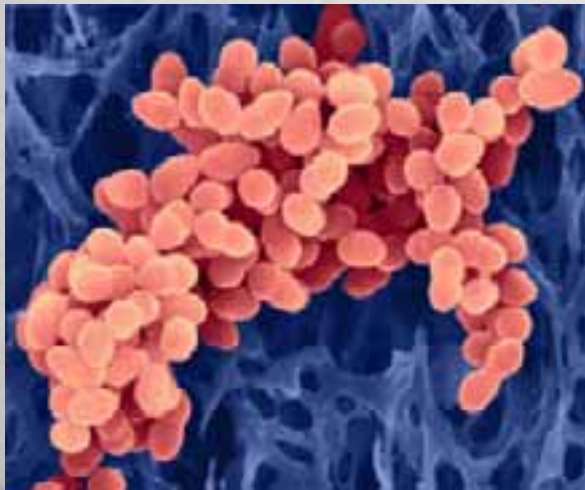


TRACKING MRSA: THE HEALTHCARE INDUSTRY'S LATEST SUPERBUG

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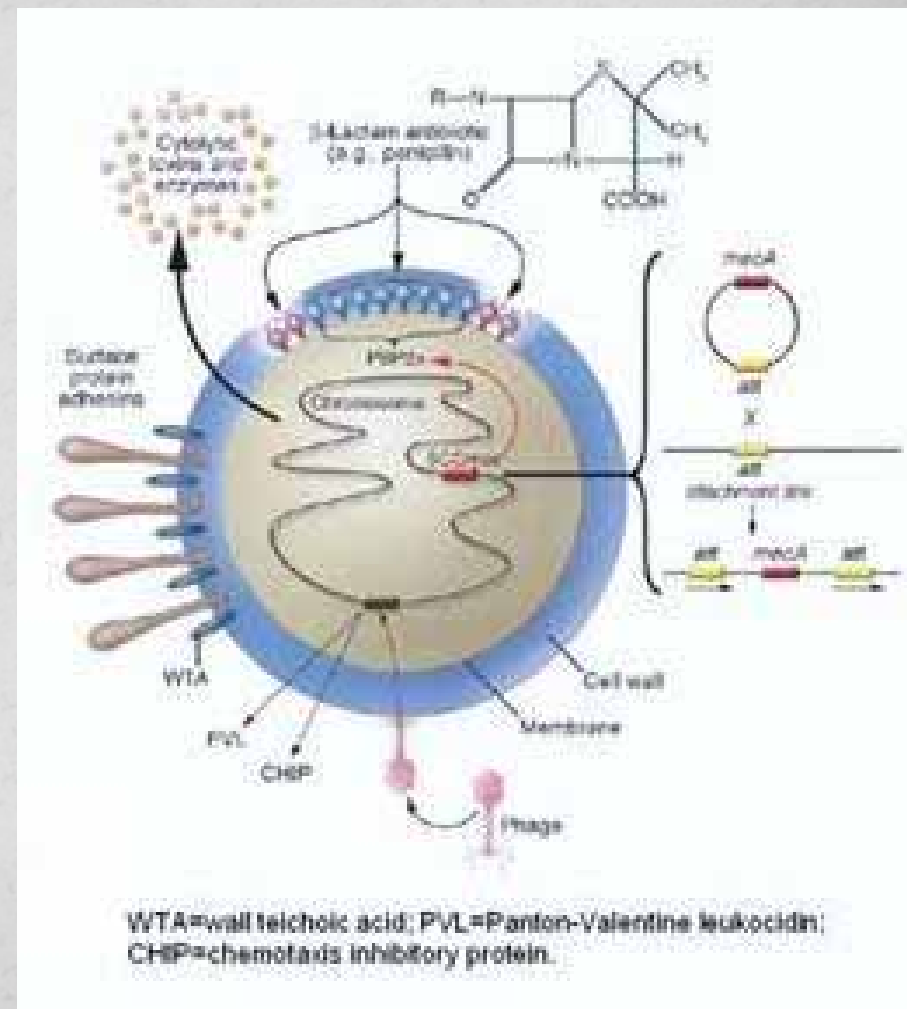
**ESRI Health
GIS Conference 2007**

OBJECTIVES

- Background on Methicillin-Resistant *Staphylococcus aureus* (MRSA)
- Difference between Community Acquired and Healthcare Associated MRSA
- LVHHN's experience
- What about other emerging infections
- What this might mean in the future

