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Developing an Infection Prevention Partnering Relationship with Anesthesia Providers

Presented by Eric Callan CRNA, NP, MSN, APRN

Outline

- Introduction/background
- Safe Injection Practices
- Hand Hygiene
- Personal Protective Equipment (PPE)
- Partnering with Anesthesia

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- Healthcare associated infections (HAIs) are a national problem engendering a growing sense of risk to the public and urgency in its prevention.
- HAI is one of the top safety problems patients experience when they enter a healthcare institution.

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- Anesthesia providers have not traditionally invested in infection control.
- The expanded role of the anesthesia provider as a perioperative clinician demands a greater understanding of infectious processes and how they can serve to decrease the incidence of infection.
- Successful perioperative control of infection requires sound infection control practices compliance with occupational standards.

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Transmission of an infectious agent first requires a portal of entry.

In anesthesia practice these typically include:

- The blood stream
  - Direct contact with blood or blood products
  - Placement of indwelling catheters
- Inhalation of airborne pathogens
- Skin and mucous membranes
  - Direct contact with infectious lesions, surgery, and/or trauma
- Contaminated equipment
- Placement of endotracheal tubes

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The anesthesia provider must be cognizant of the risk of acquiring an occupationally transmitted disease from an infected patient.

In general, transmission of occupationally acquired infections occurs via:

- Parenteral exposure to infected blood and blood products or bodily fluids via a contaminated needlestick or penetrating injury
- Mucocutaneous exposure to blood or blood products
- The respiratory system via exposure to airborne pathogens
- Direct contact from touching or large droplet spread.

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Safe Injection Practices

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- The CDC's Safe Injection Practices are intended to protect patients, providers and the public by preventing transmission of infections during patient care in all healthcare settings.
- Failure to follow recommended aseptic practices during injections has contributed to the problem of bloodborne pathogen exposure and infectious disease transmission during anesthesia care.

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Recommendations:

- Use aseptic technique to avoid contamination of sterile injection equipment.
- Use single-dose vials for parenteral medications when possible.
- Do not combine leftover medications from single-dose vials/ampoules for later use.
- Do not keep multidose vials in the immediate patient treatment area (e.g., patient rooms or bays, operating rooms, anesthesia carts).
- Multidose vials should be dedicated to a single patient whenever possible.

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- Bags or bottles of intravenous solution should not be used as a common source of supply for multiple patients.
- Alcohol concentrations of 70 percent should be used to cleanse the access diaphragms of medication vials before inserting a device or needle into the vial.

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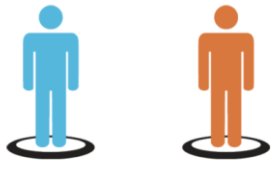
Each Patient is an Island



SOURCE
Infectious person,
e.g. chronic, acute

HOST
Susceptible,
non-immune person

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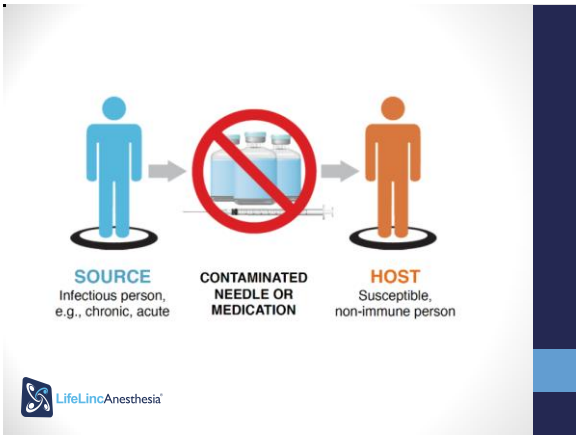
SOURCE
Infectious person, e.g., chronic, acute
CONTAMINATED NEEDLE OR MEDICATION
HOST
Susceptible, non-immune person
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Bacterial
Viral
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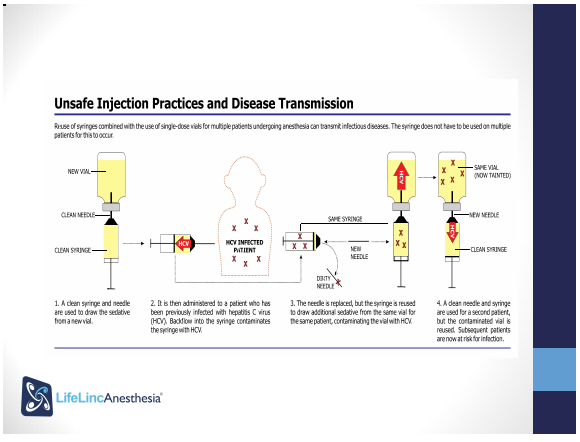
Unsafe Injection Practices and Disease Transmission
Reuse of syringes combined with the use of single-dose vials for multiple patients undergoing anesthesia can transmit infectious diseases. The syringe does not have to be used on multiple patients for this to occur.
NEW VIAL
CLEAN NEEDLE
CLEAN SYRINGE
HCV INFECTED PATIENT
SAME SYRINGE
NEW NEEDLE
DEBITY NEEDLE
SAME VIAL (NOW TAINTED)
NEW NEEDLE
CLEAN SYRINGE
1. A clean syringe and needle are used to draw the sedative from a new vial.
2. It is then administered to a patient who has been previously infected with hepatitis C virus (HCV). Backflow into the syringe contaminates the syringe with HCV.
3. The needle is replaced, but the syringe is reused to draw additional sedative from the same vial for the same patient, contaminating the vial with HCV.
4. A clean needle and syringe are used for a second patient, but the contaminated vial is reused. Subsequent patients are now at risk for infection.
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Hand Hygiene

