SAFE INJECTION PRACTICES:

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Excellentia Advisory Group

Safe Injection Practices

Objectives:

The participant will be able to:

- Discuss bloodborne pathogen transmission due to unsafe injection practices
- Identify techniques of safe injection practices
- List behavior modification techniques

Safe Injection Practices

1998-2014: more than 50 outbreaks

Transmission of HBV, HCV and bacterial pathogens to more than 700 patients

2001-2012: 150,000 patients received notification of exposure due to unsafe injection practices

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Bloodborne pathogen transmission due to:

- improper injection practice
- improper infusion practice
- improper medication vial access and utilization
- improper point-of-care testing

Safe Injection Practices

Categories of unsafe injection practices:

- Syringe re-use between patients
- Contamination of medication vials or IV bags
- Failure to follow basic safe injection practices
- Inappropriate use of finger stick device/ glucometer

Safe Injection Practices

Where are we dropping the ball?

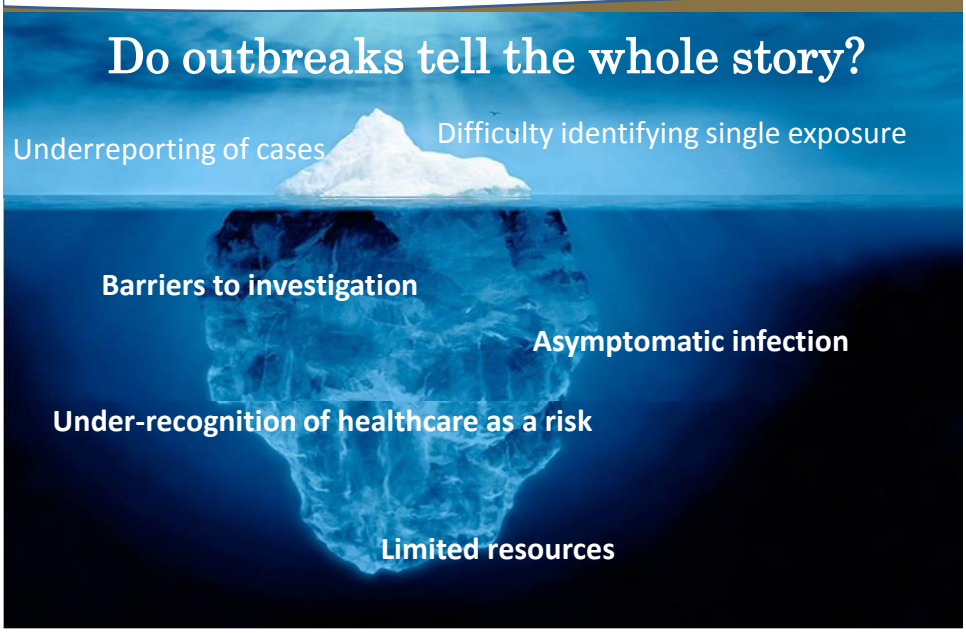

Knowledge gaps


Knowledge not being placed into practice


Intentional misuse or harm

Safe Injection Practices

Do outbreaks tell the whole story?



Safe Injection Practices

Knowledge gaps

- Unaware of best practices
  - Training deficit
  - Memory lapse

Safe Injection Practices

Injection Safety

Does not harm the recipient, does not expose the provider to any avoidable risks, and does not result in waste that is dangerous for the community

Intended to prevent transmission of infectious diseases between one patient and another or between a patient and HCW and to prevent needlestick injuries

Safe Injection Practices

WHAT IS ASEPTIC TECHNIQUE?

- Handling, preparation, and storage of medications and all supplies used for injections and infusions—e.g., syringes, needles, intravenous (IV) tubing—in a manner that prevents microbial contamination
- Medications should be drawn up in a designated "clean" medication preparation area
  - item that could have come in contact with blood or body fluids should be kept separate

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Aseptic Technique:

- perform hand hygiene before accessing supplies
- use a mask to contain respiratory droplets when preparing and injecting solution into spine or intracapsular space (joint)
- avoid non-sterile contact with sterile areas of containers, drugs
- never store needles and syringes unwrapped as sterility cannot be ensured
- place only pre-filled flush syringes that are terminally sterilized by the manufacturer AFTER packaging onto a sterile field immediately after opening
- never place items sterilized by manufacturers BEFORE final packaging onto a sterile field
- disinfect rubber stopper of medication vials and the neck of glass ampoules with sterile 70% alcohol
- disinfect catheter hugs, needleless connectors and injection ports before accessing
  - change disinfecting port protectors per manufacturer recommendations
  - allow adequate dry time before entry
- never pool left over medications for later administration
- Do not use prefilled syringes to further dilute medication for administration

