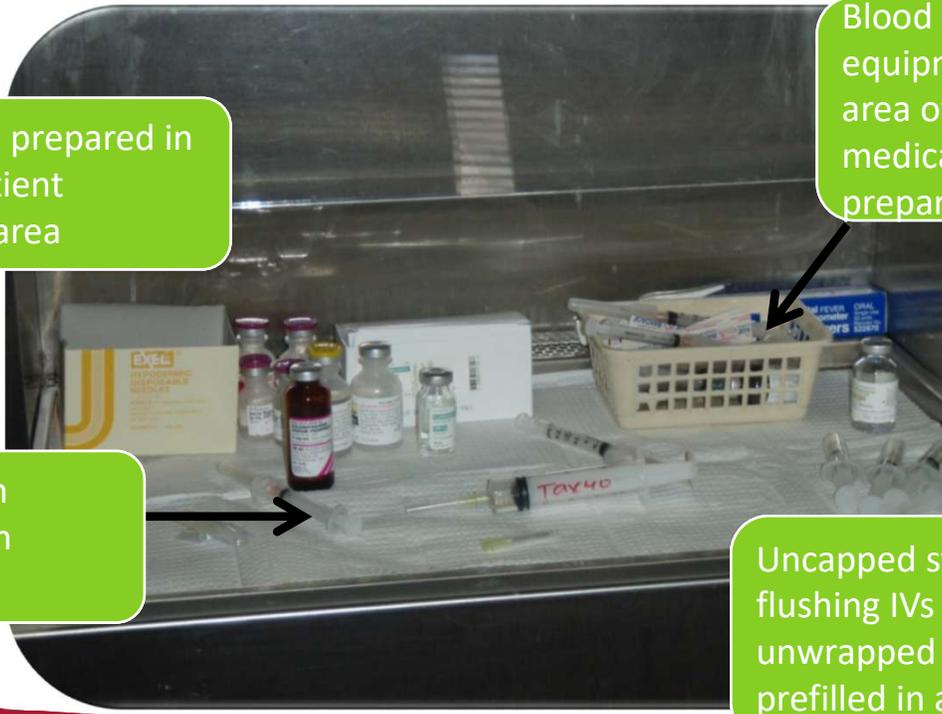


Medication prepared in hood in patient treatment area

Blood drawing equipment in area of medication preparation

Medication prepared in advance

Uncapped syringes for flushing IVs unwrapped and prefilled in advance



NEW JERSEY – ONCOLOGY OFFICE



Reused Vacutainer holders in contact with gauze

Blood contamination



4: UNSAFE DIABETES CARE



Use of fingerstick devices or insulin pens on multiple persons



Sharing of blood glucose meters without cleaning and disinfection between uses



Failure to perform hand hygiene or change gloves between procedures

Patel et al. ICHE 2009; 30:209-14, Thompson et al. JAGS 2010, MMWR 2005; 54:220-3



Fingerstick Devices

- Fingerstick devices, also called lancing devices, are devices that are used to prick the skin and obtain drops of blood for testing.
- There are two main types of fingerstick devices: those that are designed for reuse on a single person and those that are disposable and for single-use.

FINGERSTICK DEVICES

- **Reusable Devices:**

- These devices often resemble a pen and have the means to remove and replace the lancet after each use, allowing the device to be used more than once. Some of these devices have been previously approved and marketed for multi-patient use and require the lancet and disposable components (platforms or endcaps) to be changed between each patient. However, due to failures to change the disposable components, difficulties with cleaning and disinfection after use, and their link to multiple HBV infection outbreaks, **CDC recommends that these devices never be used for more than one person. If these devices are used, it should only be by individual persons using these devices for self-monitoring of blood glucose.**

- **Single-use, auto-disabling fingerstick devices:**

- These are devices that are disposable and prevent reuse through an auto-disabling feature. In settings where assisted monitoring of blood glucose is performed, single-use, auto-disabling fingerstick devices should be used.

