OUTBREAKS AND SAFE INJECTION PRACTICES
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 have devastating consequences:

- Patient illness and death
- Legal charges/malpractice suits
- Loss of clinician license
- Criminal charges

Outbreak!
**VIRAL HEPATITIS OUTBREAKS REPORTED TO CDC 2008-2016**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Risk</th>
<th>Number Exposed</th>
<th>Number Infected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hepatitis B:</strong> 24 total outbreaks including one of both HBV and HCV, 179 outbreak-associated cases, &gt;10,935 persons notified for screening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18/24 (75%) LTCF</td>
<td>15/18 (83%) associated with ABGM</td>
<td>1,680</td>
<td>133</td>
</tr>
<tr>
<td>5/24 (25%) other OP settings</td>
<td>Med prep; SDV</td>
<td>&gt;8,500</td>
<td>46</td>
</tr>
<tr>
<td><strong>Hepatitis C:</strong> 36 total outbreaks including one of both HBV and HCV, &gt;288 outbreak-associated cases, &gt;105,048 at-risk persons notified for screening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13/36 (36%) OP settings</td>
<td>Unsafe Injection Practices</td>
<td>&gt;73,873</td>
<td>111</td>
</tr>
<tr>
<td>20/36 (55%) Hemodialysis</td>
<td>Med prep; environmental cleaning</td>
<td>2,979</td>
<td>100</td>
</tr>
<tr>
<td>3/36 (9%) Drug Diversion cases</td>
<td>HCV infected HCP</td>
<td>&gt;26,217</td>
<td>78</td>
</tr>
</tbody>
</table>
## NC EXPERIENCE, 2001 - 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Setting</th>
<th>Type</th>
<th>Exposed (n)</th>
<th>Incident Infections (n)</th>
<th>Lapse</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>Nursing Home</td>
<td>hepatitis B virus</td>
<td>192</td>
<td>11</td>
<td>ABGM</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Cardiology Clinic</td>
<td>hepatitis C virus</td>
<td>1200</td>
<td>5</td>
<td>Syringe Reuse Contaminating MDV</td>
<td>Strengthened .0206</td>
</tr>
<tr>
<td>2010</td>
<td>Assisted-living Facility</td>
<td>hepatitis B virus</td>
<td>87</td>
<td>8</td>
<td>ABGM</td>
<td>6/8 patients died, “Act to Protect Adult Care Home Residents”</td>
</tr>
<tr>
<td>2010</td>
<td>Skilled Nursing Facility</td>
<td>hepatitis B virus</td>
<td>116</td>
<td>6</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Skilled Nursing Facility</td>
<td>hepatitis B virus</td>
<td>109</td>
<td>6</td>
<td>ABGM</td>
<td></td>
</tr>
</tbody>
</table>

ABGM – Assisted Blood Glucose Monitoring
UNSAFE INJECTION: OUTBREAK CAUSES & BEST PRACTICES
OUTBREAK CAUSES

1. Syringe reuse (direct and indirect)
2. Misuse of single-dose/single-use vials
3. Failure to use aseptic technique
4. Unsafe diabetes care
1. SYRINGE REUSE

• Direct Reuse
  • Insulin pens, IV tubing, vaccines

• Indirect Reuse or “double dipping”
  • Common cause of large hepatitis outbreaks
  • Syringe that had been used to inject medication into a patient and reused to enter a medication vial
  • Contents of the vial are then used for subsequent patients
SYRINGE REUSE
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. **X**
2. Syringes can be reused as long as an injection is administered through an intervening length of IV tubing. **X**
3. If you don't see blood in the IV tubing or syringe, it means that those supplies are safe for reuse. **X**

Once they are used, both the needle and syringe are contaminated and must be discarded!
2. MISUSE OF SINGLE-DOSE/SINGLE-USE VIALS

