

# HCA JOURNEY

## The Road to Excellence



Ed Septimus, MD, FACP, FIDSA, FSHEA

Medical Director Infection Prevention and Epidemiology

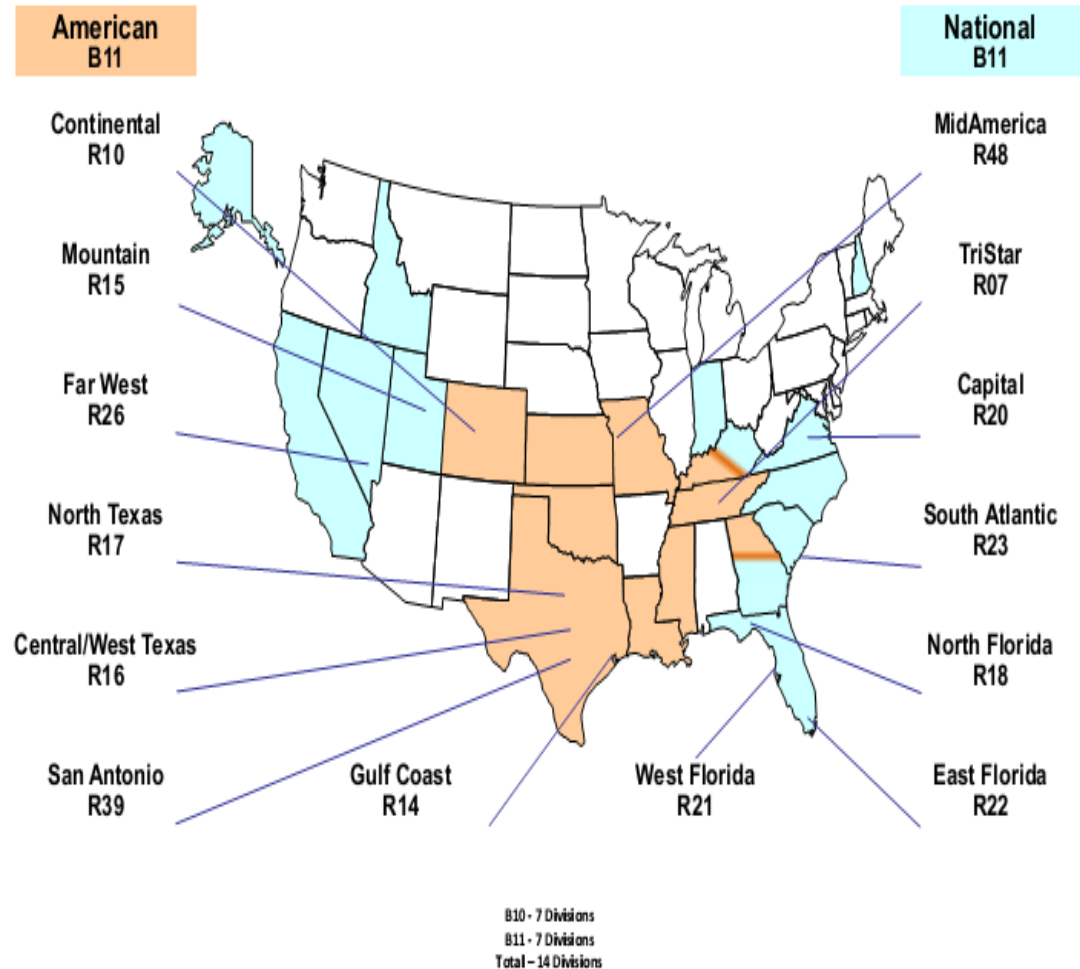
Professor Internal Medicine Texas A&M

Professor, Distinguished Senior Fellow, School of Public Health, George Mason

# AGENDA

- Overview of HCA
- Review highlights of the HCA journey
- Corporate infrastructure and standardization
- Implementation strategies
- HCA partners

# HCA Overview



➤ Accounted for approximately 5% of major hospital service in U.S.:

- Admissions > 1.5 million
- Patient Days > 7.6 million
- Deliveries > 0.23 million
- Total Surgeries > 1.3 million
- ED Visits ~ 6 million

- 163 hospitals , 106 freestanding surgery centers, and >400 physician practices in 20 states and England
- Hospitals range from complex tertiary referral & academic medical centers to urban and suburban community medical centers
- ~ 194,000 employees
- 45,000 affiliated physicians
- More than 38,000 licensed beds
- ~ 150,000 Health Care Workers

# HCA Infectious Diseases Journey

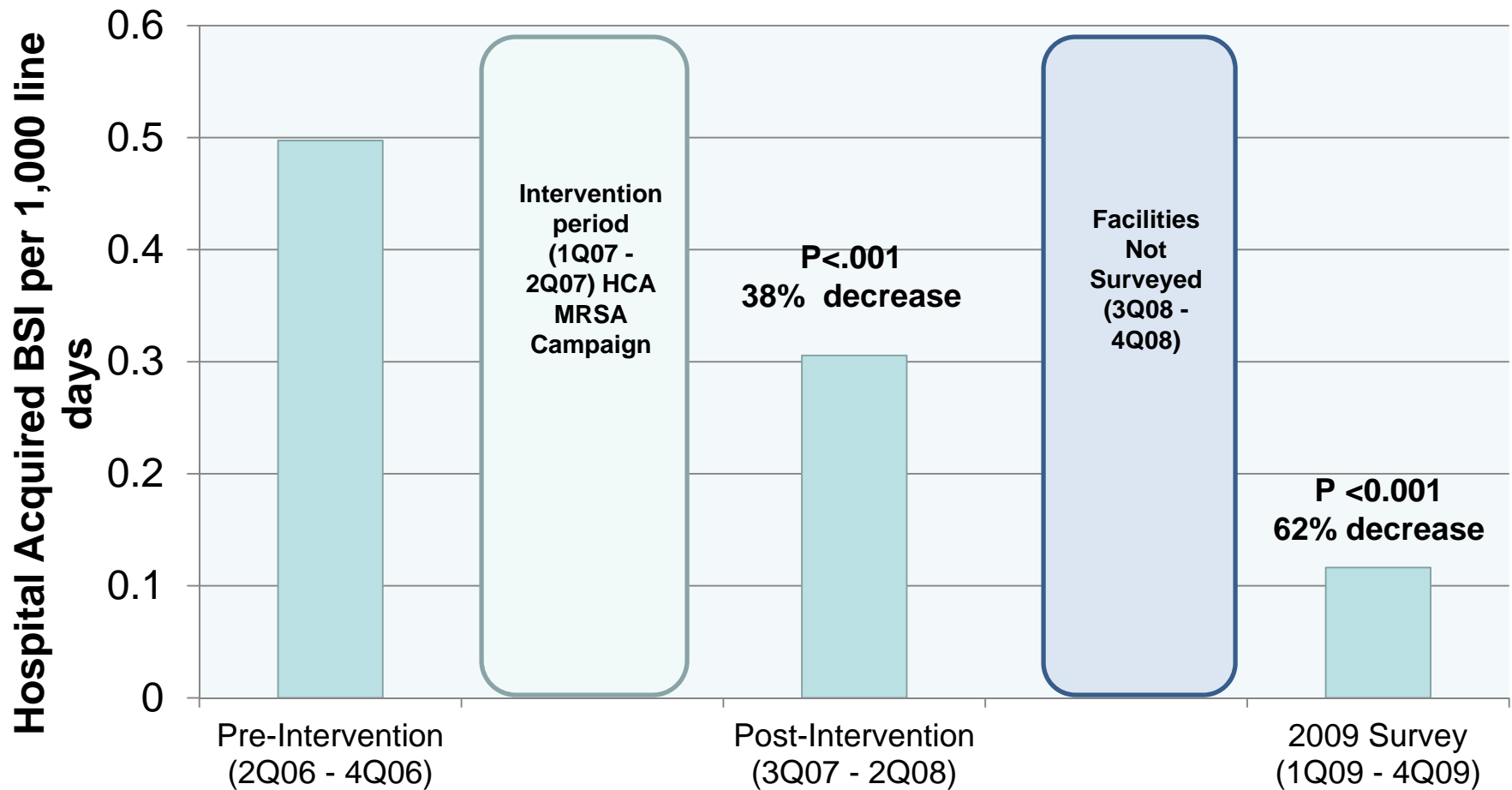
- ABCs MRSA
- CAUTI Bundle
- ABCs *Clostridium difficile*
- Influenza Vaccination of HCWs
- AIM for ZERO
- Antimicrobial Stewardship
- Sepsis
- Clinical Research Agenda

