



MC-004855

Catheter and Bundle: Is Your Team Complete?

Presenter:

Date:

Regina Bowen Hines, MSN, RN, VA-BC

Past clinical experience includes Medical Surgical, Emergency Department, Intensive Care Units, and supervisor & leadership roles. Graduate degree in nursing with a specialty track of Nursing Education.

Currently supervise a rapid response team and a vascular access team in a 450 bed acute care facility in Alabama. Currently using my clinical trial experience to share with others good outcomes and EBP.

Marguerite Naseau Core Values Award 2012 – Creativity

- Initiated an in-house vascular access team
- ABN provider of CEU material rt/vascular access
- Developed specific EMR charting for special teams
- Established an Outpatient service for line placement and other services
- Construct and write skill specific policies for vascular access
- Initiate and present Alabama Board of Nursing applications for procedures beyond basic nursing preparation



Learning Objectives

The program's learning objectives are as follows:

- *Discuss what the current evidence tells clinicians and where the gaps exist*
- *Describe the science behind why vascular catheters continue to become infected and the “loop holes” that allow that to happen*
- *Identify the differences between active and passive protection of a catheter surface*
- *Explore the role of technology in the next evolution of catheter protection*

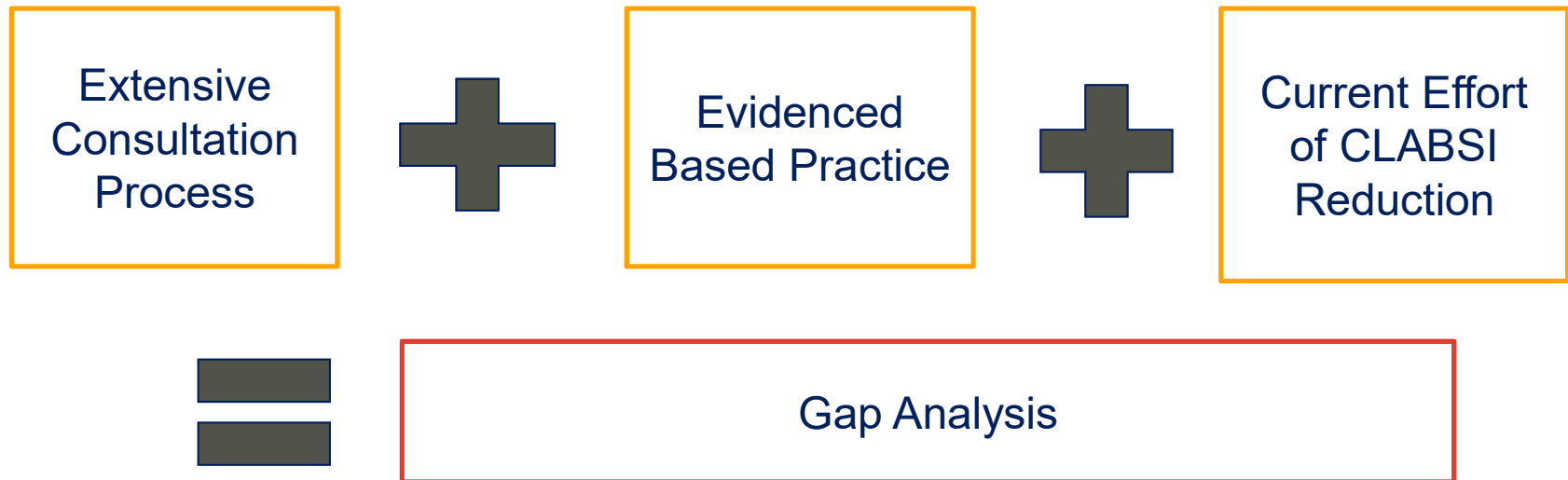
Catheter and Bundle Journey



Clinical Team Approach

- Interdisciplinary Team
- Key Leader or Champion
 - Vascular access team
 - Infection control leaders
 - Administrative support
 - Infection disease physicians
 - Champion or key leader for outcomes

