NHSN Metrics

Maggie Dudeck, MPH, CPH
Acting Lead – NHSN Methods and Analytics Team

Scott Decker, MPH
NHSN Analyst, ORISE Fellow

Katharina van Santen, MSPH
Statistical Data Analyst

HAI and Ebola Supplement Grantees’ Meeting
November 17, 2015
Agenda

- Update to National Risk-Adjustment of HAI Data
  - Maggie Dudeck

- Data Quality Outreach
  - Scott Decker

- Introduction to the Standardized Antimicrobial Administration Ratio (SAAR)
  - Katharina van Santen
Update to National Risk-Adjustment of HAI Data

Maggie Dudeck, MPH, CPH
Acting Lead – NHSN Methods and Analytics Team
Standardized Infection Ratios (SIRs) use a static baseline for the calculation of observed infections to predicted infections.

Current baselines vary for each HAI type and/or facility type:
- CLABSI: 2006-08 (ACH), 2013 (LTACH)
- CAUTI: 2009 (ACH), 2013 (LTACH, IRF)
- SSI: 2006-2008
- MRSA bacteremia, CDI LabID: 2010-2011 (ACH)

Risk adjustment methods for # predicted infections vary:
- CLABSI, CAUTI: based on National Pooled Mean rates, stratified by location
- SSI: logistic regression model
- LabID: negative binomial regression
Update to National Risk-Adjustment

- Data reported to NHSN for 2015 will be used as a new baseline for SIRs
  - “Re-baseline”
- Since original baselines:
  - Changes to NHSN definitions and surveillance protocols
  - Increase of number and types of facilities reporting to NHSN
  - Changes to facility demographics
  - Increase in reporting (types of HAIs, locations, procedures)
  - Increase in use of Group function
  - Increase in prevention activities
Re-Baseline Plans - Analysis

- **Current Analyses Planned/Prioritized:**

<table>
<thead>
<tr>
<th>Event</th>
<th>Acute Care Hospitals</th>
<th>LTACHs</th>
<th>IRFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLABSI</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>CAUTI</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SSI (3 models)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRSA LabID</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CDI LabID</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

In addition:
VAE, MBI-LCBIs, Antimicrobial Resistance – HAIs, Antimicrobial Use
Re-Baseline Plans - Analysis

- CDC will use a complete year of data for the final risk adjustment
  - Will use data considered “final” as of each CMS deadline date
- Risk adjustment methods and risk models may vary from previous baselines
- CDC plans to move toward risk models for the new CLABSI and CAUTI baseline
  - Location-stratified rates would not be available at the national level
  - Allows for assessment of other factors:
    - Facility type
    - Facility bedsize
    - Medical school affiliation
    - Device-utilization ratios – to be discussed
Re-Baseline Plans - Analysis

Timeline:

- Spring 2015: Analyzed 2014 Annual Survey data
  - Identified existing data quality issues and modified survey, as needed, for next year
  - 2015 survey, completed in early 2016, will be used for final, national risk adjustment
- Summer 2015: Began preliminary analyses of reported data
  - Fall 2015-Spring 2016: Continue preliminary analyses and risk-adjustment work
  - June 1, 2016: Run final analyses and risk-adjustment
  - July 15, 2016: Complete risk-adjustment
  - August 15, 2016: 2016Q1 data will be submitted to CMS using new 2015 baseline
  - December 2016/January 2017: Incorporate new SIRs and risk-adjustment into NHSN application
Re-Baseline Plans - Implementation

- For 2015 HAI data, CDC will continue to provide SIRs to CMS using the previous baselines and will provide replacement SIRs—using the new baselines—once they are available in the second half of 2016.

