Injection Safety: Every Provider’s Responsibility!

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State Epidemiologist for Infectious Disease

- **Endoscopy Clinic: New York City, 2001**
  - 19 HCV infections due to contamination of multi-dose anesthetic vials

- **Pain Remediation Clinic: Oklahoma, 2002**
  - 71 HCV and 31 HBV infections due to syringe reuse

- **Private Medical Practice: New York City, 2001**
  - 38 HBV infections associated with unsafe injection practices

- **Oncology Clinic: Nebraska, 2002**
  - 99 HCV infections associated with syringe reuse during flush procedures leading to contamination of common saline bag
Las Vegas Hepatitis C Outbreak

- Syringes reused to withdraw multiple doses for individual patients
- Remaining volume in single dose propofol vials used for subsequent patients
- >50,000 patients notified to seek testing
Hepatitis B outbreak associated with a hematology-oncology office practice in New Jersey, 2009

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Trenton and Toms River, New Jersey; and Atlanta, Georgia

- Index cases: 2 cancer patients with acute hepatitis B
- Multiple breaches in infection control
  - Medication preparation in a blood processing area, common-use saline bags, and reuse of single-dose vials
- 2,700 patients notified
- 29 outbreak-associated HBV cases identified
- Practice closed, physician’s license suspended
Chemotherapy Room

**Hepatitis B**
- 19 outbreaks
- 150 outbreak-associated cases
- >10,190 at-risk persons notified for screening

**Hepatitis C**
- 13 outbreaks
- 102 outbreak-associated cases
- 80,649 at-risk persons notified for screening

94% in non-hospital settings
Nevada Urology Clinic, March 2011

- Urology clinic re-used single-use endocavitary needle guides during prostate biopsies¹
- “Needle guides used on average 3-5 times before being discarded after becoming too bloody”²
- ~100 patients notified and recommended to undergo bloodborne pathogen testing
- News reports prompted a second physician to self-report; 3rd incident was reported from Pennsylvania

Infection Control Assessment of Ambulatory Surgical Centers

Over the last several decades, health care delivery in the United States has shifted toward the outpatient setting; ambulatory surgery in particular has been an area of immense growth. Ambulatory surgical centers (ASCs) are defined by the Centers for Medicare & Medicaid Services (CMS) as facilities that operate exclusively to provide surgical care. ASCs are an important part of the American health care delivery system, and the number of ASCs has grown rapidly in recent years.

Context

More than 500,000 ASCs participate in the Medicare program. Little is known about infection control practices in ASCs. The Centers for Medicare & Medicaid Services (CMS) piloted an infection control audit tool in a sample of ASC inspections to assess facility adherence to recommended practices.

Objective

To describe the infection control practices observed in a national sample of ASCs.

Design, Setting, and Participants

Seven states were selected based on factors including number of ASCs and geographic and population diversity. A stratified random sample of ASCs was conducted in each state. The audit tool assessed compliance with infection control practices across five key areas: hand hygiene, injection safety and medication handling, equipment reprocessing, environmental cleaning, and handling of blood glucose monitoring equipment.

Main Outcome Measures

Proportion of facilities with lapses in each infection control category.

Results

Overall, 46 of 68 ASCs (68%) had at least 1 lapse in infection control; 12 (18%) had lapses identified in 3 or more of the 5 categories.

Audit tool used to assess compliance in 5 key areas of infection control: hand hygiene, injection safety and medication handling, equipment reprocessing, environmental cleaning, and handling of blood glucose monitoring equipment.

“Little is known about infection control practices in ASCs.”
Anonymous survey of 5,500 U.S. healthcare professionals (primarily RNs)

1% “sometimes or always” reuse a syringe on a second patient

1% “sometimes or always” reuse a multidose vial after accessing it with a reused syringe

6% use single-dose/single use vials for more than one patient

Pugliese, et al 2010. AJIC.
Available at: [http://www.cdc.gov/injectionsafety](http://www.cdc.gov/injectionsafety) or [http://www.ajicjournal.org/article/PIIS0196655310008539/abstract](http://www.ajicjournal.org/article/PIIS0196655310008539/abstract)
Outbreaks of bacterial infections associated with unsafe injections, US, 2001-2011

- At least 25 outbreaks
- Nearly all outpatient settings
- Common procedures:
  - joint/spine injections (10 outbreaks)
  - saline/heparin flush procedures (9+ outbreaks)
- ~ 75% of case-patients required hospitalization
- Common breaches:
  - Repetitive use of single-dose medication vials or saline bags, multi-dose vials entered multiple times with non-sterile syringes and needles, pooling leftover contents of medication vials
  - Low adherence to hand hygiene, and aseptic technique, and improper storage and labeling of medications

Outbreaks Associated with Single Dose Vials

- Since 2007
  - At least 20 outbreaks associated with single dose vials or single use IV solutions
    - 7 outbreaks of hepatitis B and/or C
    - 13 outbreaks of bacterial infections
  - High rates of hospitalization for BSIs
  - Nearly all in outpatient settings
    - Pain clinics (n=9) and cancer clinics (n=5)
Colorado Pediatric Clinic, 2011

- Medical assistant administered flu vaccine from the same syringe to >1 patient (children 6 - 35 months)
- Patient notification conducted and bloodborne pathogen testing advised
- Elements from CDC Guidelines & Outpatient Checklist
  - Needles are for only one patient
  - Syringes are for only one patient