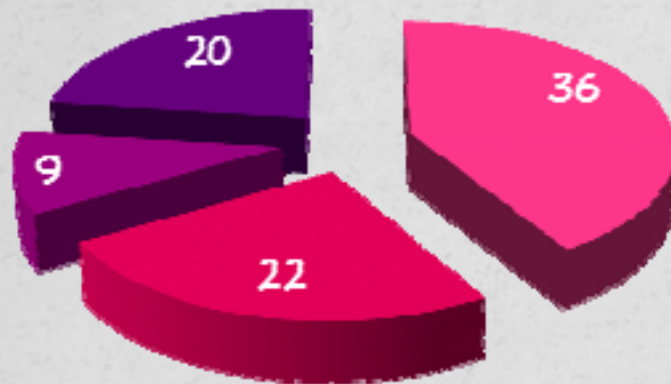
BACKGROUND

- *S. Aureus* is an adaptive and successful human pathogen, with the ability to elaborate a range of virulence factors and toxins
- Resistance to methicillin first appeared in 1961, attributed to inheritance of a *mecA* gene found on the mobile staphylococcal cassette chromosome *mec* (SCC*mec*).
- Genetic analysis suggests that *mecA* has been transferred to *S aureus* more than 20 times.
 - **Result: five major lineages.**
- Transfer of this gene into *S aureus* strains has given rise to Healthcare-associated MRSA and Community Acquired MRSA