# HCA's MRSA Solution: The A,B,Cs...

- **A**ctive Surveillance of high risk patients
- **B**arrier Precautions
- **C**ompulsive Hand Hygiene
- **D**isinfection / Environmental Cleaning
- **E**xecutive Championship



## Reduction in Healthcare-Associated MRSA Central Line Associated Blood Stream Infections in Adult ICUs



# ***C. Difficile “Bundle”***

**A**ntimicrobial Stewardship

**B**arrier precautions

**C**ompulsive hand hygiene

**D**isinfection of environment

**E**xecutive ownership

# HCA C. difficile Outcomes 2008-2011

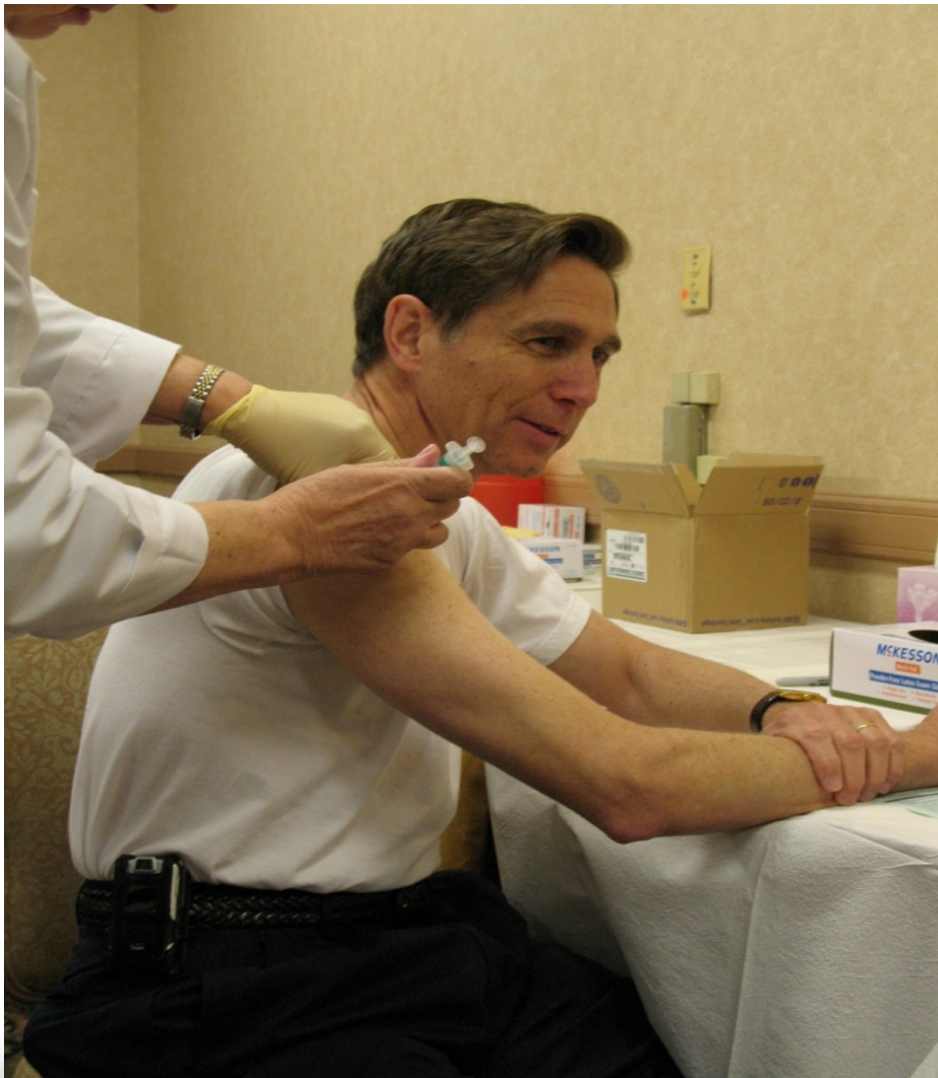
*ICD9 Coding is a surrogate marker for surveillance*

*Dubberke et al Emerg Infect Dis 2006; 12 (10)*

Metric or Practice	2008 Pre Average (Range)	2009 Post Average (Range)	2010 Post Average (Range)	2011 Post Average (Range)
Total Surveillance Cases*	<b>NA</b>	<b>14.8</b> <b>(0-39.8)</b>	<b>15.1</b> <b>(0-44)</b>	<b>15.4</b> <b>(0-63)</b>
Total ICD-9-CM 008.45 data* POA indicator = all	18.4 (0.5- 50.2)	17.6 (0.4-47.1)	18 (0-55)	<i>Pending</i>
HO-HCFA+ CDI Cases*	<b>5 to 6</b> <b>(0-26)</b>	<b>4.6</b> <b>(0-11.3)</b>	<b>4.3</b> <b>(0-13.4)</b>	<b>4.2</b> <b>(0-21)</b>
ICD-9-CM 008.45 coding data* and POA indicator =No	5.5 (0-13.9)	5.0 (0-15.5)	5.1 (0-19.4)	4.7 (0-25.5)
Percent Recurrent Cases	NA	7%	7%	6.5%



# Influenza Vaccination of HCWs



# HCA ILI BUNDLE

- **Healthcare Workers**

- Seasonal flu vaccination\*
- Stay home when ill
- Select appropriate PPE when caring for known or suspected flu cases
- Appropriate use of antiviral medications

- **Patients**

- Early recognition, separation, and droplet precautions for suspected or confirmed cases
- Effective antiviral medications

- **Everybody**

- Compulsive hand hygiene
- Compulsive respiratory etiquette

\*for HCWs who cannot take influenza vaccine, surgical masks .

A POSITIVE indication for TB/Respiratory Point of Entry Screen requires TB/Respiratory Intervention.

Y = Yes

N = No

Pt reports prior history of TB or positive TB skin test? ☐ N

Close contact with a person who has TB? ☐ N

Close contact with any person having an Influenza-like Illness? ☒ Y

TB Point of Entry Screen:

☒ NEGATIVE

Contagious Respiratory Infection Point of Entry Screen-

☒ POSITIVE

Mask applied, patient isolated, and receiving unit/department notified? ☐

Is Patient Present? ☒ Y

Able to perform TB & Contagious Respiratory Infection Point of Entry Screen ☐

Reason-

Is patient currently experiencing any of following in last 7 days:

Y = Yes

N = No

Answer N if patient is not physically in front of you or on the phone

Fever greater than 100.4? ☐ (37.8 C)

Cough? ☐ (not related to allergy or COPD)

