

# 2011 Military Health System Conference

## Healthcare Quality and Patient Safety Innovations: Lessons from the Field

Improving the High-Level Disinfection Process of Vaginal Ultrasound Probes

*The Quadruple Aim: Working Together, Achieving Success*

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Naval Hospital Bremerton, Washington

## Report Documentation Page

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# Project Background



- Proactive evaluation of high-level disinfection (HLD) process
- Vaginal ultrasound probes selected
- 5 clinical areas
- Lean Six Sigma and H-FMEA methodologies
- Multidisciplinary team
- 6 months



# Key Findings



- HLD is a complicated process
- Multiple guidelines to follow
- Measurement tool needed
- Obsolete equipment in use
- Centralization of HLD not practical
- Staff apprehensive to fully immerse probes
- Practical, economical solutions identified
- Leadership support imperative



# High-Level Disinfection Audit Tool



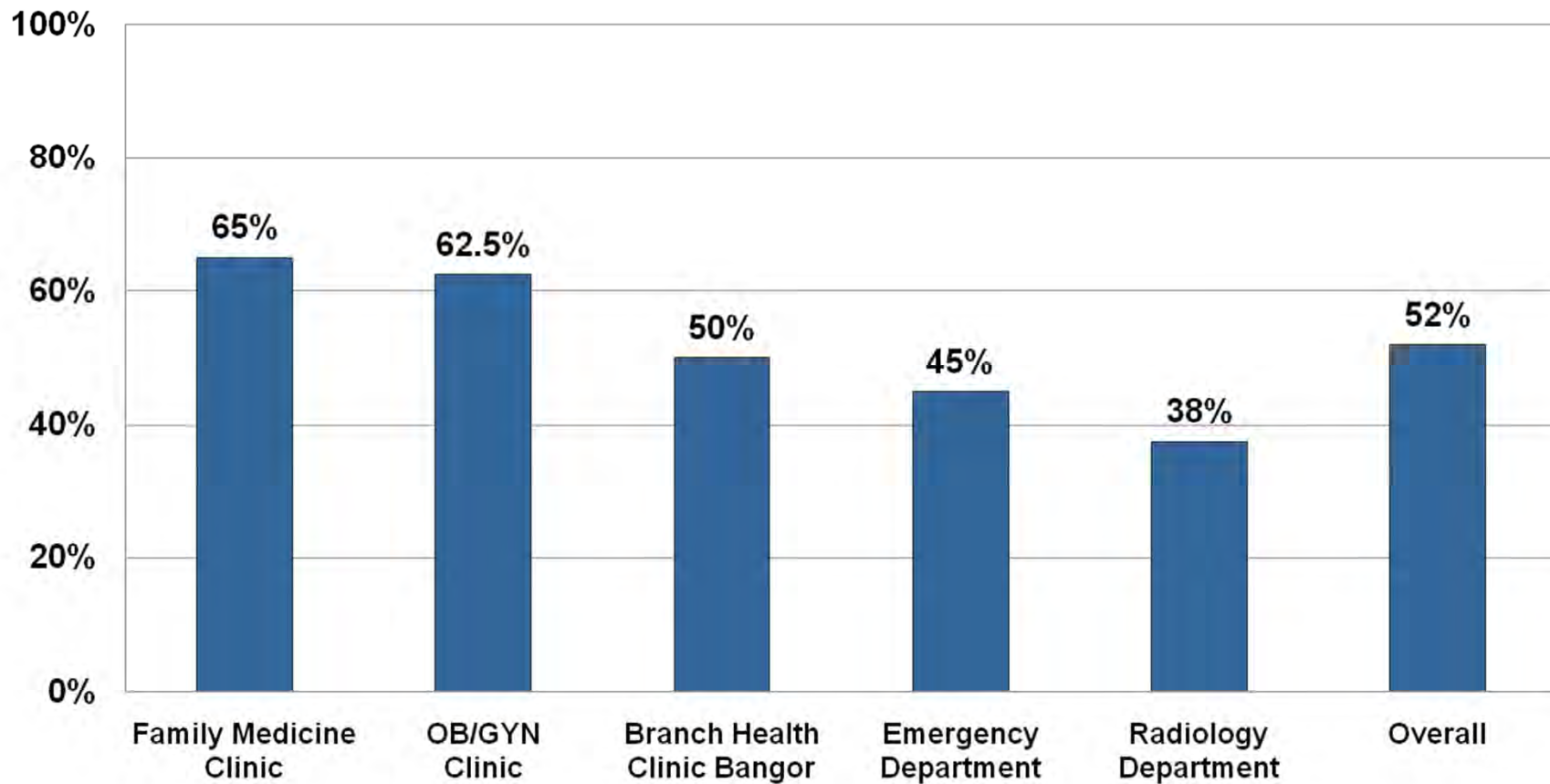
Note: Design and Process sections omitted to improve visibility

