EXCELLENTIA ADVISORY GROUP

INFECTION PREVENTION STRATEGIES FOR AMBULATORY SURGERY CENTERS

# Anesthesia's Role In Infection Prevention

## A Clinical Perspective

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## Session Objectives

### Anesthesia & Infection
### The Source or The Solution?

An examination of selected issues pertaining to the peri operative environment with an emphasis on ASC's

## Reasons To Focus On Infection Prevention

Patient Care
- Patient Safety
- Avoidance of Adverse Outcomes
- Provision of High Quality Healthcare

Regulatory Compliance
- State Licensure
- Federal Certification
- Accreditation Requirements

Financial Impact
- Media Exposure
- Medical Liability
- Cost to Patients and Payors

## Some Statistics Regarding HCAIs (Healthcare Associated Infections)

- HCAIs are estimated to effect one in every 25 inpatients related to their hospital care
- Health Care Quality and Safety estimates about 30 billion dollars ($30,000,000,000) annually in additional costs
- Despite new technologies, HCAIs are on the rise due to the evolving problem of multi-drug-resistant bacteria and the increasing complexity of the healthcare environment

## Beyond Statistics

Additional considerations:

Definitions:
- HAI
- SSI

Setting of Care
- Inpatient (Hospital, Nursing Home)
- Outpatient (ASC, Dialysis Facility)

Patient Population
- Healthy (No comorbidities)
- Comorbidities (Immunocompromised, Diabetic)

## Why ASCs and Why Anesthesia?

ASC's
- Relatively healthy patients
- Elective procedures with advance pre op care
- Less exposure to other patients with communicable diseases
- Less exposure to healthcare personnel (fewer & less duration)

Anesthesia
- Relatively short duration of care
- Minimal anesthetics typically administered
- Less invasive procedures (lines, airways & catheters)
- Providers typically physically removed from surgical site


## Endoscopy Center of Southern Nevada

- The Southern Nevada Health District began an investigation into the center in January 2008 after receiving reports of two Hepatitis C cases, above the normal amount that the Health District sees in an average year. The common factor was the Endoscopy Center. Later the Health District determined that five additional patients apparently contracted Hepatitis C after being patients there on the same day in September.
- In February 2008, the Southern Nevada Health District sent out notices to 40,000 patients informing them that they may have been exposed to Hepatitis C and HIV at the center from "unsafe injection practices related to the administration of anesthesia medication might have exposed patients to the blood of other patients".
- The exposures are believed to have occurred between March 2004 and January 11, 2008

## Endoscopy Center of Southern Nevada

Investigations involving:

- Las Vegas Metropolitan Police Department
- Clark county District Attorney
- Nevada Attorney General
- FBI

Aftermath:

- ECSN filed for Chapter 7 Bankruptcy, Closed

Desai:

- Suffered 3 strokes
- Relinquished Medical License (2008)
- Indicted (along with Clinic Manager) by a federal grand jury for conspiracy and 25 counts of health care fraud
- Convicted of 27 criminal counts, including second degree murder in the death of infected patient Rodolfo Meana, 77 (2013)
- Sentenced to life in prison with the possibility of parole after 18 years (2013)
- Federal conviction for healthcare fraud, and sentenced to 71 months in prison to be served consecutively (2015)

## Endoscopy Center of Southern Nevada

- State & Federal Legislation
- State & Federal Regulation
- AHRQ
- CDC
- CMS
- EPA
- FDA
- GAO
- HHS
- NQF
- OSHA
- USDA


## Regulatory Scope

- Impacts every aspect of Organization
- Involves every practitioner
- Incorporates every related activity

- Anesthesia practice settings encompass all patient care areas
  - Pre Op
  - OR Suite
  - Post Op
- Anesthesia should be an integral participant throughout patient's experience of care in your Facility
- Focus principally on anesthesia's OR environment & activities

## OR Anesthesia Work Environment

- Anesthesia Machine & Monitors
- Anesthesia Equipment
  - Laryngoscope
  - Endotracheal tube
  - Laryngeal Mask
- Syringes & Catheters
- Possible contamination from several sources
  - Direct (bacterial contamination from provider contact)
  - Indirect (connection to IV tubing)

## Operating Room

- The OR has unique infection control issues compared with other clinical care areas. OR personnel care for a single patient for periods of varying duration.
- Consequently, microorganisms may be transmitted via 2 mechanisms: contamination of normally sterile sites with a patient's own bacteria, and transmission of bacteria to subsequent patients in the OR by microbes that have contaminated environmental surfaces during a previous case.
- Although equipment is cleaned between cases in an OR, not all bacteria will be eliminated. Therefore, infection control practices must concentrate on minimizing environmental contamination.

