

Current State of CA-MRSA and Its Impact on the Healthcare Setting



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Saint Clare's Health System:

- Located in Northern NJ, with 3 acute care facilities and 1 inpatient Behavioral Health facility
- Infection Control office is centrally located in Denville and staff covers all campuses and other ambulatory services
- One Leadership Team
- One organizational set of policies and procedures



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What we know...

- Methicillin-Resistant *Staphylococcus aureus*(MRSA) – used to be an infection found in hospital settings
- It has now emerged as a cause of skin infections and, less commonly, invasive infections among otherwise healthy adults and children in the community.
- CA-MRSA has its own clinical, epidemiological, and bacteriologic characteristics distinct from HA-MRSA. Lacks risk factors as:
 - Recent hospitalization
 - Surgery
 - Residence in long-term care facility
 - Receipt of dialysis
 - Presence of invasive medical devices

CA-MRSA (cont.)

- First reported in native communities, strains are increasing in the US and world-wide
- More susceptible to antibiotics classes other than B-lactams (different genotype)
- Have been isolated in children in daycares, athletes, students, IV drug users, military recruits, inmates, homeless population
- Can be devastating in young healthy children following a respiratory viral infection
- One study reports mean age of affected patients was 14.8 years, with range of 6 months to 81 years old

CA-MRSA: Transmission

- 20%-30% of the population is colonized with Staph
- About 1% carry MRSA
- Staph Aureus has mutated with emergence of various antibiotics
- Transmission is associated with:
 - Minor skin trauma
 - Sharing of sports and other personal equipment
 - Sharing of close quarters
- Community outbreaks commonly seen in:
 - Correctional facilities
 - Men who have sex with men (MSM)
 - Athletic teams

CA-MRSA: Prevention

- Do not share personal belongings (i.e. towels, razors)
- Athletes should not share sports equipment
- IV drug users should not share needles
- Monitor and treat all open skin cuts and abrasions
- Universal infection control precautions and barriers
- Wash your hands
- Chlorhexadine baths for soft tissue infections to prevent recurrent outbreaks

CA-MRSA: Treatment

- Good wound care and I & D of skin boils if needed
- Tends to be resistant to beta-lactams, Erythromycin and Fluoroquinolones
- Greater than 90% of CA-MRSA is susceptible to Bactrim, TCNs or Clindamycin
- Rifampin is an effective adjunct for recurrent MRSA infections but should not be used for monotherapy
- At Saint Clare's, if patient is only colonized in their nares we do not routinely decolonize
- Decision to decolonize is patient and physician specific

Hospital Acquired MSRA

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MRSA Nasal Screening

NJ mandate in effect beginning October 2, 2007

Hospital criteria set for patients to be swabbed on admission and discharge

Saint Clare's high risk patients include:

- Past history MRSA
- Admit from Nursing Home or institutional setting (group homes, correctional facility)
- All dialysis patients
- All admissions and transfers into Critical care
- All orthopedic surgical inpatients pre-op
- All Surgical discharges to NH or rehab if they have been an inpatient for 72 hours or more
- All discharges and transfers from CCU if they have been an inpatient for 72 hours or more in CCU

Saint Clare's Findings

	2008	2009	Total	% from Total Admission
MRSA positives from the community*	639	637	1276	3.3%
Positive nasal screening	721	701	1422	3.7%
Total	1360	1338	2698	7.0%

*MRSA from the community - any positive result from the community.

Did not necessarily meet "true" definition of a CA-the MRSA

* % from total admission = # of cases/# of admissions x 100

Screening:

- Screen is run either by PCR or Chrome Agar
- PCR
 - All nursing home patients
 - Pre-op Orthopedic patients
 - If physician order/High Risk
- Chrome Agar
 - Past history of MRSA
 - Critical Care admissions/transferred
 - Dialysis patients
 - Discharge swabs

How do we do it...

- Emergency Department or admitting RN is responsible for collecting the nasal swab
- Order is entered into the computer system
- Micro lab will either plate or run as PCR based on criteria
- Micro lab will call the unit and Infection Control if swab is positive
 - TEAMWORK is essential!