Persistent Cough greater than 3 weeks? ☐

Cough with blood produced? ☐

Sore Throat? ☐

Night sweats? ☐

Unexplained weight loss? ☐

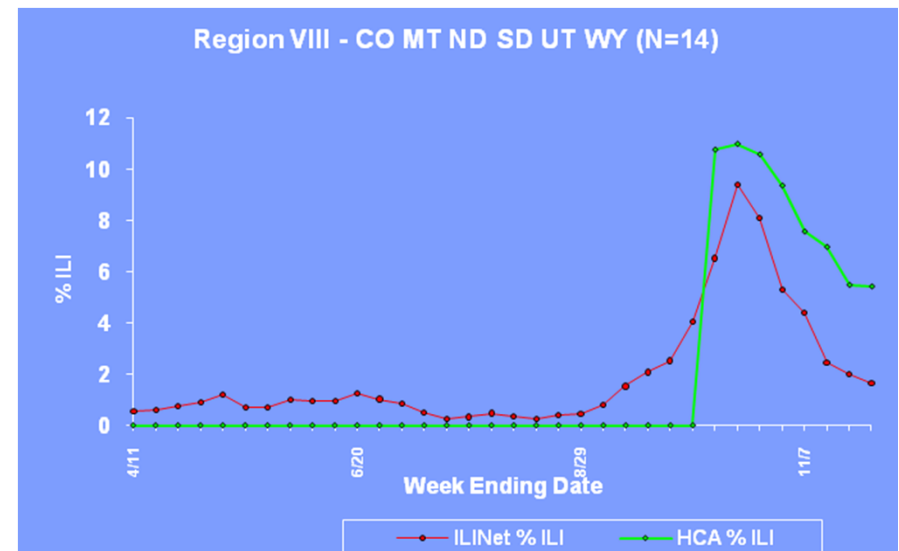
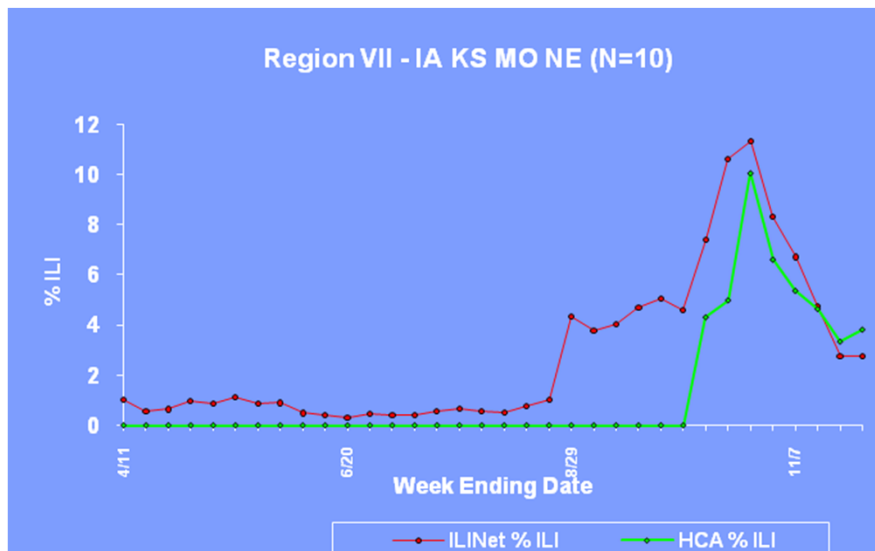
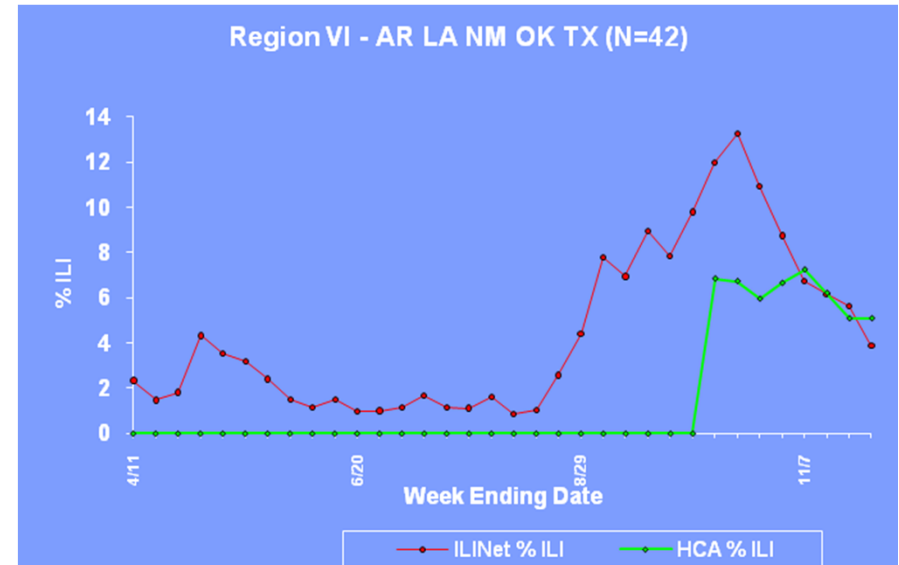
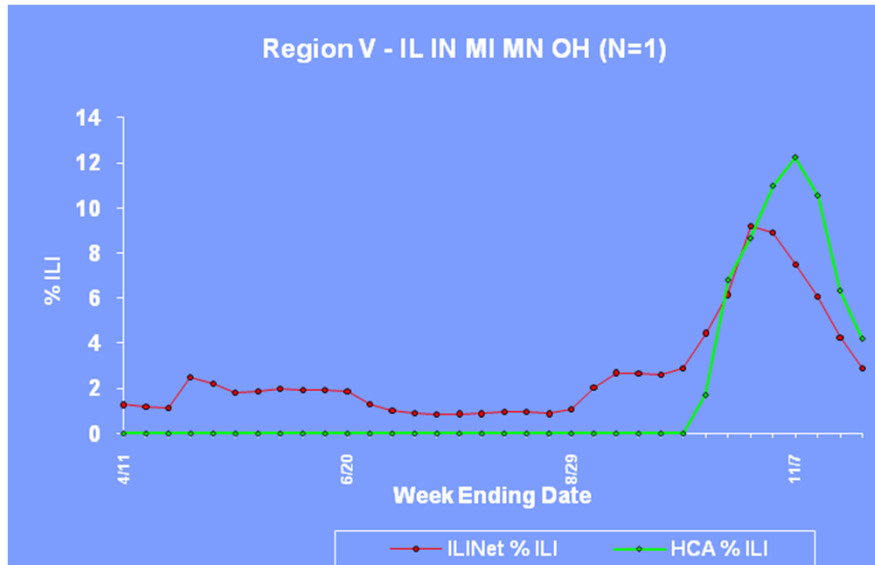
Fatigue? ☐

