

A National Program to Eliminate CLABSI

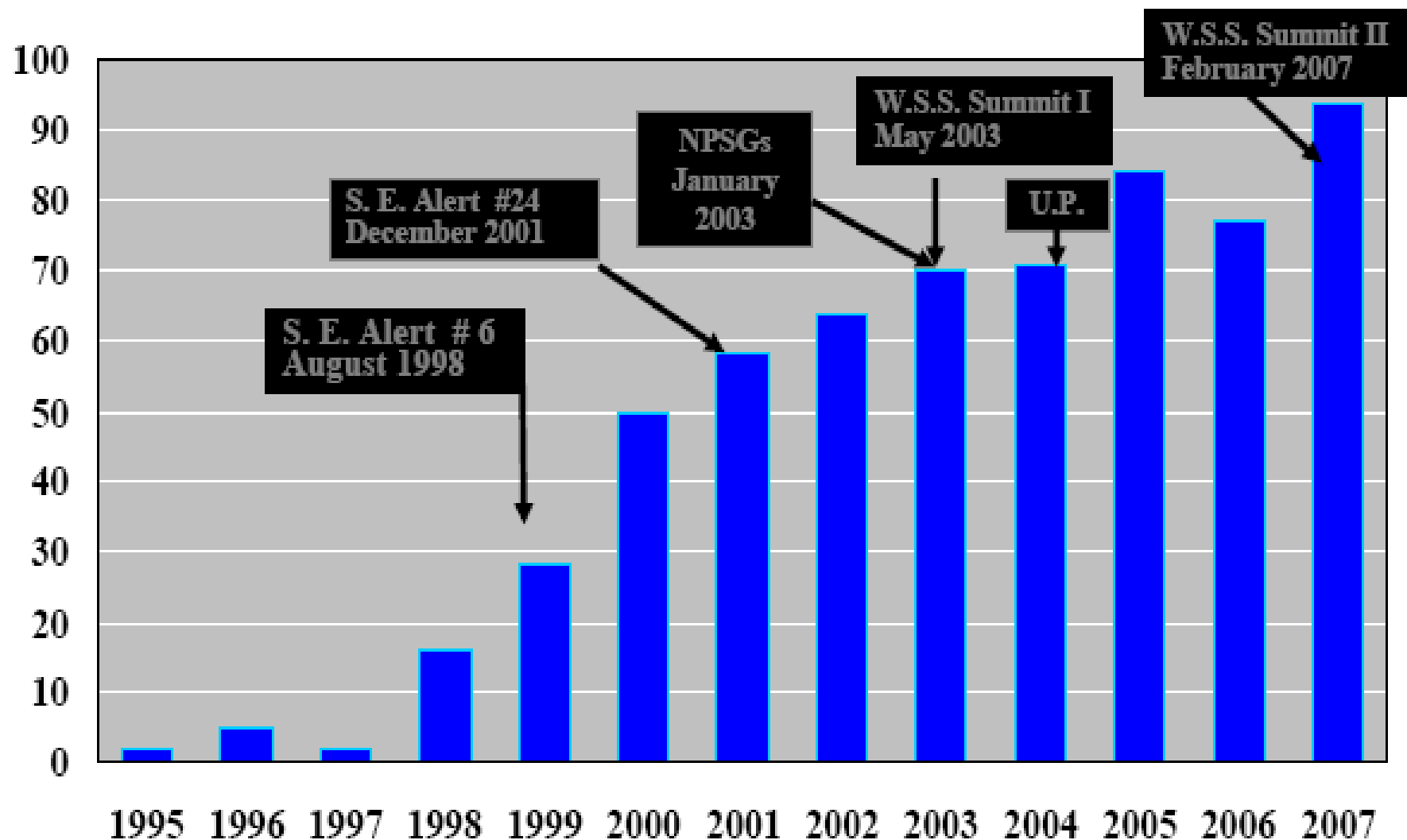
Peter Pronovost, MD, PhD

“Safe Patients Smart Hospitals”





Wrong-site Surgeries Reviewed by Year



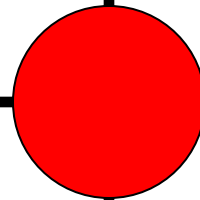


Regulatory

X

Scientifically
Sound

Feasible



Local Wisdom/Market

Measure

Have We Created a Safe Culture?
How Do We know We Learn
from Mistakes?