Blood Glucose Meters

- Whenever possible, blood glucose meters should be assigned to an individual person and not be shared.
- If blood glucose meters must be shared;
 - The device should be cleaned and disinfected after every use, per manufacturer's instructions, to prevent carry-over of blood and infectious agents.
 - If the manufacturer does not specify how the device should be cleaned and disinfected then it should not be shared.

INSULIN PENS

- Insulin Pens containing multiple doses of insulin are meant for single-resident use only, and must never be used for more than one person, even when the needle is changed
- Insulin pens must be clearly labeled with the resident's name or other identifiers to verify that the correct pen is used on the correct resident
- Facilities should review their policies and procedures and educate their staff regarding safe use of insulin pens

State Operations Manual Appendix PP -Guidance to Surveyors for Long Term Care Facilities

SURVEY OF PHYSICIAN AND NURSE PRACTICES AROUND INJECTION SAFETY

- 370 Physicians
- 320 Nurses
- Eight States Included
 - NC, NY, NJ, Nevada, Colorado, Tennessee, Wisconsin, Montana
- Types of healthcare settings:
 - Acute care, long term care, outpatient settings

<https://www.sciencedirect.com/science/article/pii/S0196655317306806?via%3Dihub>



SURVEY FINDINGS

| Topic Is Acceptable Practice | Physician Response | Nurse Response |
|--|-----------------------|-------------------|
| Reuse of syringe for > one patient | 12.4% | 3.4% |
| Reentering a vial with a used needle/syringe | 12.7% | 6.7% |
| Using SDVs for multiple patients | 34% | 16.9% |
| Using source bags as diluent for multiple patients | 28.9% | 13.1% |

SUMMARY: BEST PRACTICES



Syringe reuse (direct and indirect)

- Never administer medications from the same syringe to multiple patients
- Do not reuse a syringe to enter a medication vial or solution
- Limit the use of multi-dose vials and dedicate them to a single patient whenever possible



Misuse of single-dose/single-use vials

- Do not administer medications from a single dose vial or IV solution bag to more than one patient, more than one time

SUMMARY: BEST PRACTICES



Failure to use aseptic technique

- Use aseptic technique when preparing or administering medications



Unsafe diabetes care

- Use insulin pens and lancing devices for only one patient
- Dedicate glucometers to a single patient. If they MUST be shared, clean and disinfect after each use