Gap Analysis: Preventative and Aids In Identifying Cause

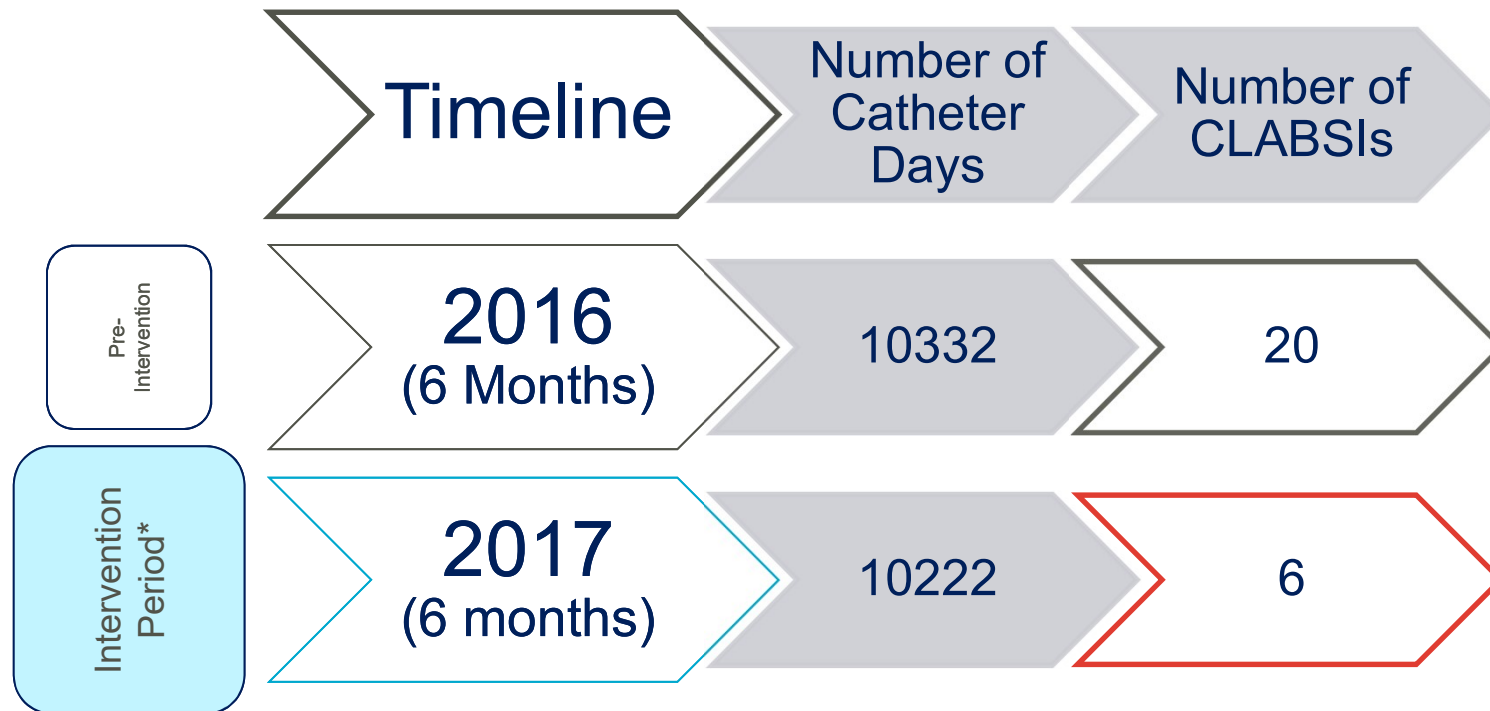


Bundles and Solutions

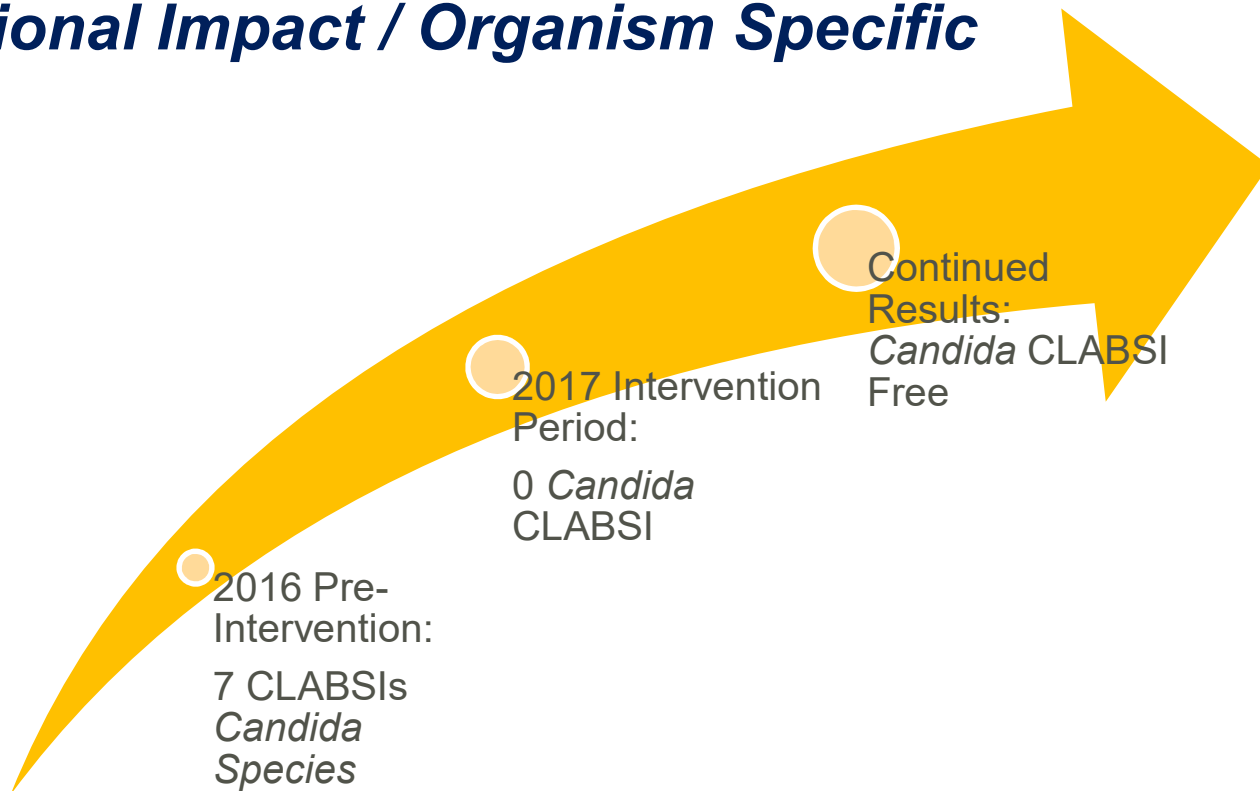
- Maximal Barrier Insertion Bundles
- CUSP Initiatives