NEVER STORE NEEDLES/ SYRINGES UNWRAPPED

Safe Injection Practices

Transporting medications:

- Discourage transporting of medication filled syringes/ needles in pockets or clothing

IV Solutions:

- Use for only 1 patient
- Use needleless spiking devices to remove fluid from IV bags and vials for use for only 1 patient
- Never use a bag of IV solution for more than 1 patient
- Use needle free systems for all aspects of parenteral medication administration

Flushing:

- Use single use containers for flush solutions
- If a multi-dose vial must be used, use it for only 1 patient and then discard.
- Use a new, unused sterile needle and syringe for each entry into the vial

Safe Injection Practices

- Draw up medications into a syringe as close to administration time as feasible. Inject within 1 hour after drawing up the medication
- Inspect all vials for particulate matter, discoloration or turbidity. – Discard immediately
- Store vials with same colored labels and/ or same medication with different dosages separately
- Never leave a device in the septum of a medication vial for multiple medication draws
- Use a filter needle to draw medications from an ampoule
- Discard any vials that were used to draw 2 or more medications into a single syringe

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Drug Diversion:

- Institute drug diversion monitoring systems and security measures to assist in averting and/ or identifying diversion activity
- CDC defines an appropriate response to a drug diversion event as including "assessment of harm to patients, consultation with public health officials when tampering with injectable medications is suspected, and prompt reporting to enforcement agencies

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Liquid medication intended for parenteral administration

Single Dose Vial	Multi Dose Vial
• Use in a single patient/ single use • Labeled as single use by the manufacturer • Lack antimicrobial preservatives	• More than 1 dose • Labeled as multi-dose by the manufacturer • Contain antimicrobial preservative to help prevent growth of bacteria • Preservative has no effect on viruses • Does not protect against contamination

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What does single dose/ single use mean?

- Single patient/ single case/ single procedure/ single injection
- Even if it appears to contain more than one "single" dose….
  - cannot be used for more than 1 patient

AND

  - cannot be stored for future use on the SAME patient

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What does single dose/ single use mean?

- Should only be entered one time to prevent inadvertent contamination of contents
- Exception: if drawing entire contents into a single syringe will not allow for safe and accurate titration of dose (pediatric) during surgery
  - MUST be NEW needle and syringe
  - Vial MUST be discarded at end of procedure

Safe Injection Practices

What does single dose/ single use mean?

- Leftover medication may not be combined/ pooled for later use
- Vial must be discarded according to the time the manufacturer specifies for the opened vial or at the end of a case/procedure for which it is being used, whichever comes first

Safe Injection Practices

What does Multi dose/ Multi use mean?

- Should be dedicated to a single patient whenever possible
- If it must be used for more than one patient
  - Cannot be ACCESSED or KEPT in immediate patient treatment area
    - Prevents cross-contamination through direct or indirect contact with contaminated surfaces or equipment

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When should parenteral medications be discarded?

Single dose

- If opened or accessed
- If NOT opened/ accessed: per manufacturer's expiration date

Multi dose

- If opened/ accessed:
  - Dated and discarded in 28 days unless manufacturer specifies different (shorter/ longer) date
  - Known as BEYOND USE DATE
    - Can NOT exceed manufacturer original expiration date
- If NOT opened/ accessed:
  - Per manufacturer's expiration date

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Knowledge not being placed into practice

Incomplete understanding

Supplies unavailable

Too busy

Lackadaisical/ laissez-faire attitude

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Point-of-care testing:

- Single-use, auto-retracting lancing devices for each patient
- Blood glucose meters used for more than 1 patient must be labeled by the manufacturer for multiple patient use and include adequate instructions for disinfection of the meter between patients.
- Clean visible blood and dirt from meters before disinfecting
- Use an EPA approved disinfectant and follow manufacturer's contact time
- Provide training and oversight for HCP

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- Acceptable to store an UNOPENED MDV inside of an anesthesia cart or the OR.
  - Emergency medication
    - Once opened/ accessed in patient care area: vial is dedicated to use with that patient ONLY
    - Any UNUSED medication must be discarded

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What is an immediate treatment area?