STANDARD			POINTS	YES	NO
<b>Equipment</b>					
5. Is a clock or timer in the room?			1		
6. Are gloves in the room?			1		
7. Are goggles or eye protection in the room?			1		
8. Are gowns in the room?			1		
9. Is the disinfectant solution container the appropriate size?			1		
10. Is there a rinse container?			1		
11. Is the rinse container the appropriate size for high volume rinse (2 gallons)?			1		
12. Are step-by-step instructions clearly posted on the wall?			1		
13. Are equipment manufacturer guidelines readily available?			1		
14. Are disinfectant solution manufacturer guidelines readily available?			1		
<b>Overall</b>					
25. Are the equipment manufacturer guidelines followed?			2		
26. Are the disinfectant solution manufacturer guidelines followed?			2		
<b>SCORING:</b>	Today	Previously	<b>EVALUATION:</b>		
<b>POINTS EARNED</b>			Excellent = 90 % – 100%		
<b>POINTS POSSIBLE</b>	40		Satisfactory = 80 % – 89%		
<b>COMPLIANCE (%)</b>			Unsatisfactory = 79 % or below		

# Baseline



## Compliance Based on High-Level Disinfection Audit Tool



# Failure Modes and Effects Analysis



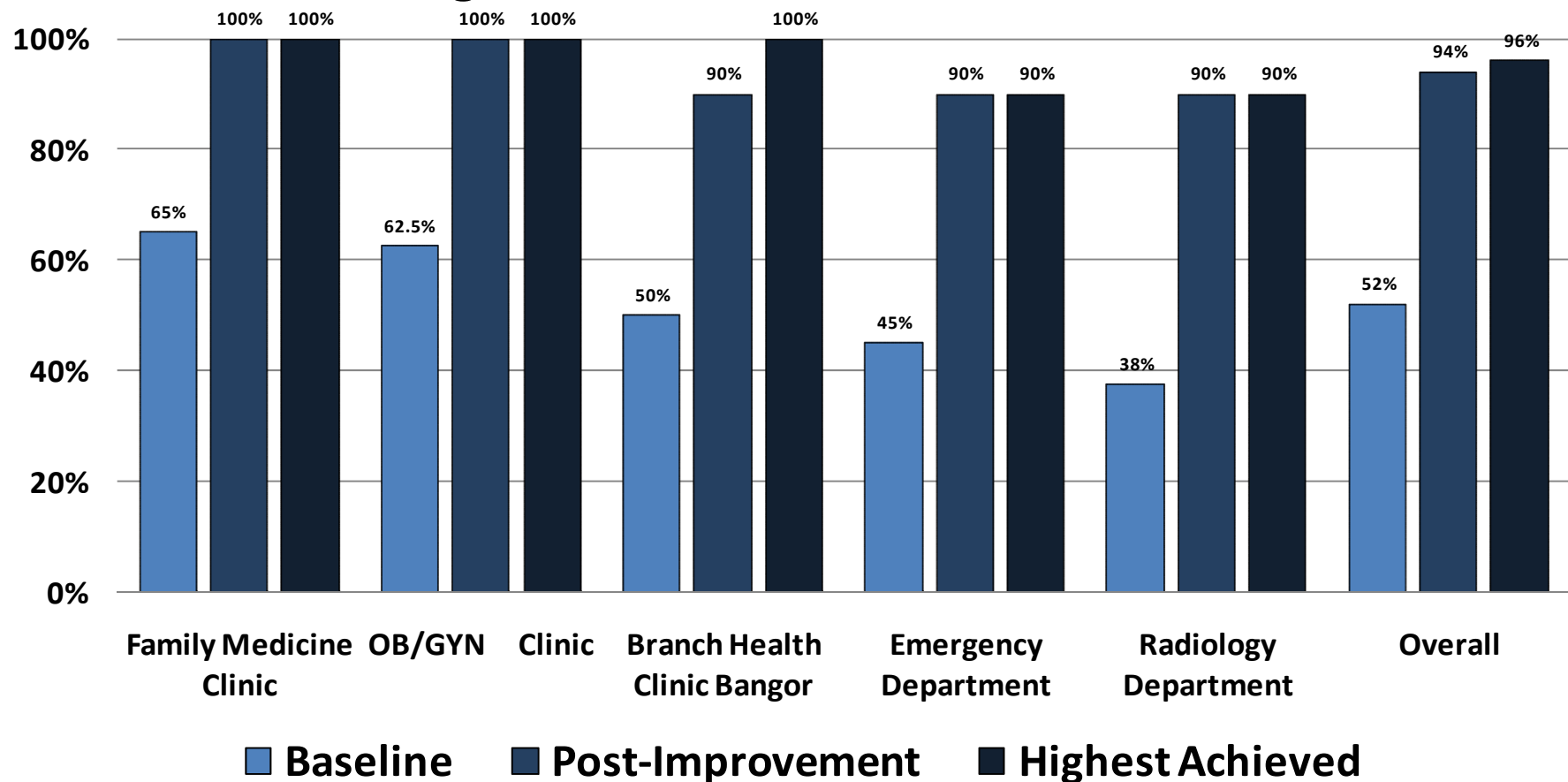
Failure Modes and Effects (Risk)		Baseline Risk				Risk Reduction	Revised Risk			
Process Step	Failure Mode & Effect	Sev	Occ	Det	RPN	Recommended Actions	Sev	Occ	Det	RPN
Disinfectant tested once daily in AM	Disinfectant not tested prior to each use, concentration ineffective	10	5	10	500	Test disinfectant prior to each use	10	1	10	100