HA-MRSA VS CA-MRSA INFECTION SITES

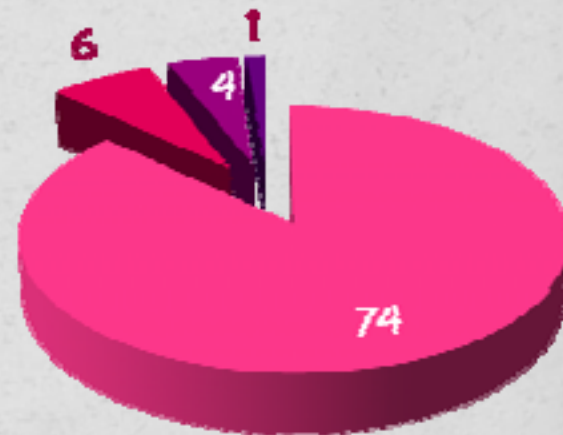
HEALTHCARE-ASSOCIATED MRSA



■ SKIN/SOFT TISSUE
■ BLOODSTREAM

■ RESPIRATORY
■ URINARY TRACT

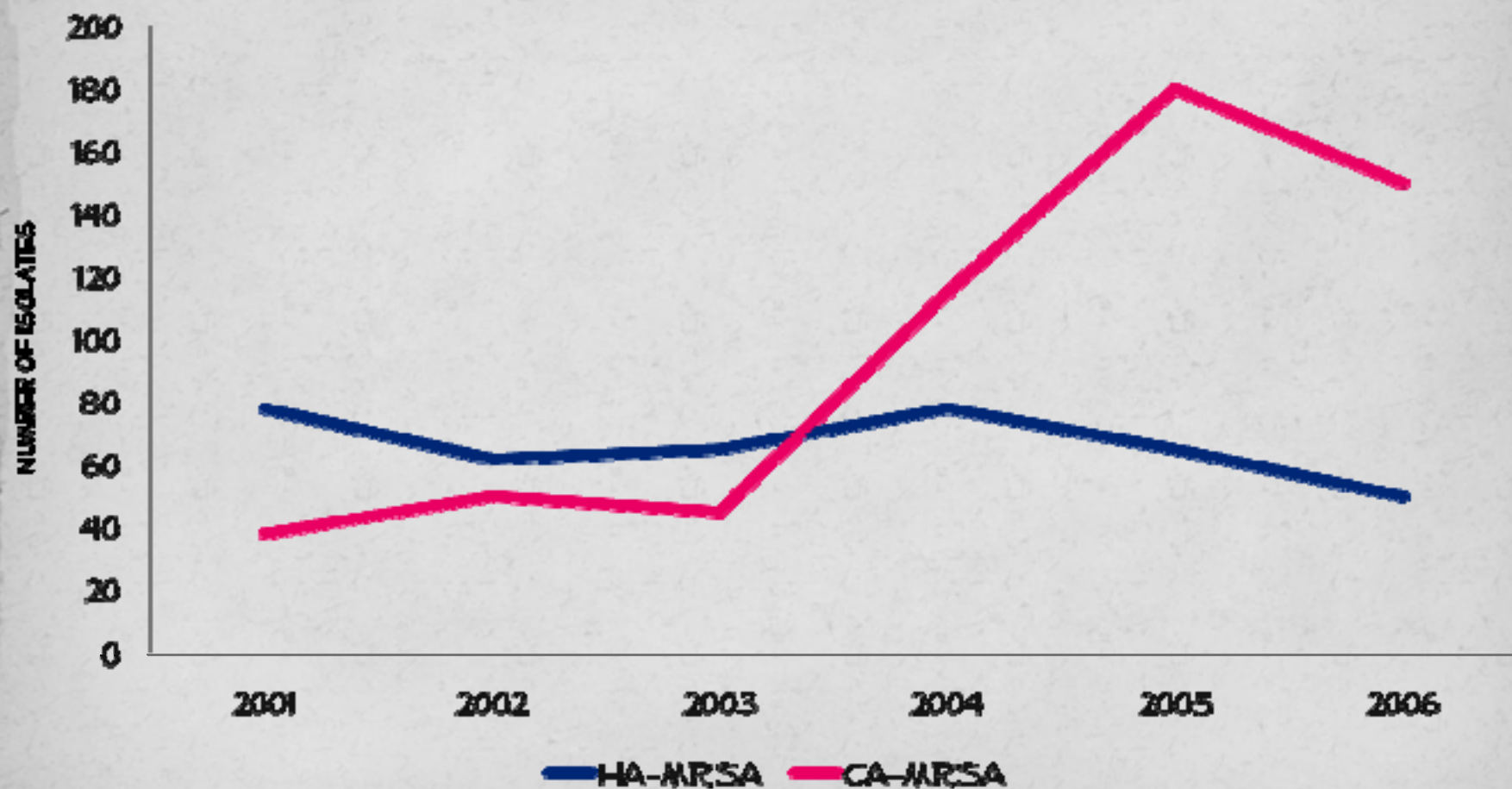
Community-Acquired MRSA



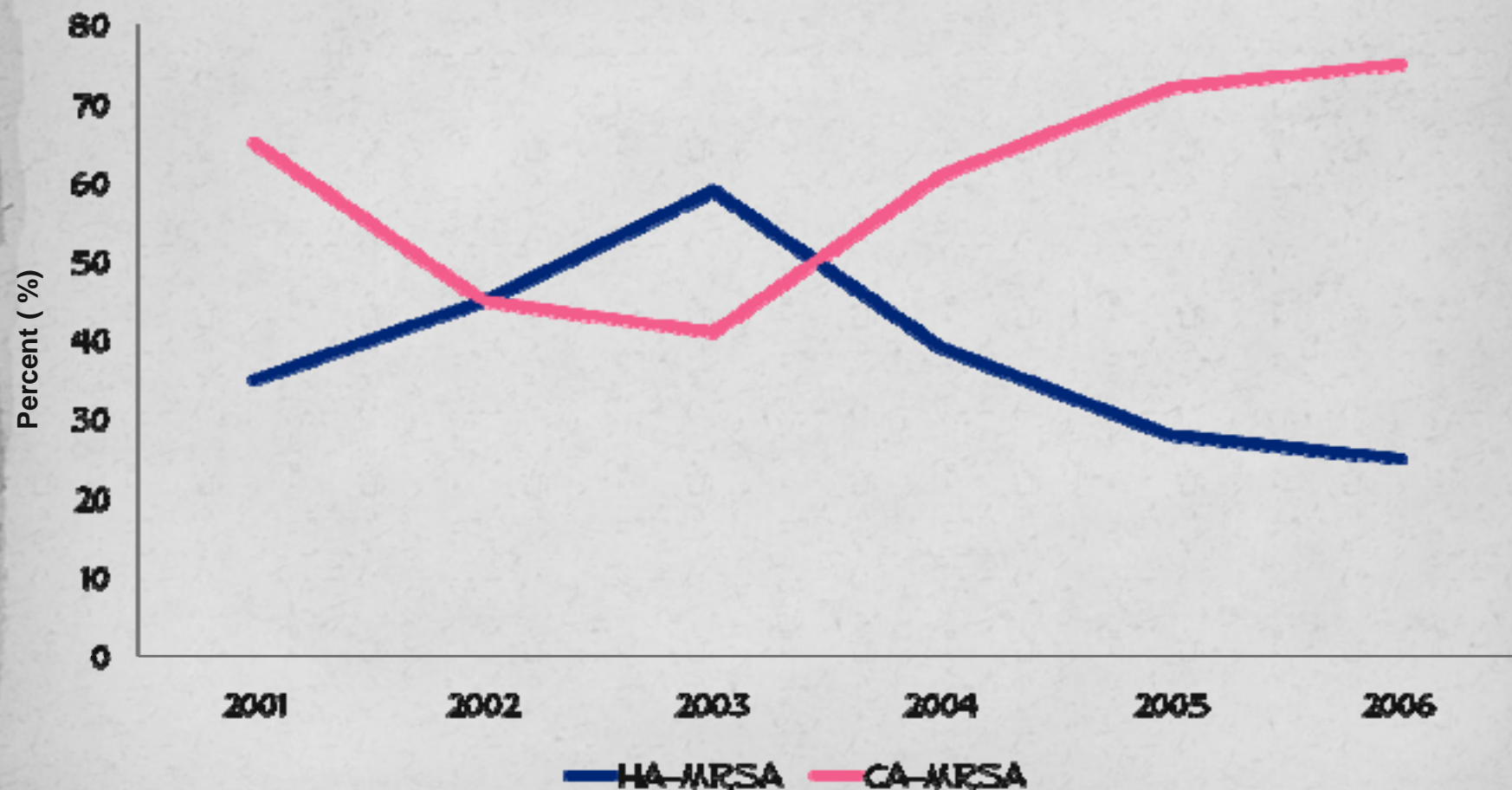
■ SKIN/SOFT TISSUE
■ BLOODSTREAM

■ RESPIRATORY
■ URINARY TRACT

NEW CLINICAL ISOLATES OF HA-MRSA VS CA-MRSA



PROPORTION OF HA-MRSA VS CA-MRSA INFECTIONS



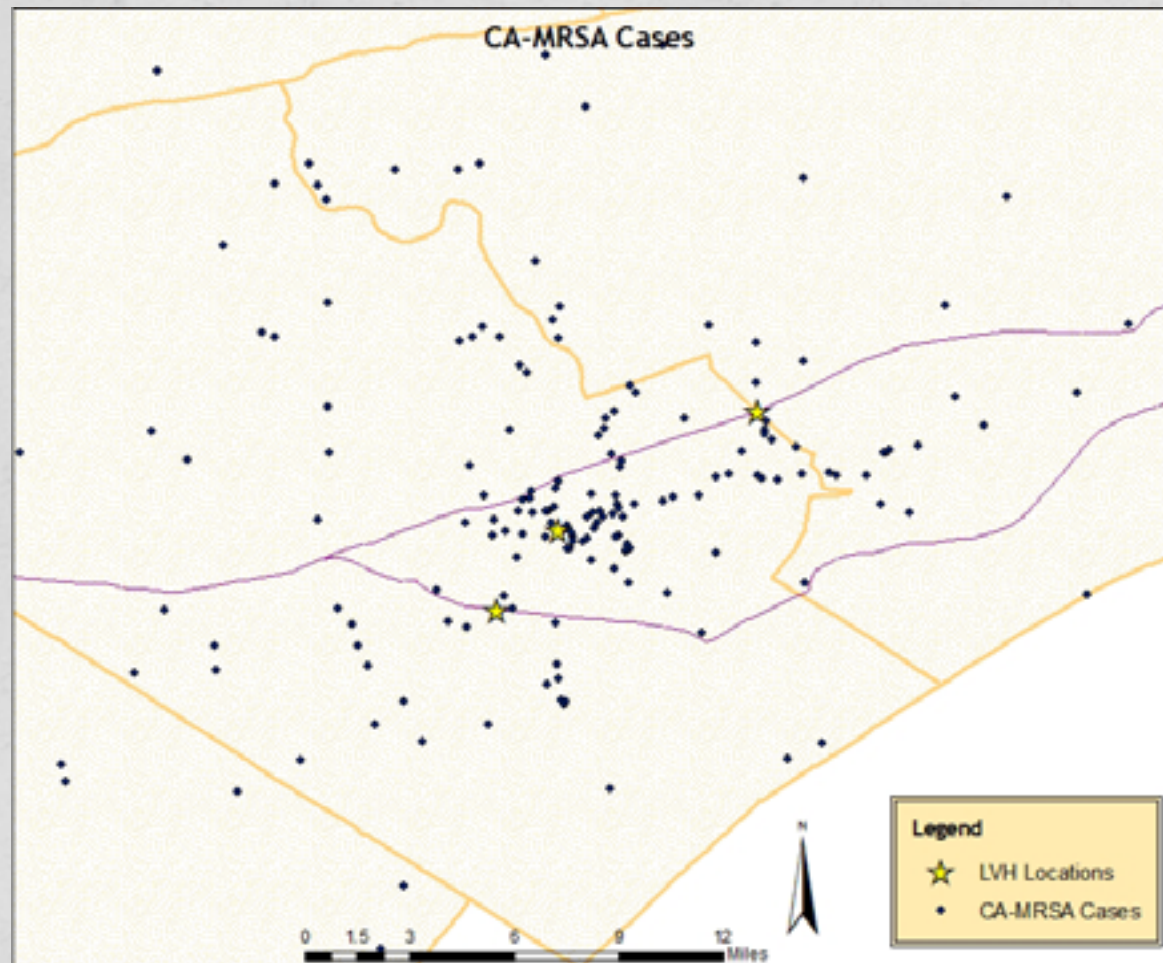
THE ECONOMICS OF MRSA

- CDC estimates the cost of hospital infections to be at \$4-5 billion a year (2005)
- In 2000 and 2001, *S. aureus* alone extended hospital stays and charges by **3 fold** in 292,045 hospital admissions.
- Cost estimates for MRSA:
 - Excess of \$41,079 for bacteremia compared with Methicillin Susceptible *Staphylococcus Aureus* (MSSA).
 - Excess costs for surgical site infections of +\$40,000 compared with MSSA.