CUSP
Comprehensive Unit based
Safety program

1. Educate staff on science of safety
2. Identify defects
3. Assign executive to adopt unit
4. Learn from one defect per quarter
5. Implement teamwork tools

How Often Do we Harm?
Are Patient Outcomes
Improving?

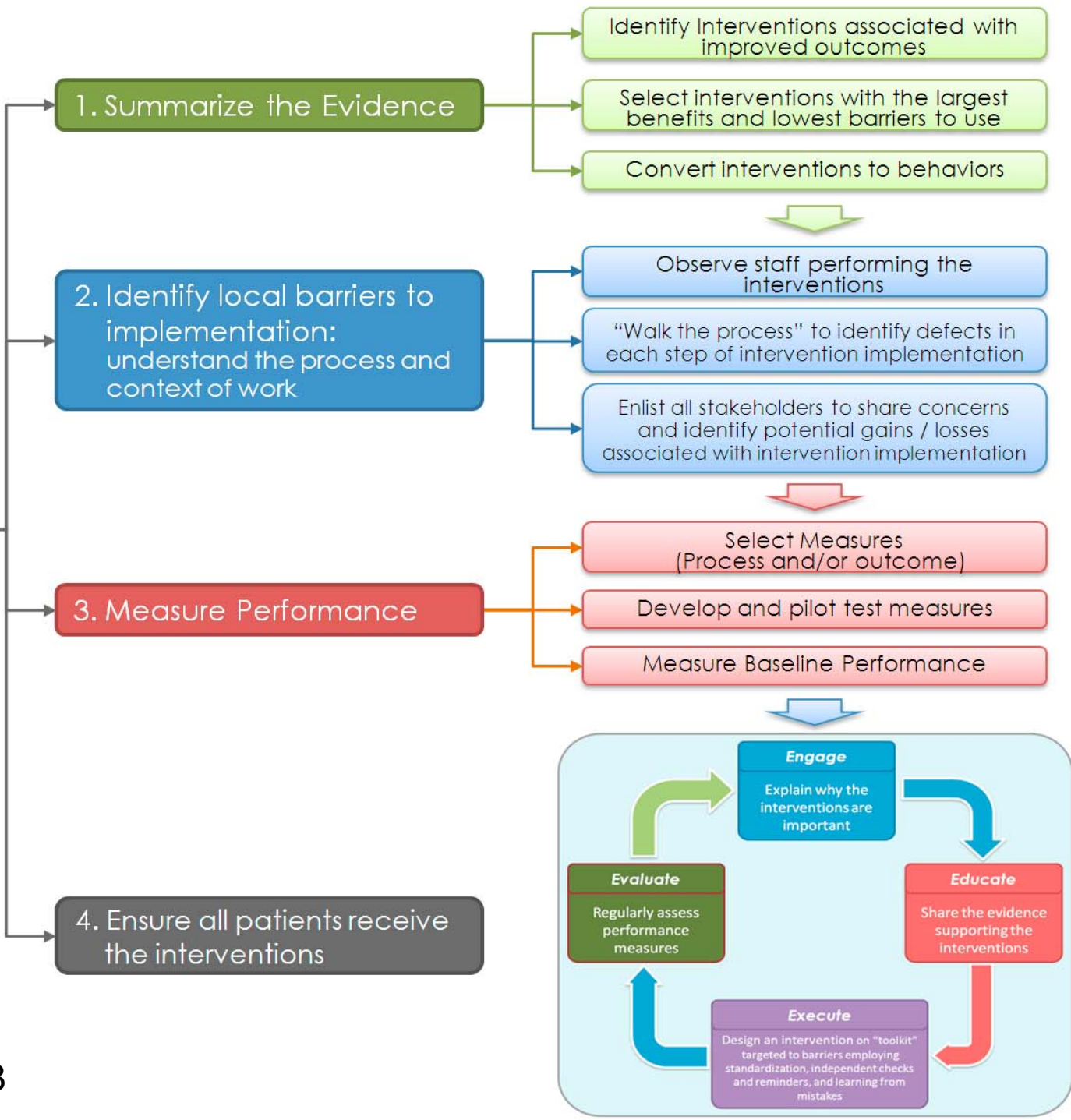
(TRiP)
Translating Evidence Into Practice

1. Summarize the evidence in a checklist
2. Identify local barriers to implementation
3. Measure performance
4. Ensure all patients get the evidence

IMPROVE

Translating Evidence into Practice

- Envision the problem within the larger health care system
- Engage Collaborative multi-disciplinary teams centrally (stages 1,2 & 3) and locally (stage 4)