- New baseline and risk-adjustment will be implemented in Dec. 2016/Jan. 2017 release of NHSN
  - New output options for SIRs calculated on the new baseline, for 2015+ data
  - Legacy SIRs calculated on “old” baseline will be retained – SIRs will also be calculated on old baseline through 2016 data
  - Additional improvements to output options are planned:
    - DA output grouped by location type (e.g., WARD, CC_ONC), rather than denominator type (e.g., ICU-OTHER)
    - Indicator variable(s) for procedures/SSIs excluded from the models, with brief explanation of reason for exclusion
    - MBI-LCBI rate table(s)
    - Add clear option for cumulative rate/SIR for specified time period
QUESTIONS???
NHSN Data Quality Outreach

Scott Decker, MPH
NHSN Analyst, ORISE Fellow
Methods and Analytics Team

November 17, 2015
Overview

- Outreach Rationale and Goals

- Recent Efforts
  - LabID Summary (Denominator) Data
  - Annual Survey Bedsize Counts
  - Sample Denominator for CLABSI & CAUTI

- New Resources Available for NHSN Users

* Citations, references, and credits
NHSN Data Quality Goals

- Identify potential issues in facility-level data reporting prior to CMS deadlines
- Ensure the accuracy of data for the upcoming NHSN re-baseline
- Provide technical assistance to NHSN users
- Expand NHSN users knowledge and comfort for data use for reporting and internal applications
## 2015 NHSN Data Quality Outreach Issues to Date

<table>
<thead>
<tr>
<th>Month Sent</th>
<th>Facility Type</th>
<th>Reporting Period</th>
<th>Issue</th>
<th># of Facilities Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>ACHs</td>
<td>Q1</td>
<td>Incorrect Summary Data</td>
<td>263</td>
</tr>
<tr>
<td>August</td>
<td>ACHs</td>
<td>Q1</td>
<td>Incorrect Summary Data</td>
<td>29</td>
</tr>
<tr>
<td>August</td>
<td>ACHs/IRFs</td>
<td>Q1</td>
<td>Missing Survey</td>
<td>20</td>
</tr>
<tr>
<td>August</td>
<td>LTACs</td>
<td>Q2</td>
<td>Incorrect Summary Data</td>
<td>33</td>
</tr>
<tr>
<td>September</td>
<td>ACHs</td>
<td>Q1/Q2</td>
<td>Misreporting Sample Denominator #'s</td>
<td>17</td>
</tr>
<tr>
<td>October</td>
<td>ACHs/IRFs</td>
<td>Q1/Q2</td>
<td>Not subtracting IRF beds from LabID Summary Data</td>
<td>121</td>
</tr>
</tbody>
</table>
LabID Summary Data – Same Values Reported for Patient Days/Admissions

- Identical figures entered for MDRO and/or CDI Patient Days/Admissions in FACWIDEIN

- “MDRO/CDI Patient Days” = Total # of *days* patients are housed in an inpatient facility, regardless of infection status

- “MDRO/CDI Admission” = Total # of *patients* who are admitted to any inpatient location in your facility

<table>
<thead>
<tr>
<th>Location Code</th>
<th>FACWIDEIN - Facility-wide Inpatient (FacWIDEIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month*</td>
<td>March</td>
</tr>
<tr>
<td>Year*</td>
<td>2015</td>
</tr>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Setting: Inpatient</td>
<td>Total Facility Patient Days <em>&quot;</em>: 8973 Total Facility Admissions <em>&quot;</em>: 2143</td>
</tr>
<tr>
<td></td>
<td>Total Facility Admissions: 2143</td>
</tr>
<tr>
<td></td>
<td>Total Facility Encounters:</td>
</tr>
<tr>
<td>If monitoring MDRO in a FACWIDE location, then subtract all counts from patient care units with unique CCNe(IfR and IFP) from Totals:</td>
<td></td>
</tr>
<tr>
<td>MDRO Patient Days*: 2143 MDRO Admissions*: 2143 MDRO Encounters:</td>
<td></td>
</tr>
<tr>
<td>If monitoring C. difficile in a FACWIDE location, then subtract all counts from patient care units with unique CCNe(IfR and IFP) as well as NICU and Well Baby counts from Totals:</td>
<td></td>
</tr>
<tr>
<td>CDI Patient Days*: 8973 CDI Admissions*: 2143 CDI Encounters:</td>
<td></td>
</tr>
<tr>
<td>For this quarter, what is the primary testing method for C. difficile used most often by your facility’s laboratory or the outside laboratory where your facility’s testing is performed?*</td>
<td></td>
</tr>
<tr>
<td>NAAT - Nucleic acid amplification test (NAAT)</td>
<td></td>
</tr>
</tbody>
</table>
LabID Summary Data- 0 Patient Days Reported