- Central Venous Line (CVL) Carts
- Personal Protective Equipment (PPE)
- Central Line Insertion Practices (CLIP) forms
- Antimicrobial Catheter



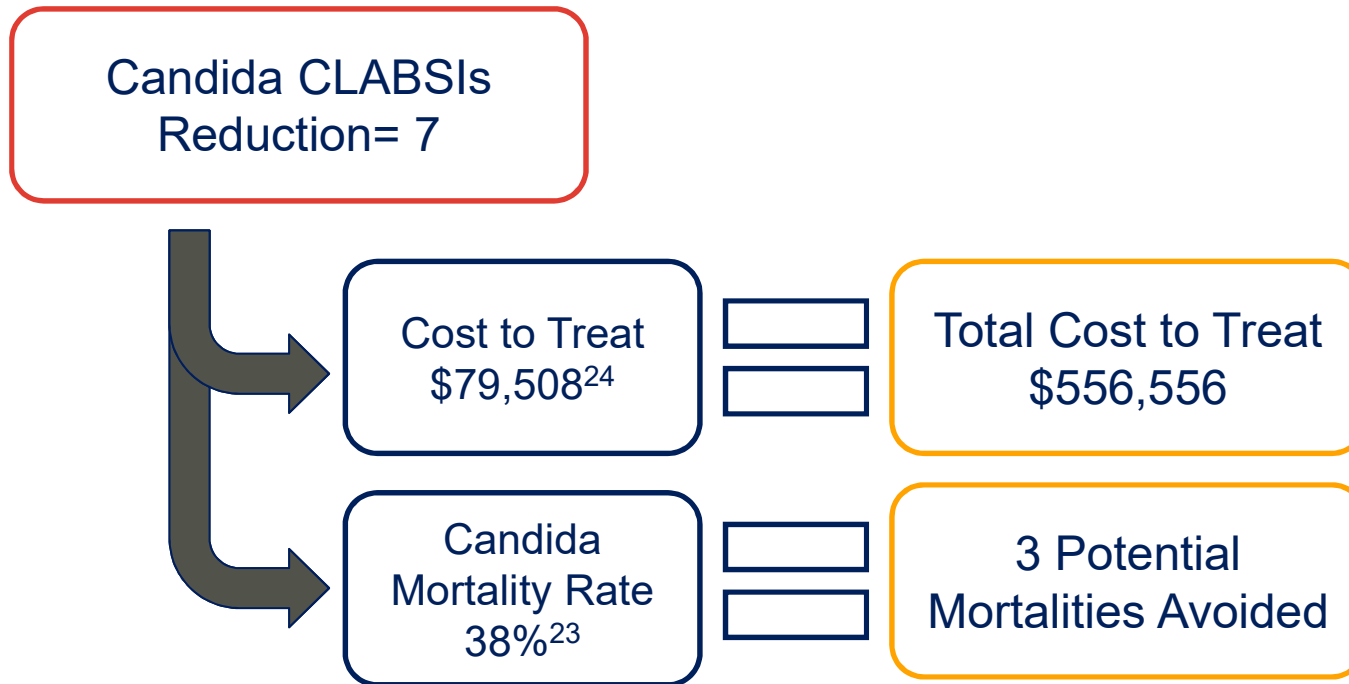
Remarkable Results = Improved Patient Outcomes



