



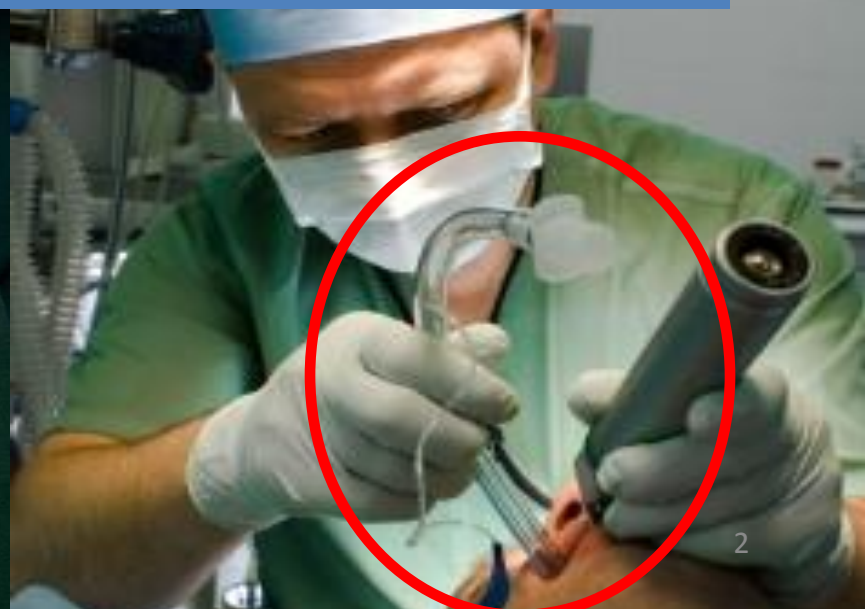
The impact of infection prevention bundles

FIDSSA Conference 2011
Joy Cleghorn

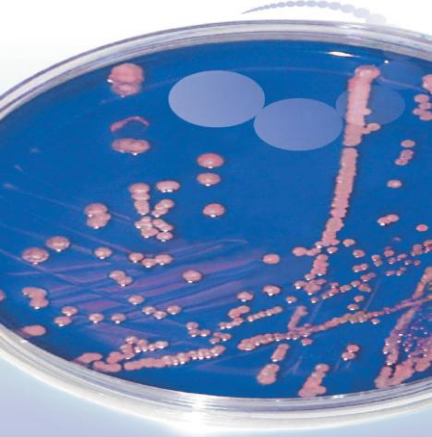
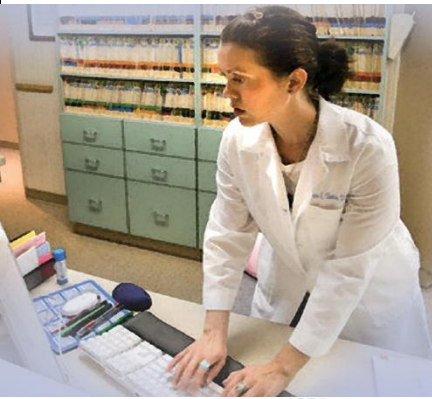


1 in 7 patients who enter SA Hospitals are at risk for developing an HAI

Brink A et al., *SAMJ* 2006; 96(7)