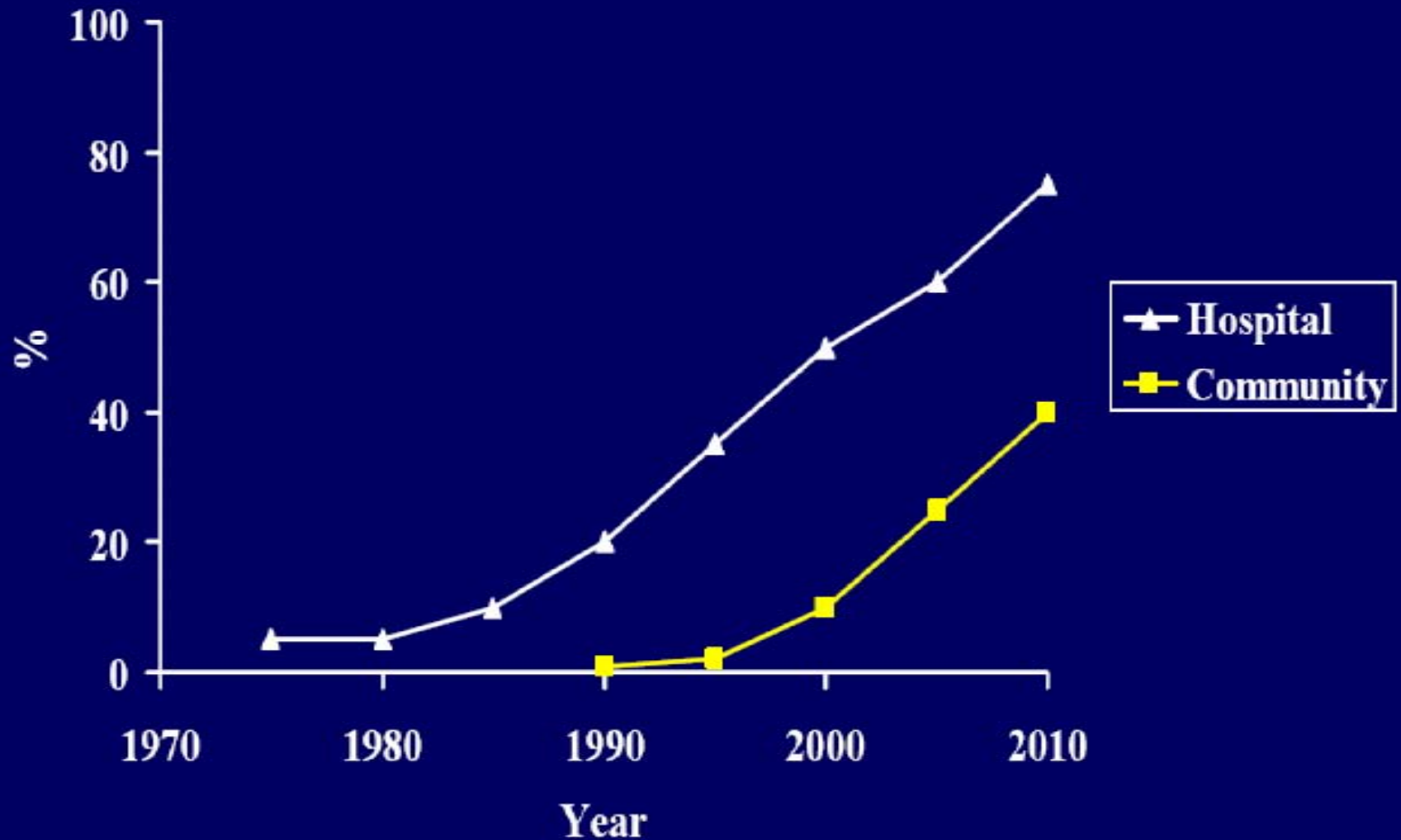
How did we collaborate with our doctors, nurses, and others...

- Lots of education and discussions (lectures, staff meetings, medical grand rounds, talking points)
- ICP on the units every day and helping staff with processes and answering questions
- Development of patient educational materials regarding MRSA and other MDROs

