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Surviving An Infection Prevention Survey

The Integrated Approach to Healthcare



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Learning Objectives

Upon completion of this course, you will be able to:

- Discuss known causes of healthcare associated infections
- Identify areas for improvement that focus on decreasing healthcare infections

Infection Prevention... It's Everyone's Responsibility



If 99% Were Good Enough...

- There would be a major plane crash **every 3 days**
- 12 babies would be given to the wrong parents **every day**
- 20,000 incorrect prescriptions would be written annually
- 16,000 pieces of mail would be lost by the U.S. Postal Service **every hour**



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Top 10 Health Technology Hazards for 2018

1. Ransomware and Other Cybersecurity Threats to Healthcare Delivery Can Endanger Patients
- 2. Endoscope Reprocessing Failures Continue to Expose Patients to Infection Risk**
3. Mattresses and Covers May Be Infected by Body Fluids and Microbiological Contaminants
4. Missed Alarms May Result from Inappropriately Configured Secondary Notification Devices and Systems
5. Improper Cleaning May Cause Device Malfunctions, Equipment Failures, and Potential for Patient Injury
6. Unholstered Electrosurgical Active Electrodes Can Lead to Patient Burns
7. Inadequate Use of Digital Imaging Tools May Lead to Unnecessary Radiation Exposure
8. Workarounds Can Negate the Safety Advantages of Bar-Coded Medication Administration Systems
9. Flaws in Medical Device Networking Can Lead to Delayed or Inappropriate Care
10. Slow Adoption of Safer Enteral Feeding Connectors Leaves Patients at Risk

Trends in Infections

- Changing epidemiology of infectious agents in U.S.
- Increase in community-acquired
- Social and demographic changes
 - Population in community more vulnerable
 - Shorter hospital stays
 - More procedures performed in out-patient facilities
 - Home health care

Per the CDC:

- “More HAI outbreaks linked to contaminated endoscopes than any other medical device
- “Clean vs. sterile” procedure mentality
- Flexible endoscopes acquire high levels of microbial contamination
- Environment is a “mixing pot” of microbes: Patients, family, visitors, and staff

Healthcare Associated Infections (HAIs)

- Kill more people than AIDS, breast cancer and auto accidents combined
- 2 million infections; Up to \$30.5 billion in costs
- 4th leading cause of death in U.S.
- 8 million excess hospital days **with 75,000 deaths**
- Death and Length of Stay increased for Inflammatory Bowel Disease patients with HAI

Contributing Factors to HAIs

- Receiving intensive care
- Increasing rates of antimicrobial resistance
- Procedure/device related infections
- Complex medical procedures
- Invasive medical therapy
- Increasing elderly population
- Immune compromised population

Healthcare Worker Misconceptions

- HAI incidence is insignificant
 - “We don’t have a problem with infections...”
- Cost of HAI is offset by reimbursement
- HAI is an expected outcome
 - Treating older and sicker patients
 - Performing more invasive procedures

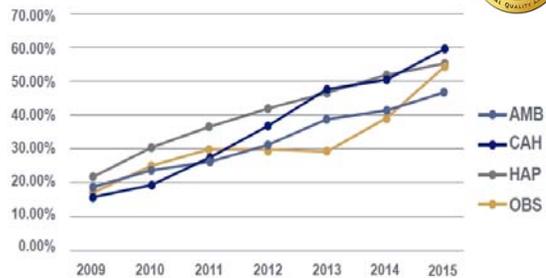


Infection Prevention (IP) Practices in Ambulatory Surgery Centers

- Not following instructions for processing equipment
- Poor medication/injection practices
- Hand hygiene
- Non-compliance with PPEs
- Clean/disinfect procedure rooms between cases
- Reuse/reprocess single use devices
- Jewelry
- Violation of surgical attire protocols
- Staff lacking IC Training



IC.02.02.01 Noncompliance 2009-2015 (half-year)



Source: Joint Commission - “High-Level Disinfection (HLD) and Sterilization BoosterPak”



Immediate Threat to Life (ITL)

- The SAFER™ Matrix allows the organization to see areas of noncompliance at an aggregate level, one that shows significant components of risk analysis.
- It replaces the current scoring methodology, which is based on pre-determined categorizations of elements of performance (such as direct and indirect impact) — instead allowing surveyors to perform real-time, on-site evaluations of deficiencies.