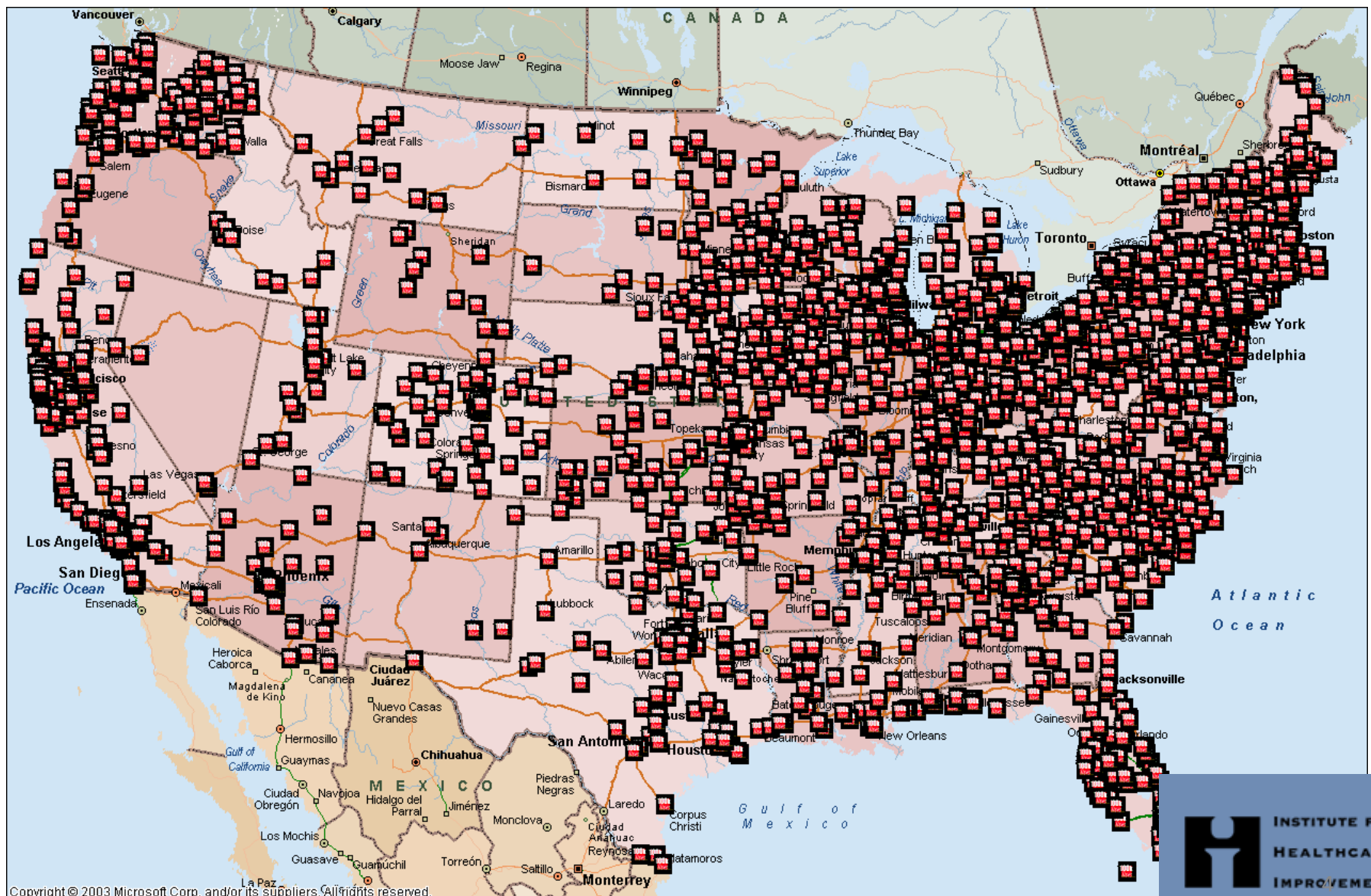
History



- Reducing infections is a challenge for all nations
- Make improvements and hold the gains over time
- Time to focus on areas that are high risk where we can make a difference



USA – over 3000 participating hospitals showed real improvements over a specified time period



The 10 SHN interventions

- AMI - Acute Myocardial Infarction
- CLI - Central-line associated Bloodstream Infections
- Falls - Falls Collaborative in Long-term care
- MedRec - Medication Reconciliation (Acute-care)
- MedRec - Medication Reconciliation (Long-term care)
- MRSA - Antibiotic-resistant organisms (AROs)/Methicillin-resistant *Staphylococcus aureus*
- RRT - Rapid Response Teams
- SSI - Surgical Site Infections
- VAP - Ventilator-associated Pneumonia
- VTE - Venous thromboembolism

Goal

Prevent ventilator-associated pneumonia (VAP) by implementing the four components of care called the "VAP Bundle".

Background

- Ventilator-associated pneumonia (VAP) is the leading cause of death among hospital-acquired infections. Hospital mortality of ventilated patients who develop VAP is 46% compared to 32% for ventilated patients who do not develop VAP¹
- VAP prolongs time spent on the ventilator, length of ICU stay and length of hospital stay after discharge from the ICU^{2,3}
- VAP adds an estimated US \$40,000 to a typical hospital admission⁴
- The incentive to reduce VAP is perhaps more on its ability to help decrease ICU and hospital LOS, and therefore, improve access to the system. Prevention of one VAP in the current Canadian Healthcare System could result in a minimum cost saving of \$14,000 per patient⁵

Intervention

Four key components for the VAP Bundle

- Elevate the head of the bed to between 30 and 45 degrees
- Daily "sedation vacation" and assessment of readiness to extubate by performing a spontaneous breathing trial
- Use oral versus nasal tubes to access the trachea or stomach
- Use EVAC tubes to drain subglottic secretions

Additional Evidence Based Components of Care

- Hand Hygiene
- Oral Decontamination
- Nutrition

Additional components of quality ventilator care

- Peptic ulcer disease prophylaxis
- Deep venous thrombosis prophylaxis

Compliance with the VAP bundle has been most successful when all elements are executed together as an "all or none" strategy⁵.

Intervention Measures

1. **VAP rate in ICU per 1000 ventilator days**
Goal: Decrease the VAP rate by 50% in one year
2. **VAP bundle compliance rate**
Goal: 95% of all patients on the mechanical ventilation in the intensive care unit(s) receive all four elements of the VAP bundle

Best care Always!

<http://www.bestcare.org.za>

A collaborative quality initiative for consistent best practice and patient safety

About us

Interventions

How to join

News and events

Links

Promote BCA

Contact us

The Opportunity

- What if a few simple interventions could markedly reduce serious adverse events in hospitalized patients?
- What if we already knew what those interventions are?
- What if we implemented all of them, always, on every eligible patient?

Quick Links

- [Join Best Care Always](#)

The Best Care ...Always campaign is patterned after innovative and successful international programs such as the Institute for Healthcare Improvement's (IHI) "100K lives" campaign, the Canadian "Safer Healthcare Now" initiative, and the World Health Organisation's World Alliance for Patient Safety. (see Links)

Campaign Overall Leadership

The "Best Care...Always" campaign is currently led by a representative National Task Team drawing from hospital groups and funders. A Panel of Academic and Clinical Experts is being established to serve in an overall advisory capacity.