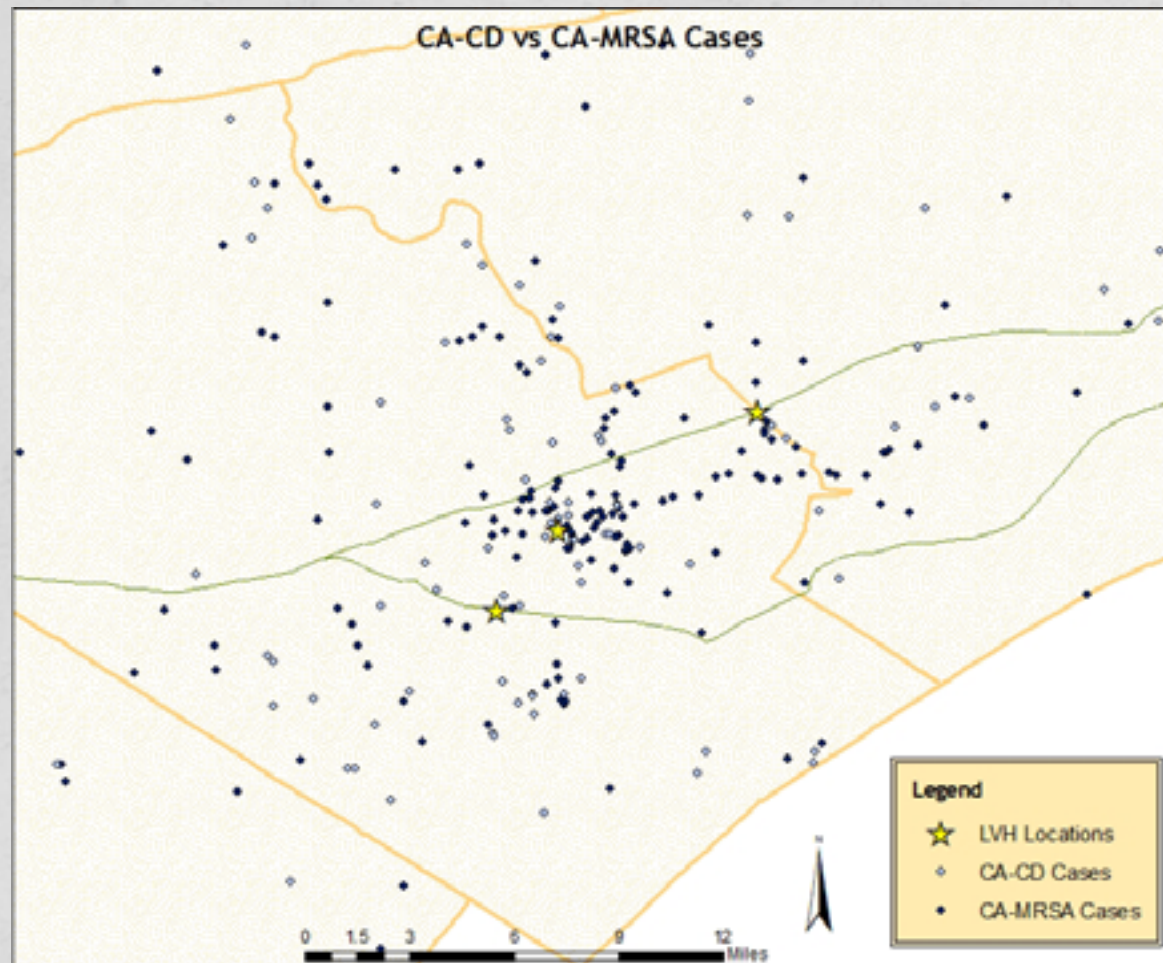
METHODOLOGY

- 210 Patients were analyzed
- Data were pulled from HPM and ICP Database
- Variables included:
 - Age
 - LOS
 - Cost
 - Address +ZipCode
 - Gender
 - Nursing Home Status
 - Mortality
- 86% Match
- Statistical Analysis included Regression, ANOVA, chi Square using SPSS 15.0