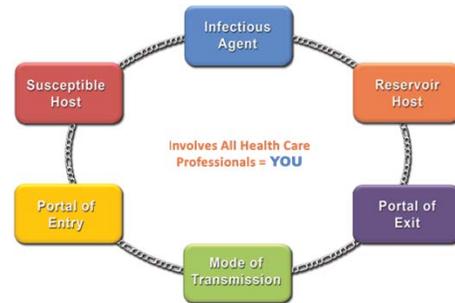
Immediate Threat to Life (ITL), continued

		Immediate Threat to Life (a threat that represents immediate risk or may potentially have serious adverse effects on the health of the patient, resident, or individual served)		
Likelihood to Harm a Patient/Staff/Visitor	HIGH (harm could happen at any time)			
	MODERATE (harm could happen occasionally)			
	LOW (harm could happen, but would be rare)			
		LIMITED (unique occurrence that is not representative of routine/regular practice)	PATTERN (unique occurrence that is not representative of routine/regular practice)	WIDESPREAD (unique occurrence that is not representative of routine/regular practice)
		Scope		

What Triggers ITL?

- Significantly compromised fire alarm system, sprinkler system, emergency power supply and medical gas delivery
- **Since 2013, the clinical situations have been more prominent with Infection Control topping the list**
- ITLs and potential ITLs are almost always situational

Chain of Infection

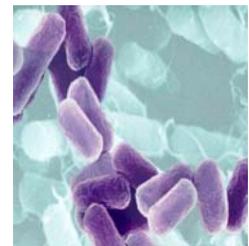


Antimicrobial Resistance

- What is resistance?
 - Ability of a specific organism to withstand a drug that interferes with its growth function
 - Involves changes in bacteria's genetic material
- Crisis proportions across U.S.
- Increase in community infections
- New antibiotics NOT being developed

Multi-Drug Resistant Organisms “Superbugs” in 2017

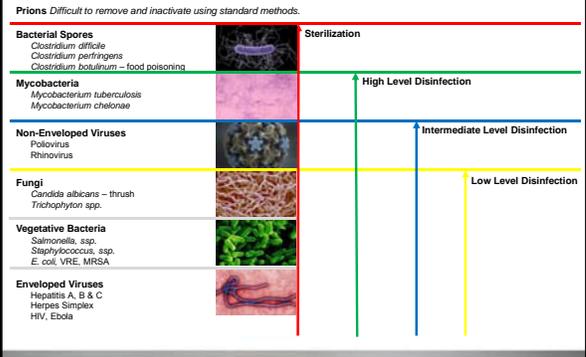
1. *Acinetobacter baumannii*
2. *Pseudomonas aeruginosa*
3. Enterobacteriaceae
4. *Enterococcus faecium*
5. *Staphylococcus aureus*
6. *Helicobacter pylori*
7. *Campylobacter* spp.
8. Salmonellae
9. *Neisseria gonorrhoeae*



Microorganisms in the GI Environment

- *Campylobacter*
- *Candida*
- *Clostridium difficile*
- *Cryptosporidium*
- *Enterobacter, E-coli*
- *Giardia, amebiasis*
- Glut-resistant *M. chelonae*
- *H-pylori*
- HBV, HCV, CMV
- Herpes simplex
- *Klebsiella*
- Mycobacterium
- *Pseudomonas aeruginosa*
- *Salmonella, Shigella*
- *Serratia marcescens*
- *Staphylococcus aureus*

Hierarchy of Resistance



Devices & Instrumentation Risks

- Pathway for introduction of pathogenic microbes
- Not following manufacturer's instructions
 - Unable to identify specific model types
- Unsure of intended use
 - Critical, semi-critical and non-critical
- Untrained personnel