Campaign Clinical Leadership

We are pleased to have the clinical leadership and partnership of the following organizations relating to the initial campaigns:

- Critical Care Society of South Africa
- FIDSSA (Federation of infectious diseases societies of SA)

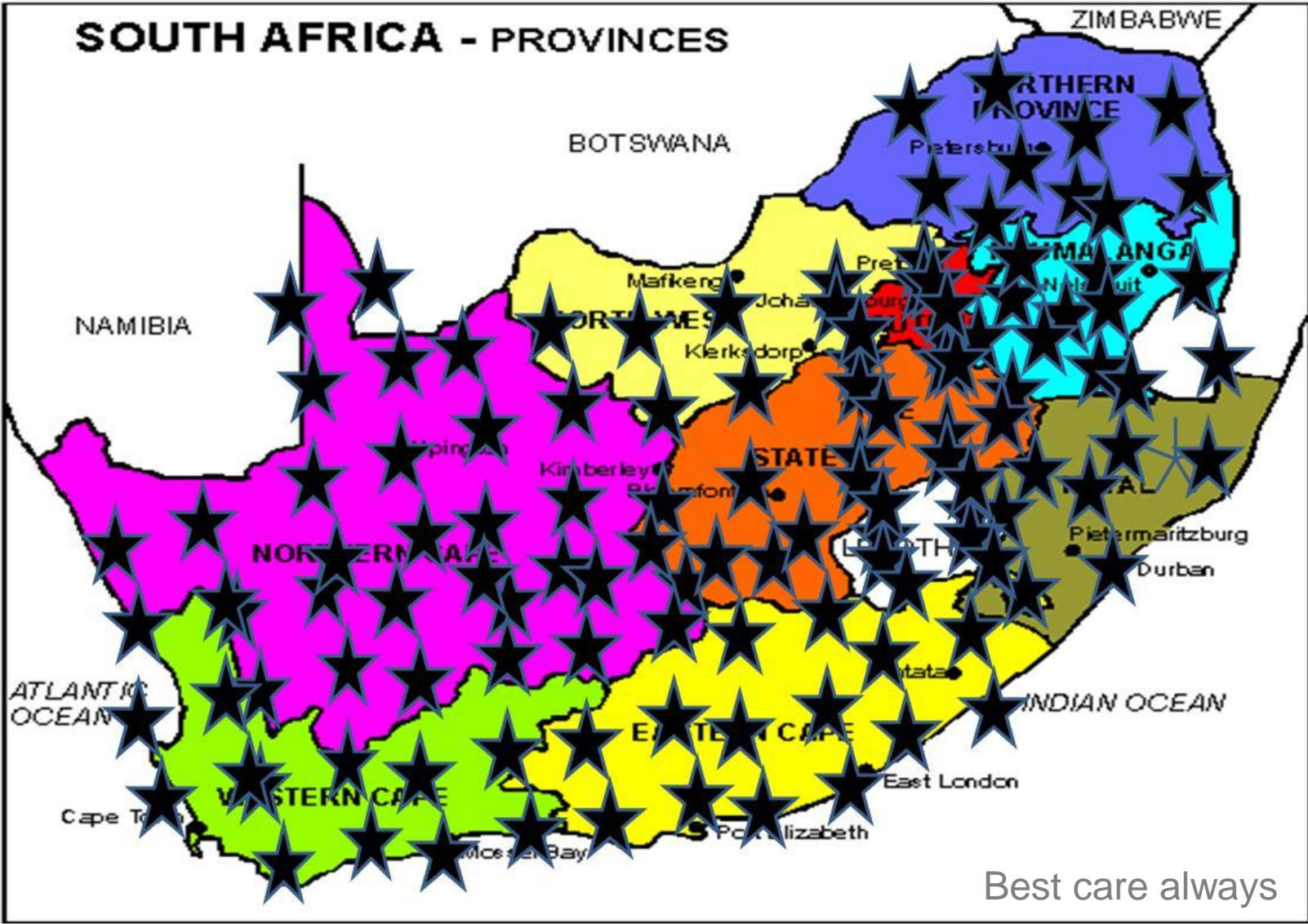
This concept will be expanded to other organizations as the campaigns are extended to other areas.

- Getting Started Kits
- Fact sheets
- Measurement information
- Newsletter, success stories
- Contact details

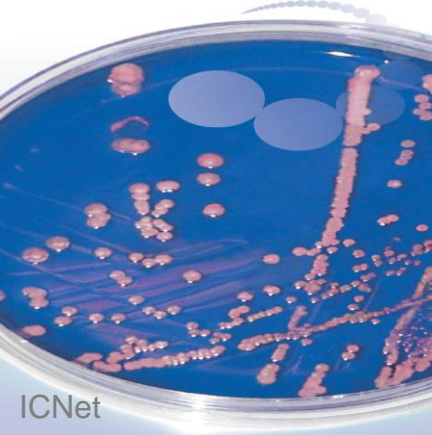
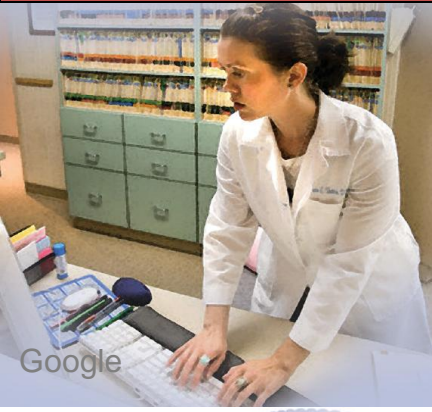


IHI INSTITUTE FOR
HEALTHCARE
IMPROVEMENT

BCA call is to bring about the first nation-wide South African collaborative improvement story



Opportunity



What if a few “simple” interventions could markedly reduce common, serious, adverse events in hospitalized patients?
What if we already knew what those interventions are?
What if we implemented all of them, always, on every eligible patient?

