

Welcome ☺

TGIT

- Thank you for participating in our Capstone project
- Everyone should have a packet
- Please sign the consent form
- There will be a 10 minute Pre-Quiz and a Post-Quiz
- Anonymity will be maintained.

Safe Syringe and Needle Use

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- <http://www.oneandonlycampaign.org/content/audio-video>

Objectives

- Discuss recent literature regarding proper infection control practices.
- Discuss the AANA and CDC position on 'one syringe, one needle, one patient policy'
- Provide education on safe syringe and needle use to SRNAs



AANA Standard IX

- “Certified Registered Nurse Anesthetists (CRNAs) shall take precautions to minimize the risk of infection to the patient, the CRNA, and other healthcare providers”.



AMERICAN ASSOCIATION
OF NURSE ANESTHETISTS

AANA Position

- **Never administer medications from the same syringe to multiple patients, even if the needle is changed.**
- **Never reuse a needle, even on the same patient.**
 - Once a needle has been used, it is considered contaminated and must be discarded in an appropriately identified sharps container.
 - Needles are single-use devices.
 - e.g. - When injecting a dose of medication from a syringe through an intravenous port, the needle may enter the port only one time and then must be discarded.

AANA Position

- **Never refill a syringe once it has been used, even for the same patient.**
 - Syringes are single- use devices.
 - Once the plunger of a syringe has been completely depressed in order to expel the syringe contents (i.e., intravenous medication), the internal barrel of the syringe is considered contaminated and must be discarded in an appropriate fashion.
 - A syringe must only be used once to draw up medication, and **must not be used again even to draw up the same medication, from the same vial, for the same patient.**
 - CRNAs should weigh the risks of possible syringe contamination (e.g., from anesthesia workspace contamination), **which may occur when repeatedly connecting and disconnecting a medication-filled syringe from an intravenous infusion set.**

AANA Position

- **Never use infusion or intravenous administration sets on more than one patient.**
 - Infusion and intravenous sets are single-patient use items and must be used according to applicable policies and guidelines.
 - These devices are to be used on one patient only, and must never be used between patients.



AANA Position

- **Never reuse a syringe or needle to withdraw medication from a multidose medication vial.**
 - A new sterile syringe and needle are required each time a multidose vial is accessed.
 - Practitioners should avoid using multidose vials if at all possible.
 - **If a multidose vial must be used, the practitioner should consider using that multidose vial on only one patient.**
 - Although multidose medication vials contain a preservative, they still may become contaminated with infectious agents due to unsafe practices.
 - Using a new sterile needle and syringe each time a multidose vial is accessed reduces the possibility of contamination.

AANA Position

- Never reenter a single-use medication vial, ampoule or solution.
 - It is not appropriate to prepare multiple flush syringes for multiple patients from the same single-use intravenous solution bag or bottle (e.g., normal saline).
 - It is not appropriate to prepare multiple fentanyl, midazolam, or propofol syringes for the same or multiple patients from the same single-use medication vial, ampoule or solution.

100 mL Code FAH3015 **freeflex®**

Sodium Chloride 0.9 % Freeflex
Injection Solution for Intravenous Infusion

Each 100 mL contains:

Sodium Chloride	900 mg
Water for Injections to	100 mL

Total Electrolytes per 100 mL approx:

Sodium	15.4 mmol
Chloride	15.4 mmol

Sterile non-pyrogenic. Isotonic. pH 4.5 - 7.0.
Osmolality 308 mOsm/kg water. Store below 25°C.
Directions for use: Refer to package insert.
Use only when solution is clear and practically free from particles and container is undamaged.

Contains no antimicrobial preservatives.
Use in one patient on one occasion only.
For single use only, discard any unused mixture.