Body Aches? ☐

Rash? ☐

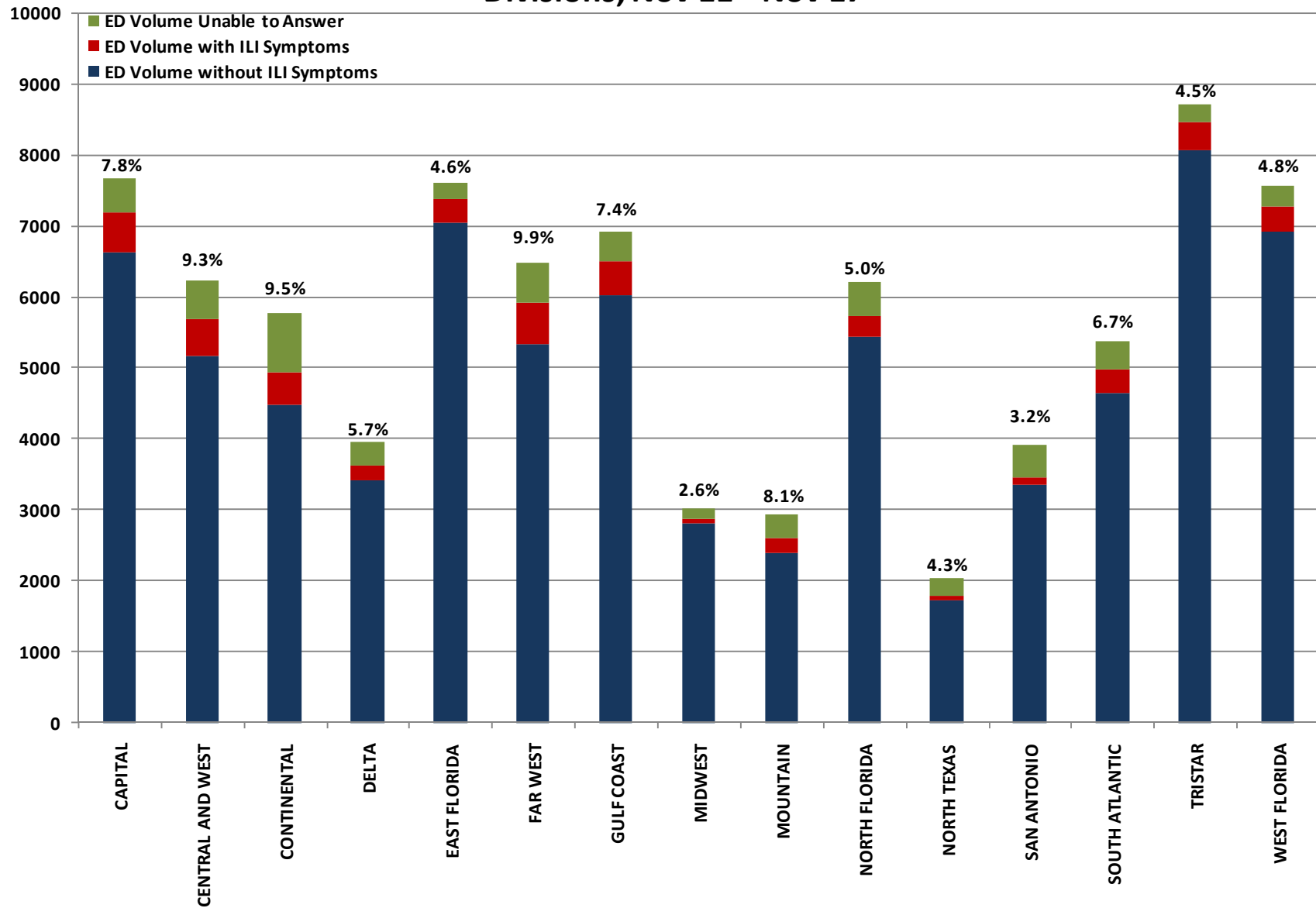
Nasal Congestion (not related to allergies or sinus infections)? ☐

# ILINet %ILI vs. HCA %ILI: April 5 to November 28, 2009



IDSA 2010

## Divisions, Nov 11 - Nov 17



\*Percentages listed are ED volume with ILI symptoms divided by (ED Volume with ILI Symptoms + ED Volume without ILI Symptoms)

**Table: Seasonal Influenza vaccination rate and reasons for declination, 2009-2011\*\***

	For season starting in		
	2009*	2010	2011
Influenza Vaccination Rate (total)	94.7%	90.7%	92.3%
Influenza Vaccination Rate (clinical employees)	95.5%	91.9%	93.0%
Number of employees (total)	161,601	176,594	176,919
Number of clinical employees	109,209	121,656	124,588
Number of Declinations (all)	8,478	16,270	13,520
Reasons for Declination (%):			
Allergy	706	823	1,014
Contraindicated	376	403	521
Fear	231	576	702
Pregnancy	76	101	101
Religion	164	351	463
Other/No Reason	6,925	14,016	10,719

# Reducing Central Line Associated Bloodstream Infections



**A** = Antimicrobial  
Stewardship

**I** = Insertion Bundle  
Practices

**M** = Maintenance  
Bundle Practices  
including timely  
removal



# Why AIM for Zero will Surpass Keystone

- Permanent culture change to zero tolerance for all HAIs including CLABSIs
- Includes maintenance bundle in addition to insertion bundle
- Bundles applied house wide not just in ICU
- Involves over 20 states not just one
- Education, Competency and Privileging of Staff, Physicians and LIPs [Licensed Independent Practitioners]
- Strong clinical and executive leadership





# Central Line/PICC Maintenance and Removal



Y=Yes -Washed/sanitized hands immediately prior to maintenance  
N=No -Dressing clean, dry and intact  
-Stabilization device in place and effective  
-Assess external length to determine if movement has occurred  
-If insertion site visible, assess for signs & symptoms of complications  
-Disinfect hub with 70% Alcohol or Chlorhexidine + 70% Alcohol and evaluate line patency  
-Change add-on devices (e.g. hub & administration sets) per hospital policy

Left Basilic Vein- CVC - Single lumen cath  
Left Basilic External Line Length(cm)>   
Line maintenance performed today>   
Has the necessity been reviewed?   
Dressing changed:  Changed  
Dressing Type-   
Dressing Date:  Dressing Time:   
CVC or PICC line removed-   
Date removed:  Time removed:   
Comments:

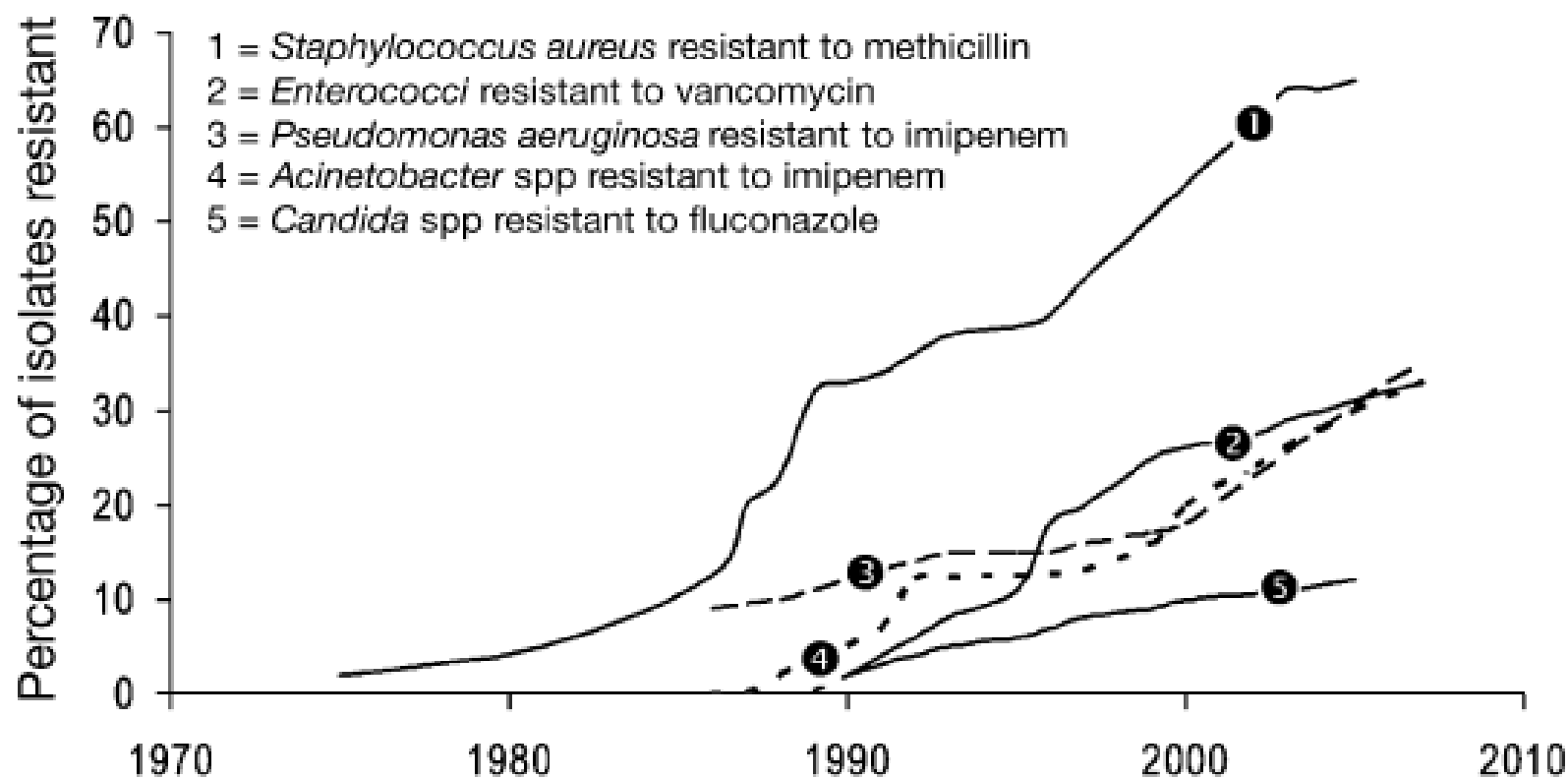
# Antimicrobial Management AMP

**WE HAVE MET THE ENEMY  
AND HE IS US**

Walt Kelly

## **A Call to Action**

# Antimicrobial Resistance for Selected Pathogens over Time



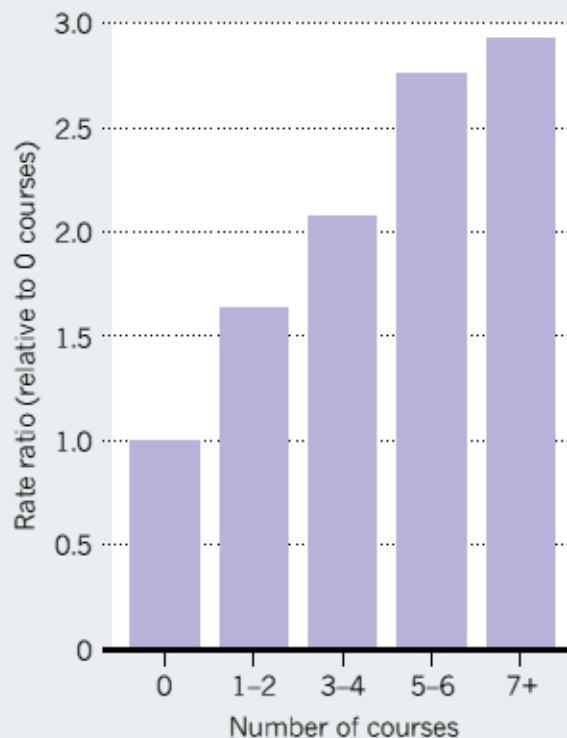
# Stop the killing of beneficial bacteria

Concerns about antibiotics focus on bacterial resistance — but permanent changes to our protective flora could have more serious consequences, says **Martin Blaser.**

*Nature* 2011;476:393

## TROUBLING CORRELATION

The risk of inflammatory bowel diseases in children rises with the number of courses of antibiotics taken.



## Collateral Damage

- Average child receives 10-20 courses of antibiotics before age 18
- Antibiotics affect our resident microbiota and may not fully recover after a course of antibiotics
- Overuse of antibiotics may be contributing to obesity, DM, IBD, allergies, and asthma

# Antimicrobial Stewardship

## Goals

- Improve patient outcomes
- Optimize selection, dose and duration of Rx
- Reduce adverse drug events including secondary infection (e.g. *C. difficile* infection)
- Reduce morbidity and mortality
- Prevent or slow the emergence of antimicrobial resistance
- Reduce length of stay
- Reduce health care expenditures

# Tools and Resources on Atlas

<http://atlas2.medicity.net/portal/site/antimicrobial>

**HCA clinical services group**

**Antimicrobial Management Program**

Welcome to the AMP Implementation Resource Center

Antimicrobial misuse undermines effective patient outcomes, increases antimicrobial resistance, and increases pharmacy cost. In response, the Antimicrobial Management Program combines active medication management with infectious disease prevention for decreased development and transmission of multi-drug resistant organisms.

This page will serve as a checklist to follow as you to follow as you implement AMP at your facility. Follow the steps as you progress through each phase, using the links where necessary to access facilitation resources along the way. Resources in the orange sections provide general reference throughout the Program.

**Where Do I Start?**

- Read the [AMP Coaching Call Summary](#) to review agendas and materials for previous coaching calls.
- Review the [AMP Introduction](#) to learn more about AMP goals and methodology.
- Review the [AMP Process Diagram](#).
- Review the [AMP Phases and Timeline](#) presentation for a phase-level process overview.
- Open and print the [Implementation Checklist](#) to follow as you advance through the Program.
- E-mail the [AMP Group Mailbox](#) with any questions or suggestions.

**Phase 1 - Getting Started**

- Identify Physician Champion and Pharmacy Lead
- Multidisciplinary Team Responsibilities
- Complete Gap Assessment
- Assess Staff Resources
- Complete Action Plan
  - Pharmacy
    - Complete Competency Planning/Training
    - Infection Prevention
    - Information Systems
  - Design Facility Communication Plan
  - CEO Approval of Gap and Action Plan

**Phase 2 - Foundation Work Steps and Resources**

- Complete Antimicrobial Formulary Review
- Review Metrics
- Review Pharmacy and S.O.P. Core Measures
- Complete Data Submission Training
- Review Antimicrobial Data, Data Spreadsheet
- Antimicrobial Shortage Recommendations

**Phase 3 - Clinical Care Optimization Steps and Resources**

- Complete Kinetic Dosing Training
- Approve Institutional Guidelines
- Timely and Appropriate Antibiotic Use Based on Approved Institutional Guidelines
- Microbiology and Infection Prevention Metrics
  - CDC Reference
  - CLSI Reference
  - SHEA/HICPAC Reference
- Optimize Duration per EBM
- Evaluate Antimicrobial Use Based on Local Needs
- Clinical Pharmacy Rounding with Team

**Phase 4 - Advanced Program Steps and Resources**

- De-escalation
- Review and/or Implement Rapid Diagnostics, Point of Care Testing, and Biomarkers for Appropriate Use
- Procalcitonin
- Ongoing Antibiogram Development
- Report Approved Metrics to all Stakeholders on Regular Basis

**Surveys and Results**

- Director of Pharmacy Survey - April, 2011
- Infection Preventionist Survey - July, 2011
- Microbiology Survey - 2011
- AMP July 2011 Dashboard

**Other Resources**

- MAD-ID
- Society of Infectious Diseases Pharmacists

# Severe Sepsis: A Growing Healthcare Challenge

- #1 cause of death in non-coronary ICU
- 11<sup>th</sup> leading cause of death overall
- 28-day mortality: 30-50%
- >750,000 US cases annually
- Incidence growing faster than overall population
- \$17.0 billion cost of treatment in the US(30 billion)



# Screening Tool

- Implement MEDITECH trigger tool
  - ICU
  - ED
  - Med/Surg

Severe Sepsis Screening 1,2,3

06/08 1035 JAB J00009153569 BURNS,ND MDS

Last 4 SIRS CRITERIA Entries (For Today)							
Date	Time	T	P	R	BP	Date to Dr	Time to Dr
06/08	1035	103.6	122	26	100/60		

WBC  
> or = to 12,000/mm3  
< or = to 4,000/mm3  
> 10% bands

Temperature: ☒ Respirations: ☒  
 Heart Rate: ☒ WBC/Bands: ☒ : No Results past 6 hrs : No Results past 6 hrs  
 If Y to 2 or more of the above, proceed to next section: ☒

===INFECTION===  
 Suspected/Documented Infection: ☐  
 Antibiotic Therapy (Not Prophylaxis): ☐  
 If Y to 1 of the above, proceed to next section: ☐

===NEW ORGAN DYSFUNCTION within past 48 hours===  
 Respiratory: ☐ Hematologic: ☐  
 Cardiovascular: ☐ Hepatic: ☐  
 Renal: ☐ CNS: ☐  
 Metabolic: ☐ If Y to 1 of the above, positive for severe sepsis: ☐



# Clinical Research Agenda

# The REDUCE MRSA Trial

Randomized Evaluation of  
Decolonization vs. Universal Clearance to  
Eliminate MRSA



UCIrvine  
University of California, Irvine



Washington  
University in St. Louis  
SCHOOL OF MEDICINE

HCA



# Landmark Pragmatic Trial

Knowing what is worthwhile and effective is based upon well-designed trials like REDUCE MRSA. RCTs are excellent tools for judging *efficacy* (performance under ideal conditions), but they often fail to judge ***effectiveness*** (performance under conditions of actual use). Because of the HCA infrastructure, high compliance can be achieved.