What is a bundle?



- A grouping of best practices with respect to a disease process that individually improve care, but when applied together result in improvement.
- The science behind the bundle is so well established that it should be considered standard of care.
- Bundle elements are dichotomous and compliance can be measured: yes/no answers.
- Bundles require “all or none” approach rather than piecemeal application.
 - *At the same time - recognize the complexity of care, acknowledge that further aspects of “best care” may exist and that the science behind best practice will continue to evolve over time*



Research on impact

www.bestcare.org.za

Bundle	Research on impact
Central line infection prevention	15% decrease in mortality rates
VAP prevention	30% decrease in mortality rates
SSI prevention	50% decrease in mortality rates
<i>Reduces the costs associated with treating infections and other complications</i>	



Began with 4 campaigns

1. **Prevention of central line infections (CLABSI)***
2. **Prevention of ventilator-associated pneumonia (VAP) ***
3. **Prevention of surgical site infection (SSI)***
4. **Prevention of catheter associated UTI's (CAUTI)**

What is measured in Life Healthcare

Compliance to infection related bundles

- Central Line Associated Bloodstream Infections (CLABSI)
- Ventilator associated pneumonia (VAP)
- Surgical Site Infection (SSI)
- Catheter Associated Urinary Tract Infection (CAUTI)

Infection rates

- SSI rates per 1000 theatre cases
- VAP rates per 1000 ventilator days
- CLABSI rates per 1000 line days
- CAUTI rates per 1000 catheter days

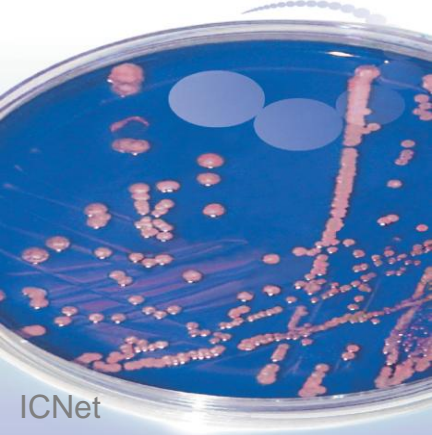
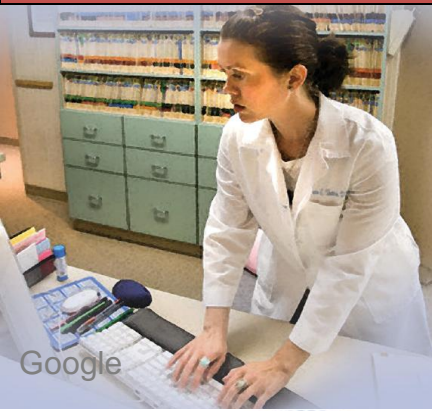


Impact of the 4 bundles



- Impact on the patient
- Impact on leadership
- Impact on staff
- Impact on systems
- Impact on statistics

Impact on the patient



- Improved clinical outcomes – gives us a level of comfort in knowing that a focus with additional time and effort will improve patient outcomes
 - Posters and discussion between doctors and staff as well as directly with the patient and family
 - Empowerment
 - Perceived care

Impact on Leadership

- Support and help drive this initiative.
- Pay attention, show a personal interest, seek out forward-thinking, change-oriented individuals and teach and empower them to make practice improvements.
- Encourage measurement to support improvement
- Support teams in achieving targets

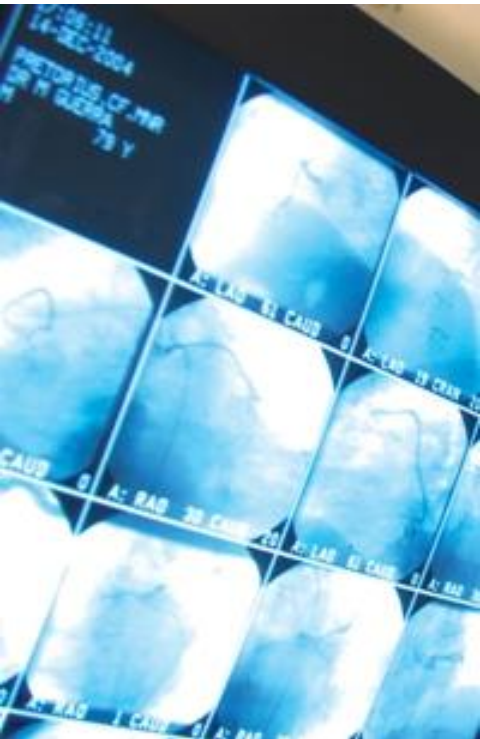
Impact on staff



- Pride of work
- Measurable
- IPS is focused on the facilities high risk areas (ICU's)
- IPS sometimes more visible
- Staff shortage – checklists assist in reminding staff about some key areas
- A country wide initiative is helpful – agency workers
- Sample audits
- Champions

- Bundles – at face value
- VAP e.g. Mouth care
 - Chlorhexidine – Strength
 - Devices
 - Lemonsticks and PH - alternatives
- Head of the bed raised to 30

