OUTBREAKS AND SAFE INJECTION PRACTICES

Statewide Program for Infection Control and Epidemiology (SPICE)
UNC School of Medicine

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

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Healthcare-associated Infections (HAIs)

- Outbreaks and Patient Notifications in Outpatient Settings, Selected Examples, 2010-2014

Selected examples of recent outbreaks and patient notification events (n=24):

- Primary care clinics (4)
- Cosmetic surgery centers (3)
- Pain remediation clinics (4)
- Cancer clinics (3)
- Oral surgery (2)
- Orthopedic clinics (2)
HEPATITIS VIRUS TRANSMISSION IN HEALTHCARE (2008 – 2017) - EXCERPT

- 60 outbreaks (two or more cases) of viral hepatitis related to healthcare reported to CDC during 2008-2017; of these, 57 (95%) occurred in non-hospital settings.

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

<table>
<thead>
<tr>
<th>Setting</th>
<th>Year</th>
<th>State</th>
<th>Persons Notified</th>
<th>Persons Infected</th>
<th>Breach</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assisted Living Facility</td>
<td>2015</td>
<td>NC</td>
<td>87</td>
<td>8</td>
<td>Use of fingerstick devices for &gt;1 resident</td>
<td>6 died as a result of Hepatitis complications</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Use of blood glucose meter for &gt;1 resident without cleaning and disinfection</td>
<td></td>
</tr>
<tr>
<td>SNF</td>
<td>2010</td>
<td>NC</td>
<td>116</td>
<td>6</td>
<td></td>
<td>Unclear</td>
</tr>
<tr>
<td>SNF</td>
<td>2010</td>
<td>NC</td>
<td>109</td>
<td>6</td>
<td></td>
<td>Unclear; however 4/6 received ABGM</td>
</tr>
<tr>
<td>Cardiology Clinic</td>
<td>2008</td>
<td>NC</td>
<td>&gt;1200</td>
<td>5</td>
<td>Syringe reuse and contamination of MDV</td>
<td>An additional 2 new infections were identified in probable source patients</td>
</tr>
</tbody>
</table>
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

http://www.oneandonlycampaign.org/partner/north-carolina

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

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

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

http://www.cdc.gov/injectionsafety/blood-glucose-monitoring.html
WHY DO OUTBREAKS HAPPEN

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. Plus 1 = Drug Diversion

THE BIG FOUR + ONE
# 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.

- 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
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〉

www.cdc.gov/injectionsafety/CDCposition-SingleUseVial.html

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

IV bags with stoppers removed

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

Blood contamination

Reused Vacutainer holders in contact with gauze

# 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

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*
SAFE INJECTIONS: 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

SAFE INJECTIONS: 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
A GROWING RISK TO PATIENT SAFETY

1. ONE NEEDLE, ONE SYRINGE, ONLY ONE TIME.

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
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
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


SURVEY FINDINGS

<table>
<thead>
<tr>
<th>Topic Is Acceptable Practice</th>
<th>Physician Response</th>
<th>Nurse Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reuse of syringe for &gt; one patient</td>
<td>12.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Reentering a vial with a used needle/syringe</td>
<td>12.7%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Using SDVs for multiple patients</td>
<td>34%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Using source bags as diluent for multiple patients</td>
<td>28.9%</td>
<td>13.1%</td>
</tr>
</tbody>
</table>
BEST PRACTICE

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

Speak Up!

ONE AND ONLY CAMPAIGN

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

About the Campaign
The One & Only Campaign is a public health initiative 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 Infection
• New CDC Safe Healthcare webpage: One Needle. One Time. Tips of the Week

Spread the Word
Do your part to make healthcare safer, one injection at a time. Order FFPET materials from the CDC.

Translated Campaign Resources
The One & Only Campaign has translated print materials in Spanish and Applicable Access. Available translated resources here.
CAMPAIGN RESOURCES

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

QUESTIONS?