Infection Prevention in the ASC - Leveraging Process Standardization and Quality Performance Management to Improve Patient Care

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Today’s Presenter: Gregory Hickman, MD

- Currently Medical Director/Anesthesia Director at Andrews Institute Ambulatory Surgery Center, one of the leading private sports injury centers in the US
- Received BS in Pharmacy from the University of Tennessee College of Pharmacy and medical degree from the East Tennessee State University College of Medicine
- Dr. Hickman completed his residency at University of Alabama at Birmingham and is board certified in anesthesiology and pain management. After completing his residency, Dr. Hickman has earned roles of increasing responsibility in anesthesia and pain management, starting as a Clinical Instructor in the Acute Pain Service within the Department of Anesthesiology University of Alabama at Birmingham, and leading to Chair the Department of Anesthesia at HealthSouth Medical Center in Birmingham, Alabama in 1994
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CareFusion
Learning Objectives

Understand How Standardization Can Help You Meet Your Infection Prevention Goals

Learn How to Apply The “Four E” Process To Drive Standardization of Infection Prevention Practice in the ASC

Higher Quality, Better Outcomes
Standardization Process: The Four E’s

1. **Engage**
   - Engage the right team, explain why standardization is important

2. **Educate**
   - Design an intervention “toolkit” targeted at barriers, standardization, independent checks, reminders, and learning from mistakes

3. **Evaluate**
   - Regularly assess for performance measures and unintended consequences

4. **Execute**
   - Share the evidence supporting the interventions
Engage the right team, explain why standardization is important
Who Should Be Engaged?

- Infection preventionists
- Board of Directors
- Administrator
- Nurse managers
- Nurses
- Anesthesia staff
- Surgeons
- Surgical techs
- Reprocessing techs
- Patients, patients families

Facility

Staff

Patients
How Do We Engage Stakeholders?

• Share the Statistics
• Discuss the Regulatory Requirements
• Encourage Them to Share Their Own Concerns
Healthcare-Associated Infection (HAI) Statistics In The USA

- According to U.S. Centers for Disease Control and Prevention (CDC)²
  - 1.7 million people acquire HAIs each year
  - Approximately 271 deaths/day
  - 1 out of 20 hospitalized patients affected
- One-third of HAIs are considered preventable³
  - Approximately 566,000 preventable HAIs
- Attributed costs: $25-31.5 billion annually⁴

All settings, hospitals, ASCs, long-term care, dialysis, etc.
Infection Outbreaks in Outpatient Settings Have Drawn Public Attention\(^5\)

- At least 41 outbreaks from 2001-2011
  - 18 viral hepatitis (HBV and/or HCV)
    - >50% involved administration of anesthetic/analgesic
  - 23 bacterial
    - 30% in pain remediation clinics
    - >50% of case-patients required hospitalization

- Common breaches:
  - Reuse of syringes and/or needles for >1 patient or to reenter medication vials used for >1 patient
  - Use of single-dose vials or saline bags for >1 patient
  - Low adherence to hand hygiene and aseptic technique
Overall Results Of 3-State Pilot Infection Control Assessments

**Infection Control Category Assessed**
- Hand Hygiene and Use of Gloves
- Injection Safety and Medication Handling
- Equipment Reprocessing
- Environmental Cleaning
- Handling of Blood Glucose Monitoring Equipment

**Number of Facilities with Lapses Identified**
- 12/62 (19%)
- 19/67 (28%)
- 19/67 (28%)
- 12/64 (19%)
- 25/54 (46%)
Several ASC health and safety standards updated
CMS and CDC enhanced their surveyor training
All states required to use the infection control audit tool and case tracer method
CMS committed to inspect one-third of all ASCs
Updated analysis of ASC infection control practices to be made
CMS made the ASC infection control audit tool available on-line to assist ASCs
Failure to correct serious deficiencies risks termination of participation in Medicare
CMS Conditions For Coverage

“The ASC must maintain an infection control program that seeks to minimize infections and communicable diseases” (416.51)

Key elements include:

- A quality assessment and performance improvement (QAPI) program
- Maintenance of a sanitary environment
- Development/implementation of IC measures related to ASC personnel
- Mitigation of risks associated with patient infections present upon admission
- Mitigation of risks contributing to HAIs
- Active surveillance and more
## Regulatory and Accreditation Agencies Requiring Stricter Infection Prevention Standards in ASCs

<table>
<thead>
<tr>
<th>Agency/Organization</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>30 states and DC now require ASCs to report HAIs to NHSN[^9]</td>
</tr>
<tr>
<td>CMS</td>
<td>CMS Conditions for Coverage (CfC) include multi-point infection prevention program, CMS requires all states to use the infection control audit tool, case tracer method for ASC inspections and QAPI[^8]</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA has both State and Federal requirements, e.g. avoidance of bloodborne pathogens[^10]</td>
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<tr>
<td>CDC</td>
<td>CDC HICPAC Guidelines[^11]</td>
</tr>
<tr>
<td>NQF</td>
<td>Voluntary consensus standards for infection prevention and reporting[^12]</td>
</tr>
<tr>
<td>Accrediting Organizations</td>
<td>AAAASF, AAAHC, Joint Commission</td>
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How Have HAI Rates in ASCs Been Affected Since These Interventions?