Impact on systems



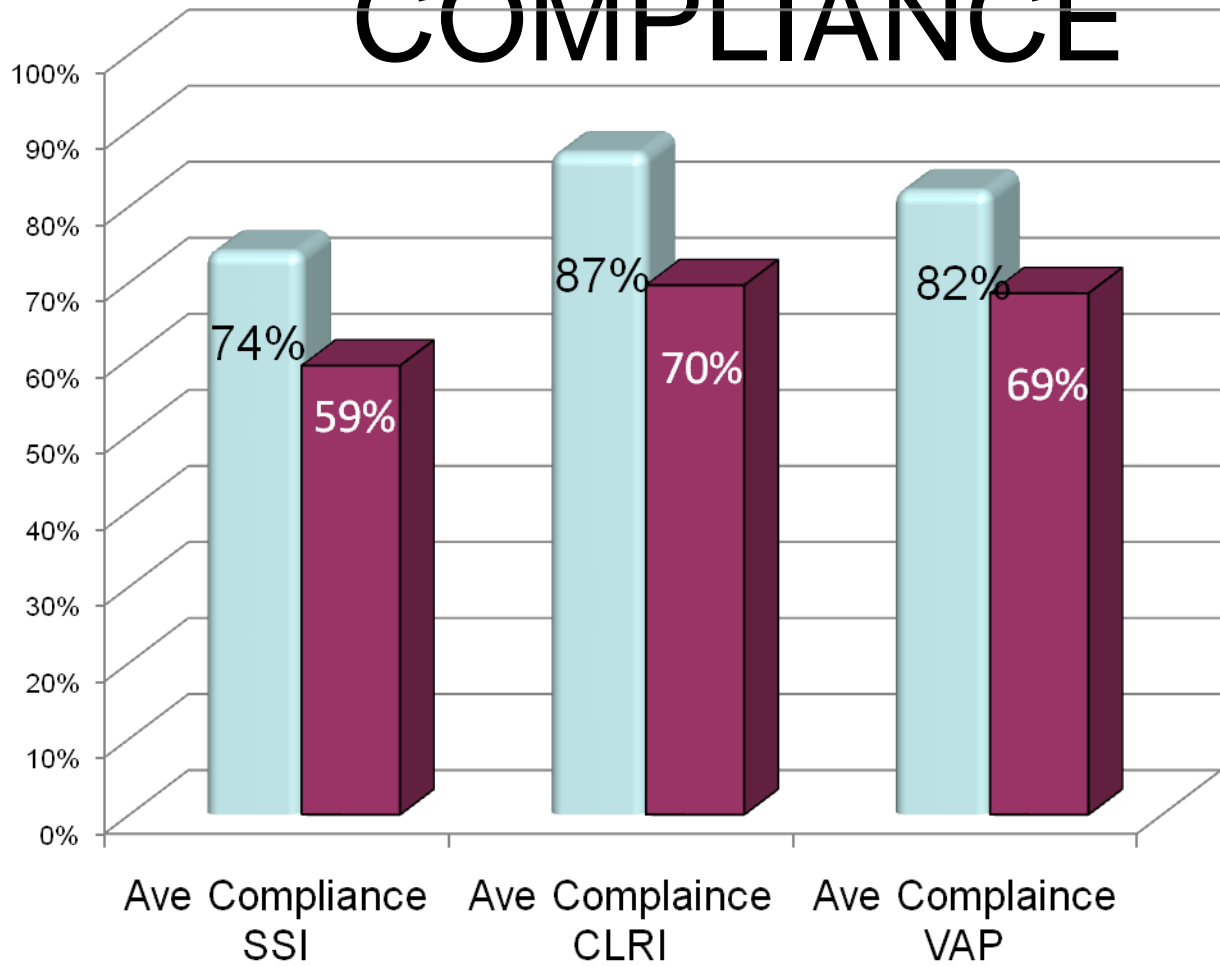
Surveillance system

Good but relatively old infection prevention IT system where laboratory results are manually captured onto the system - time and cost consuming
Emerging and resistant organisms have created the need for extended monitoring and reporting of HAI's

(The APIC Position paper outlines the benefits of automated surveillance):

- increase early detection of infections
- Streamline and facilitate efficient review of relevant data, promoting rapid identification of sentinel events and detection of outbreaks
- Action vs reaction

IMPACT ON INFECTION BUNDLE COMPLIANCE



Clinical Outcomes Improvement

Recommendations for Enhanced Compliance Reporting

Illustration of Calculation of % Compliance with SSI Bundle

	Hair not shaved	Antibiotics on time	Glucose maintained	Temperature maintained	% Compliance all interventions per patient
Observed patient 1	Y	N	Y	Y	80%
Observed patient 2	N	Y	Y	Y	80%
Observed patient 3	Y	Y	Y	Y	100%
Observed patient 4	N	Y	Y	Y	80%
Observed patient 5	Y	Y	Y	Y	100%