Keep out of reach of children. AUST R 144609

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Problem

Ford (2013)

- Failure of anesthesia providers to comply with infection control guidelines has negatively impacted hundreds of patients.
 - Since 1999, **582 patients** have been infected with either hepatitis B virus (HBV) or hepatitis C virus (HCV) related to absence of compliance with infection control policies which **forbid the reuse of:**
 - **IV tubing**
 - **Needles**
 - **Syringes**

2008

- One of the largest recent events occurred in 2008 at an endoscopy center in Las Vegas
 - **40,000 patients** were placed at risk of contracting HCV
 - **Six people** contracted HCV



Ford (2013)

- Other causes linked to healthcare-associated transmission of HBV and HCV include:
 - Preparing injections in contaminated environments
 - Sharing finger stick devices or glucometers
 - Using insulin pens on multiple patients
 - Failing to wear gloves or not performing hand hygiene
 - Failing to properly clean dialysis equipment between patients
 - Workers abusing drugs

Costs associated with treatment

Ford (2013)

- Costs associated with treatment of these preventable infections are exorbitant:
 - **Lifetime treatment of an individual infected with HBV approaches \$80,000**
 - Not including the additional costs associated with:
 - The notification and testing process
 - Treatment of subsequent organ failure
 - Malpractice claims
 - Legal fees
 - Discipline process
 - Increased professional liability premiums



Need for further education

Ford (2013)

- Eight questions online survey using a convenience-sampling method
- 325 SRNAs from various colleges participated
- 4% delivered medications to multiple patients using one syringe
- 18% reused needles on the same patient
- **82% refilled a used syringe on the same patient**



Need for further education

Ford (2013)

- 0.6% reused infusion lines on multiple patients
- 22% reused a needle or syringe to redraw medication out of a multi-dose vial
- 49% admitted to re-entering a single dose vial of medication in preparation for several different patients
- **81% stated they had witnessed a CRNA participate in at least 1 out of 6 unsafe practices mentioned by the survey**
- **58% had been asked by a preceptor to perform 1 out of 6 unsafe practices listed in the study**

Need for further education

Pugliese et al. (2010)

- Online survey using a convenience sampling method
- 39,100 subscribers of a public newsletter called “Safety Share”
- 5,446 applicants were used in the study
- 6% admitted to using a single-dose vial for multiple patients
 - **Some commented that it was a cost saving method due to the large size of some vials**

Need for further education

Pugliese et al. (2010)

- 15% (797) admitted to reusing a syringe to attain additional amounts of medication out of the same multi-dose vial
 - Out of the 797 participants 51 admitted they saved that multi dose vial for the next patient
 - Of the 51 participants:
 - 52% worked in the hospital setting
 - 48% worked in non-hospital setting
 - The largest department segment of the 51 subjects (n=13) worked in surgery or anesthesia

Need for further education

Woodbury et al. (2014)

- Set out to compare safe syringe and injection practices among five different hospitals in the Atlanta, Georgia area.
- Objective- To assess the uniformity of syringe and injection safety among the hospitals, and what factors led to non-compliance
- Design- Convenience sampling, obtained through an online anonymous survey



Need for further education

Woodbury et al. (2014)

- A total of 319 surveys were sent to anesthesia personnel working in the five various Atlanta-based hospitals.
 - 89 replies
- **Approximately 60%** of the subjects stated that they reused vials in between cases
 - Reason?
 - Cost effectiveness 44%
 - Convenience 23%
 - Environment 10%
 - Time constraints 8%
 - **Apathy 2%**

Need for further education

Woodbury et al. (2014)

- Study Conclusions
 - Syringe and injection safety among the responding anesthesia providers was not uniform.
 - Greatest factor leading to non-compliance was cost effectiveness.
- Limitations
 - Respondent bias
 - Respondents to the study might only be providers who are passionate about infection control, leaving out providers who might be less compliant in this area.
 - Geographic limitation
 - May not give an accurate assessment for compliance around the country

???