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- The prevention of nosocomial infection is multifaceted and hand hygiene is a crucial component of the equation.
- A major cause of infection is the lack of compliance by healthcare workers with basic prevention techniques such as hand hygiene.
- Wearing non-sterile gloves during routine patient care reduces the acquisition of pathogens on healthcare workers' hands and wrists.
- Gloving does not completely prevent contamination.

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- Hand washing is necessary before and after sterile and non-sterile glove removal due to the potential for contamination from glove leaks or contamination during glove removal.
- Alcohol-based products are equally or more effective than antimicrobial soaps and antimicrobial detergents in reducing the number of pathogens on provider's hands.
- The anesthesia setting requires the expeditious performance of multiple, complex tasks and procedures.
- Studies have demonstrated that hand hygiene is unacceptably low among anesthesia providers.

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Recommendations:

- Hand hygiene should occur before entering the patient operating room or other care areas.
- Hands should be washed or disinfected before and after having contact with patients or the patient's immediate environment.
- Hands should be washed with soap and water when caring for a patient with known or suspected infectious diarrhea (e.g., *C difficile,* norovirus).
- Wash hands with soap and water when exposure to spores is expected.

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- When hands are visibly dirty or contaminated with body fluids, wash hands with soap and water.
- When hands are not visibly soiled, an alcohol-based hand rub effectively decontaminates hands.
- Decontaminate hands before wearing sterile gloves when inserting a central intravascular catheter.
- Wash hands in accordance with hand washing protocol before eating and after restroom use with soap and water.

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PPE

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- OSHA defines personal protective equipment as specialized clothing or equipment worn by an employee for protection against a hazard
- Universal precautions should be observed during all patient care to prevent occupational exposure.
- This includes the following measures:
  - Handwashing prior to and following all patient contact.
  - Use of gloves for any direct clinical contact.
  - Wearing eye protection in potential splash situations.
- Depending upon the infectious organism, additional protective measures may be necessary.
  - Airborne, Droplet, and Contact Precautions

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- Airborne precautions for organisms transmitted by airborne microparticles.
- Use of an air-purifying respirator or a specially fitted mask (N95) for any direct patient contact.
- Droplet precautions for organisms transmitted by droplets sprayed into the air.
- Use of a surgical mask within 6-10 feet of the patient.

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- Standard and contact precautions for organisms spread by direct contact.
  - Surgical gown must be worn for any direct contact with these patients.

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Recommendations:

- Use appropriate barrier protection when in contact with equipment and surfaces that may be contaminated or frequently touched (eg keyboards).
- Wear PPE when there is a potential for contact with blood or other infectious material.
  - This includes gloves at a minimum and may include a gown, surgical mask, cap, hat, and boot or shoe covers as the situation dictates.
- All PPE should be removed prior to leaving the patient care area.

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- Any PPE that becomes contaminated with blood should be promptly removed, and hands washed upon removal.
- Wear clean hats, caps, and boot or shoe covers when it is likely that blood or other infectious matter may spatter, splash or be sprayed onto the hair or shoes.

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Establishing an infection control partnership with anesthesia

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- All anesthesia providers must maintain their familiarity with the state of the science in this area to practice effective infection control during clinical anesthesia care.
- The breadth and depth of the world of infection control and prevention, as well as the burgeoning science underlying these latest recommendations may change, and providers must recognize the need to alter clinical practice as science dictates.
- Individual providers are responsible for adhering to any CDC recommendations that are applicable to anesthesia care delivery.

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- Each facility must establish and implement evidence-based infection control policies.
- These policies should be reviewed and updated as necessary in order to stay abreast of current scientific recommendations.
- Dissemination and enforcement of facility infection control policies is essential.
- Providers at all levels must be vested in abiding by accepted standards of practice in order to provide optimal levels of care for all patients served.

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- Anesthesia providers must be required to apply sound infection control practices and ensure compliance with occupational standards for both the protection of their patients and themselves.
- Relationships
- Teamwork

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Questions

Contact Info

- Eric Callan CRNA, NP, MSN, APRN
- ecallan@lifelinc.com
- www.lifelinc.com

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