Additional Impact / Organism Specific



Impact of Reducing Candida





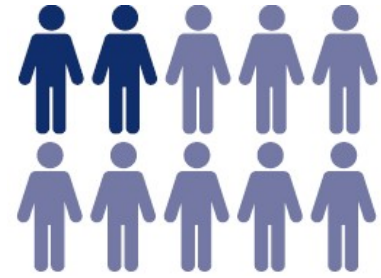
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What are the gaps in the bundle?

Central Line-Associated Bloodstream Infection Costs



20% of CLABSI incidents result in a mortality²



The CDC estimates the annual cost of CLABSI is more than

\$1 Billion²



Winning with a Multi-Faceted Approach



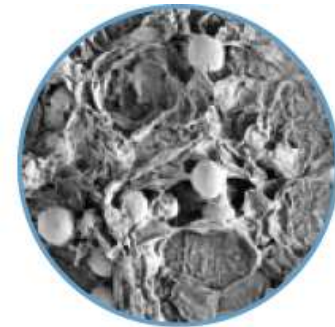
Why Do Catheters Cause Infections?

Key Elements:

- Nutrition
- Surface for attachment
- Minimal competition
- Time (24 hours)



Biofilm formation, thrombus and fibrin sheath around untreated catheter



Biofilm formation

Why Do Catheters Cause Infections?

Key Elements:

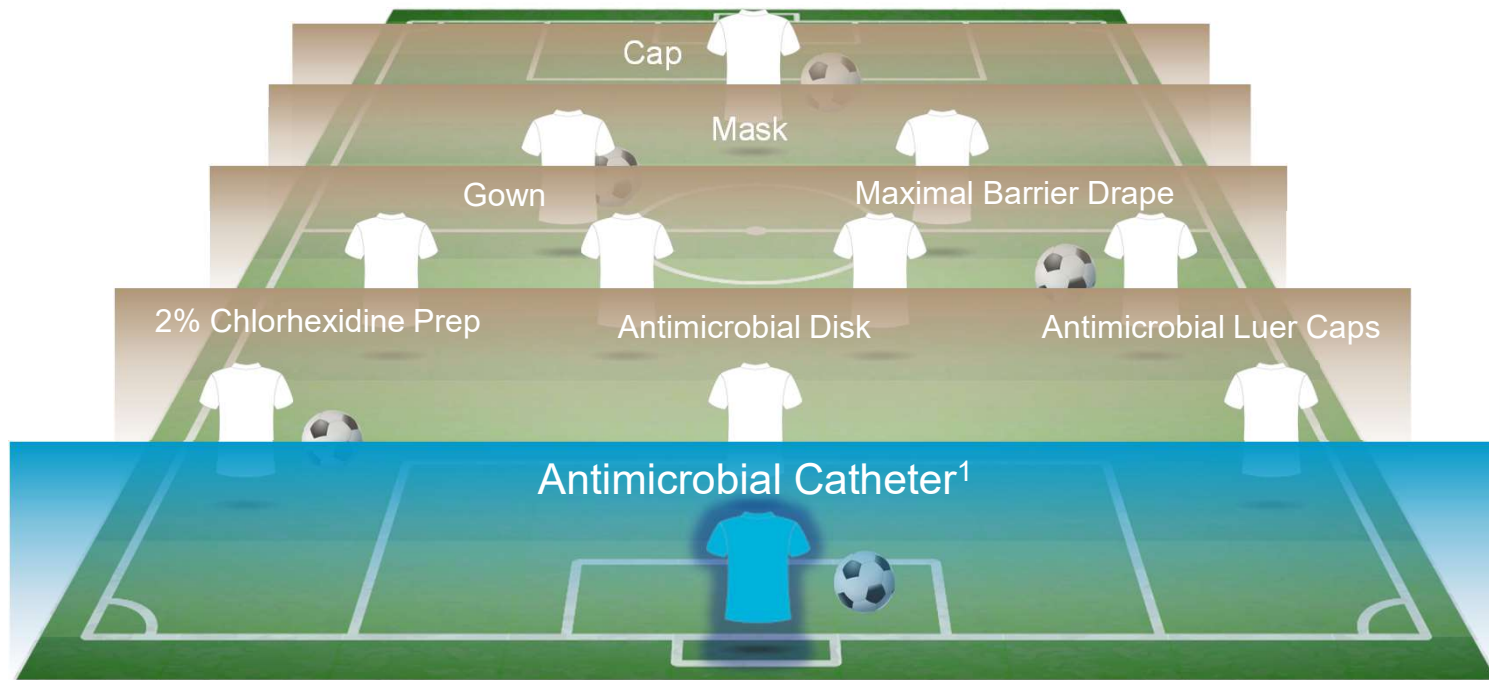
- Nutrition
- Surface for attachment
- Minimal competition
- Time (24 hours)