Woodbury et al. (2014)

- 1) What infectious organism are you most likely to transmit by using expired propofol?
 - a. Enterobacter
 - b. Staphylococcus
 - c. Serratia
 - d. Moraxella
 - e. Candida
- 2) After popping the cap off of a vial, but before piercing the vial, do you wipe the top with alcohol?
 - a. Yes
 - b. No

Answers

Woodbury et al. (2014)

- 1) b. Staphylococcus
- 2) Should have answered yes **but...**
 - Most anesthesia providers (70.8%) responded that they do not clean the hub of the vial with alcohol before accessing it
 - “A common misconception is that the tops of the vials are sterile, when in fact moisture may collect between the rubber stopper and the plastic cap, and bacteria can grow within this area”

Need for further education

Baniasadi et al. (2013)

- Objective- Assess the incidence of microbial corruption of multiple-dose and single-dose vials in a large teaching hospital located in Iran
- Method- Convenience sampling
- Results
 - 205 vials were collected for processing
 - 40 multi-dose vials, 165 single-dose vials
 - 5% of the total vials studied were deemed contaminated
 - Around 5% of the single-dose specimens were contaminated versus the 7.5% contamination of the multi-dose vials
- Conclusion
 - **With repeated vial use, failure to adhere to basic sterility techniques could lead to microbial contamination of medications delivered to patients**

Preemptive Preparation

Dolan et al. (2010)

- “United States Pharmacopeia (USP) ,797. requires a **1-hour limit from completing preparation** (eg, spiking an IV bag) **until beginning administration** of the immediate-use compound sterile products (CSPs) to patients”
- “The Association for Professionals in Infection Control and Epidemiology (APIC) **does not support the advance preparation** (the night before or hours before administration) of immediate-use IV bags or syringes. The APIC supports the practice of preparing parenteral medications as **close as possible to the time of administration**”

CDC Position

- The Centers for Disease Control and Prevention **recommends** using single-use or single-dose medications exclusively for one patient at a time
- Maintaining this standard of practice will prevent cross contaminations between patients.



Remember:

*One Needle, One Syringe,
only One Time.*

CDC Position

- The CDC lists **hazardous practices** as:
 - Reusing syringes among multiple patients
 - Administering medications to multiple patients from vials labeled as single-use or single-dose
 - Failing to maintain aseptic technique