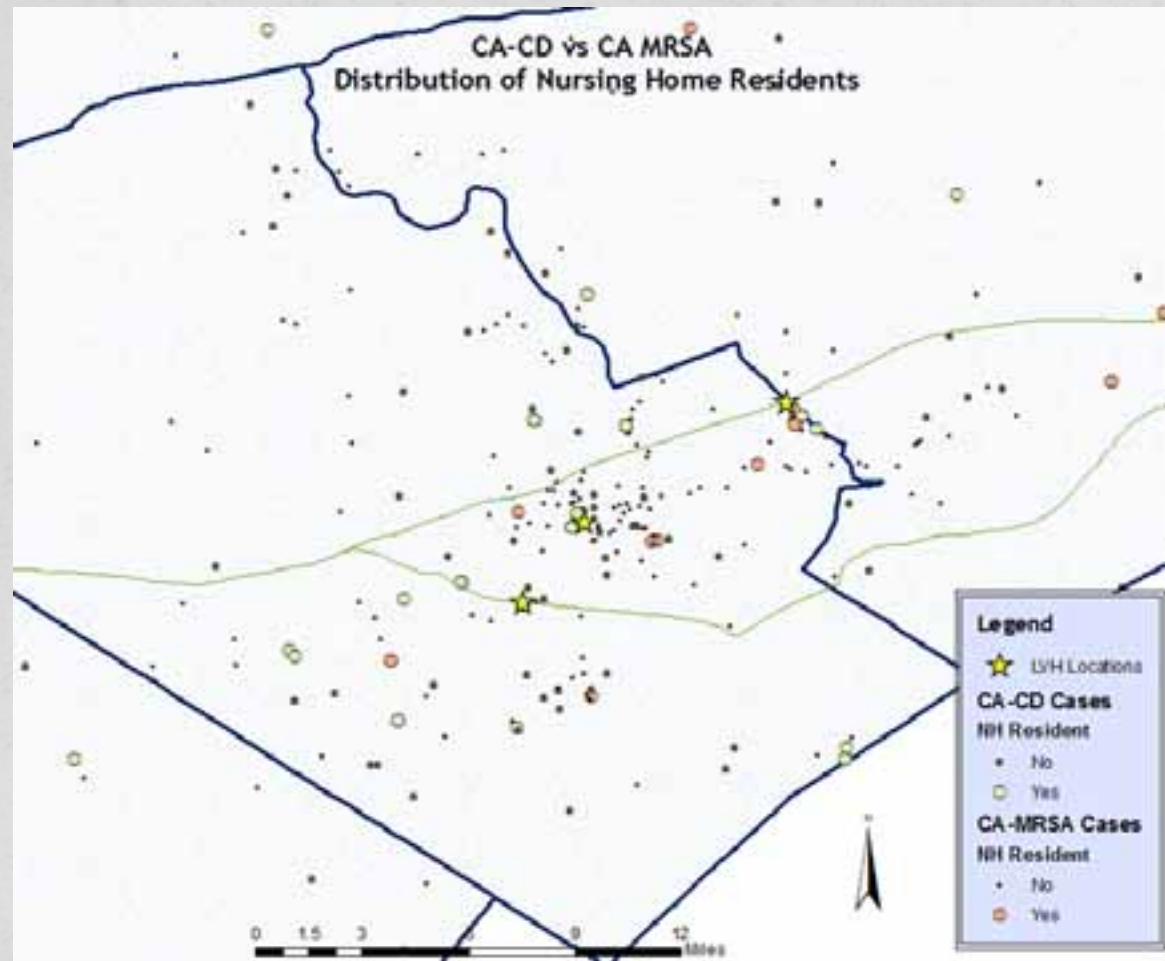
LYHHN MRSA CASES



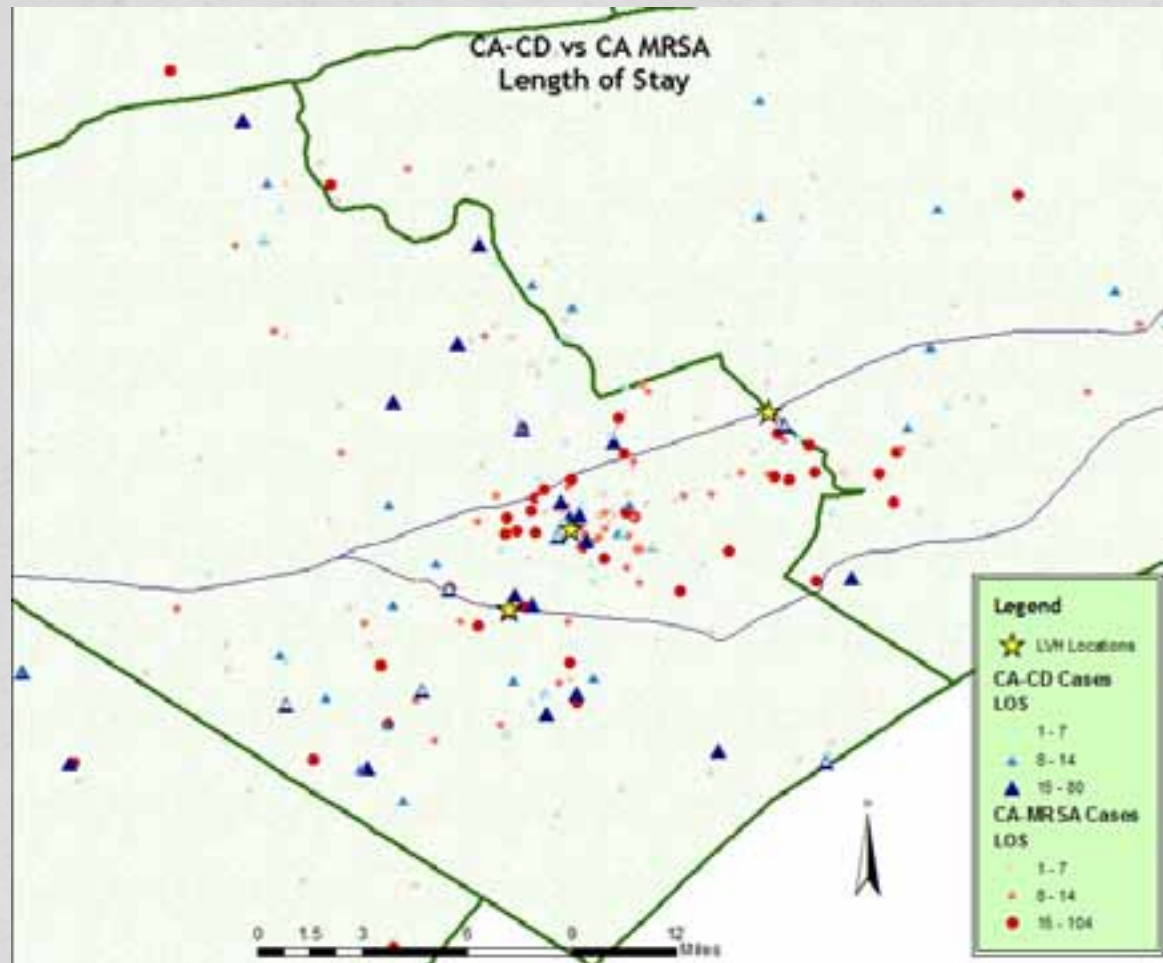