Next Step: Surface Colonization

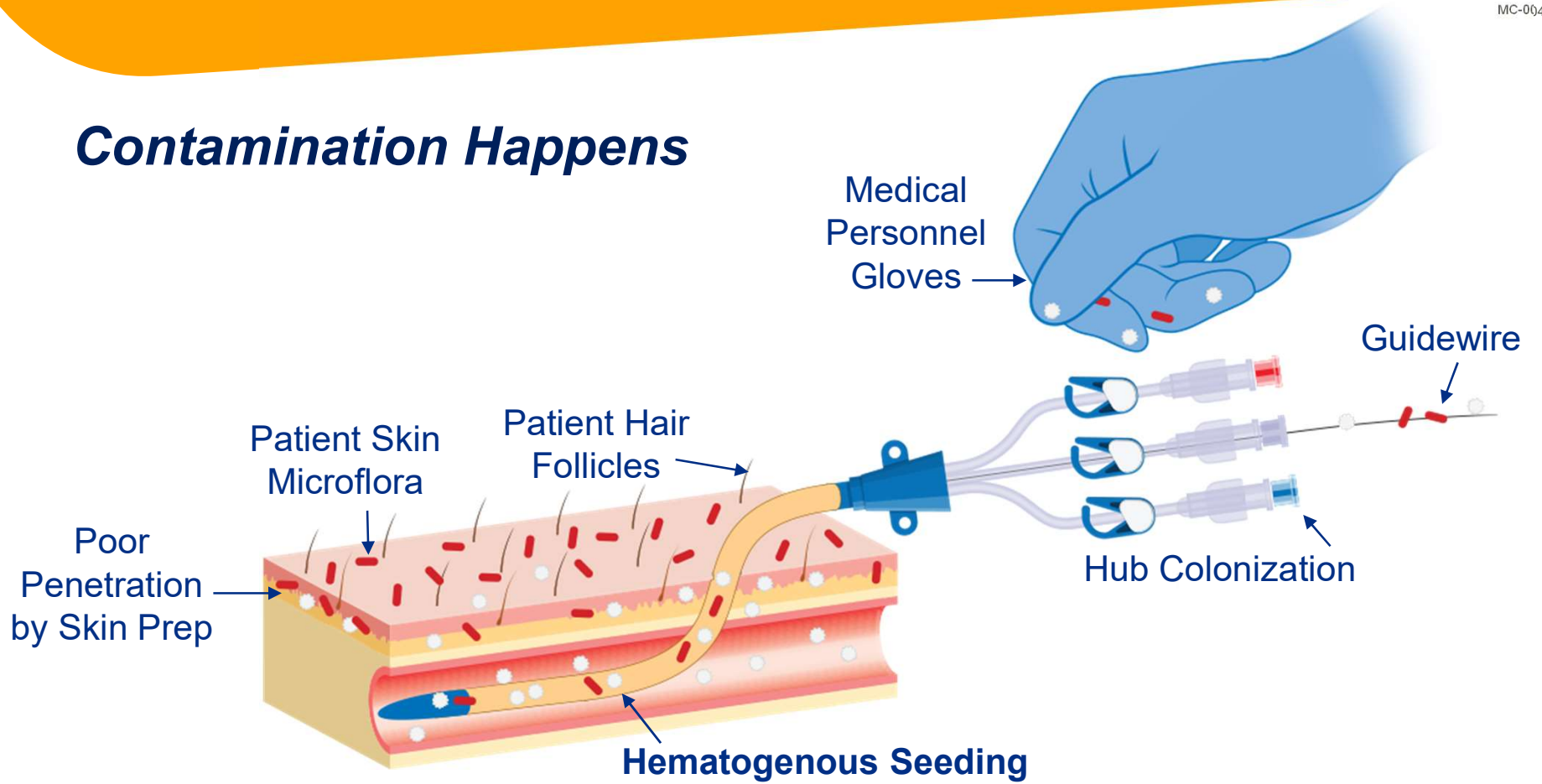
- Biofilm formation



Creating a Gold Medal Team



Contamination Happens



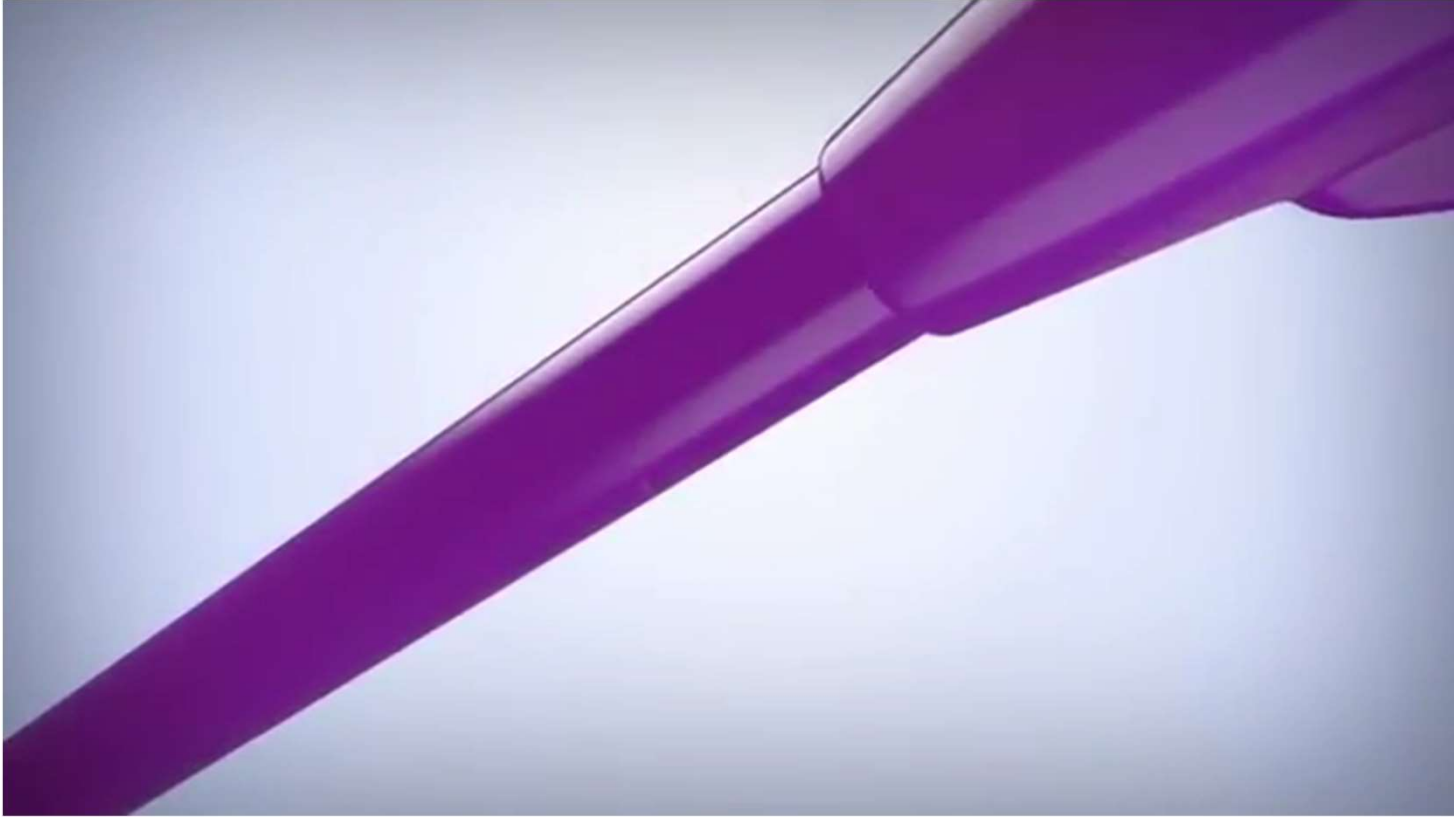
Colonization Starts with Contact



Extraluminal Colonization



Intraluminal Colonization



Active Solutions to Reduce Colonization



**Potential for
human error!**

- Maximal Barrier Precaution