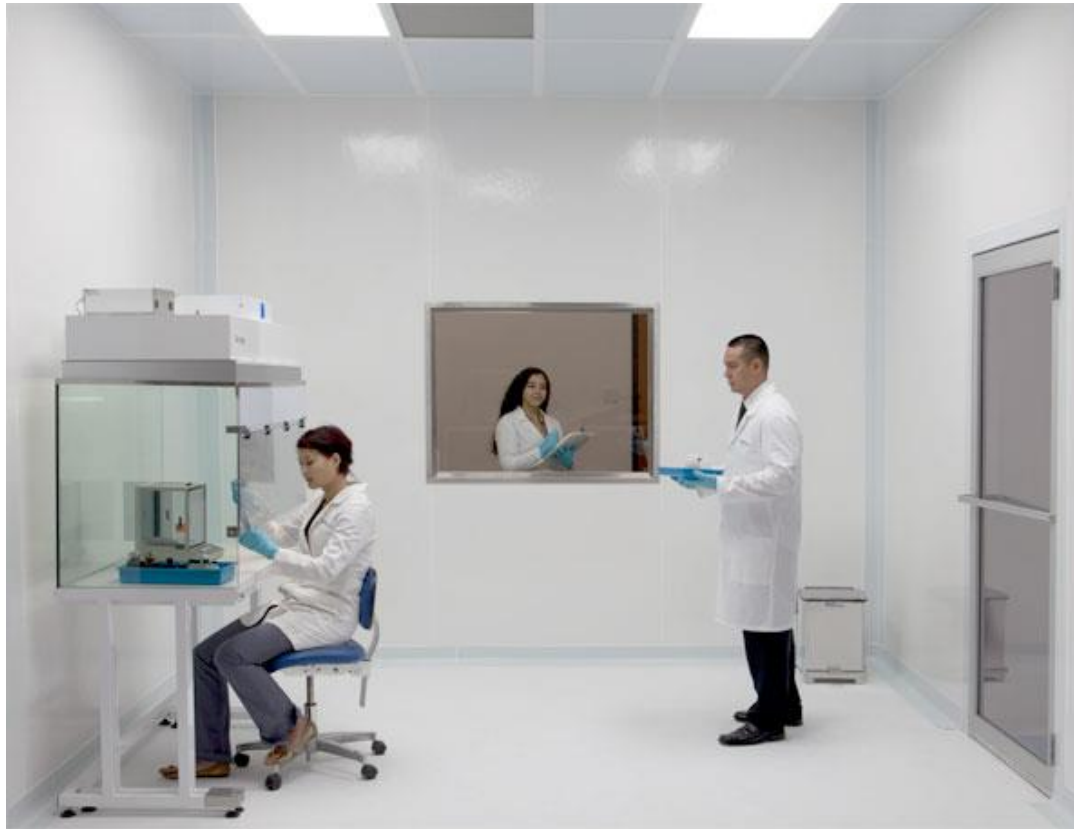
HAZARDOUS

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CDC Position

- Extenuating circumstances when medications may require division among patients:
 - Qualified healthcare personnel may repackage medication from previously unopened single-dose / single-use vial into multiple syringes.
 - This should only be performed under ISO Class 5 conditions in accordance with standards in the United States Pharmacopeia General Chapter 797, Pharmaceutical Compounding
 - – Sterile preparations, as well as the manufacturer's recommendations pertaining to safe storage of that medication outside of its original container.

ISO class 5 conditions



Conflicting Evidence



Conflicting Evidence Regarding Single-Dose Vials

Manchikanti et al. (2011)

- In an effort to protect the public multiple guidelines and regulations have been developed and imposed.
- “These guidelines are far from being evidence-based and may be based only on relative risk reduction or many other factors”
 - The authors propose that guidelines and regulations are a byproduct from multiple organizations with individual agendas and conflict of interest that are not based on evidence but rather they are on single case reports.

Conflicting Evidence Regarding Single-Dose Vials

Manchikanti et al. (2011)

- Performed a prospective study in the U.S. in a private interventional pain practice.
- The study routine included:
 - Sanitary environment
 - Proper injection practices free from contamination
 - **Single-dose vials were utilized multiple times for different patients**
 - **Intravenous fluids were prepared a maximum of 4 hours in advance**
 - **Multi-dose vials were used for one week**

Conflicting Evidence Regarding Single-Dose Vials

Manchikanti et al. (2011)

- At the conclusion of the study:
- **3,200 patients had approximately 18,000 interventional procedures performed without significant incidence of infection.**
- Maintaining simple infection control measures and using proper precautions the authors proved **there was no significant risk** with the use of single-dose vials for multiple patients and multi-dose vials used over a period of one week

Conflicting Evidence Regarding Single-Dose Vials

Manchikanti et al. (2012)

- Conducted and extensive literature review:
 - 60 studies were included in the meta-analysis
 - 1 study established a relation ship concerning a single-dose vial utilized for multiple patients.
 - The remainder of the studies did not identify a conclusive relationship between infection and single-dose vials used with proper precautions.
- Conclusion:
 - **“There was poor evidence that the use of single-dose vials on multiple patients with appropriate infection control practices causes infection in interventional pain management”**

Nagelhout & Plaas (2014)

- *“Nurse anesthetists must be aware that billing one patient for a single-use vial of medication that is used on more than one person may constitute insurance fraud. Likewise, charging both patients for medication from a single-use vial may constitute insurance fraud”.*



Conclusion

- **Never** does not mean sometimes!!
- **Patient safety should NEVER be compromised!**
- **Never perform a procedure outside the guidelines**
- **Never become complacent**
- **Never stop learning**

Questions



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Post Quiz Time!!!!

Stress Reduction Kit

**Bang
Head
Here**

Directions:

1. Place kit on FIRM surface.
2. Follow directions in circle of kit.
3. Repeat step 2 as necessary, or until unconscious.
4. If unconscious, cease stress reduction activity.