Checklist to Prevent CLABSI

- Remove Unnecessary Lines
- Wash Hands Prior to Procedure
- Use Maximal Barrier Precautions
- Clean Skin with Chlorhexidine
- Avoid Femoral Lines

MMWR. 2002;51:RR-10

Identify Barriers

- Ask staff about knowledge
 - Use team check up tool
- Ask staff what is difficult about doing these behaviors
- Walk the process of staff placing a central line
- Observe staff placing central line

Ensure Patients Reliably Receive Evidence

	Senior leaders	Team leaders	Staff
Engage	<i>How does this make the world a better place?</i>		
Educate	<i>What do we need to do?</i>		
Execute	<i>What keeps me from doing it? How can we do it with my resources and culture?</i>		
Evaluate	<i>How do we know we improved safety?</i>		

Pronovost: Health Services Research 2006

Ideas for ensuring patients receive the interventions: the 4Es

- Engage: stories, show baseline data
- Educate staff on evidence
- Execute
 - Create line cart that contains all needed supplies
 - Empower nurses to stop takeoff
 - Learn from mistakes: review all infections as defects
- Evaluate
 - Feedback performance
 - View infections as defects

Partnership

- To help with 4Es, Partner with
 - ICU physician and nurses
 - Infection control staff
 - Hospital quality and safety leaders
 - Nurse educators
 - Physician leaders

ICU staff must assume responsibility for reducing CLABSI

Comprehensive Unit-based Safety Program (CUSP)

An Intervention to Learn from Mistakes and Improve Safety Culture

1. Educate staff on science of safety
<http://www.safercare.net>
2. Identify defects
3. Assign executive to adopt unit
4. Learn from one defect per quarter
5. Implement teamwork tools

Pronovost J, *Patient Safety*, 2005

Science of Safety

- Understand system determines performance
- Use strategies to improve system performance
 - Standardize
 - Create Independent checks for key process
 - Learn from Mistakes
- Apply strategies to both technical work and team work.
- Recognize that teams make wise decisions with diverse and independent input

Learning from Mistakes

- What happened?
- Why did it happen (system lenses)
- What could you do to reduce risk
- How to you know risk was reduced
 - Create policy / process / procedure
 - Ensure staff know policy
 - Evaluate if policy is used correctly

Pronovost 2005 JCJQI

Teamwork Tools

- Call list
- Daily Goals
- AM briefing
- Shadowing
- Culture check up
- TEAMSTepps