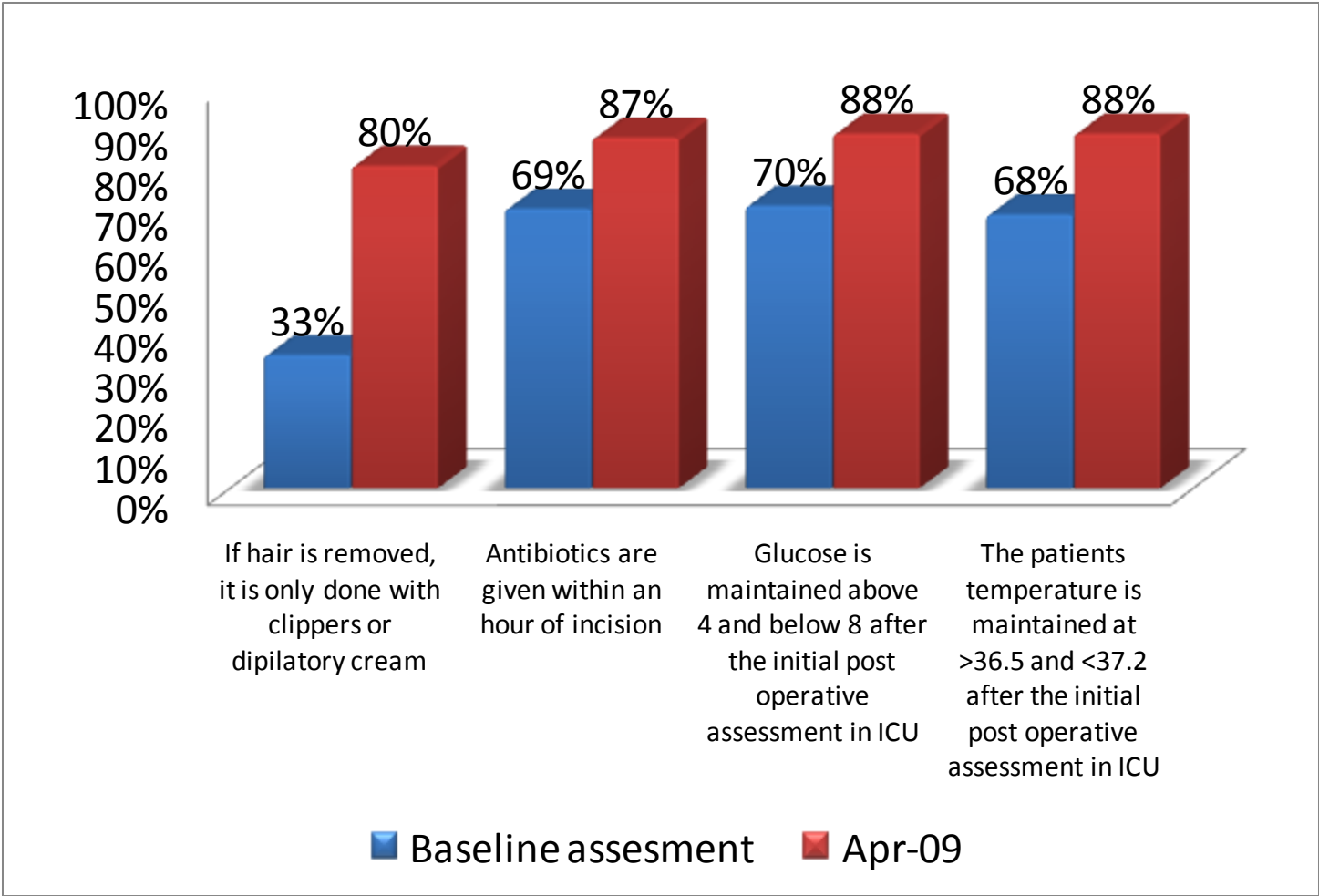
% Compliance with specific intervention across patients	60%	80%	100%	100%
---	-----	-----	------	------

Reported Bundle Compliance of 85%: Currently we calculate and report bundle compliance by taking the **average of observed compliance to each component** of the bundle

In terms of **enhancing our reporting on compliance with clinical outcomes bundles**, it would also be important to **understand the proportion of patients where all bundle interventions are carried out** (i.e. 50% in the above example). We do not currently measure/ report on this dimension of compliance.