## Hand Hygiene

- Hand washing with soap (antimicrobial or non-antimicrobial) should be performed whenever there is visible contamination with blood or body fluids.
- Alcohol-based hand rubs are recommended for hand hygiene when there is no visible contamination. Spore-forming organisms such as *Clostridium difficile* and *Bacillus anthracis* are poorly inactivated by waterless hand hygiene products and require the physical action of washing and rinsing for removal.
- The wearing of artificial nails during direct patient care is discouraged in operating rooms (ORs). Nail polish may be worn if it is not chipping or peeling. Rings should be removed prior to performing a surgical hand scrub.

## Hand Hygiene

Indications for hand hygiene include:

- Before and after direct contact with patients.
- Before donning sterile gloves.
- After contact with body fluids, non-intact skin, mucous membranes, wound dressings.
- When hands that have contacted a contaminated body area will subsequently contact a clean site.
- After contact with high-touch environmental surfaces in the vicinity of the patient.
- After removal of gloves.
- Before eating.
- After using the restroom.

Centers for Disease Control and Prevention. Guideline for hand hygiene in health-care settings. *MMWR*. 2002;51(RR-16):1-44.

## Gloves vs. Hand Hygiene

- Gloves that have been used during patient care should be removed prior to touching equipment. This may be in direct conflict with the requirement to perform hand hygiene upon the removal of gloves.
- There are times when gloves should be removed before touching environmental surfaces and when there is inadequate time to perform hand hygiene (i.e. immediately after intubation when the anesthetic gases and ventilator need to be adjusted).
- In these circumstances, hand hygiene should be performed as soon as patient safety allows. Alternatively, double gloves can be worn and the outer glove removed prior to touching environmental surfaces.

## Glove Disclaimer

- The wearing of gloves, however, is not a substitute for hand hygiene as there is a measurable level of glove leakage (either from manufacturing defects or damage during use) and self-contamination during removal.
- The pre-use glove leakage rate ranges from 1% to 4%, while the post-use rate may be 1.2% to 53%, with surgical gloves performing better than examination gloves.
- The incidence of positive hand cultures after glove use and removal ranges from 2.2% to 34%.

## Disinfection of Equipment

- Anesthesia equipment may be exposed to potentially infectious material during ordinary use. Equipment can become contaminated through direct contact with the patient's skin, mucous membranes, secretions and blood. The interior of the breathing circuit may become contaminated through contact with respiratory secretions.
- Contamination may also occur through contact with HCWs, splashes/spillage from the surgical field, improper handling of used equipment or breaks in infection control techniques. Although documented transmission of infection through anesthesia equipment is rare, if proper procedures are not followed, it is possible for contaminated anesthesia equipment to transmit infection to patients.
- Since it is impossible to know which equipment has become contaminated, all used equipment should be considered contaminated, and appropriate infection control precautions should be taken in handling used equipment.

## Disinfection of Equipment

- Anesthesia equipment is exposed to microorganisms from multiple sources during routine use and handling. Proper infection control procedures are essential to minimize the risk of this equipment becoming a vector in the transmission of health-care associated infection.
- As contamination cannot always be determined visually, all used equipment should be considered contaminated and appropriately disinfected prior to reuse. Unused equipment may be exposed to infectious agents in many ways, including: contaminated hands of healthcare workers (HCWs), splash, spill, or contact with used equipment.
- Care should be taken to avoid such contamination, as these items will require the same handling as used equipment.
- Spaulding established the current classification system that has been in use for over 40 years.