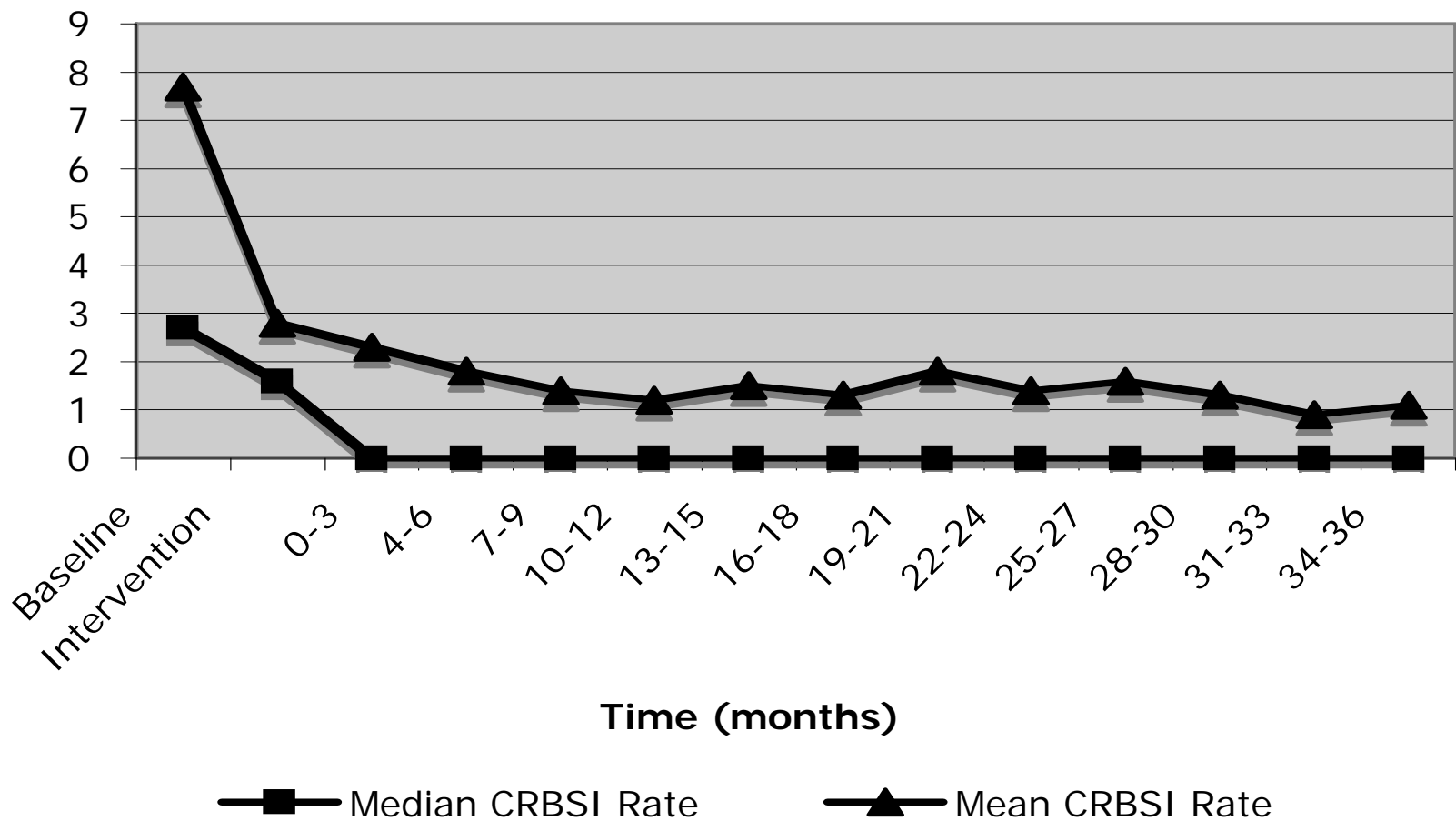
Pronovost JCC, JCJQI

CRBSI Rate Summary Data

Study Period	No. of ICUs	No. of In fections	Cathete r Days	Infection Rate		IRR (95 % CI)
				Median (Q1, Q3)	Mean (SD)	
Base line	55	2 (1, 3)	551 (220 , 1091)	2.7 (0.6, 4. 8)	7.7 (2 8.9)	Re fere nce
Dur ing Implementation	96	1 (0, 2)	447 (237 , 710)	1.6 (0, 4.4)	2.8 (4.0)	0.81 (0.61 , 1.0 8)
After Implementation						
Initia l Eva luati on Period						
0-3 mo	95	0 (0, 2)	436 (246 , 771)	0 (0, 3.0)	2.3 (4.0)	0.68 (0.53 , 0.8 8)
4-6 mo	95	0 (0, 1)	460 (228 , 743)	0 (0, 2.7)	1.8 (3.2)	0.62 (0.42 , 0.9 0)
7-9 mo	96	0 (0, 1)	467 (252 , 725)	0 (0, 2.0)	1.4 (2.8)	0.52 (0.38 , 0.7 1)
10-12 mo	95	0 (0, 1)	431 (249 , 743)	0 (0, 2.1)	1.2 (1.9)	0.48 (0.33 , 0.7 0)
13-15 mo	95	0 (0, 1)	404 (158 , 695)	0 (0, 1.9)	1.5 (4.0)	0.48 (0.31 , 0.7 6)
16-18 mo	95	0 (0, 1)	367 (177 , 682)	0 (0, 2.4)	1.3 (2.4)	0.38 (0.26 , 0.5 6)
Sustainabi lity Period						
19-21 mo	89	0 (0, 1)	399 (230 , 680)	0 (0, 1.4)	1.8 (5.2)	0.34 (0.23 , 0.5 0)
22-24 mo	89	0 (0, 1)	450 (254 , 817)	0 (0, 1.6)	1.4 (3.5)	0.33 (0.23 , 0.4 8)
25-27 mo	88	0 (0, 1)	481 (266 , 769)	0 (0, 2.1)	1.6 (3.9)	0.44 (0.34 , 0.5 7)
28-30 mo	90	0 (0, 1)	479 (253 , 846)	0 (0, 1.6)	1.3 (3.7)	0.40 (0.30 , 0.5 3)
31-33 mo	88	0 (0, 1)	495 (265 , 779)	0 (0, 1.1)	0.9 (1.9)	0.31 (0.21 , 0.4 5)
34-36 mo	85	0 (0, 1)	456 (235 , 787)	0 (0, 1.2)	1.1 (2.7)	0.34 (0.24 , 0.4 8)