LYHHN CA-CD VS CA-MRSA



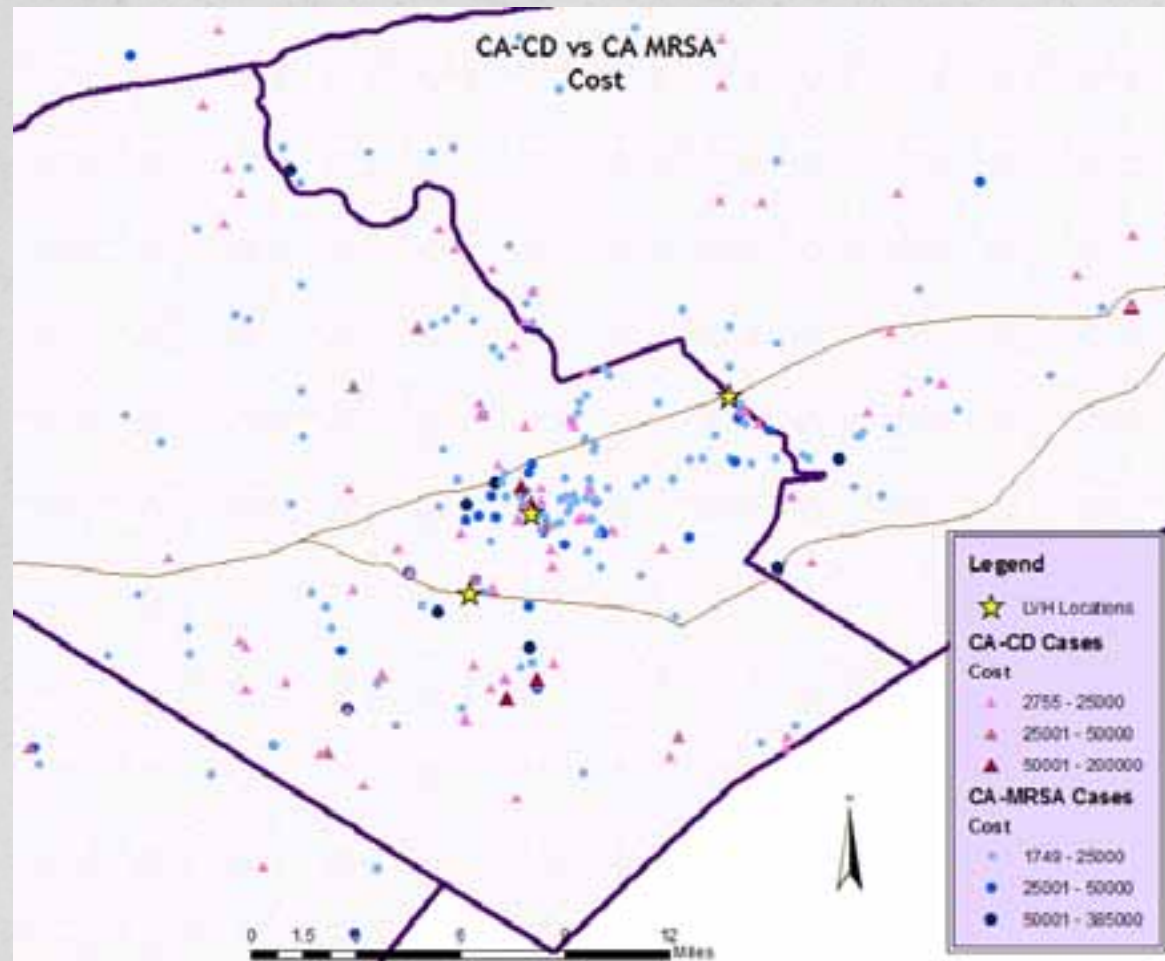
WHAT ABOUT THE NURSING HOMES?