# The REDUCE MRSA Cluster Randomized Trial of Hospitals

- **Routine Care**
  - Screen ICU patients for MRSA, isolate if positive
- **Targeted Decolonization**
  - Screen, isolate, and decolonize if MRSA+
- **Universal Decolonization**
  - Stop screening, decolonize all, isolate if MRSA+

# The REDUCE MRSA 18-Month Intervention Period

- April 2009 – September 2011
- 43 hospitals, **42 community hospitals**
- 74 adult ICUs
- **74,256 patients**
- **283,000 ICU patient days**

# Conclusions for ICU Settings

- Universal decolonization
  - 37% reduction in MRSA clinical isolates
  - 44% reduction in all-cause bloodstream infection
  - Required no screening
  - May reduce need for contact precautions
- Targeted decolonization
  - 22% reduction in all-cause bloodstream infection

**OPEN ENROLLMENT:**

# STOP SSIs Project

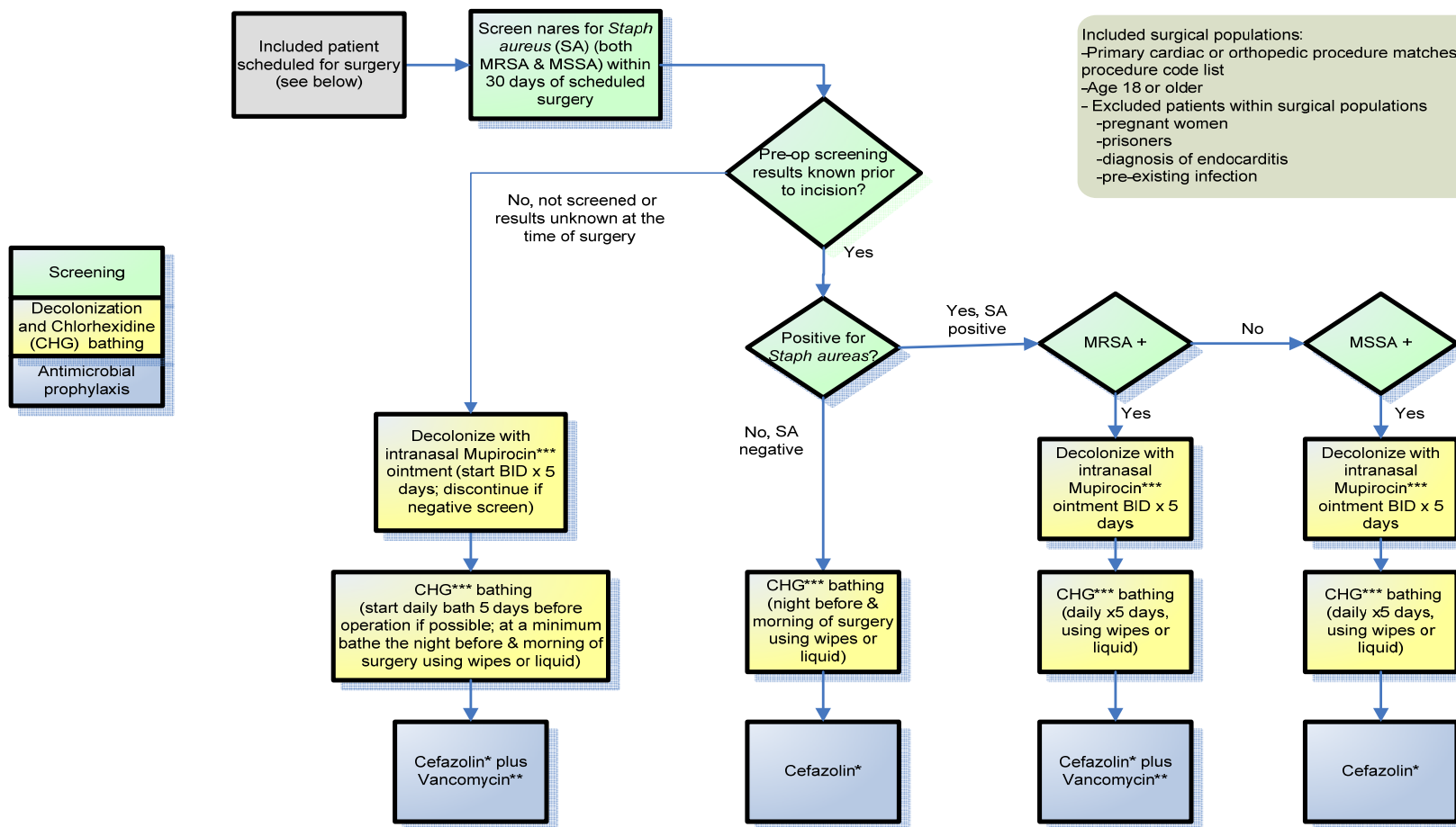
Study To Optimally Prevent SSIs in  
Select Cardiac and Orthopedic Procedures



# The Algorithm – Bundle of Practices

STOP SSIs: *Study to Optimally Prevent SSIs in select cardiac and orthopedic procedures*

(revised 5/10/12)



\* May substitute cefuroxime for cefazolin; unconfirmed beta-lactam allergy does not preclude the use of cefazolin. For a confirmed beta-lactam allergy, use vancomycin 15mg/kg (≤120 minutes before the operation) in place of cefazolin and add either gentamicin 5mg/kg, or aztreonam 2 Gm ≤60 minutes before the operation/incision. Please refer to supplemental Notes for additional comments.

\*\*For vancomycin allergy, may use daptomycin (4mg/kg) in combination with cefazolin (if not beta-lactam allergic) for preoperative prophylaxis ≤60 minutes before the operation/incision. If also beta-lactam allergic, use gentamicin 5mg/kg, or aztreonam 2 Gm ≤60 minutes before the operation/incision in combination with the daptomycin.

Vancomycin, daptomycin, gentamicin, or astreonam prophylaxis should not be continued after the operation.

\*\*\* Discontinue if patient experiences any side effects or allergic reaction to mupirocin or chlorhexidine gluconate (see Supplemental notes).



# EPIDEMIOLOGICAL STUDY OF ANTIMICROBIAL USE IN IN-PATIENT ACUTE-CARE HOSPITALS

## Investigators:

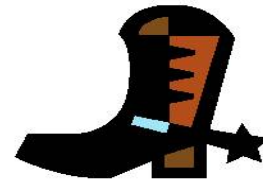
- **Ramanan Laxminarayan, PhD, MPH**, Principal Investigator, Center for Disease Dynamics, Economics and Policy
- **Marin L. Schweizer, PhD**, Co-investigator, Department of Internal Medicine at the University of Iowa
- **Philip M. Polgreen, MD, MPH**, Co-investigator, Department of Internal Medicine at the University of Iowa
- **Eli N. Perencevich, MD, MS**, Co-investigator, Department of Internal Medicine at the University of Iowa
- **Daniel J. Morgan, MD**, Co-investigator, Department of Internal Medicine at the University of Iowa
- **Edward J. Septimus, MD**, Co-investigator, Infection Prevention and Epidemiology Clinical Service Group at HCA Healthcare System

# Asymptomatic Bacteriuria: When the Treatment is Worse than the Disease

Barbara W. Trautner, MD, PhD and Aanand  
Naik, MD  
Gulf Coast



Kicking CAUTI  
The No Knee-Jerk Antibiotics  
Campaign



# Sepsis Challenge Grant

Collaboration with The Methodist  
Hospital Houston

Gulf Coast Division

# ABATE Infection Trial

## Active Bathing to Eliminate Infection

Adult NonCritical Care Patient Wards



# ABATE Infection Trial

## *Addressing Bioburden while Admitted To Eliminate Infection*

### Design

- 2-arm cluster randomized trial of hospitals
- 50 hospitals from Hospital Corporation of America (**57 hospitals**)
- 4 or 5 engaged medical/surgical/stepdown/oncology units per participating hospital

### Intervention Units

- Daily CHG shower or CHG cloth bathing urged for all patients
- Mupirocin x 5 days for those MRSA+ by history or screen

### Control Units

- Routine policy for showering/bathing

## OBSTETRICS

## Reduction in elective delivery at <39 weeks of gestation: comparative effectiveness of 3 approaches to change and the impact on neonatal intensive care admission and stillbirth

Steven L. Clark, MD; Donna R. Frye, RN, MN; Janet A. Meyers, RN; Michael A. Belfort, MD, PhD; Gary A. Dildy, MD; Shalece Kofford, RN, MPH; Jane Englebright, RN, PhD; Jonathan A. Perlin, MD, PhD

**OBJECTIVE:** No studies exist that have examined the effectiveness of different approaches to a reduction in elective early term deliveries or the effect of such policies on newborn intensive care admissions and stillbirth rates.