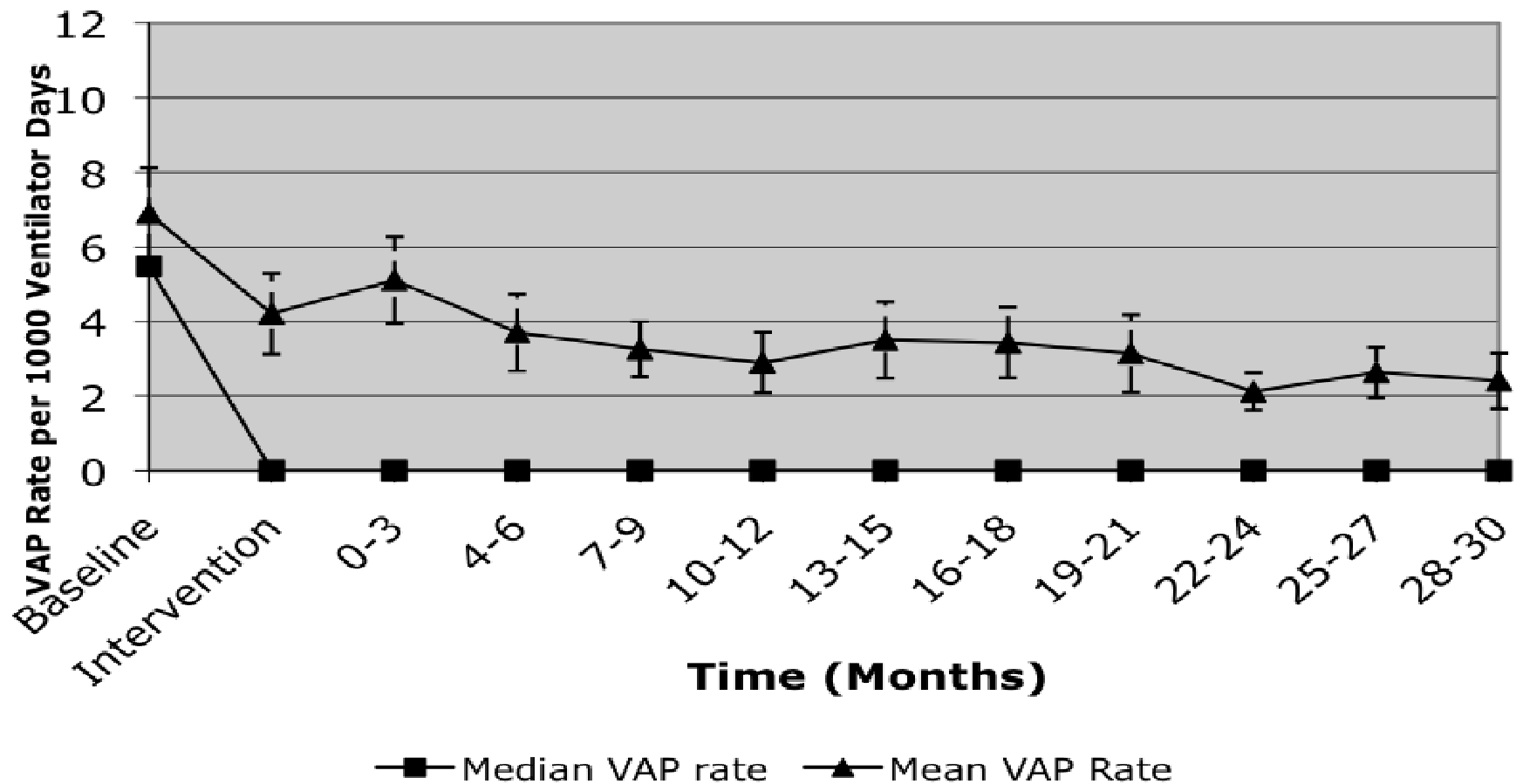
CRBSI Rate Over Time

Median and Mean CRBSI Rate



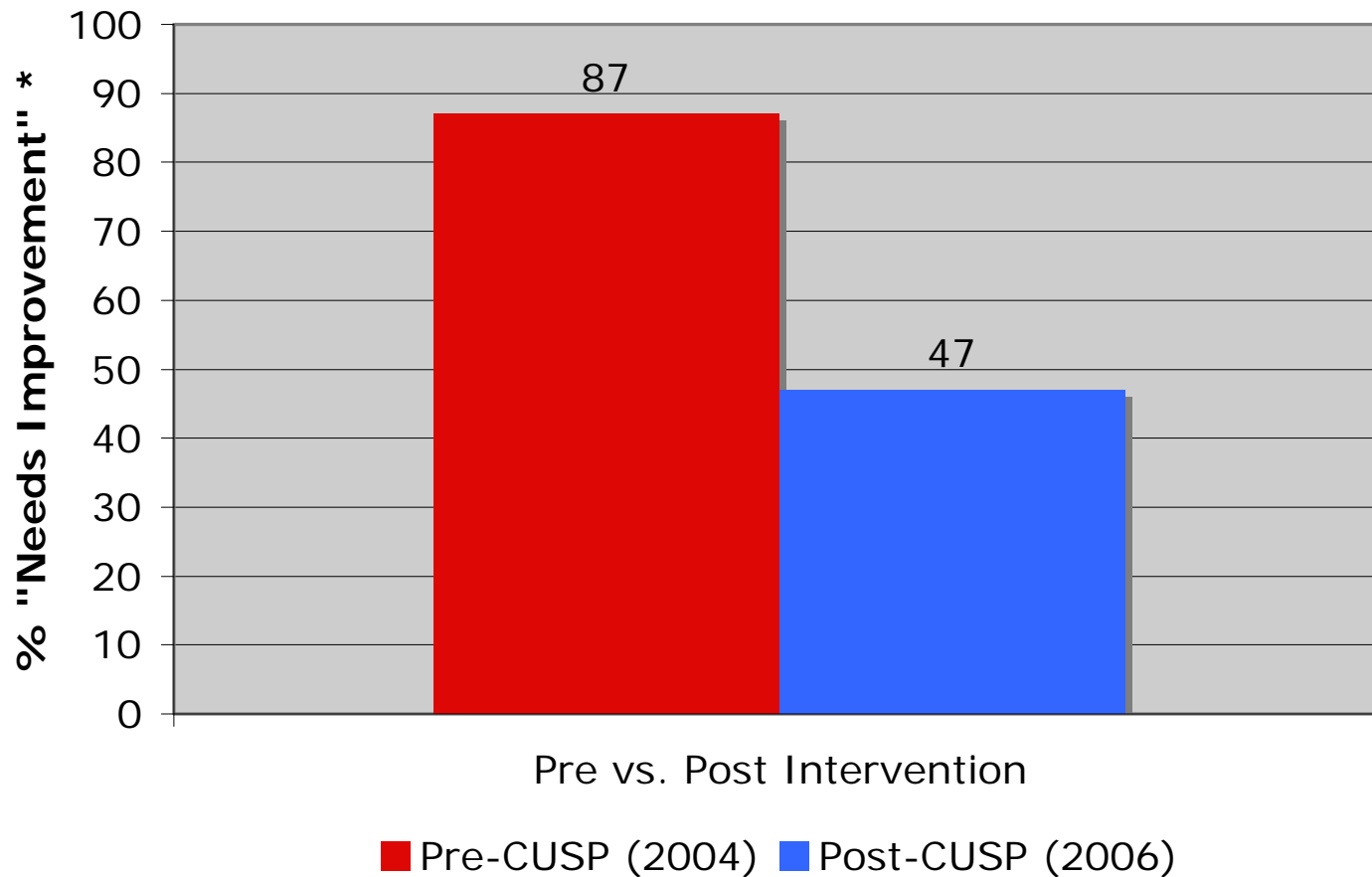
VAP Rate Over Time

Median and Mean Quarterly VAP Rate



Michigan ICU Safety Climate Improvement

Effect of CUSP on Safety Climate



* "Needs Improvement" - Safety Climate Score <60%

How to we move to level 4? 5 ?

Level 1	Enroll in program
Level 2	Implement the checklist or bundle but do not collect data on CLABSI or CLABSI rates remain high
Level 3	Culture change; junior nurse can stop a senior physician who does not comply with checklist when placing a catheter; and the interaction goes well
Level 4	Profound and Sustained reduction in CLABSI, Improvement in Culture, Joy in work
Level 5	Self sustaining; Develop new efforts that are just as effective

Action Plan

- Join your states effort to eliminate CLABSI – contact your state hospital association or email stopbsi@jhmi.edu to find contact person
- Meet with ICU team, infection control staff, quality and safety leaders, nurse educators and physician champions
- Understand barriers (walk the process)
- Use 4E grid to develop strategy to engage, educate, execute and evaluate

Focus and Execute





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