5: DRUG DIVERSION

- When prescription medicines are obtained or used illegally

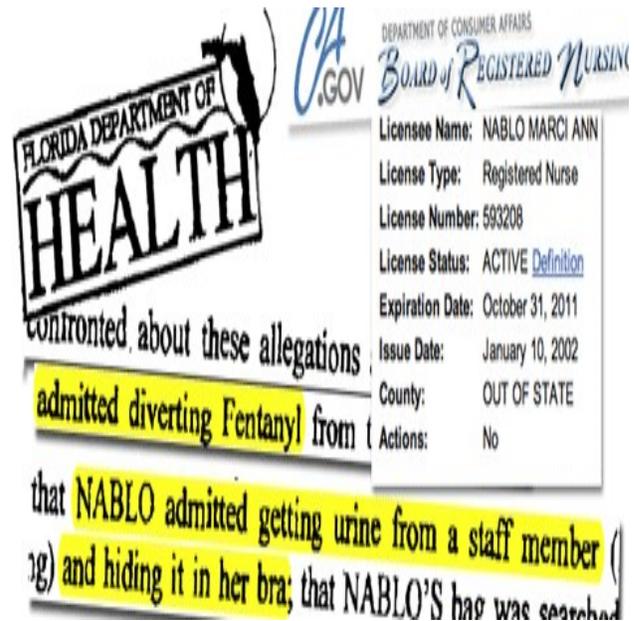


DRUG DIVERSION FACTS

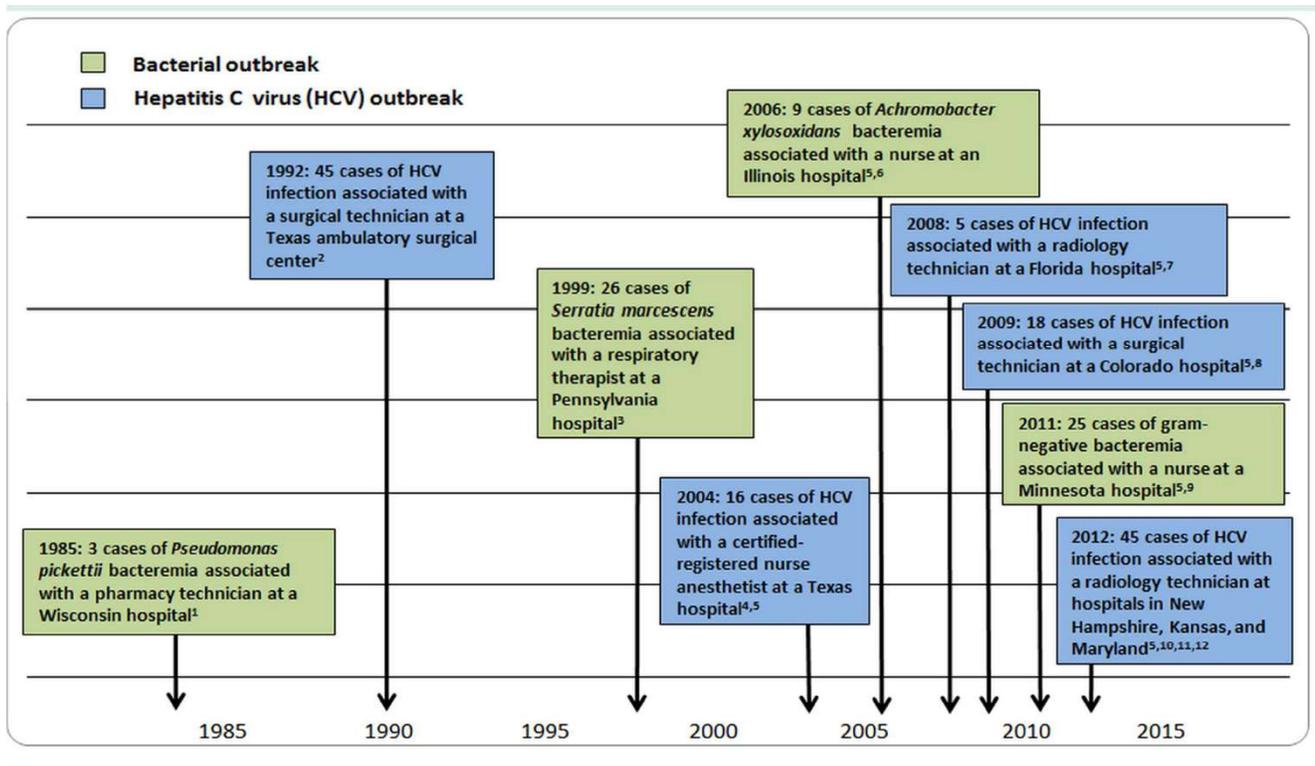
- Drug diversion costs / year (2007):
 - \$120 **billion** in lost productivity
 - \$72.5 **billion** in medical insurer costs
 - \$61 **billion** in criminal justice costs
 - \$11 **billion** in health care costs
- HCPs with a drug/alcohol dependency
 - 15% of pharmacists
 - 10% of nurses
 - 8% of physicians

DRUG DIVERSION: THREE TYPES OF HARM

- Substandard care delivered by an impaired provider
- Denial of essential pain medication or therapy
- Risks of infection
 - Bloodborne Pathogen
 - Bacterial contaminants.