Personal Protective Equipment

- Lowers risk of exposure to hazardous chemicals
- Lowers risk of occupational acquired infections
- Reduces transfer of staff flora to equipment and room surfaces
- Minimizes cross-contamination risk to patients



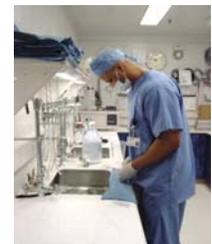
Appropriate Personal Protective Equipment

- Appropriate for activity
- Fluid resistant cover gown
- Cap/hair cover
- Protective eye/face shield
- Mask
- Gloves
- Remove without re-contamination
- CDC provides Free Donning and Doffing PPE poster



Non-Compliance Personal Protective Equipment

- High levels of noncompliance
 - Uncomfortable
 - Too hot
 - Not readily available
 - Poor fit
 - Unattractive
- Non-Compliance = Threat to worker health and safety



Sources of Environmental Contamination



Contaminated Environmental Surfaces

- Critical source of contamination
- Material capable of supporting growth
- Direct patient contact
- Hand contact
- Contamination with body substances
- Environmental sources
 - Soil, dust, and water



Unsafe Injection Practices

- Administration of anesthetics for outpatient surgical, diagnostic and pain management procedures
- Lapses occur in hospital and outpatient settings
- Same syringe/needle
- Single dose vs. multiple dose vials
- Reuse IV bags
- Anesthesia providers
- Strict adherence to policies and procedures
 - Surveillance, oversight, and enforcement
 - Continuing education



Resources for the Processing Environment



Which Standard?



Delays in Cleaning Lead to Biofilms

- Structured community of cells
- Formed as continuous layers
- Four functional states
 - Attachment
 - Micro-colonization
 - Biofilm formation
 - Detachment
- Implicated in HAIs/AERs/medical devices



Germ Farm



Environmental Surfaces



- Surface material withstands frequent disinfection
- Contaminated with blood/infectious materials
- Follow manufacturer Instructions for Use (IFU)
- **NEVER THE SWIPE AND THEN WIPE!**

Scrubs/Uniforms

- Scrubs are uniforms, not PPE
- Infections traced to contaminated apparel
- Home laundering is not recommended
- Quality assurance monitoring of laundering processes
 - Healthcare-accredited laundry facility
- Regular cleaning of stethoscopes and ID badges
- Avoid Jewelry



Waiting Room/Check-In

- Is it more for ambiance than prevention of infection?
- Is the furniture clean
 - Clean/sanitary?
 - No rips/tears?
 - Able to be cleaned?
- Alcohol sanitizers available?
- Bathroom regularly checked/cleaned?



Patient Care Areas Admission/Discharge

- What is your facility's policy and procedure for high risk patients?
- High touch areas identified?
 - Door knobs, push plates, light switches, and faucet handles
 - Patient furniture, stretchers, and rails
 - Monitoring equipment/accessories
 - Computer keyboards/monitors
- Walls, blinds, and curtains: Facility policy and procedure
- Floor
- Hand wash sinks
- Patient care equipment



Procedure Rooms

- Clean/dirty zones
- Sterile/clean supply and equipment storage
- Turnover- surfaces cleaned/disinfected
- PPE storage/disposal
- Hand wash sink
- Alcohol sanitizers
- Terminal cleaning
- Sharps safety



Transport to Reprocessing

- Point of use
- Precleaning correct solution/dilution
- Discard sharps and disposables
- Containment for protection (outside contaminated?)
- Contained/covered in secure manner reduces exposure risk
- Rigid container minimizes damage
- Marked as hazardous with biohazard symbol



Reprocessing Area

- Separate from patient care
- Dirty/decontamination area
- Barrier/spatial separation of dirty and clean
- Linear flow
- Pass-through
- Clean reprocessing side