- Vials labeled as single use do not contain ANY preservative and can be accessed **one time only and for one patient only.** Remaining contents must be discarded.
- CDC is aware of at least 19 outbreaks involving single dose vial use:
  - 7 outbreaks involved BBPs
  - 12 involved bacterial infections (majority of patients requiring hospitalization)
- All outbreaks occurred in outpatient settings:
  - Almost half in pain remediation clinics (n=8)
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/injection safety/CDCposition-SingleUseVial.html
3. FAILURE TO USE ASEPTIC TECHNIQUE

HEPATITIS B OUTBREAK ASSOCIATED WITH A HEMATOLOGY-ONCOLOGY OFFICE PRACTICE IN NEW JERSEY, 2009

• Two women diagnosed with acute HBV infection, both received chemotherapy at the same physician’s office

• Multidisciplinary team investigation

• The office practice was closed, and the physician’s license was suspended.

• 2,700 patients notified and twenty-nine outbreak-associated HBV cases were identified.

• Deficient infection prevention policies/procedures and failure to use aseptic technique primary breaches
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

Blood contamination

Reused Vacutainer holders in contact with gauze
KNOWLEDGE CHECK

• Which of the following statements is true?

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.

4. Medication should be prepared in a manner that prevents microbial contamination between the injection materials and the non-sterile environment.
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*
UNSAFE INJECTIONS: CAUSES & BEST PRACTICES

1. 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

2. 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
UNSAFE INJECTIONS: CAUSES AND BEST PRACTICES

3. Failure to use aseptic technique
   • Use aseptic technique when preparing or administering medications

4. 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
KNOWLEDGE CHECK
Is it acceptable to visually inspect syringes to determine whether they are contaminated or can be used again?

a) Yes
b) No
   ★
c) Maybe
MOST OUTBREAKS ARE NEVER DETECTED

- Asymptomatic infection
- Long incubation period; difficult to identify single healthcare exposure
- Under-reporting of cases
- Under-recognition of healthcare as risk
- Barriers to investigation, resource constraints
ROLE OF HEALTHCARE-ASSOCIATED TRANSMISSION: BEYOND OUTBREAKS

Among patients ≥55:

• Those with acute HBV or HCV are 2.7x more likely to report having had injections in a healthcare setting

• Approximately 37% of acute HBV and HCV infections attributable to unsafe injections in healthcare settings

GROWING RESERVOIR

- Aging population – more frequent interactions with the healthcare system

- “…growing reservoir of infected individuals who can serve as a source of transmission to others if safe injection practices and other basic infection control precautions are not followed”

*Perz et al, Hepatology 2012.‘Accepted Article’, doi: 10.1002/hep.25688*
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</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>
WHY ARE WE MISSING THE MARK?

- Knowledge Gaps
  - Poor training
  - Lax or nonexistent policies and procedures
- Knowledge not translated into practice
  - Drug shortages
  - Economic/time pressure
- Malfeasance
  - Drug Diversion
KNOW AND PRACTICE THESE SIMPLE RULES

SAFE INJECTIONS

- Needles and syringes are single use devices. They should not be used for more than one patient or reused to draw up additional medication.

- Do not administer medications from a single-dose vial or IV bag to multiple patients.

- Limit the use of multi-dose vials and dedicate them to a single patient whenever possible.

SAFE DIABETES CARE

- Fingerstick devices should never be used for more than one person.

- Blood glucose meters should be assigned to an individual person.

- If shared, it must be cleaned and disinfected per manufacturer’s instructions.

- Injection equipment (e.g., insulin pens, needles and syringes) should never be used for more than one person.
BASIC PATIENT SAFETY

• “Safe injection practices are basic but they are not optional...” – Dr. Michael Bell, CDC

• Healthcare should not provide any avenue for transmission of bloodborne pathogens or microorganisms

• Entirely preventable through Standard Precautions / safe injection practices
BEST PRACTICE

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

INJECTION SAFETY IS EVERY PROVIDER’S RESPONSIBILITY!

WWW.ONEANDONLYCAMPAIGN.ORG
ONE AND ONLY CAMPAIGN
CAMPAIGN RESOURCES

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

A Patient

Maybe they thought safe injection practices were no big deal...
POSTERS
PRINT MATERIALS
North Carolina Information and State Contact:
http://oneandonlycampaign.org/partner/north-carolina