## Spaulding Classification System

- Spaulding established the current classification system that has been in use for over 40 years. Instruments are classified as critical, semi-critical, or non-critical based on their intended use.
  - **Critical** items are those that will contact normally sterile tissues and must therefore be sterile at the time of use.
  - **Semi-critical** devices contact mucous membranes or non-intact skin and require high-level disinfection.
  - **Non-critical** devices will touch only intact skin and require intermediate or low-level disinfection.

## Critical Devices

- Critical devices include vascular needles and catheters, regional needles and catheters, all devices used while accessing the epidural or intrathecal space, intravenous (IV) tubing, stopcocks (and injection ports), and syringes. Most critical items used in the delivery of anesthesia are single use items and will therefore not require reprocessing.
- Sterilization destroys all forms of microbial life including bacterial spores (exclusive of prions).
- Manufacturers' instructions regarding cleaning of equipment should always be followed to avoid damage to the integrity and/or function of the device.

## Examples of Sterilization Techniques

- *High temperature:* Steam sterilization for ~40 minutes, or dry heat for 1 to 6 hours (depending on temperature)
- *Low temperature:* Ethylene oxide (ETO) gas for ~15 hours, or hydrogen peroxide gas plasma for ~50 minutes

*Liquid immersion* (chemical sterilants)

- >2.4% glutaraldehyde for ~10 hours
- 1.12% glutaraldehyde and 1.93% phenol for 12 hours
- 7.35% hydrogen peroxide and 0.23% peracetic acid for 3 hours
- 7.5% hydrogen peroxide for 6 hours
- 1.0% hydrogen peroxide and 0.08% peracetic acid for 8 hours
- > 0.2% peracetic acid for ~50 minutes at 50C-56C

## Semi Critical Devices

- High-level disinfection destroys all microorganisms except high numbers of bacterial spores (prions excepted). This equipment includes, but is not limited to laryngoscopes, face masks, laryngeal airways, oral/nasal airways, light wands, bronchoscopes, endotracheal tubes, transesophageal echocardiography probes, esophageal/rectal temperature probes, and the anesthesia circuit.
- Medications and equipment used in conjunction with endotracheal tubes (lubricant, stylets, suction catheters) may introduce microbes into the airway and must therefore be free of contamination. Moisture that accumulates in the breathing circuit may be a source of bacterial growth and should periodically be drained (away from patient) from the circuit.

## Semi Critical Devices

- Internal components of the anesthesia machine should be cared for according to the manufacturer's recommendations.
- Unidirectional valves, carbon dioxide absorbent chambers, and bellows should be cleaned and disinfected periodically.
- Moisture that accumulates in the machine should be removed.
- Routine bacterial culture monitoring of the anesthesia machine is not indicated.
- In the case of reuse of anesthesia circuits that are marketed as single use devices, standards applicable to the original manufacturer apply to those who subsequently reprocess the equipment (see single use equipment section).

## Semi Critical Devices

Examples of high-level disinfection techniques

- *Heat automated:* Pasteurization for ~50 min.
- *Liquid immersion* (chemical sterilants or high-level disinfectants)
  - 2% glutaraldehyde for 20 to 45 minutes
  - 0.55% ortho-phthaladehyde for 12 minutes
  - 1.12% glutaraldehyde and 1.93% phenol for 20 minutes
  - 7.35% hydrogen peroxide and 0.23% peracetic acid for 15 minutes
  - 7.5% hydrogen peroxide for 30 minutes
  - 1.0% hydrogen peroxide and 0.08% peracetic acid for 25 minutes
  - 650 to 675 ppm chlorine for 10 minutes

## Semi Critical Devices (Endoscopes)

- Fiberoptic bronchoscopes require special processing to ensure both disinfection/sterilization and avoid damage to the equipment.
- Endoscopes that contact only mucous membranes should undergo a minimum of high-level disinfection.
- Those that enter sterile spaces require sterilization. Manufacturers' recommendations should be followed as they recommendations differ somewhat based on the construction of the device.
- The process should include:

## Semi Critical Devices (Endoscopes)

- Leak testing of the endoscope. If the device fails leak testing, it cannot undergo cleaning without risking further damage. The manufacturer should be contacted regarding repair.
- Mechanical cleaning of all surfaces, including internal channels, with a low-sudsing enzymatic detergent as soon as possible after use to avoid drying of organic material that may later interfere with the effectiveness of disinfection/sterilization. Organic material retained in the internal channel of endoscopes poses the greatest risk of infection for subsequent patients. All channels of the endoscope should be irrigated and cleaned with a brush to remove particulate matter. Brushes should be either disposable or undergo cleaning and disinfection daily when used.
- Endoscopes should then undergo a minimum of high-level disinfection with a chemical disinfectant. Channels within the scope must be perfused with the disinfection solution throughout the processing.
- Rinse both internally and externally to remove disinfectant.
- Dry both internally and externally. Ethyl alcohol (70%) and compressed air through the channel will facilitate drying.
- Endoscopes should be stored in a manner that prevents recontamination and promotes drying (hung vertically)

## Semi Critical Devices

Anesthesia and respiratory therapy equipment, breathing circuits, endotracheal tubes, endoscopes, laryngoscopes, fiberoptic scopes, Magill forceps, and cystoscopes:

- ✓Clean and disinfect devices with high-level disinfectants to destroy all vegetative bacteria and nonlipid viruses.
- ✓Rinse with sterile water.
- ✓Dry all equipment surfaces to prevent humidity from encouraging microorganism growth.

## Semi Critical Devices

Laryngoscope Blades:

- ✓Wrap laryngoscope blades individually.
- ✓If high-level disinfection is used, a closed plastic bag may be used for storage. If steam sterilized, a peel pack may be used for storage.
- ✓Partially remove the blade from the package, attach to light source, and test, or keep the blade covered - manipulation of the blade onto the light source/handle can be tested without actually removing the blade from the bag or pack without touching the blade itself.
- ✓Following testing, insert the blade back into the package and return to a clean storage location. This protocol applies to disposable blades as well.

## Semi Critical Devices

Laryngoscope Handles:

- ✓At a minimum, wipe the handle with an intermediate level disinfectant after use. This protocol applies to disposable handles as well.

## Non Critical Devices

Patient Care Items:

Electronic devices, stethoscopes, blood pressure cuffs, arm board, nametags, pulse oximeter sensors, head straps, monitor cables, blood warmers, medication administration pumps, carts, beds and monitors:

- ✓ Clean all equipment between patients and when visibly soiled in accordance with manufacturer recommendations and facility policy.
  - Low and intermediate-level disinfection differs by disinfectant type, concentration, and exposure to pathogen.
- ✓ Stethoscopes may be washed with water and wiped with alcohol.
- ✓ Use protective covering for non-critical surfaces that are difficult to clean (e.g., keyboard covers).
- ✓ Hydrogen peroxide gas decontamination is an effective sterilization method for reusable items that are difficult to clean.

## Single-Use Devices and Reprocessed Disposable Equipment

- A single-use device is a medical device that is only to be used on one patient for a single procedure. Numerous studies have linked outbreaks of infection to the use of improperly reprocessed single-use devices.
- Reuse of single-use devices may expose healthcare providers and facilities to additional liability.
- Refer to the FDA for guidance and information on reprocessed single-use devices.
- To mitigate incidence of outbreaks, it is recommended that healthcare facilities:
  - Establish a policy to verify the cleanliness and functionality of reprocessed disposable equipment prior to use.
  - Disassemble, clean, dry, reassemble, repackage, and disinfect or sterilize reprocessed, disposable equipment prior to use as appropriate.

## The Anesthesia Machine

- Although there is no direct contact between anesthesia machine controls and the patient, microorganisms can be transferred between the machine and patient by the healthcare provider.
- Refer to federal, state or local statutes and regulations and facility policies as well as specific manufacturer instructions for guidance concerning:
  - Cleaning and disinfecting the anesthesia machine.
  - Pasteurizing or autoclaving of valves.
  - Disassembling and disinfecting adjustable pressure-limiting valves.

