Third Annual Maryland Patient Safety Conference

Keeping Our Patients Safe

Friday, March 23, 2007
Baltimore Convention Center

Eliminating MRSA: It Takes A Region

Presented by Conference Attendees

Facilitated by Jon Lloyd, MD & Margaret Toth, MD
The community-wide dilemma of hospital-acquired drug resistance
Leslie A. Real

- Hospitals in a region share patients and staff
- MRSA prevalence in a community is not the product of any individual hospital but is the consequence of the collective actions of all healthcare (and other) facilities in the region.
- Eliminating MRSA HAI’s will require that all healthcare facilities in a region collaborate in sharing ideas, experience and standardized outcome data.

The Problem

When Germs Talk, How Do Humans Answer?
Emerging Methicillin-Resistance Among *S. aureus* in U.S. ICU’s

![Graph showing the rise in MRSA resistance from 1960 to 2002.]

2004/2005 ABCs MRSA Surveillance Areas:

- Oregon
- California
- Colorado
- Tennessee
- Georgia
- Minnesota
- New York
- Connecticut
- Maryland

Total Population: ~ 16.3 million
Burden of Invasive Bacterial Disease
ABCs cases and U.S. projections 2004

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Rate per 100,000</th>
<th>National projections</th>
<th>Rates</th>
<th>Cases</th>
<th>Deaths</th>
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</thead>
<tbody>
<tr>
<td>GAS</td>
<td>990</td>
<td>3.3</td>
<td>9,900</td>
<td>1,275</td>
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<tr>
<td>S. pneumo</td>
<td>3517</td>
<td>12.8</td>
<td>37,775</td>
<td>4,900</td>
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<tr>
<td>MRSA*</td>
<td>4,943</td>
<td>31.4</td>
<td>91,447</td>
<td>17,482</td>
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*Preliminary data, ABCs Invasive MRSA surveillance
ABCs website: www.cdc.gov/ncidod/dbmd/abcs/default.htm

Results: Frequency of Healthcare Risk Factors (through February, 2006)

9,147

1,259 (14%)
No healthcare risk factors

2,535 (28%)
>48 hours

5,353 (59%)
≤48 hours
Healthcare risk factors

Multiple 4,187
Hospitalization 590
Long term care 196
Invasive device 132
Previous MRSA 131
Surgery 80
Dialysis 37
Magnitude of the MRSA Problem

* Relentless increasing prevalence
* Causes 3X more infections than G.A.S., S. Pneumo
* 87% MRSA infections are HAI’s
* Incidence of MRSA SSI’s has increased 5-fold in past 10 years

*MRSA stalks every patient admitted to US hospitals

Prevalence of Methicillin-Resistance Among S. aureus Infections, Denmark and US, 1960-2004
What Works?  
(The Evidence Based “Stuff”)  

- Active Surveillance Cultures (ASC)*  
- Barrier Precautions - isolation, G/G  
- Hand Hygiene - entry and exit  

*VAPHS data include nares swabbing rates  

The Power  
of Positive Deviance  

Solutions before our very eyes  

- In every community or organization there are certain individuals or groups whose uncommon practices/behaviors enable them to find better solutions to problems than their neighbors or colleagues who have access to the same resources
Positive Deviance Test Sites

ROBERT WOOD JOHNSON FOUNDATION PD/MRSA INITIATIVE LED BY THE PLEXUS INSTITUTE
http://www.plexusinstitute.org/ WITH SIX US AND TWO COLOMBIAN HOSPITALS. 26 Partner hospitals from Southwestern Pennsylvania and Maryland are also engaged.

- Albert Einstein Medical Center; Philadelphia, PA
- Billings Clinic; Billings, MT
- Franklin Square Hospital Center; Baltimore, MD
- The Johns Hopkins Hospital; Baltimore, MD
- University of Louisville Hospital; Louisville, KY
- Veterans Administration Pittsburgh Healthcare System; Pittsburgh, PA
- Hospital El Tunal; Bogotá, Colombia
- Hospital Pablo Tobon Uribe; Medellin, Colombia

Positive Deviance Test Sites

VETERANS ADMINISTRATION HEALTH SYSTEM “GETTING TO ZERO” INITIATIVE HAS FIVE POSITIVE DEVIANCE TEST SITES

- Lebanon VA Medical Center; Lebanon PA
- Michael E. DeBakey VA Medical Center; Houston TX
- VA Maryland Health Care System; Baltimore MD
- VA Western New York Healthcare System; Buffalo, NY
- Wilkes-Barre VA Medical Center; Wilkes-Barre PA
Positive Deviance Test Sites

Maryland Patient Safety Center MRSA Initiative has trained 15 teams from acute care, rehabilitation and outpatient healthcare settings in Maryland and the District of Columbia. This initiative is supported by CareFirst, an independent licensee of the Blue Cross and Blue Shield Association.