CDC and WHO guidelines and CMS requirements state:

"Operating room, procedure room, and patient examination areas/ bays"

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Medications drawn up in a space separate from the immediate patient treatment area:

- Acceptable to SECURELY store LABELED syringe for up to 1 hour
  - Label must include date/ time drawn, initials of HCW preparing syringe, name of medication, strength of medication

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- Pathogens including HBV, HCV, HIV can be present in sufficient quantities to produce infection in the absence of visible blood
- Bacteria/ fungus/ virus/ parasites and other microbes can be present without clouding or other visible evidence of contamination

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Strategies:

- Hand hygiene: # 1 approach to prevent cross-contamination and infections
- 1 syringe, 1 needle, 1 patient
- Use an alcohol prep pad
- Do not leave a device inserted into the septum of a vial for multiple medication draws

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Medication Reconstitution

- ASEPTIC technique must be followed
- Performed in DESIGNATED CLEAN medication area
  - No adjacent to areas potentially contaminated
    - Sinks
    - Specimens
    - Glucometer
    - Sharps disposal
    - Waste disposal

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USP 797 - Compounding

- USP <797> : Low risk conditions
- Compounding involves only transfer, measuring, and mixing manipulations using not more than 3 commercially manufactured packages of sterile products and not more than 2 entries into any one sterile container/ package

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Reuse of syringe/ needle for same patient

- ALWAYS enter medication vial with a sterile needle/ syringe even when obtaining additional doses for the same patient

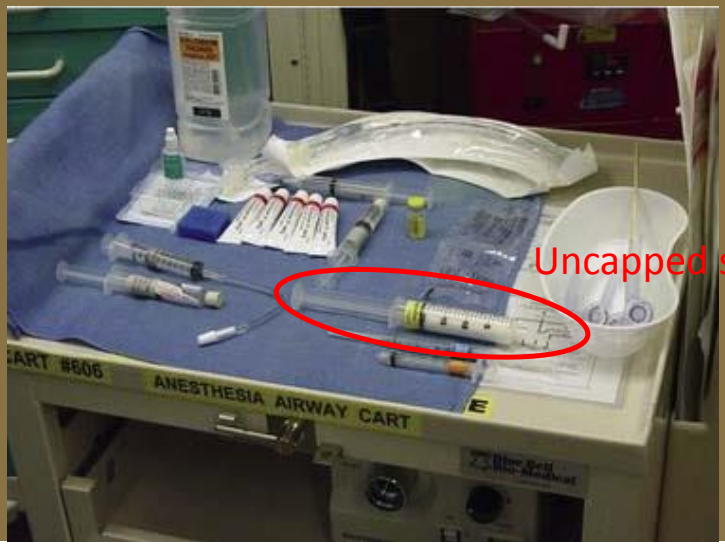
Safe Injection Practices

Reuse of syringe/ needle for same patient

- ALWAYS use a needle/ syringe only once when administering medications to a single patient
- Exception: administration of incremental doses to a single patient is an integral part of the procedure
  - STRICT adherence to aseptic technique
  - Syringe can never be left unattended

Safe Injection Practices

What is wrong with this picture?



Safe Injection Practices

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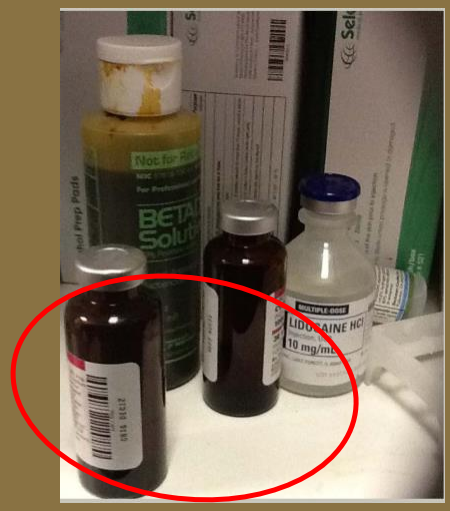

Open MDV, no date, initials

Safe Injection Practices

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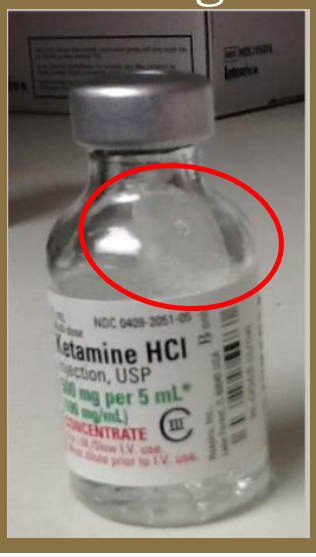

Some type of unknown particulate adhering to inside of vial

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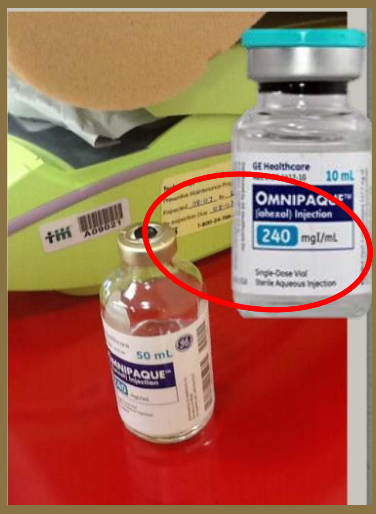
What is wrong with this picture?