## Anesthesia Machine Surfaces and Carts

- ✓ Clean, then spray or wipe anesthesia machine surfaces and knobs with an appropriate germicide between cases and at the end of each day.
- ✓ Take protective measures to prevent materials stored on the anesthesia machine from becoming inadvertently contaminated by airborne debris (e.g., blood).
- ✓ Remove equipment from drawers, clean and disinfect drawers regularly.
- ✓ Place a clean covering on the top of the anesthesia cart at the beginning of each case.
- ✓ Wipe small surfaces with 70 percent isopropyl alcohol to reduce bacterial contamination.
- ✓ Clean carbon dioxide and soda lime absorbers when the absorber is changed and remove debris from the screens.

## "Safe" Injection Practices

- The CDC's *Safe Injection Practices* recommendations are all category IA or IB.
- Category IA: Strongly recommended for implementation and strongly supported by well-designed, experimental, clinical, or epidemiologic studies.
- Category IB: Strongly recommended for implementation and supported by some experimental, clinical, or epidemiologic studies and a strong theoretical rationale.

## Safe Injection Practices

1. Aseptic technique
   a) Use aseptic technique to avoid contamination of sterile injection equipment.

Category IA

2. Syringes, needles, and cannulae*
   a) Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed.
   b) Needles, cannulae, and syringes are sterile, single-use items.
      i. Do not reuse for another patient or to re-access a medication or solution.

Category IA

## Safe Injection Practices

3. Single-dose vials (SDVs)
   a) Use single-dose vials for parenteral medications whenever possible rather than a multidose vials.
   b) Do not administer medications from SDVs or ampules to multiple patients or combine leftover contents for later use.

Category IA

## Safe Injection Practices

4. Multi-dose vials (MDVs)
   a) If MDVs must be used
      i. Both the needle or cannula and syringe used to access the MDV must be sterile.
   b) Do not keep MDVs *for use on multiple* patients in the immediate patient treatment area
      i. Store in accordance with the manufacturer's recommendations.
      ii. Discard if sterility is compromised or questionable.

Category IA

## Safe Injection Practices

5. Fluid infusion and administration sets (i.e., intravenous bags, tubing, and connectors)
   a) Use for 1 patient only and dispose appropriately after use.
   b) 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.
   c) Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.

Category IB

## Medication and Fluid Use in the Immediate Patient Treatment Area

- Follow *Safe Injection Practices* previously reviewed
- Use appropriate aseptic technique and hand hygiene.
- All medications and fluids are single-patient-use only (including SDVs, MDVs, ampules, syringes, bottles and bags, and controlled substances from pharmacy).
- Use aseptic technique, including use of an alcohol swab or appropriate disinfectant, to cleanse the vial's rubber septum before entering.
- Cleanse the neck of glass ampules with an alcohol swab and let dry before opening.
- When any medication vial (or solution) is accessed, both the syringe AND the needle/cannula must be sterile.

## Medication and Fluid Use in the Immediate Patient Treatment Area

- A "double layer" of safety precautions is needed: (1) use a sterile syringe and needle/cannula each time any medication or solution is accessed, and (2) do not use a medication or solution for multiple patients in the Immediate Patient Treatment Area.
- The CDC specifically states —Healthcare providers should never reuse a needle or syringe either from one patient to another or to withdraw medicine from a vial. Syringes, needles, and cannulae are sterile single-use items and must not be reused to access any medication or solution.
- If a medication (or other solution) is not available in the single-dose form and a MDV must be used (e.g., neostigmine, succinylcholine) discard the MDV after single patient use.
- Syringes should be capped when not in use

## Medication and Fluid Use in the Immediate Patient Treatment Area

- If a medication (or other solution) is not available in the single-dose form and a MDV must be used (e.g., neostigmine, succinylcholine) discard the MDV after single patient use.
- Syringes should be capped when not in use.
- Discard all used and/or opened medication/fluid containers (e.g., cap off, bag entered) no later than the end of the patient's anesthetic. Exception: bag/bottle in use with administration tubing connected to patient's vascular access.
- Opened single-dose ampules must be immediately discarded and not be stored for any time period.
- Discard used needles/syringes intact in a nearby sharps container after use or, at the latest, at the end of the patient's anesthetic.
- Store unused syringes, needles, and related items in a clean area to avoid cross-contamination from used items.
- Store medications and solutions in accordance with the manufacturer's recommendations and discard if sterility is compromised.

