Background

On August 2, 2007, Governor Jon Corzine signed Senate Bill 2580 into law. P.L. 2007 c.120, codified at N.J.S.A. 26:2H-12.35 et seq., requires that general hospitals implement an infection control program in their intensive care unit(s) or other “high-risk” settings. The specific MRSA-related activities mandated by the law include: the identification of persons with MRSA upon admission to, and transfer or discharge from, the unit where the active surveillance is being performed; institution of contact (isolation) precautions for MRSA-positive patients; and identification of patients known to be MRSA-positive upon readmission to the hospital. In addition, general hospitals are to facilitate strict adherence to hand hygiene, have a written infection control policy in place, and provide worker education that covers the following topics: how MRSA is transmitted, when and how personal protective equipment should be used, appropriate disinfection procedures, and other preventive measures. Finally, the law requires hospitals to report the number of hospital-acquired cases of MRSA that occur in their facility to the New Jersey Department of Health (DOH). NJ DOH is responsible for reporting the law’s impact on reducing MRSA infections in hospitals to the extent that funds permit.

CDC National Healthcare Safety Network

The National Healthcare Safety Network (NHSN), managed by the federal Centers for Disease Control and Prevention (CDC), collects national data on healthcare-associated adverse events and their risk factors. NHSN is a web-based surveillance system into which facilities enter facility-specific patient safety data for surveillance, prevention, or mandatory public reporting. New Jersey hospitals were being trained in using NHSN for other reporting requirements at the time the MRSA legislation was passed. The CDC NHSN Multidrug-Resistant Organism (MDRO) module was identified as the mechanism by which hospitals would report the above measures to NJDOH. The timing of Senate Bill 2580’s passage led to New Jersey’s MDRO data being “off-plan,” which meant that it did not meet CDC’s data definitions and made New Jersey’s data incomparable to any national data.

Methods

Hospital MRSA reporting

Hospitals have been reporting from March 2009 through December 2010. They have been required to submit to NJDOH via the CDC NHSN MDRO module: (1) the number of cases of hospital-onset MRSA bloodstream infections per 1000 patient days that have occurred in the facility, specified by hospital unit where active surveillance testing (AST) for MRSA was performed (laboratory-identified events, or LabID events), and (2) the percentage of eligible patients who had a MRSA surveillance test performed on admission to a hospital unit where active surveillance testing for MRSA was performed (AST compliance). Hospital-onset MRSA bloodstream infections are defined as a positive blood specimen for MRSA, taken when the patient is in a monitored unit within the hospital, and the date of collection is greater than three days after admission. AST compliance values are based on self-reported AST compliance rates, where hospitals report the number of patients who received AST and the total number of AST-eligible patients.

Data confirmation for 2010 Data

Hospitals report their respective facility’s data directly into NHSN. There are currently no resources for NJDOH to perform data validation on either of the MRSA measurements hospitals are required to report. In October 2011, each hospital was sent a report via e-mail and postal mail that contained their facility-specific NHSN data for both MRSA LabID events and AST compliance for review. Hospitals were asked to confirm the accuracy of their data. Non-responses from hospitals were considered confirmation of their data.

Results

The 2010 MRSA data in this report are aggregated from all 72 New Jersey acute-care hospitals. Altogether, 66 (91.7%) of 72 hospitals responded to NJDOH with data confirmation or edits on both MRSA LabID events and AST compliance. This is a 10% increase from 2009 in the number of hospital responses received.
(1) Hospital-onset MRSA bloodstream infections per 1,000 patient days, monitored within a hospital unit where AST for MRSA is being performed, was calculated across all monitored units at all hospitals in New Jersey:

- For 2010, there were 66 laboratory-identified hospital-onset MRSA blood specimens reported for 636,885 patient days, for an incidence rate: \((66/636885) \times 1000 = 0.104\) MRSA infections per 1000 patient days.
- For 2009, there were 71 laboratory-identified hospital-onset MRSA blood specimens reported for 500,165 patient days, for an incidence rate: \((71/500165) \times 1000 = 0.142\) MRSA infections per 1000 patient days.

(2) AST compliance for MRSA upon admission to a hospital unit where AST for MRSA is being performed:

- For 2010, an overall monthly AST compliance percentage was calculated across all units where AST was completed in New Jersey hospitals. The overall average monthly compliance is 95.3% (range: 94.4-96.3%), and the median monthly compliance rate is 98.0% (range: 97.4-98.3%).
- For 2009, an overall monthly AST compliance percentage was calculated across all units where AST was completed in New Jersey hospitals. The overall average monthly compliance was 94.4% (range: 93.6-95.8%), and the median monthly compliance rate is 98.0% (range: 97.1-98.7%).

**Limitations**

Per CDC, LabID events are proxies for infection measures of MRSA, healthcare acquisition, exposure burden, and infection burden. Laboratory testing results can be used without clinical evaluation of the patient, allowing for much less labor-intensive means to track MRSA in hospitals. Some data elements, such as date admitted to the patient care location, may require other data sources. While the laboratory and admission data elements can be used together to calculate MRSA bloodstream infection incidence rates in a non-labor intensive manner, the lack of clinical data does decrease accuracy in measuring healthcare acquired infections.

New Jersey’s MRSA rates for 2009 and 2010 are very low. Besides the possibility that they may actually be lower than expected, there are some confounding factors:

- For the 2009 and 2010 reporting years, New Jersey hospitals have only been reporting MRSA bloodstream infections in units where they performed their AST, i.e., New Jersey hospitals used NHSN “out of plan” for 2009 and 2010 because they were only reporting on a minimum of one unit. The data captured from these two years of reporting are measuring unit-onset for these MRSA bloodstream infections. Hospital-onset cases that occurred in non-reporting units may be missed (e.g., if patient was on a general medical unit for three weeks, acquired MRSA in the second week, was then transferred to the monitored ICU and had a positive culture, this case would not be counted as hospital-onset).
- The data reported from hospitals and summarized in this report is not validated. CDC states in the First Site-Specific HAI Summary Data Report (2010) that those states conducting data validation efforts reported more infections than those without data validation efforts.
- Finally, since New Jersey’s MRSA legislation was passed prior to the CDC NHSN MDRO module’s development, NJ had to develop its own MRSA data reporting rules. Subsequently, when the CDC’s MRSA data definitions were developed, New Jersey’s data reporting into the MDRO module was “off-plan”, since NJ’s data did not follow CDC’s reporting definitions. Therefore, New Jersey’s data for 2009 and 2010 are not comparable to any national data.

**Future plans**

MRSA reporting was modified for 2011. Beginning January 2011, hospitals were required to report MRSA bloodstream infections hospital-wide for all in-patient units. Hospitals are reporting all positive LabID-events which include both community-onset and hospital-onset events. With these additional reporting requirements, New Jersey will now be contributing to the national NHSN data on MRSA and will now be comparable to other states that are reporting on MRSA LabID events. In following CDC’s reporting requirements, New Jersey will be able to compare hospital-onset rates of MRSA with future benchmarks that will be developed for MRSA reporting.