- Antimicrobial Dressings
- Skin Prep

Extraluminal

- Antimicrobial injection caps
- Proper Care and Maintenance
- Lock Solutions

Intraluminal

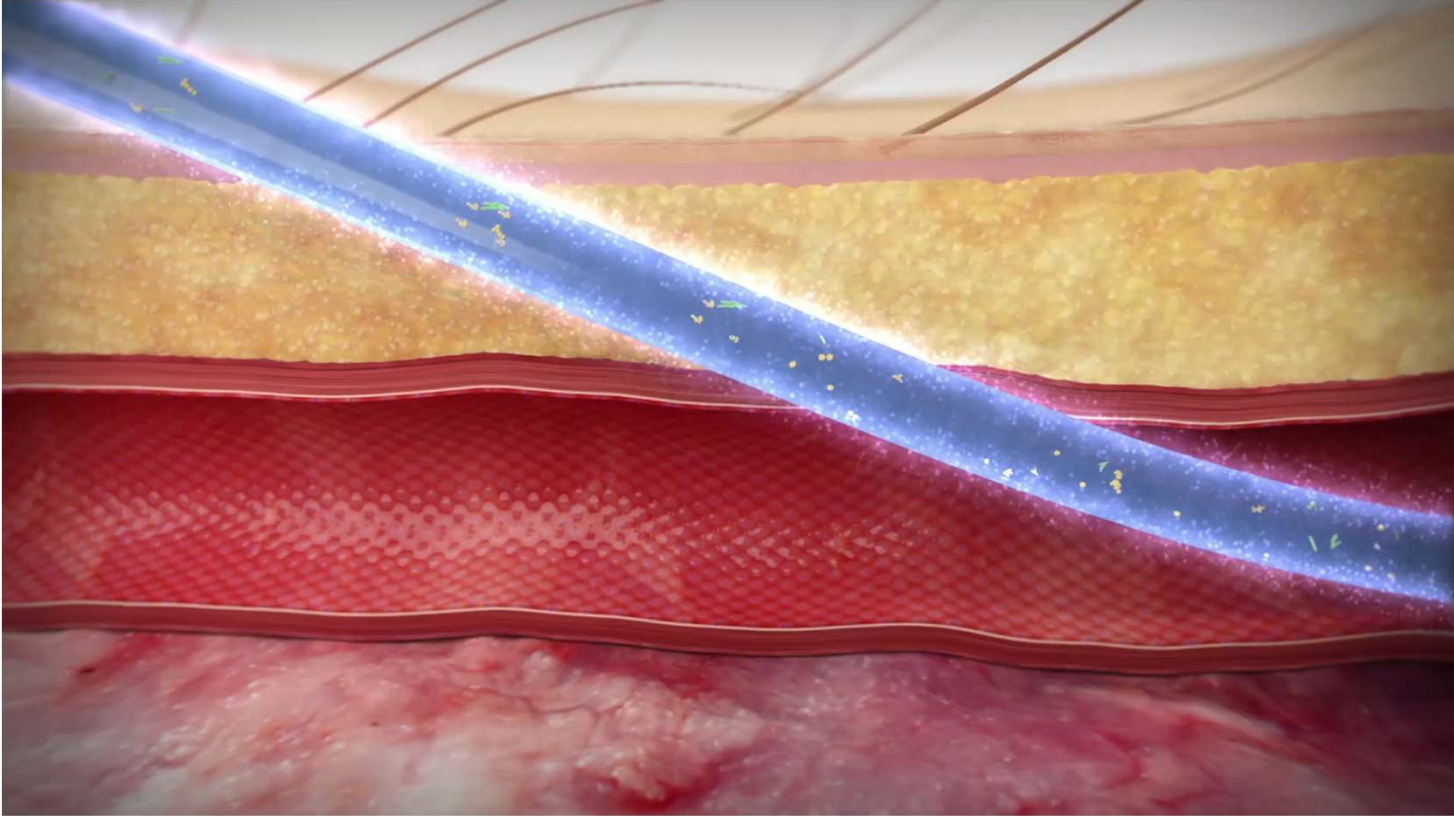
Passive Solution to Reduce Colonization



Clinical Trial Evidence: Antimicrobial Catheters

- Maki D. et al. 1997
- Rupp et al. 2005
- Provonost et al. 2006
- Lorente et al. 2014
- Wang et al. 2018