**STUDY DESIGN:** We conducted a retrospective cohort study of prospectively collected data and examined outcomes in 27 hospitals before and after implementation of 1 of 3 strategies for the reduction of elective early term deliveries.

**RESULTS:** Elective early term delivery was reduced from 9.6-4.3% of deliveries, and the rate of term neonatal intensive care admissions fell

by 16%. We observed no increase in still births. The greatest improvement was seen when elective deliveries at <39 weeks were not allowed by hospital personnel.

**CONCLUSION:** Physician education and the adoption of policies backed only by peer review are less effective than "hard stop" hospital policies to prevent this practice. A 5% rate of elective early term delivery would be reasonable as a national quality benchmark.

**Key words:** elective delivery, patient safety, practice change

Cite this article as: Clark SL, Frye DR, Meyers JA, et al. Reduction in elective delivery <39 weeks of gestation: comparative effectiveness of 3 approaches to change and the impact on neonatal intensive care admission and stillbirth. Am J Obstet Gynecol 2010;203:449.e1-6.

# HCA Infrastructure

**How do we do it**

# Corporate Departments

- Strong C-suite support
- Quality/Risk management (DVPQs)
- Clinical Services: nursing(CNOs), physicians(DCMOs)
- IT
- Pharmacy
- Laboratory
- Supply chain(HPG)
- Clinical Excellence



# Standardization

- IT system requirements
  - All hospitals use Meditech
  - CDW
  - Theradoc corporate-wide for infection prevention(in progress)
  - Pharmacy pilots for AMP
  - Lawson-immunizations
  - EBOS\CPOE
- Systems for Meditech reporting/compliance
- Systems for education/computer based training
- Systems for querying
- Requirements to use HCA determined products

# Enterprise Campaigns

- Decision making process for which campaigns to pursue
  - Strategic vision
  - Evidence
  - Urgency
  - Impact: volume, cost, outcomes
  - Public reporting (e.g. HAC and Core Measures)
- Decision to pursue a campaign is decided by senior leadership weighing current projects and capacity

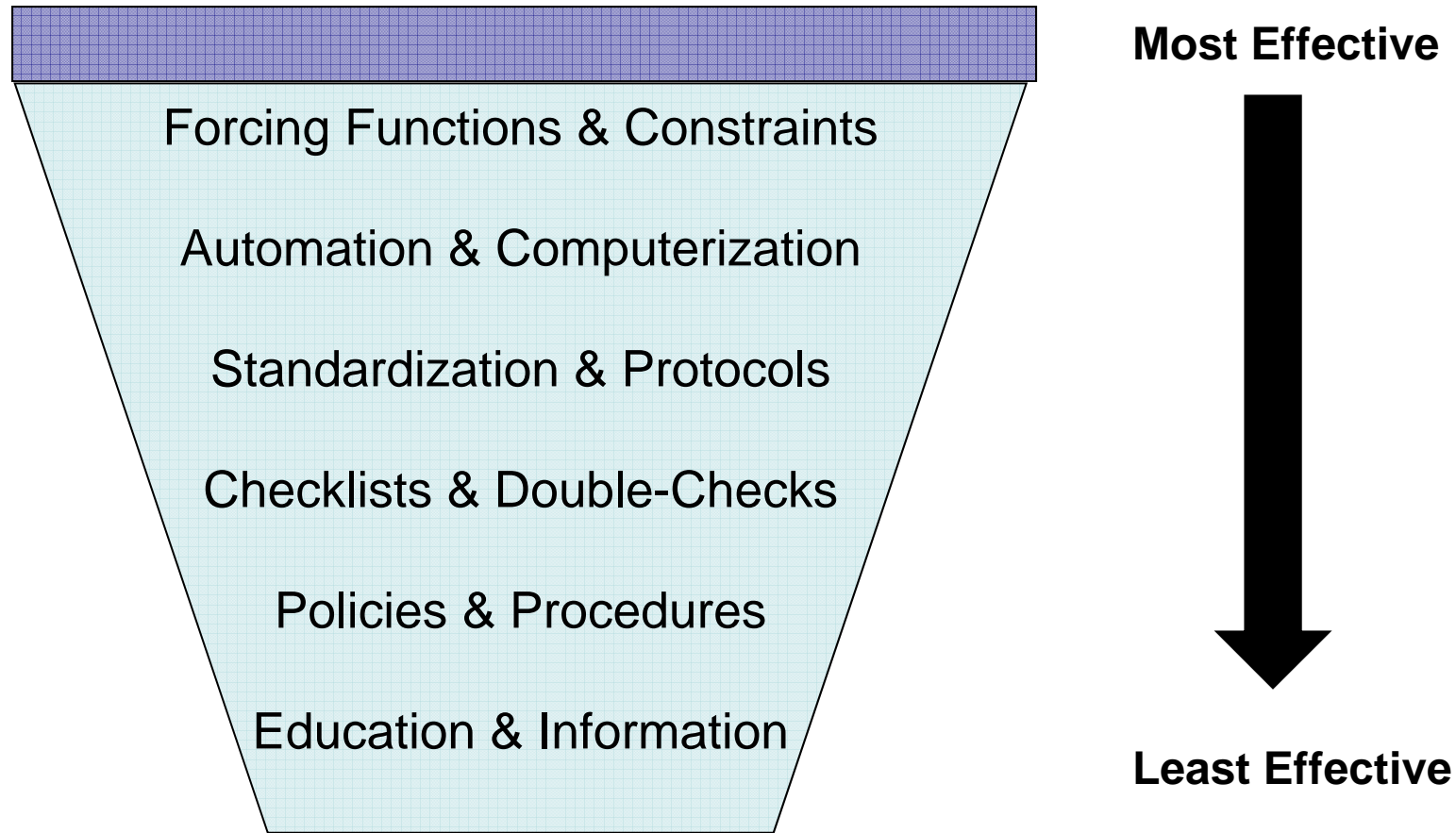
# Accountability Structure

Hospital CEO reports to Division President who reports to Group President who reports to the corporate president/CEO and then to the Board

Board spends considerable time looking at quality, patient safety, and public reporting

# Implementation

# Risk Reduction Strategies



# Implementation

- Review evidenced-based strategies with **frontline** HCW
- Engage senior executives who should meet with team regularly
- Tool kit and Resources on Atlas: standardize best practice while allowing for customization based on local culture and resources
- Gap analysis
  - Competencies
  - Resources
  - Champions/leadership

# Implementation continued

## Identify Local Leadership

- Physician Champion
  - Well respected among physician staff
  - Strong communication skills
  - Commanding knowledge of the evidence
- Executive Champion
  - Operational decision authority
  - Sets the hospital vision and goals

# Implementation continued

- Action plan-prioritize/tiered approach with timetable signed by local CEO
- Pilot testing before enterprise kickoff
- System or division kickoff
  - Teamwork and communication plan
  - Webcasts(stakeholders)
  - Workshops
  - DVPQ, CNO, and DCMO calls
- Coaching calls
- Division and Site visits
- CME