Open, Single dose vial in medication room

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Unlabeled syringes

http://www.nj.com/salem/index.ssf/2015/07/children_got_wrong_immunizations_including_cervica.html

Safe Injection Practices

Safe Injection Practices

INTENTIONAL misuse or harm

- Using same syringe to administer medication to more than one patient
- Accessing a medication vial/ bag with a syringe that has already been used to administer medication to a patient, then reusing contents from that vial/ bag for another patient

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How can we make a difference?

- Education
- Perform assessment of adherence
- Re-education
- Perform quality measurement
- Perform re-assessment of adherence

Safe Injection Practices

KEEP IT CLEAN

6 Hand Hygiene Tips for Anesthetists

1 **Make disinfection easier.** To make it as easy as possible to thoroughly wipe down anesthesia machines between patients, mount disinfectant wipes on each machine so that your anesthesia providers can clean surface areas, knobs and dials [WT add: Also mount foaming hand sanitizer]

2 **Plan ahead.** Try to have all supplies you might use out and on the anesthesia machine before the case starts, and treat the anesthesia machine as a contaminated area. If you have to go back to the cart during the case, make sure you remove your gloves and foam your hands.

3 **Diligently wear gloves.** A lot of breaches occur in this area. Providers are well aware that they need to wear them, but the gloves often come off for one reason or another. To the greatest extent possible — and it isn't always possible — switch to clean gloves every time you deal with a new domain.

4 **Beware of the glove box.** Most facilities have glove boxes with disposable gloves available to the anesthesia provider. But unless care is taken, every time you reach in to get a fresh pair, you may contaminate both the gloves you're about to put on and the other gloves in the box.

5 **Double-glove during airway management.** Once the airway is secure, take the outer pair off.

6 **Educate.** We regularly go through all kinds of educational modules to maintain privileges — modules having to do with harassment, fire safety, and trips and falls — but I've never seen one on the risks of diseases or transmission of pathogens in the workplace. It's been shown that a sophisticated campaign aimed at maintaining hand hygiene among anesthesia providers can lead to a reduction of surgical site infections, and maybe even a reduction in mortality.

Outpatient Surgery December 2015 — *Clarence J. Biddle, CRNA, PhD*

"Recommendations for Infection Control for the Practice of Anesthesiology (Third Edition)"

https://asahq.org/~/media/sites/asahq/files/public/resources /asa%20committees/recommendations-for-infectioncontrol-for-the-practice-of-anesthesiology-(1).pdf?la=en

Safe Injection Practices

Safe Injection Practices

EXCELLENTIA
ADVISORY GROUP

Your name:_____ **Date:** _____

Health Care Worker (HCW) Type Key

1 = RN 2= LPN 3= MD 4= PA 5= CRNA 6= Anesthesiologist 7 = Rad Tech

Parameter:	Observation	HCW observed?
1. Rubber septum on vial disinfected with alcohol before piercing?	□ YES □NO □N/A	
2. 1 sterile needle used 1 time for 1 patient?	□ YES □NO □N/A	
3. 1 sterile syringe (Open immediately before use) used 1 time for 1 patient?	□ YES □NO □N/A	
4. Medication vial entered with new sterile needle? (No ports utilized)	□ YES □NO □N/A	
5. Medication vial entered with new sterile syringe? (Open immediately before use)	□ YES □NO □N/A	
6. Single use/ single dose medications discarded after single use? Accessed only 1 time	□ YES □NO □N/A	
7. Multi dose vials labeled with 28 day expiration date and initials?	□ YES □NO □N/A	
8. Multi dose vial is discarded within 28 day expiration date?	□ YES □NO □N/A	
9. IV bag labeled with date and time of spike?	□ YES □NO □N/A	
10. New single use auto disabling lancet device used to obtain blood sample?	□ YES □NO □N/A	
11. Hub of IV tubing disinfected with alcohol before piercing?	□ YES □NO □N/A	
12. Is the IV fluid bag used as a common source of fluid for multiple patients?	□ True □False □N/A	
13. Medications drawn up in a designated "clean" med prep area?	□ YES □NO □N/A	
14. Proper hand hygiene performed BEFORE handling of medications or injection?	□ YES □NO □N/A	
15. Aseptic technique utilized when preparing and administering injections	□ YES □NO □N/A	
16. Mask worn when placing catheter or injecting material into spinal canal or subdural space?	□ YES □NO □N/A	