Plexus Institute

Fostering the health of individuals, families, communities, organizations, and our natural environment, the Plexus Institute helps people to use concepts emerging from the new science of complexity. To learn more, visit www.plexusinstitute.org. Plexus works with Jerry and Monique Sternin at the Positive Deviance Institute: www.positivedeviance.org.

Maryland Patient Safety Center

The Maryland Patient Safety Center brings together health care providers to study the causes of unsafe practices and put practical improvements in place to prevent errors. Designated in 2004 by the Maryland Healthcare Commission, the Center’s vision is to make Maryland hospitals and nursing homes the safest in the nation. For MRSA/PD initiative information contact Margaret M. Toth, MD at tothm@dfmc.org.

SW PA MRSA Prevention Collaborative

Centered around the path breaking MRSA prevention initiatives at the VA Pittsburgh Healthcare System (VAPHS) and UPMC, over 20 healthcare facilities in the Pittsburgh area have been exposed to PD. Out of this, VAPHS emerged as a RWJF/Plexus beta site and 12 hospitals have become part of the partner network. These facilities form the nidus for an expanding regional PD initiative. Jon C. Lloyd, MD, FACS serves as Coordinator for the Regional MRSA Prevention Collaborative: jon.lloyd@med.va.gov.
Positive Deviance
References


To learn more about how Positive Deviance is being tested – go to the APIC website and listen to the January 24, 2007 Presentation Titled:

"Workplace Cultural Transformation – Using Positive Deviance to Eliminate MRSA Transmission"

Leadership: powerful, few. **Make decisions** about how work is done.

Middle managers: **implement decisions**

Front line workers- experts at the work they do: **carry out decisions**, rarely engaged in deciding **HOW work is done**

Front line workers: experts at the work they do, **decide HOW to do work**, & foster self-discovery among peers

Leadership and middle managers support and filter ideas, and remove barriers for implementation of practices from frontline workers
MRSA Incidence from Clinical Cultures*, VAPHS UD 01-06

*obtained >48 hours after admission (surveillance cultures excluded), single isolate per patient
VAPHS-UD MRSA Surgical Site Infection Rates

MRSA Surgical Site Infection per Number of Operations

- 1998
- FY2000
- FY2002
- FY2004
- 10/05 - 6/06

MRSA HAI Rates
VAPHS H. J. Heinz 326 Bed Long Term Care Facility
Fiscal Year 2005-2007

POSITIVE DEVIANE SYSTEM WIDE

MRSA HAI rates per 1000 patient-days

- 0.7
- 0.5
- 0.3
- 0.1
- 0.0

PD WORKSHOP
ACTIVE SURVEILLANCE LISTS
CELEBRATION OF PROGRAM IMPACT
HOSPITAL-WIDE PD BOOSTER EVENT
ICU BUNDLES CLIP, VAP
DISCOVERY & ACTION DIALOGUE
PERFORMANCE GRID & BRIEFINGS
Impact of Staff-driven MRSA Prevention Initiative at VA Pittsburgh Healthcare University Drive Campus
Antibiogram, FY2000-2006
(As reflected by Incidence* of MRSA from Clinical Cultures...
Note, no effect on MSSA)

*MRSA isolated from clinical cultures obtained >48 hours after admission (surveillance cultures excluded), single isolate per patient

VAPHS-UD, MRSA and Resistant Organism Healthcare-associated Infection Rates
VRE=Vancomycin Resistant Enterococcus
ESBL=Extended Spectrum Beta-Lactamase
MRSA Surveillance and Other Pathogens

"How do we monitor our preparedness to prevent the spread of Avian flu, etc? Good old MRSA. This is endemic in Hong Kong. We use this as a quality indicator to control the rate and also to identify slips/lapses when there are ICU-acquired cases. There has also been a noticeable downturn in the incidence of other multi-resistant resistant organisms. All ICU admissions enter a MRSA surveillance programme. If positive, patients are isolated and cohorted. Patients who acquire MRSA while in ICU (fortunately decreasing) are cohorted and the other patients in that bay are regarded as suspect until proven negative."

(Tom Buckley, MD, Intensivist, Prince of Wales Hospital, Hong Kong, 2005)

It Takes A Region

Support
- RWJ, Plexus, Positive Deviance Institute
- APIC- National point prevalence
- IHI- Five Million Lives Campaign
- CDC- NHSN (the whole region “bathed” in data)

Responses
- Maryland- Delmarva Foundation
- Other States and Regions- PA, NY, Indiana