- MDRO and CDI Patient Days/Admissions are **not** counts of events or # of patients with infection
- Errors impact a facility’s Standardized Infection Ratio (SIR) available on Hospital Compare
- Also impact the new national baseline generated from 2015 NHSN data
LabID Summary Data- IRF Bed Subtraction

- ACHs with IRFs who have not subtracted LabID counts from FACWIDEIN summary data

Facilities instructed to review individual summary data for IRF locations to identify figure to subtract

\[
\text{9721 Total Inpatient Days} - \text{848 IRF Patient Days} = \text{8873 MDRO Patient Days for FACWIDEIN}
\]
Sample Denominator

- As of January 2015 a new alternative method to report CLABSI & CAUTI denominator data in ICU and ward location types only was introduced.
- Must have an average of 75 central line (CL) days per month.
- Average number of device days per month = Total number of device days (numcldays) / number of months (use the past 12 months in NHSN as sample period).

* Total # of patient days must still be counted and reported monthly.
Additional Resources

- Copies of correspondence sent to facilities with these potential issues are available by request (nhsn@cdc.gov) – including instructions to resolve data entry errors


For additional support and guidance about data reporting in NHSN please contact
nhsn@cdc.gov
Intro to the Standardized Antimicrobial Administration Ratio (SAAR)

Katharina van Santen, MSPH
Statistical Data Analyst
Division of Healthcare Quality Promotion
CDC
Outline

- NQF SAAR measure development
- Building the models
- SAAR Output Options
  - Facility level output
  - Group function output
- Additional Resources
NQF MEASURE DEVELOPMENT
Antimicrobial Use Option of the AUR Module

- The Antimicrobial Use Option of the Antimicrobial Use and Resistance Module was first implemented in NHSN in 2011
- We have data from some facilities for as early as 2010
- 119 facilities have ever reported data, ~85 currently actively reporting
- Electronic data submission only (eMAR/BCMA, CDA)
- Data aggregated by unit, no patient level data
Antibiotic Use Option of the AUR Module

- Voluntary Reporting
- Minimum reporting requirements
  - Data submission for the following locations
    1. All Medical, Medical/Surgical, and Surgical ICUs
    2. All Medical, Medical/Surgical, and Surgical Wards
    3. At least one specialty care area
    4. Facility-wide inpatient
  - The following data fields:
    • Antimicrobial days (days of therapy)
    • Days present
    • Admissions

Antimicrobial Use Rate = \( \frac{\text{Antimicrobial Days}}{\text{Days Present}} \)
SAAR Development

- New analytic functionality in NHSN—scheduled for release in January 2016—will enable AU option users to calculate quarterly, half-year and annual SAARs.
- DHQP seeks input from AU users on the value and limitations of the SAAR in their antimicrobial stewardship programs.
NHSN’s Metric for Summarizing AU Data – Standardized Antimicrobial Administration Ratio (SAAR)

SAAR is an Observed-to-Expected (O-to-E) ratio

- **Observed antibacterial use** – Days of therapy reported by a healthcare facility for a specified category of antimicrobial agents in a specified patient care location or group of locations

- **Expected antibacterial use** – Days of therapy predicted for a healthcare facility’s use of a specified category of antimicrobial agents in a specified category patient care location or group of locations on the basis negative binomial regression modeling applied to nationally aggregated AU data

The SAAR metric is constructed by using an indirect standardization method for comparing observed to expected days of therapy
Interpreting SAAR values

The SAAR is a ratio. The calculated SAAR value is always greater than 0, and a value of 1.0 suggests equivalency between observed and predicted antimicrobial use.