## Propofol: Considerations for Administration

- Propofol formulated in lipid supports microbial growth.
- Propofol was introduced in the USA in 1989 for the induction and maintenance of anesthesia. Following this introduction, there were reports of outbreaks of postoperative surgical-site infections, bloodstream infections, and acute febrile episodes after surgical procedures at seven hospitals between 1990 and 1993

## Propofol: Considerations for Administration

- The work practices of anesthesia personnel who were implicated in the outbreaks were found to include at least one of the following: preparation of multiple syringes of Propofol at one time for use throughout the day; re-use of syringes and⁄or infusion-pump lines on different patients; use of Propofol syringes that had been prepared up to 24 h in advance; transfer of prepared syringes of Propofol between operating rooms or facilities, etc.
- The Centers for Disease Control and Prevention (CDC) reported that these outbreaks were the result of extrinsic microbial contamination of Propofol, and highlighted the importance of aseptic technique and infection control in anesthesia practice

## Propofol: Considerations for Administration

- Hence, in 1996 the Food and Drug Administration specified that Propofol formulations should contain an antimicrobial agent. It has been shown that 0.005% EDTA is effective in retarding microbial growth
- The mechanism of the antimicrobial action of EDTA is to chelate divalent metal ions such as $Ca^{2+}$ and $Mg^{2+}$, which are necessary for cellular replication and growth. These ions are also essential for stability and replication of the outer layers of bacterial cell walls, and in some cases EDTA can be used to destabilize and remove the outer lipopolysaccharide layer

## Propofol and Postoperative Infections.

- The package insert for Propofol states in several places the importance of strict aseptic technique in the preparation and handling of the drug, and the potential for infection if these procedures are not followed.
- In the US, the product has been reformulated to contain disodium edetate 0.005% as a microbial growth retardant to inhibit the growth of microorganisms in the event of accidental contamination.
- However, this new formulation is not considered an antimicrobially preserved product under USP standards. What effect, if any, this has had on the risk of postoperative infections is not known. Strict aseptic technique is still required when handling the new formulation.

## Propofol and Postoperative Infections

- When Propofol is used as an anesthetic, it is recommended that the dose be prepared just prior to administration, and that the infusion be completed within 6 hours after the ampule or vial is opened. Any unused portion of Propofol must be discarded at the end of the procedure or at 6 hours, whichever occurs sooner.
- The occurrence of postoperative infections is usually thought to be related to the surgeon or the surgical procedure. However, based on the available microbiologic and clinical evidence, the use of Propofol appears to be an additional risk factor. ASC personnel involved in the preparation and handling of Propofol must be educated on, and adhere to, the recommendations outlined by the manufacturer to prevent further outbreaks of infections.

*Annals of Pharmacotherapy* 1997 Dec;31(12):1521-3.

## "Severe Sepsis after Intravenous Injection of Contaminated Propofol"

- Four patients who had undergone various clean surgical procedures in the same operating room developed *Klebsiella pneumoniae* septicemia within a few hours after surgery.
- All recovered but two required aggressive supportive therapy to treat respiratory distress syndrome, refractory septic shock, and multiple organ failure.
- The epidemiologic investigation showed that septicemia was due to the injection of contaminated Propofol.

Letter to the editor; Anesthesiology, V 80, no 3, March 1994

# (Another) Propofol Related Outbreak

- Data from seven different hospitals
- Breaches in aseptic technique
  - Failure to disinfect Propofol vial before use
  - Transfer of syringes between ORs and Facilities
  - Syringe reuse (serial use of the same syringe for the same patient)
- Leading to bacterial transfer to Propofol vials, which contaminate syringes, which are introduced to IV ports, which are introduced into bloodstream

Bennett et al, Postoperative Infections Traced to Contamination of an Intravenous Anesthetic, Propofol NEJM 1995; 333:147-54

# Selected Medicare (CMS) Requirements

- Items included in the Ambulatory Surgical Center Infection Control Surveyor worksheet (ver. 07-17-15)
- Does the ASC have a system to actively identify infections that may have been related to procedures performed at the ASC?