Traffic

- Restricted to personnel working in the area
- Close doors
- Biohazard placard
- Appropriate attire



Ventilation

- Negative pressure over decontamination area
- 10 air exchanges/hour
- No Fans
- Door/windows closed



Significant Revision: Environmental Controls

- No temperature and humidity parameters
- ANSI/ASHRAE/ASHE 170
- HVAC performance monitoring
- Multidisciplinary team
- Establish policies and procedures
- Conduct risk assessment

Lighting

- Adequate lighting
- Overhead
- Task
- No shadows



Liquid Waste Management

- Leak proof containers prevent exposure
- Discard disposable liner and tubing after each use
- Liquid waste disposed according to state regulations
- Solidifier
- Liquid waste disposal system
- Pouring down sanitary sewer
- Transported according to state regulations



Emergency Eyewash Equipment

- Accessible within 10 seconds travel time of all chemical usage locations
- Proper signage
- For a strong acid or strong caustic, the eye wash unit should be immediately adjacent to the hazard
- Check eye wash equipment once/week
- Document weekly testing and temperature checks



Endoscope Processing

- Follow manufacturers' IFUs for complete reprocessing
- Minimize any delay in cleaning
- Prohibits formation of biofilms



Manual Cleaning

- Fresh solution, with correct chemistry
- Follow label instructions
- Enzyme detergent
 - Non-abrasive
 - Low foaming
 - Follow dilution rates and soak times
 - Ensure correct temperature
 - Does NOT provide disinfection
- Follow manufacturer instructions for valves/buttons



Manual Disinfection

- Follow Manufacturer IFU
- Record HLD minimum effective concentration (MEC) result according to manufacturer instructions
- Expiration date
- Timer for immersion
- Adequate rinsing
- Filtered, sterile, and tap (potable) water
- Disposal of disinfectant solution



Automated Endoscope Reprocessing

- Follow IFUs
- Careful placement in Reprocessor
- Use validated adapters/connectors/tubing
- Staff training and competency
- Cleaning and routine maintenance documentation



Single-Use Items



Single use means single patient use!

Scope Drying/Storage

- Dry and store per manufacturer IFU of device and cabinet
- Closed cabinet with air circulation
- Remove valves and buttons
- Protect from damage and recontamination
- Vertical storage: Storage (or hang-time) time per facility policy



Documentation

- Computerized tracking
- Product identification and traceability
- Cycle identification and record-keeping
- Release devices for use
 - Parameters for processing met
- Expiration dates
- Traceability to use on patient
 - Endoscope
 - Process
- Recall procedure



Supply Storage

- Enclosed limited access area
- Temperature/humidity ranges
- Controlled traffic
- Closed or open shelving
- Adequate distance from walls, floors, and ceilings
- No shipping cartons
- Check integrity of sterile packages before opening



IP/QI Examples

- Hand hygiene compliance
- Procedure room turnover
- Breaks in reprocessing steps
- Identification of “high touch” areas
- Identification of patients at high risk for infection
- Patient follow-up for possible HAI, negative outcome
- Patient/family education/teaching about IP practices
- *C. difficile* patients/families



Action Plan

- Staff member identified as IP/QI “champion.”
- Identify areas of high risk for infection.

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Questions



Handouts

To access the handouts for this presentation, go to: university.steris.com/sjp



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Revision History

Date	Revisions	Revised By:	Notes
03/27/2018	Slide 6: ECRI Top 10 hazards updated with 2018 Slide 28: Images on slide and resources in speaker notes updated, ST79:2017 Slide 33: Updated ST79:2017 & 2018 AORN resources in speaker notes (SN). Slide 38: AORN 2018 resource updated Slide 40: Deleted (ventilation slide) not current with ST79:2017 Slide 41: Replaced with slide 20 from Staying Current w/ ST79:2017. Slide 44: Added image; updated resource and SN with ST91:2015 & ST79:2017. Slide 55: ST79:2017 and AORN 2018 reference updated.	S. Beauclair	Slide 18-2017 most current data as of 2018.