RESOURCE CONSUMPTION



HOW MUCH DID YOU SAY?!




CONCLUSIONS

- CA-MRSA is on the rise
- The burden of CA-MRSA is greater than CA-CD
- LOS for CA-MRSA is generally 1/3 longer than CA-CD
- CA-MRSA costs are generally DOUBLE those of CA-CD
- Over 80% correlation between LOS and cost
- Nursing homes are NOT the culprit
- Younger people are getting sicker, quicker
- Has a draining impact on our resources
- Reimbursement

WHAT CAN WE DO?

- Hospitals and Healthcare networks must diligently survey the most vulnerable units for CA-MRSA
- Hand washing protocol as well as universal protection measures must be implemented
- Physicians must adopt and adhere to current practice guidelines and recommendations
- Be familiar with CDC guidelines
- WHATEVER IT TAKES!!!

TAP INTO YOUR RESOURCES



Department of Health and Human Services
Centers for Disease Control and Prevention

[CDC en Español](#)

Search: [Go](#)

[Infection Control Home](#) > [Healthcare-Associated Infections](#) > [Antimicrobial Resistance](#)

Community-Associated Methicillin Resistant *Staphylococcus aureus* (CA-MRSA)

[Overview](#)
[Prevention & Control](#)
[Outbreaks](#)
[Educational Materials](#)

Overview of Community-Associated MRSA

Methicillin-resistant *Staphylococcus Aureus* (MRSA) is a type of [staph](#) that is resistant to certain antibiotics. These antibiotics include methicillin and other more common antibiotics such as oxacillin, penicillin and amoxicillin. Staph infections, including MRSA, occur most frequently among persons in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems (see [healthcare-associated MRSA](#)).

MRSA infections that are acquired by persons who have not been recently (within the past year) hospitalized or had a medical procedure (such as dialysis, surgery, catheters) are known as CA-MRSA infections. Staph or MRSA infections in the community are usually manifested as skin infections, such as pimples and boils, and occur in otherwise healthy people.

Background/General Information

- [CA-MRSA Information for the Public](#)
- [CA-MRSA Information for Clinicians](#)
- [What Is CDC Doing about MRSA?](#)

Educational Materials

- [Patient Information Sheet](#)

Infection Control Topics

- [Infection Control Home](#)
- [Healthcare-Associated Infections](#)
- [Protecting Patients](#)
- [Protecting Healthcare Workers](#)
- [Infection Control Guidelines](#)
- [Infection Control A-Z](#)
- [About DHQP](#)

Related CDC Resources

- [CDC and Prevention Experts' 2006 Meeting Summary](#)
- [Healthcare-Associated MRSA](#)
- [CDC's Primary Antimicrobial Resistance Page](#)

Related Guidelines

- [Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006](#)
PDF 235KB / 73 pages
- [Hand Hygiene in Health Settings - 2002](#)
- [Isolation Precaution in Health Settings - 2002](#)



IT'S YOUR TURN...