3/4 of probe handle immersed in disinfectant	Probe partially immersed in disinfectant, contaminated area of probe not disinfected	5	10	5	250	Fully immerse probe handle and 12-18 inches of cord in disinfectant	5	1	5	25
Probe air-dried following disinfection	Bacterial growth encouraged due to delayed drying time, probe contaminated	5	5	10	250	Dry probe with sterile gauze following disinfection	5	1	10	50
Probe returned to exam room uncovered	Uncovered probe transported through clinic, probe contaminated	1	5	10	50	Cover probe with clean cloth for transport and storage	1	1	10	10
<b>Total</b>					<b>1050</b>					<b>185</b>



# Results



## Compliance Based on High-Level Disinfection Audit Tool





# Post Improvement



Obsolete wall unit removed,  
wall repaired

Test log

Posted  
instructions

High-level disinfectant  
containers (allow full  
immersion of probe and  
12-18 inches of cord, probe  
soaks for 12-60 minutes)

High volume rinse  
containers  
(~2 gallons,  
probe soaks in  
fresh water rinse  
for 1 minute x3)

Table added  
for counter space

Utility sink



# Benefits



- Improved compliance
- Decreased process variation
- Safer patient care environment
- Easily replicated in other clinical areas
- Successful use of LSS to improve patient care
- Team satisfaction
- Easily sustained