U.S. Outbreaks Associated with Drug Diversion, 1983–2013



U.S. OUTBREAKS ASSOCIATED WITH DRUG DIVERSION BY HEALTHCARE PROVIDERS, 2014-2018

| Year | Cases | Outbreak |
|------|-------|---|
| 2018 | 12 | HCV infections associated with an emergency department nurse at a hospital in Washington [2] |
| 2018 | 6 | <i>Sphingomonas paucimobilis</i> bacteremia associated with a nurse at a cancer center in New York [3] |
| 2015 | 7 | HCV infections associated with a nurse at a Utah hospital [4] |
| 2014 | 5 | <i>Serratia marcescens</i> bacteremia associated with a nurse in a post-anesthesia care unit at a hospital in Wisconsin [5] |

[Clinician Brief: Drug Diversion | Injection Safety | CDC](#)



DRUG DIVERSION* SPREADS INFECTION FROM HEALTHCARE PROVIDERS TO PATIENTS



HEALTHCARE PROVIDER
with Hepatitis C or other
bloodborne infection
tampers with injectable drug



**CONTAMINATED
INJECTION EQUIPMENT
AND SUPPLIES**
present in the
patient care environment



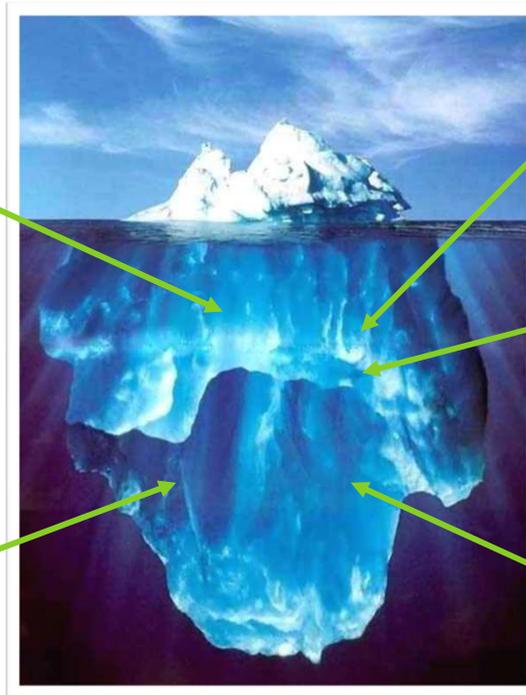
EXPOSURE OF PATIENT
results from use of contaminated
drug or equipment for patient
injection or infusion

*Drug diversion occurs when prescription medicines are obtained or used illegally by healthcare providers.

FOR MORE INFORMATION, VISIT [CDC.GOV/INJECTIONSAFETY/DRUGDIVERSION](https://www.cdc.gov/injectionsafety/drugdiversion)



MOST OUTBREAKS ARE NEVER DETECTED



Asymptomatic infection

Under-reporting of cases

Long incubation period; difficult to identify single healthcare exposure

Under-recognition of healthcare as risk

Barriers to investigation, resource constraints

BEST PRACTICE

- Designate someone to provide ongoing oversight
- Develop written infection control plan
- Provide training
- Conduct quality assurance assessments



ONE AND ONLY CAMPAIGN



- About the Campaign
- Safe Injection Practices
- Healthcare Provider Information
- Patient Information
- Campaign Resources
- News
- Contact Us

HELP ENSURE PATIENT SAFETY.
MAKE EVERY INJECTION A SAFE ONE.



About the Campaign

The *One & Only Campaign* is a public health campaign, led by the Centers for Disease Control and Prevention (CDC) and the Safe Injection Practices Coalition (SIPC), to raise awareness among patients and healthcare providers about safe injection practices. The Campaign aims to eliminate infections resulting from unsafe injection practices.

Become a Member

If you are interested in becoming a *One & Only Campaign* Member, please [Contact Us](#).

Featured Content

- ▶ [Getting Medical Care? How to Avoid Getting an Infection](#)
- ▶ [New CDC Safe Healthcare Blog- One Nurse's Plea: Report Signs of Drug Abuse](#)

Spread the Word

Do your part to make healthcare safe, one injection at a time. Order FREE materials from the CDC.
[CDCInfoOnDemand/InjectionSafety](#)

Translated Campaign Resources

The *One & Only Campaign* has translated print materials in Spanish and Japanese!
[Access translated resources here.](#)

Sign up for email updates: [SIGN UP](#) [Privacy Policy 2017](#)



CAMPAIGN RESOURCES

- Print Materials
- Audio & Visual
- Social Media
- Toolkits



QUESTIONS?