- In a 2010 study, 35 surgery centers reported 100 HAIs across 100,000 procedures (0.1% infection rate)\textsuperscript{13}
  - Half the HAIs occurred in multispecialty ASCs
  - Orthopedic procedures had higher rates; 0.3%
- Although these data weren't compared to hospital stats, they suggest HAI rates in ASCs are low
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2. **Educate**
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Many Variables Contribute to Risk of HAI

Failure To Manage A Single Variable Could Lead To Poor Outcome
Challenges In Standardizing ASC Infection Control Protocols

- Numerous variables and inconsistencies:
  - Many different doctors
  - Surgeries can span many different sub-specialties
  - Sub-specialties may have different habits or methods

- Surveillance is challenging because:
  - Patient encounters may be brief or sporadic
  - Evaluation and treatment of consequent infections may involve different healthcare settings (e.g., hospitals)
Share Your Observations With Your Team

- Have you observed lapses in infection prevention policies?
- Has an infection or outbreak occurred?
- Have you observed too much individual variability in some infection prevention techniques?
- Share these observations and their implications with the Infection Prevention Steering Committee
Case Example For Standardization: Patient Preoperative Skin Prep

- Critically important in reducing the risk of HAIs
- Key factors include:
  - Antiseptic agent
  - Application method
  - Dry time
- Numerous choices available, which can lead to confusion in the OR
- Opportunity to standardize procedures and reduce variability
# Differing Application Instructions Among Patient Skin Prep Agents

<table>
<thead>
<tr>
<th>Example</th>
<th>CHG/IPA</th>
<th>Iodine/IPA</th>
<th>Aqueous CHG</th>
<th>Iodine Scrub/Paint</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChloraPrep*a</td>
<td>DuraPrep™b</td>
<td>Exidine*e</td>
<td>Wet PVP-I Tray*f</td>
<td></td>
</tr>
<tr>
<td>DuraPrep™b</td>
<td>Paint in concentric circles</td>
<td>Swab back and forth</td>
<td>Scrub and paint in concentric circles</td>
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<tr>
<td>Prevail-Fx®c</td>
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<td>Exidine*e</td>
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</table>

<table>
<thead>
<tr>
<th>Application method</th>
<th>Application time</th>
<th>Dry time*</th>
<th>Application time</th>
<th>Dry time*</th>
<th>Application time</th>
<th>Dry time*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentle back and forth strokes</td>
<td>0.5-2 min</td>
<td>≥3 min</td>
<td>≥0.5 min</td>
<td>≥2-3 min</td>
<td>Blot</td>
<td>~2-3 min</td>
</tr>
<tr>
<td>Paint in concentric circles</td>
<td></td>
<td></td>
<td>4 min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swab back and forth</td>
<td></td>
<td></td>
<td>5 min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrub and paint in concentric circles</td>
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</tr>
</tbody>
</table>

*a. CareFusion. ChloraPrep labeling  
b. 3M™ DuraPrep™ Surgical Solution labeling  
e. CareFusion. Exidine® 2% CHG Scrub Solution labeling  
g. Scrub Care® Povidone Iodine Cleansing Solution labeling  

*On hairless skin.
A Recent Study Aimed At Identifying the Variations In Skin Prep At Hospitals and ASCs

- Open label, iPad-based observation program
- 172 facilities
- Conducted by CareFusion Oct 1, 2013 to July 10, 2014
- 3176 observations of various procedures
  - 111 from ASCs, 3065 from hospitals

Figure 1: Locations of audited U.S. facilities
Directions For Use (DFUs) For Skin Preparation Products Are Followed Only Half The Time

**Overview of Skin Prep Procedure Compliance**

- **Skin prep application** beginning at surgical/incision site and out to periphery:
  - Hospitals (n=3065): 88.3%
  - ASCs (n=111): 88.3%

- **Skin prep application method** followed label directions:
  - Hospitals (n=3065): 68.5%
  - ASCs (n=111): 68.0%

- **Sterile gloves used**:
  - Hospitals (n=3065): 75.6%
  - ASCs (n=111): 69.4%

- **Gloves used**:
  - Hospitals (n=3065): 89.1%
  - ASCs (n=111): 87.4%

- **Adequate skin prep drying time used**:
  - Hospitals (n=3065): 49.8%
  - ASCs (n=111): 24.5%