Antimicrobial Efficacy of Antimicrobial Catheters



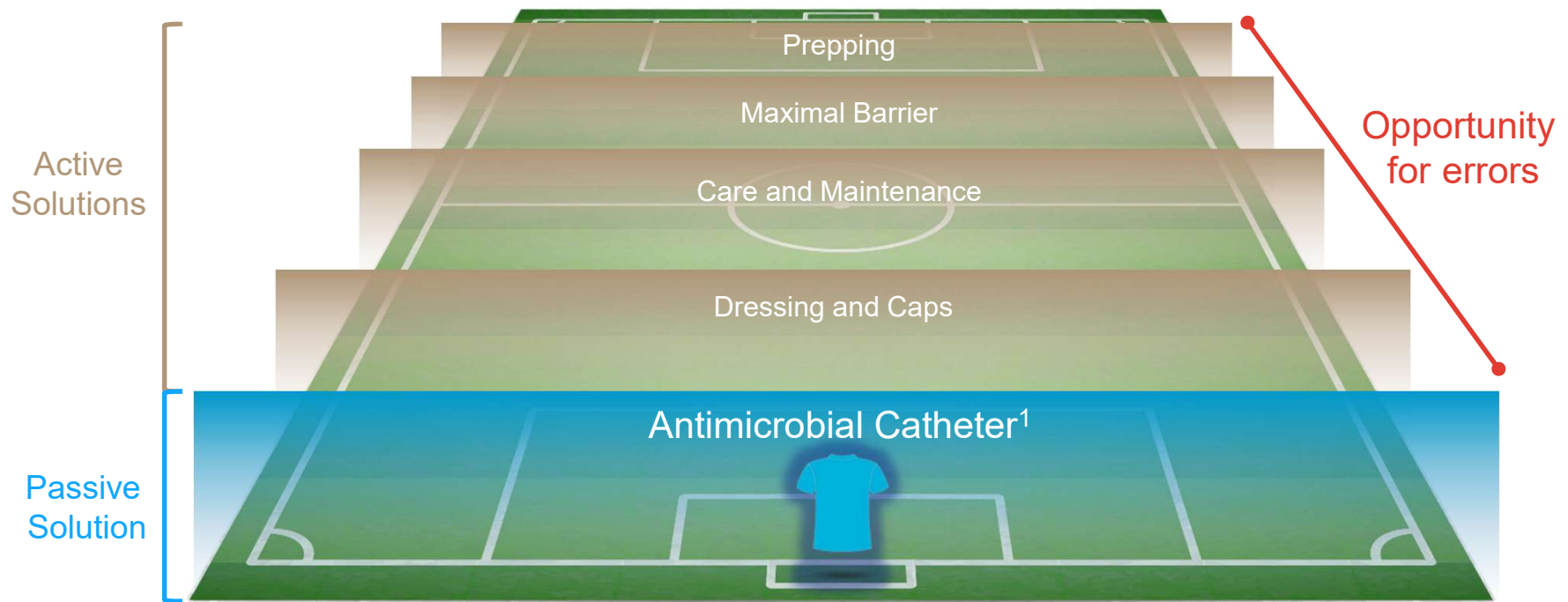
Care and Maintenance Bundle

Central Line Maintenance Bundle

- Hand hygiene
- Routine use of chlorhexidine dressings (institution dependent)
- No less than 5-15 second hub scrub
- Effective securement
- Sterile semi-permeable occlusive dressing
- Daily surveillance



The Bundle Needs a Goalie!



Conclusion

- Team approach
- Catheter colonization
- Active vs. passive solutions
- Insertion bundle and antimicrobial catheter evidence
- Commitment to look
 - If not all protected, ask **why not?**

Ask, what would the patient choose for themselves?

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Any Questions?

Thank You

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