- A high SAAR (above 1.0) that achieves statistical significance (i.e., different from 1.0) may indicate excessive antimicrobial use.
- A SAAR that is not statistically different from 1.0 indicates antimicrobial use is equivalent to the referent population’s antimicrobial use.
- A low SAAR (below 1.0) that achieves statistical significance (i.e., different from 1.0) may indicate antimicrobial under use.

Note: A SAAR alone is not a definitive measure of the appropriateness or judiciousness of antimicrobial use, and any SAAR may warrant further investigation. For example, a SAAR above 1.0 that does not achieve statistical significance may be associated with meaningful excess of antimicrobial use and further investigation may be needed. Also, a SAAR that is statistically different from 1.0 does not mean that further investigation will be productive.
SAAR Calculations Cover 5 Antibacterial Agent Categories

High value targets for antimicrobial stewardship programs:

1. **Broad spectrum agents predominantly used for hospital-onset/multi-drug resistant bacteria** – aminoglycosides, some carbapenems, some cephalosporins, some fluoroquinolones, penicillin B-lactam/b-lactamase inhibitor combinations, and other agents

2. **Broad spectrum agents predominantly used for community-acquired infection** – ertapenem, some cephalosporins, and some fluoroquinolones

3. **Anti-MRSA agents** – ceftaroline, dalbavancin, daptomycin, linezolid, oritavancin, quinupristin/dalfopristin, tedizolid, telavancin, and vancomycin (IV route only)

4. **Agents predominantly used for surgical site infection prophylaxis** – cefazolin, cefotetan, cefoxitin, cefuroxime (IV route only)

High level indicators for antimicrobial stewardship programs:

5. **All antibacterial agents** – All agents included in NHSN AUR protocol
SAARs for broad spectrum antibacterial agents predominantly used for hospital-onset/multidrug resistant infections:

1. Adult medical, medical/surgical, and surgical ICUs
2. Adult medical, medical/surgical, and surgical wards
3. Pediatric medical, medical/surgical, and surgical ICUs
4. Pediatric medical, medical/surgical, and surgical wards

SAARs for broad spectrum antibacterial agents predominantly used for community-acquired infections:

5. Adult medical, medical/surgical, and surgical ICUs
6. Adult medical, medical/surgical, and surgical wards
7. Pediatric medical, medical/surgical, and surgical ICUs
8. Pediatric medical, medical/surgical, and surgical wards
SAARs for anti-MRSA antibacterial agents:
9. Adult medical, medical/surgical, and surgical ICUs
10. Adult medical, medical/surgical, and surgical wards
11. Pediatric medical, medical/surgical, and surgical ICUs
12. Pediatric medical, medical/surgical, and surgical wards

SAARs for antibacterial agents predominantly used for surgical site infection prophylaxis:
13. Adult ICUs and wards (medical, medical/surgical, and surgical)
14. Pediatric ICUs and wards (medical, medical/surgical, and surgical)
SAARs for all antibacterial agents:

15. Adult ICUs and wards (medical, medical/surgical, and surgical)
16. Pediatric ICUs and wards (medical, medical/surgical, and surgical)
NHSN AU Measure Proposal –
A Limited Set of Initial, Intended Uses

- Public health/disease surveillance
- Quality improvement (internal to the specific organization)
- Quality improvement (external benchmarking involving multiple organizations)
- Public reporting
- Payment program
- Regulatory and accreditation programs
- Professional certification or recognition program
BUILDING THE MODELS
Building the Models: Part I

- Dataset for modeling restricted to:
  - Calendar year 2014
  - Minimum reporting locations:
    - Adult Medical, Med/Surg, and Surgical ICUs
    - Adult Medical, Med/Surg, and Surgical Wards
    - Pediatric Medical, Med/Surg, and Surgical ICUs
    - Pediatric Medical, Med/Surg, and Surgical Wards