If YES, how does the ASC obtain this information?

- The ASC sends e-mails to patients after discharge
- The ASC follows-up with their patients' primary care providers after discharge
- The ASC relies on the physician performing the procedure to obtain this information at a follow-up visit after discharge, and report it to the ASC
- Other (please specify):

Is there supporting documentation confirming this tracking activity?

# Selected Medicare (CMS) Requirements

- Injection Practices (injectable medications, saline, other infusates)
- Observations are to be made of staff preparing and administering medications and performing injections (e.g., anesthesiologists, certified registered nurse anesthetists, nurses).
  - Needles are used for only one patient
  - Syringes are used for only one patient
  - The rubber septum on a medication, *whether unopened or previously accessed,* vial is disinfected with alcohol prior to piercing
  - Medication vials are always entered with a new needle
  - Medication vials are always entered with a new
  - Medications that are pre-drawn are labeled with the date and time of draw, initials of the person drawing, medication name, strength and beyond-use date and time
  - Single dose (single-use) medication vials are used for only one patient
  - Bags of IV solutions are used for only one patient *(and not as a source of flush solution for multiple patients)*
  - Medication administration tubing and connectors are used for only one patient

## Selected Medicare (CMS) Requirements

- The ASC has voluntarily adopted a policy that medications labeled for multi-dose use for multiple patients are nevertheless only used for one patient. *(N/A is possible, if no multi-dose medications/infusates are used)*

- NOTE: a "no" answer to above question does not indicate a breach in infection control practices and does not result in a citation. A "no" answer triggers the following two follow up questions, and a "no" answer to either or both results in an automatic citation

## Multi Dose Follow-Up Items

1. Multi-dose vials are dated when they are first opened and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial. Note: This is different from the expiration date for the vial. The multi-dose vial can be dated with either the date opened or the *beyond-use date* as per ASC policies and procedures, so long as it is clear what the date represents and the same policy is used consistently throughout the ASC.
2. Multi-dose medication vials used for more than one patient are stored *appropriately* and *do not enter* the immediate patient *care area (e.g., operating room, anesthesia carts).*

*NOTE: If multi-dose vials enter the immediate patient care area, they must be dedicated for single patient use and discarded immediately after use.*

## Selected Accreditation Standards

- AAAHC (2016) Chapter 7 Infection Control & Safety
- Subchapter 1: An accreditable organization maintains an active and ongoing infection prevention and control program as evidenced by the following characteristics (about 40 standards) including:
- The organization has established a written program for identifying and preventing infections, maintaining a sanitary environment, and reporting the results **to the governing body and other health** authorities, **if appropriate**

## Selected Accreditation Standards

The written infection prevention and control program is:

1. Approved by the governing body
2. Based on nationally recognized infection and control guidelines considered and selected by the governing body
3. An integral part of the organization's quality improvement program
4. **The result of a formal, documented infection prevention risk assessment to insure that the program is relevant** to the organization
5. In compliance with all applicable state and federal guidelines
6. A plan of action for preventing, identifying, and managing infections and communicable diseases and for immediately implementing corrective and preventative measures that result in improvement
7. Focused on direct intervention to prevent infection, as needed

## Considerations for Achieving Compliance

| | |
|---|---|
| Prioritization: | Address critical areas and issues first |
| Collaboration: | Work towards organization wide process solutions |
| Cooperation: | Avoid confrontation and conflict |
| Dedication: | Patient safety is paramount and enduring |
| Celebration: | Take the opportunity to celebrate success |

## Concluding Comments for Your Consideration

Question:

Anesthesia & Infection
The Source or The Solution?

Response:

Anesthesia Potentially Part Of The Source, but
Positively Part of The Solution

Take Home:

Anesthesia to become an integral aspect of your Organization's Infection Prevention Program

# Anesthesia's Role In Infection Prevention

## A Clinical Perspective

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