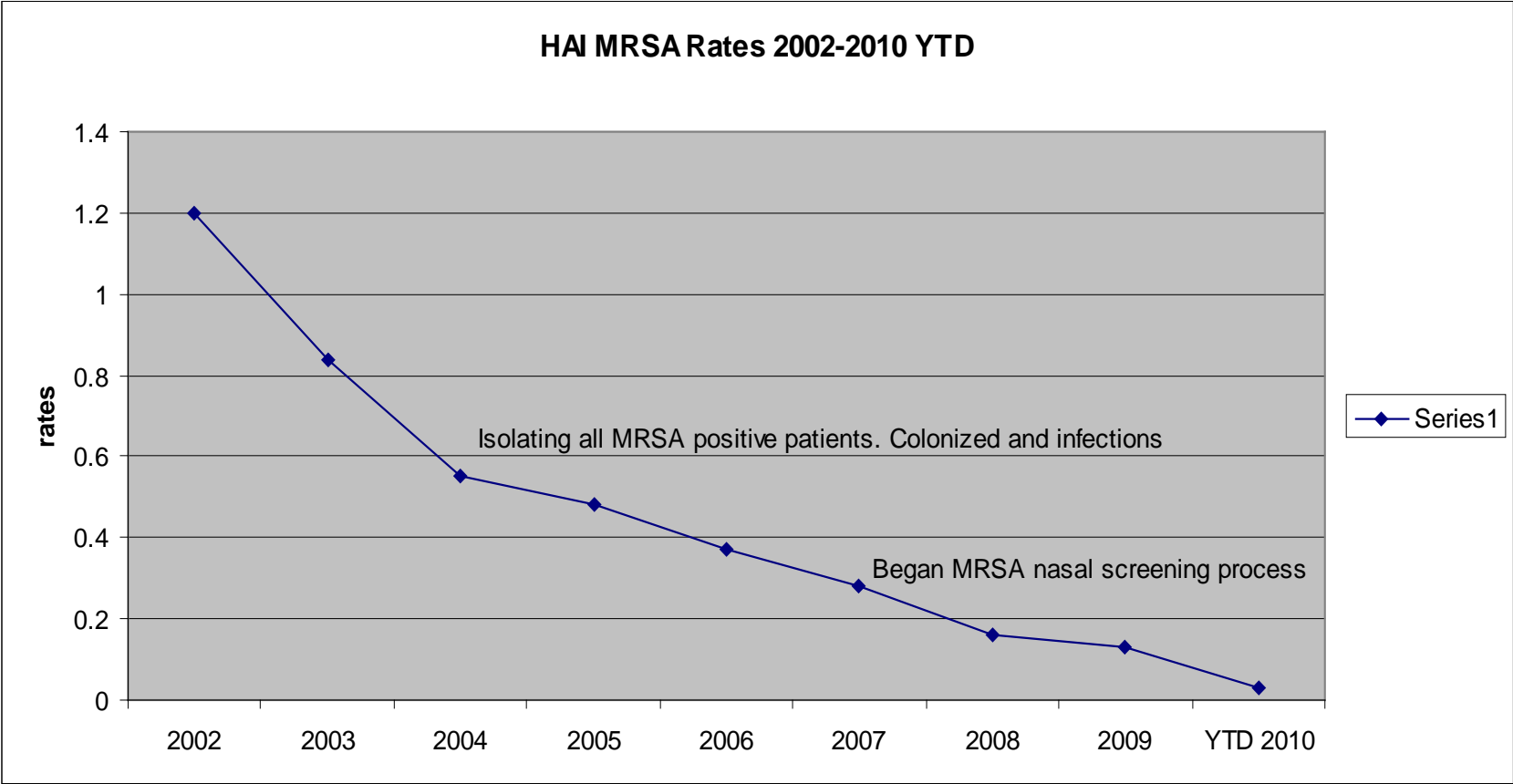
Utilizing Computer-Based Software

- Current data mining surveillance helps identify new admissions with history of MRSA
- A new element was added to computerized charting to alert nurses of MRSA history (in addition to other MDRO's) including date and location of past infections.
- System speaks to patient's face sheet to alert nursing/ admitting of a past history of an MDRO
 - This helps to identify patients who will require private rooms or ability to co-hort.

Prevalence of Methicillin-Resistant *S. aureus*



Current HA-MRSA Data (Saint Clare's)



On Discharge

- Education is given to patients and family members
- When patients are discharged to another facility, IP's communicate with their nursing staff to report a positive result

Challenges:

- Patient may not be isolated, depending on the facility's policy
- Sends confusing message to patients, family members

Other Challenges:

- Identifying potential MRSA patients quickly (i.e. patients admitted with draining wounds, history of IV drug use)
- Nursing not catching MRSA history flag
- Not enough private rooms for isolation
- Timing of specimens to lab and running of swab. Can take over 2 days to get a MRSA result back therefore delaying isolating a patient (Only isolate past history upon admissions. CCUs are private rooms)
- Debate over decolonization
- Amount of time or negative results before patients can be de-isolated

Challenges cont....

MRSA In the ED

- Patients go through the ED and are sent home on the same day with culture results pending.
 - Can be days before report of a positive culture
 - Education not as comprehensive as inpatient
 - Results are reported to patient by non-IC staff, so questions may not be answered.
 - Other patients may not have resources available for follow-up treatment (i.e. no phones)
 - Patients may not follow up
 - Teenage population may not be as compliant in protecting themselves and with wound care

Sustaining and Improving Outcomes

- Keeping staff and patients educated about increase of MRSA in the community
- Continue to look at MRSA screening process and target high risk patients
- Continuous reinforcement (daily rounding)
- Opportunity to collaborate with local facilities to work together to reduce MRSA in the community

ID Group Findings From an Outpatient Perspective

- Physician offices are seeing more family-acquired infections from MRSA
- Some ID Specialists are decolonizing with recurrence
- Treatment includes Doxycycline, Rifampin, bactroban, chlorohexedine
- Seeing 70% success rate with decolonizations

CONCLUSIONS

- 2 types of MRSA strains – one identified as HA and one as CA
- HA infections are generally more serious than CA infections which are generally nuisance boils
- MRSA as a percentage of all Staph infections is increasing and this has been happening over decades
- Screening is important in identifying patients who can spread infection
- There are many more people colonized than infected

CONCLUSIONS

- Isolation of colonized patients in the hospital can prevent spread to other patients
- Community isolation is impractical but covering open wounds, restricting athletes from contact sports who have active infections, avoiding shared athletic equipment, and cleaning equipment all reasonable hygienic measures to contain disease in the community
- Healthy HCW's are at very low risk of getting MRSA infection and if they do, simple boils are most likely

Questions?????



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Resources:

MRSA Community Acquired vs. Healthcare Associated,
www.dsf.health.state.pa.us

Community-Acquired *Methicillin-Resistant Staphylococcus aureus* (CA-MRSA) on the Rise,
Infection Control Concepts

APIC Text, 2009

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Thank You!!