- Developed 5 separate models for each of the antimicrobial groups
Building the Models: Part II

- Building a Model:
  - No patient level data, only unit and facility-level data

- Factors/variables considered:
  - **Facility Level**: Hospital bedsize, ICU bedsize, hospital teaching status
  - **Location Level**: Location bedsize, ICU status, ward types: medical, medical/surgical, and surgical wards, pediatric location

- **Modeling details**:
  - Negative Binomial Regression
  - Binary or Nominal variables
  - Calculates the number of expected antimicrobial days
Building the Models: Part III

- **Final Models:**
  - **Model A:** Broad Spectrum Agents Predominantly Used for Hospital-Onset/multi-drug resistant infections
    - ICU, 4 way location-type variable: Medical Unit, Med/Surg Unit, Surgical Unit, Pediatric Unit*
  - **Model B:** Broad Spectrum Agents Predominantly Used for Community Acquired infections
    - Teaching Status, ICU, Pediatric Location
  - **Model C:** Anti MRSA
    - ICU, 4 way location-type variable: Medical Unit, Med/Surg Unit, Surgical Unit, Pediatric Unit*, Interaction Term: ICU and 4 way location-type variable
  - **Model D:** Agents Predominantly used or Surgical Site Infection Prophylaxis
    - ICU, Surgical Location
  - **Model E:** All Antimicrobial Agents
    - ICU, 4 way location-type variable: Medical Unit, Med/Surg Unit, Surgical Unit, Pediatric Unit*

*Referent group in a multi-way variable*
SAAR OUTPUT OPTIONS
SAAR output options coming in January 2016

SAARs for each of the groups:
- All Antimicrobial Agents
- Broad Spectrum Agents Predominantly Used for Onset/multi-drug resistant infections
- Broad Spectrum Agents Predominantly Used for Community Acquired infections
- Anti MRSA
- Agents Predominantly used for Surgical Site Prophylaxis

Adult and Pediatrics shown separately
All antimicrobials shown first: Adult combined ICU and ward
Individual Facility SAAR Output Options in NHSN: Part III

- HO/MDRO, CO, and Anti-MRSA SAAR stratified by ICU and WARD

### National Healthcare Safety Network

**SAARs Table - All Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets**

As of November 18, 2015 at 12:56 PM

Data Range: All AU, SAAR

#### Antimicrobials used for hospital-onset/multi-drug resistant infections in adult ICUs

<table>
<thead>
<tr>
<th>orgID</th>
<th>summaryYQ</th>
<th>SAARtype</th>
<th>抗菌微代理DAYS</th>
<th>numAUDaysPredicted</th>
<th>numDaysPresent</th>
<th>SAAR</th>
<th>SAAR_pval</th>
<th>SAAR95CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>13960</td>
<td>2014/Q1</td>
<td>TAR-Adult-1</td>
<td>931</td>
<td>676.939</td>
<td>2800</td>
<td>1.375</td>
<td>0.0000</td>
<td>1.289</td>
</tr>
<tr>
<td>13960</td>
<td>2014/Q2</td>
<td>TAR-Adult-1</td>
<td>1966</td>
<td>563.623</td>
<td>2215</td>
<td>1.892</td>
<td>0.0000</td>
<td>1.781</td>
</tr>
<tr>
<td>13960</td>
<td>2014/Q3</td>
<td>TAR-Adult-1</td>
<td>926</td>
<td>581.879</td>
<td>2339</td>
<td>1.565</td>
<td>0.0000</td>
<td>1.466</td>
</tr>
<tr>
<td>13960</td>
<td>2014/Q4</td>
<td>TAR-Adult-1</td>
<td>858</td>
<td>385.558</td>
<td>1441</td>
<td>1.785</td>
<td>0.0000</td>
<td>1.653</td>
</tr>
<tr>
<td>13960</td>
<td>2015/Q1</td>
<td>TAR-Adult-1</td>
<td>266</td>
<td>180.924</td>
<td>700</td>
<td>1.464</td>
<td>0.0000</td>
<td>1.296</td>
</tr>
</tbody>
</table>

Includes data for January 2014 and forward.
Data restricted to medical, medical/surgical and surgical locations.
Source of aggregate data: 2014 NHEN AU Data
Data contained in this report were last generated on November 9, 2015 at 1:19 PM.