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Observers:

Total Observations: **Total Category Observations:** **Total fallouts:**

Health Care Worker (HCW) Type Key
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Parameter:	Yes	No	N/A	HCW w/ Fallout
Example:	15 (50%)	5 (16.7%)	10	
1. Rubber septum on vial disinfected with alcohol before piercing?				
2. 1 sterile needle used 1 time for 1 patient?				
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14. Proper hand hygiene performed BEFORE handling of medications or injection?				
15. Aseptic technique utilized when preparing and administering injections				
16. Mask worn when placing catheter or injecting material into spinal canal or subdural space?				

To determine percentage:
Yes: total number of yes answers divided by the (total number of yes plus the total number of no answers) times 100 = percentage
No: total number of no answers divided by the (total number of yes plus the total number of no answers) times 100 = percentage
N/A: do not include not applicable answers in the total number of category observations or when determining percentage
Total fallouts: add up all of the numbers in the blue boxes. To determine the percentage: divide the number of fallouts by the total number of category observations times 100 = percentage

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Anesthesia/ Medication Cart Daily Checklist

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MONTH	Multi-Dose vials			SINGLE DOSE VIALS	SYRINGES LABELED				CORRECTIVE PLAN OF ACTION AND/ OR COMMENTS
	Open/ In Use	Not Open			Med Name (MN) Strengths (S) Date/ Time (D/T) Initialed (I)				
DAY	28 d OK	Initialed	In Date	Discarded after each use	MN	S	D/T	I	
1									
2									
3									
4									
5									
6									
7									
8									
9									
0									

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Provided all of the tools and still having problems?

Behavioral modification techniques:

- Positive reinforcement
- Negative reinforcement
- Punitive

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Positive reinforcement

- Praise
- Setting a goal
- Reward
- Competition

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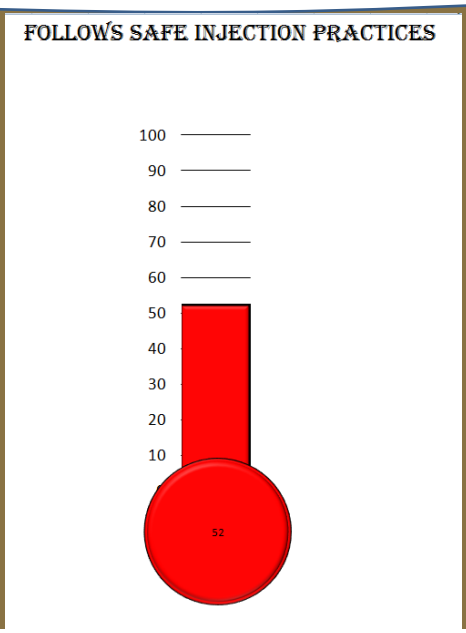

Thermometer per ALL group
- By Discipline

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Negative reinforcement

- Occurs when something already present is removed (taken away) as a result of a behavior. The behavior that led to the removal will increase in the future because it created a favorable outcome.

Example:
Before: annoying car in front.
Behavior: blast the car horn.
After: annoying car is gone.
Future behavior: Driver will blast the horn when an annoying car is in front.

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Punitive

- incident report
- counseling
- fines

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Common Themes and Findings

- Investigations were resource-intensive and disruptive
  - Notification, testing, and counseling of hundreds of patients
- Delayed recognition and missed opportunities
  - Prolonged transmission
  - Growing reservoirs of infected patients
- IC programs lacking or responsibilities unclear
- Entirely preventable
  - Standard precautions + aseptic technique

MMWR 2003 52:901-6 / CID 2004; 38:1592–8

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QUESTIONS

Safe Injection Practices

REFERENCES:

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- APIC position paper: Safe Injection Practices: http://www.apic.org/Resource_/TinyMceFileManager/Position_Statements/2016APICSIPPositionPaper.pdf :accessed 10/20/16
- One and only campaign: http://www.oneandonlycampaign.org/sites/default/files/upload/pdf/Injection%20Safety%20FAQs%20%282%29%20FINAL_0.pdf : accessed 10/20/16
- One and only campaign: CDC guidelines: http://www.oneandonlycampaign.org/content/cdc-guidelines :accessed 10/20/16
- 2007 Guidelines for Isolation precautions: Preventing transmission of Infectious Agents in Healthcare Settings http://www.cdc.gov/hicpac/pdf/isolation/isolation2007.pdf : accessed 10/20/2016
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THANK YOU

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