# Different Direction

## Contextual journey

- **INSIDE OUT**
  - Observe then define
  - **Observation for understanding**
- Anthropology foundation
- Solutions are uncovered, guided by insiders, those directly involved-creates **ownership**

## Traditional Journey

- **OUTSIDE IN**
  - Define then observe
  - **Observation for compliance**
- Manufacturing foundation
  - Solutions are pre-defined, guided by outsiders, those indirectly involved-**buy-in**

# Selection of Academic/Public Partners

- Shared vision and priorities
- Mutual respect
- Complimentary strengths
- Teamwork and communications

## VII's Key Strategies for Success

- Clinical care and patient safety are the health care organization's core competencies and an unrelenting commitment to continuous improvement should be championed and nurtured by Executive Leadership across the continuum of care.
- Patient Safety is everyone's responsibility
- Implementation of evidenced-based recommendations
- Do not over rely on technology, but can enable but should not be the driver
- Improvement of the safety and teamwork culture in healthcare is critical

## VII's Key to Success continued

- Collaboration and teamwork between all levels of the organization and across the continuum of care (generate light not heat)-shared learning-horizontal integration-be a good listener-involve front-line HCWs
- Small tests and adapt change over time-celebrate success
- Use of reliable data to assess impact and provide feedback to clinicians . Success cannot be demonstrated unless we define it, measure it, and reward it.

**Always try to associate yourself with and learn as much as you can from those who know more than you do, who do better than you, who see more clearly than you**



Dwight Eisenhower

# HCA Infection Prevention Team



From left: Jason Hickok, Sara Bienvenu, Julia Moody, Ed Septimus.

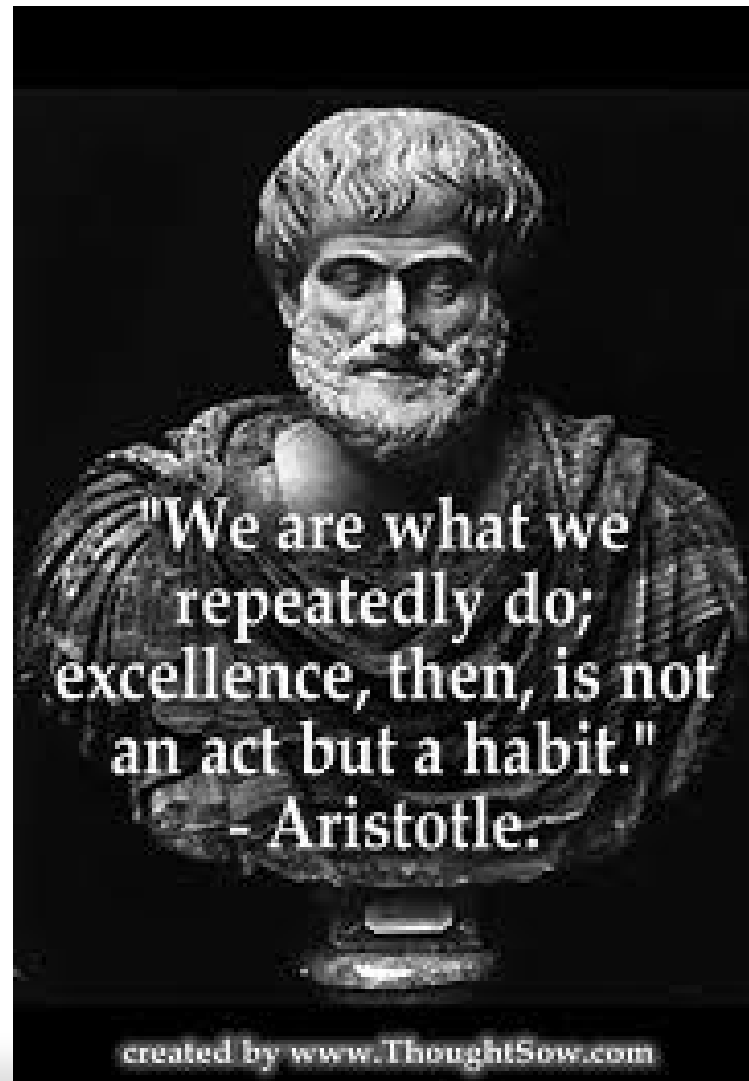
**The Best Team in CSG!**



# Harvard/CDC/UCI/Rush/HCA Team

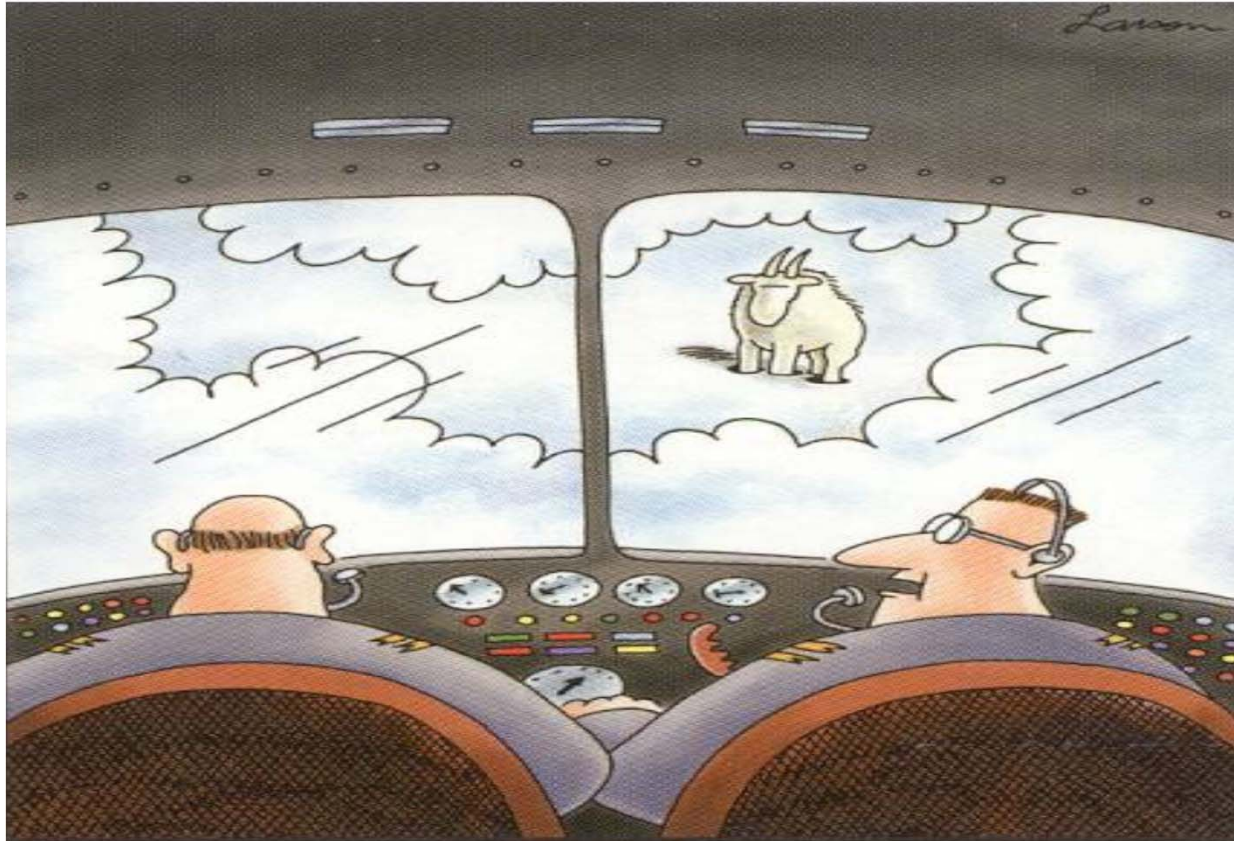


# Excellence...





# Questions?



Hey... what's a mountain goat doing way up here in a cloud bank?