#### Antimicrobials used for hospital-onset/multi-drug resistant infections in adult wards

<table>
<thead>
<tr>
<th>orgID</th>
<th>summaryYQ</th>
<th>SAARtype</th>
<th>抗菌微代理DAYS</th>
<th>numAUDaysPredicted</th>
<th>numDaysPresent</th>
<th>SAAR</th>
<th>SAAR_pval</th>
<th>SAAR95CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>13960</td>
<td>2014/Q1</td>
<td>TAR-Adult-2</td>
<td>151</td>
<td>381.045</td>
<td>3526</td>
<td>0.396</td>
<td>0.0000</td>
<td>0.337</td>
</tr>
<tr>
<td>13960</td>
<td>2014/Q2</td>
<td>TAR-Adult-2</td>
<td>175</td>
<td>373.157</td>
<td>3453</td>
<td>0.459</td>
<td>0.0000</td>
<td>0.406</td>
</tr>
<tr>
<td>13960</td>
<td>2014/Q3</td>
<td>TAR-Adult-2</td>
<td>121</td>
<td>370.239</td>
<td>3426</td>
<td>0.354</td>
<td>0.0000</td>
<td>0.287</td>
</tr>
<tr>
<td>13960</td>
<td>2014/Q4</td>
<td>TAR-Adult-2</td>
<td>112</td>
<td>252.662</td>
<td>2338</td>
<td>0.443</td>
<td>0.0000</td>
<td>0.367</td>
</tr>
<tr>
<td>13960</td>
<td>2015/Q1</td>
<td>TAR-Adult-2</td>
<td>51</td>
<td>123.521</td>
<td>1143</td>
<td>0.413</td>
<td>0.0000</td>
<td>0.311</td>
</tr>
</tbody>
</table>
Individual Facility SAAR Output Options in NHSN: Part IV

- Customizable Output Options

![Image of customizable output options](image_url)

**Anti-MRSA antimicrobials used in adult ICUs**

<table>
<thead>
<tr>
<th>orgID</th>
<th>summaryYr</th>
<th>SAARType</th>
<th>antimicrobialDays</th>
<th>numAUDaysProjected</th>
<th>numDaysPresent</th>
<th>SAAR</th>
<th>SAAR_pval</th>
<th>SAARN95CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>13860</td>
<td>2014</td>
<td>TAR-Adult-5</td>
<td>1705</td>
<td>1734.920</td>
<td>8795</td>
<td>0.983</td>
<td>0.4812</td>
<td>0.937, 1.030</td>
</tr>
</tbody>
</table>

Includes data for January 2014 and forward.

Data restricted to medical, medical/surgical and surgical locations.

Source of aggregate data: 2014 NHSN AU Data.

Data contained in this report was last generated on November 9, 2015 at 1:19 PM.
Individual Facility SAAR Output Options in NHSN: Part V

- Customizable Output Options

---

![Screen capture of a table showing antimicrobials used for hospital-onset/multi-drug resistant infections in adult ICUs. The table includes columns for orgID, summaryYQ, SAARType, antimicrobialDays, numAllDaysPredicted, numDaysPresent, SAAR, and SAAR95CI. The data is as of November 10, 2015.](image-url)
Group SAAR Output Options in NHSN: Part I

- Standard Output includes all orgIDs in your group

![SAAR Table](image-url)
Customizable Output: Specific location types and dates
Other AU Output Options in NHSN