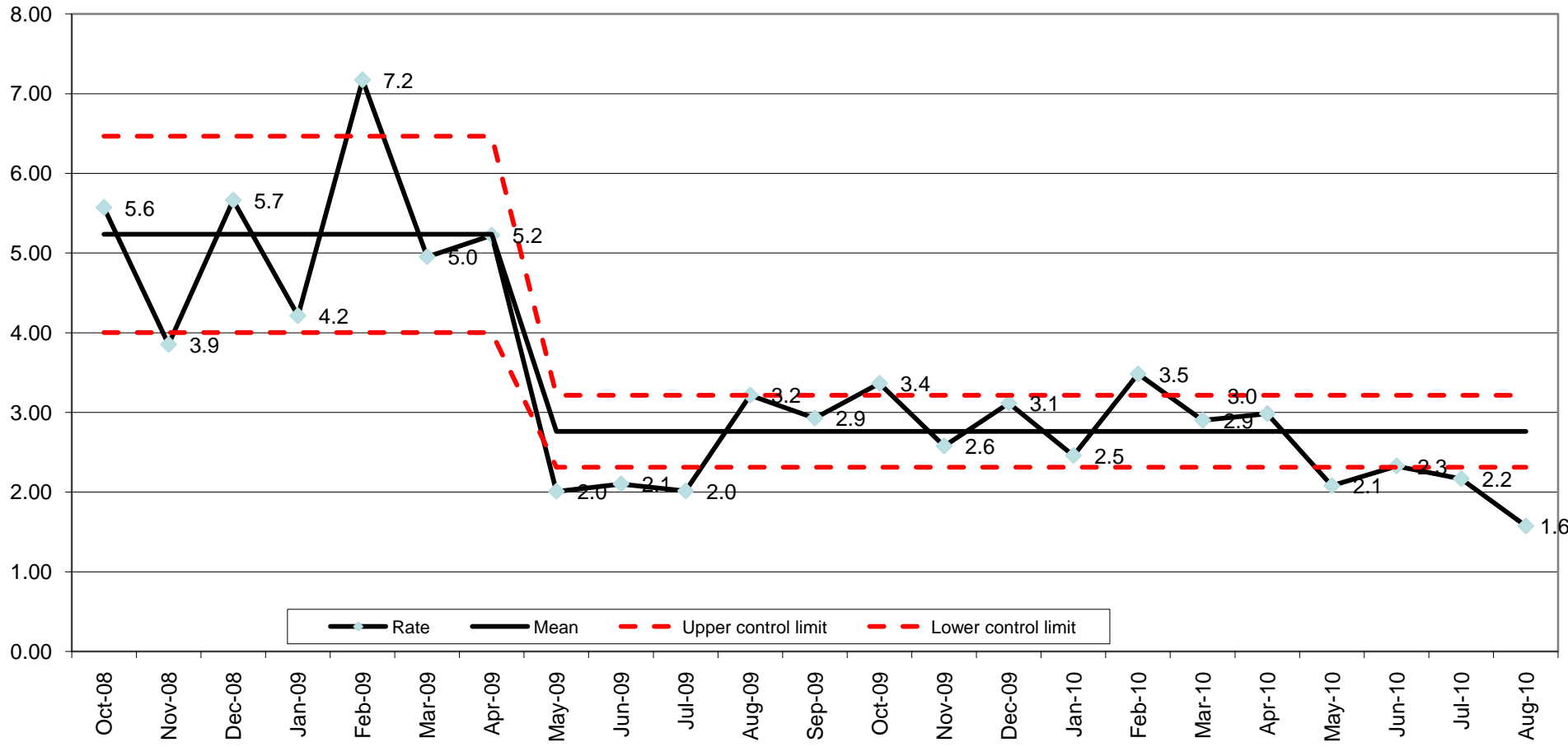
Farai Shonhiwa

Infection bundle Compliance - SSI



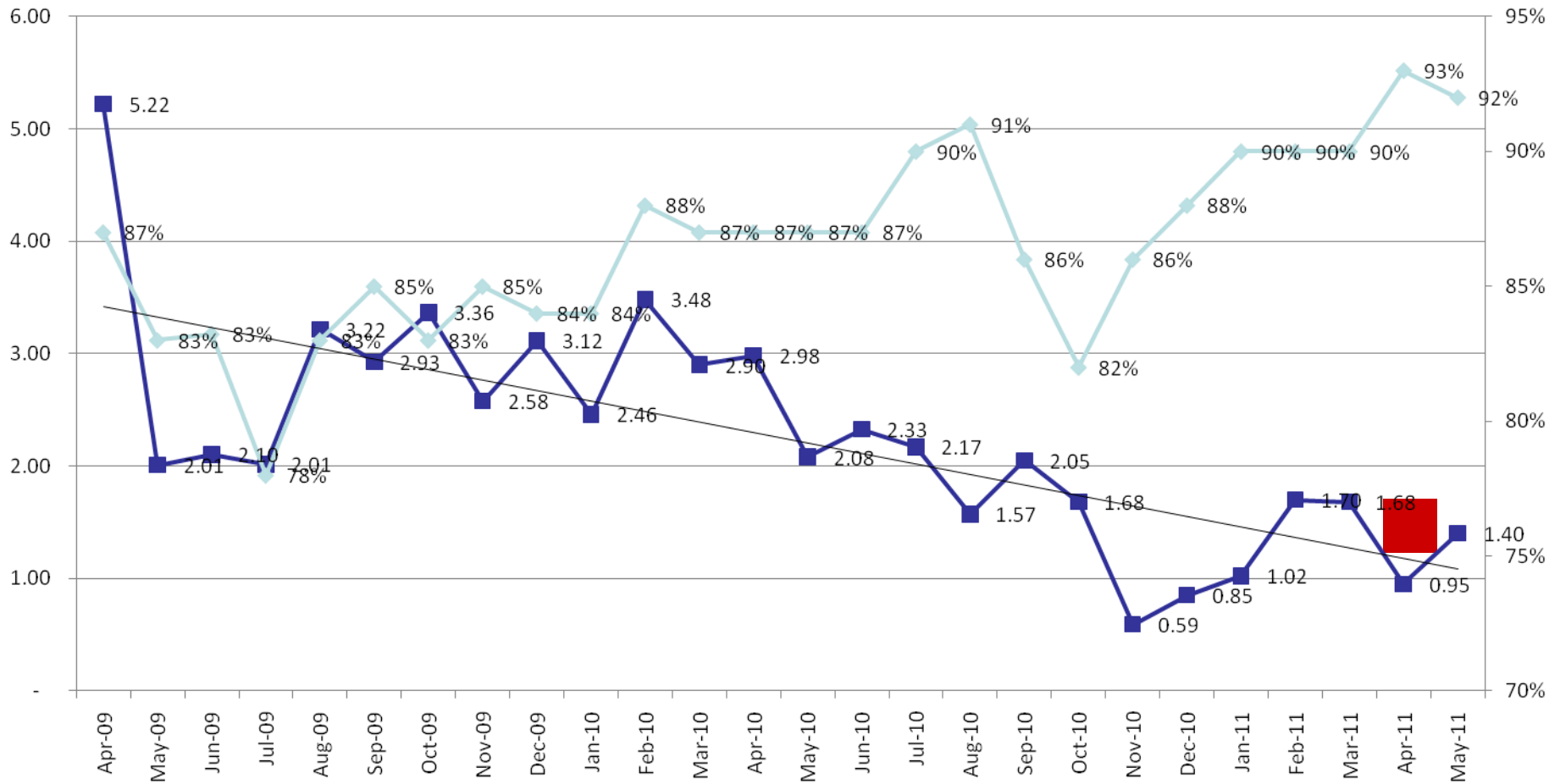
BUT does it work - CLABSI

Life Healthcare : Acute Care
CLABSI Rate per 1000 CL Days
FY 09 - FYTD as at Aug-10
N=40 hospitals



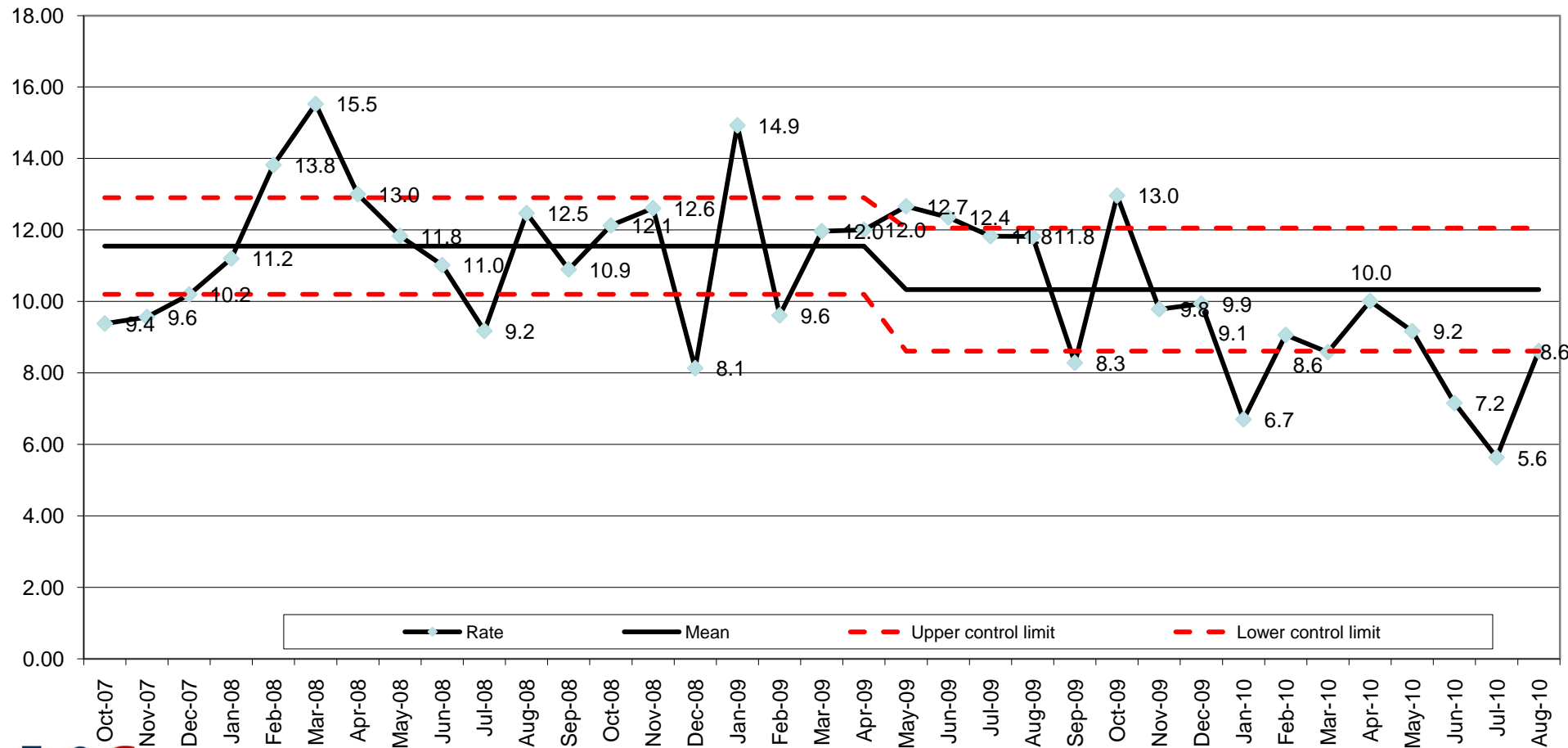
Compliance – CLABSI improvement work example

Central Line Associated Blood Stream Infections - Bundle Compliance and Infection Rate



VAP quality improvement work

Life Healthcare : Acute Care
 VAP per 1000 ventilator days
 FY 08- 09 - FYTD as at Aug -10
 N=40





The impact of infection prevention bundles

Easy to implement?

Not always

Worthwhile?

Definitely