Pediatric Clinic

Children told to be tested for HIV after flu vaccines reused

To Prevent Transmission of Infections in Healthcare

1 ONE NEEDLE, ONE SYRINGE, ONLY ONE TIME.

Safe Injection Practices Coalition
www.ONEandONLYcampaign.org

Injection Safety is Every Provider’s Responsibility
One Needle, One Syringe , Only One Time

**Dangerous Myth**

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

**Truth**

- Everything from the medication bag to the patient's IV catheter is a single interconnected unit.
- Neither distance from the patient, gravity, nor change of infusion pressure ensure that small amounts of blood won't contaminate the syringe once it has been connected to the unit.
- Syringes should never be reused for more than one patient or to access medication vials.
One Needle, One Syringe, Only One Time

Dangerous Myth
Changing the needle makes the syringe safe for reuse.

Truth
Once they are used, both the needle and syringe are contaminated and must be discarded.
## Dangerous Myth

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

## Truth

Pathogens including hepatitis C virus, hepatitis B virus, and HIV can be present in sufficient quantities to produce infection without any visible blood.
One Needle, One Syringe, Only One Time

Dangerous Myth
Single-dose vials with large volume that appear to contain multiple doses can be used for more than one patient.

Truth
Single-dose vials should not be used for more than one patient regardless of the vial size.
Standard Precautions – Safe Injection Practices

IV.H.1. Use aseptic technique to avoid contamination of sterile injection equipment. Category IA

IV.H.2. Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed. Needles, cannulae and syringes are sterile, single-use items; they should not be reused for another patient nor to access a medication or solution that might be used for a subsequent patient. Category IA

IV.H.3. Use fluid infusion and administration sets (i.e., intravenous bags, tubing and connectors) for one patient only and dispose appropriately after use. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set. Category IB

IV.H.4. Use single-dose vials for parenteral medications whenever possible. Category IA

IV.H.5. Do not administer medications from single-dose vials or ampules to multiple patients or combine leftover contents for later use. Category IA

IV.H.6. If multidose vials must be used, both the needle or cannula and syringe used to access the multidose vial must be sterile. Category IA

IV.H.7. Do not keep multidose vials in the immediate patient treatment area and store in accordance with the manufacturer’s recommendations; discard if sterility is compromised or questionable. Category IA

IV.H.8. Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients. Category IB

IV.I. Infection control practices for special lumbar puncture procedures

Wear a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space (i.e., during myelograms, lumbar puncture and spinal or epidural anesthesia). Category IB

CDC Guide to Infection Prevention in Outpatient Settings: Minimum Expectations for Safe Care

Outpatient Settings

Guide to Infection Prevention in Outpatient Settings: Minimum Expectations for Safe Care


Note to Readers

The following document is a summary guide of infection prevention recommendations for outpatient (ambulatory care) settings. The recommendations included in this document are not new but rather reflect existing evidence-based guidelines produced by the Centers for Disease Control and Prevention and the Healthcare Infection Control Practices Advisory Committee. This summary guide is based primarily upon elements of Standard Precautions and represents the minimum infection prevention expectations for safe care in ambulatory care settings. Readers are urged to consult the full guidelines for additional background, rationale, and evidence behind each recommendation. All guidelines are available at: Guidelines and Recommendations

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 eradicate outbreaks resulting from unsafe injection practices.

Injection Safety Toolkits

Featured Content

- Endorsing the Safe Use of Single-Dose/Single-Use Vials - 5/31/12
- Unsafe Injections Put at Least 130,000 Patients at Risk of Serious Illness - 5/30/12

Partner States

The SIPC partners with states to promote the messages of the One & Only Campaign.

Read more

Campaign Resources

The SIPC has print materials, videos, and more to educate consumers and remind healthcare providers about the basics of injection safety.

Read more
Epocrates Smartphone App

- Injection safety activity features short video
- Series of questions engrains safe injection practices
Multistate Outbreak of Fungal Infections
New England Compounding Center (NECC)

- 9/18/12 *Aspergillus* meningitis case reported to TN Department of Health; 46 days post epidural steroid injection
- By 9/27, 9 similar cases
- All received epidural steroid injection with preservative-free methylprednisolone acetate (MPA) compounded at NECC
- Three lots of MPA implicated
  - Distributed to 75 facilities in 23 states (none in VT)
- Used to treat peripheral joint and back pain
Multistate Outbreak of Fungal Infections (Cont.)

- As of 10/22, 297 cases (23 deaths) in 16 states
- Vast majority have fungal meningitis; others include basilar stroke, spinal osteomyelitis, septic arthritis, and osteomyelitis of a peripheral joint
- To date no cases definitively associated with other lots of MPA or other NECC products
- Possible cases under investigation include:
  - Possible meningitis potentially associated with epidural injection of NECC triamcinolone product
  - Fungal infection in two transplant patients who were administered NECC cardioplegic solution
FDA urging follow up of patients when the following conditions are met:

- The medication was an injectable product purchased from or produced by NECC, including an ophthalmic drug that is injectable or used in conjunction with eye surgery, or a cardioplegic solution,
- The medication was shipped by NECC on or after May 21, 2012, and
- The medication was administered to patients on or after May 21, 2012.
Questions?