- **Drug specific rates**

- **Antimicrobial Use and Resistance Module**
  - SAAR Report - All SAARs
  - Line Listing - Most Recent Month of AU Data for ...more
  - Line Listing - Most Recent Month of AU Data by ...more
  - Line Listing - All Submitted AU Data for FACWIDEIN
  - Line Listing - All Submitted AU Data by Location
  - Rate Table - Most Recent Month of AU Data - Anti...more
  - Rate Table - All Submitted AU Data - Antimicrobi...more
  - Rate Table - Most Recent Month of AU Data - Anti...more
  - Rate Table - All Submitted AU Data - Antimicrobi...more
  - Rate Table - Selected Drugs - FACWIDEIN - Most R...more
  - Rate Table - Selected Drugs - FACWIDEIN - All Mon...more
  - Rate Table - Selected Drugs - by Location - Most...more
  - Rate Table - Selected Drugs - by Location - All...more
  - Pie Chart - Most Recent Month of AU Data by Anti...more
  - Pie Chart - All AU Data by Antibacterial Class a...more

**National Healthcare Safety Network**

**Rate Table - Selected Drugs from All AU Data - Antimicrobial Utilization Rates by Location**

Rate per 1,000 Days Present

As of: November 18, 2015 at 1:28 PM

Date Range: AU_DRUGRATE_SOCIATION summaryYQ 2014Q2 to 2014Q2

If (((drugIngredientDesc = "VANC")))

orgID=10656 locCDC=IN:ACUTE:CC:M location=AMICU-1

<table>
<thead>
<tr>
<th>summaryYQ</th>
<th>antimicrobialDays</th>
<th>numDaysPresent</th>
<th>RatePer1000DaysPresent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014Q2</td>
<td>3</td>
<td>100</td>
<td>30.00</td>
</tr>
</tbody>
</table>
Additional Resources

- **NHSN AUR Protocol:**  

- **List of Antimicrobial Agents Eligible for AUR Module:**  

- **Participating 3rd party vendors for AU CDA:**  
  - [http://www.sidp.org/aurvendors](http://www.sidp.org/aurvendors)
NHSN Antibacterial Agents by SAAR category

- Broad spectrum agents predominantly used for hospital-onset/multi-drug resistant bacteria
  - Aminoglycoside
    - Amikacin
    - Gentamycin
    - Tobramycin
  - Carbapenem
    - Doripenem
    - Imipenem/Cilastin
    - Meropenem
  - Cephalosporin
    - Cefepime
    - Ceftazidime
  - Cephalosporin - Beta lactamase inhibitor combination
    - Ceftolozane/tazobactam
    - Ceftazadime/avibacatam
  - Penicillin Beta-lactam/Beta-lactamase inhibitor combination
    - Piperacillin (Ureidopenicillin)
    - Piperacillin-Tazobactam
    - Ticarcillin-Clavulanate
  - Other
    - Aztreonam (Monobactam)
    - Colistimethate (Polymyxin)
    - Polymixin B (Polymixin)
    - Tigecycline
NHSN Antibacterial Agents by SAAR category

- Broad spectrum agents predominantly used for community-acquired infection
  - Carbapenem
    - Ertapenem
  - Cephalosporin
    - Cefotaxime
    - Ceftriaxone
  - Fluroquinolone
    - Ciprofloxacin
    - Gemifloxacin
    - Levofloxacin
    - Moxifloxacin
NHSN Antibacterial Agents by SAAR category

- Anti-MRSA Agents

  - Ceftaroline
  - Dalbavancin
  - Daptomycin
  - Linezolid
  - Oritavancin
  - Quinupristin/Dalfopristin
  - Tedizolid
  - Telavancin
  - Vancomycin
NHSN Antibacterial Agents by SAAR category

- Agents predominantly used for surgical site infection prophylaxis
  - Cefazolin
  - Cefotetan
  - Cefoxitin
  - Cefuroxime
  - Cephalexin