- **Adequate skin prep time used**:
  - Hospitals (n=3065): 52.7%
  - ASCs (n=111): 45.5%

*Values for ASCs and hospitals significantly different by Fisher’s exact test, p < 0.0001. Due to the small sample size of ASCs, however, comparisons between them and hospitals should be considered preliminary.
Findings Suggest Product Directions For Surgical Skin Preps Often Are Not Followed

• Surgical skin preps are often improperly applied\textsuperscript{15}
  • Close to 50\% of the time, practice is non-compliant with labeled skin prep time and prep dry times
  • ASCs in particular appear to be non-compliant with skin prep dry times \textasciitilde 75\% of the time

These data demonstrate a strong rationale for education and standardization in the ASC
Next Step: Make Your Standardization Proposal

- You’ve explained why, now...
  - Have champion to support you
  - Clearly articulate your standardization proposal
    - Who will be involved?
    - What type of training will occur?
    - How will the intervention be measured?
    - How long will it take?
    - What tools will be used?
    - What will the intervention will achieve?
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4. **Share**
   - Share the evidence supporting the interventions
Checklists Can Help Drive Standardization And Improve Clinical Outcomes

- Recent meta-analysis of 7 studies that evaluated the WHO Surgical Safety Checklist\textsuperscript{16}

Strong correlation between decreased complications and adherence to the checklist \((Q=0.82, \, P=0.042)\)
Checklists Can Also Improve Efficiency and Costs

- Study at a tertiary-care hospital in Texas\textsuperscript{16}
  - 17,204 surgeries pre-checklist vs 18,366 post-checklist
- WHO checklist only takes 2 min to complete
  - Despite perception by some that it is too time-consuming

\begin{figure}
\centering
\includegraphics[width=\textwidth]{General_Surgery}
\caption{General Surgery}
\end{figure}
Sources for Infection Prevention Checklists and Tools to Help Drive Regulatory Compliance and Standardization

- CMS: ASC Infection Control Surveyor Worksheet
- CDC: Infection Prevention Checklist For Outpatient Settings: Minimum Expectations For Safe Care
- WHO: Surgical Safety Checklist
  [http://www.who.int/patientsafety/safesurgery/tools_resources/SSSL_Checklist_finalJuno08.pdf?ua=1](http://www.who.int/patientsafety/safesurgery/tools_resources/SSSL_Checklist_finalJuno08.pdf?ua=1)
- AORN: A variety of useful tools and checklists can be found at:
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Measuring Results Is Critical To Demonstrating Effectiveness

- **Alignment** - remind staff why you’re piloting this standardization project and how it may benefit patient care and business
- **Transparency** - make sure your staff understands what you’re tracking and how
- **Communication** – ensure staff knows what will be reported, when, where and how
Look To These Partners For Surveillance and Tracking Tools

- A comprehensive resource for choosing surveillance technology can be found on the APIC website:
  - http://www.apic.org/Professional-Practice/Practice-Resources/Surveillance-Technology
- CareFusion OR Observation Tool is an iPad-based app that allows direct observation capture and analysis of infection prevention practices in the OR
  - Contact Mora Thompson at mora.thompson@carefusion.com
- ASC Quality Collaboration provides tool kits to enhance your infection prevention practice
  - http://www.ascquality.org/advancing_asc_quality.cfm
The ASC must develop, implement and maintain an ongoing, data-driven quality assessment and performance improvement (QAPI) program.
416.43 Key QAPI Requirements

- Center Must
  - Measure
  - Analyze
  - Track quality indicators
  - Adverse patient events
  - Infection Control
  - Data must be used to monitor effectiveness & safety of services provided
- Identify opportunities for improvement
- Focus on high risk, high volume, problem-prone areas
- Number of scope projects conducted annually must reflect complexity of ASC’s services

Source: e-CFR Data current as of September 3, 2014
More Information On Developing and Submitting QAPI Programs to CMS

- **CMS:**

- **ASCA:**

- **AAAASF:** [http://www.aaaasf.org/](http://www.aaaasf.org/)

- **AAAHC:**

- **CareFusion:**
  Ryan Lipe: ryan.lipe@carefusion.com
Conclusions

- We are required to give HAIs our continued attention in the ASC!
- Reducing variability in practices improves quality of care
- Standardization of skin related preparation may aid quality initiatives in surgical care
- “Evaluate, engage, educate and execute” (4 E’s) is the key process for quality culture change
- We can leverage resources available for 4 E’s in standardizing skin-related preparation
- Standardization goes hand-in-hand with QAPI
This Presentation Was Made Possible By Support From CareFusion
References

References

13. Surgical Outcomes Information Exchange ‘s survey results; summarized by Abby Callard on Becker's Hospital Review October 20, 2011 (accessed August 18, 2014)