NHSN AU Reporting and SAAR Interpretation: AUR Module

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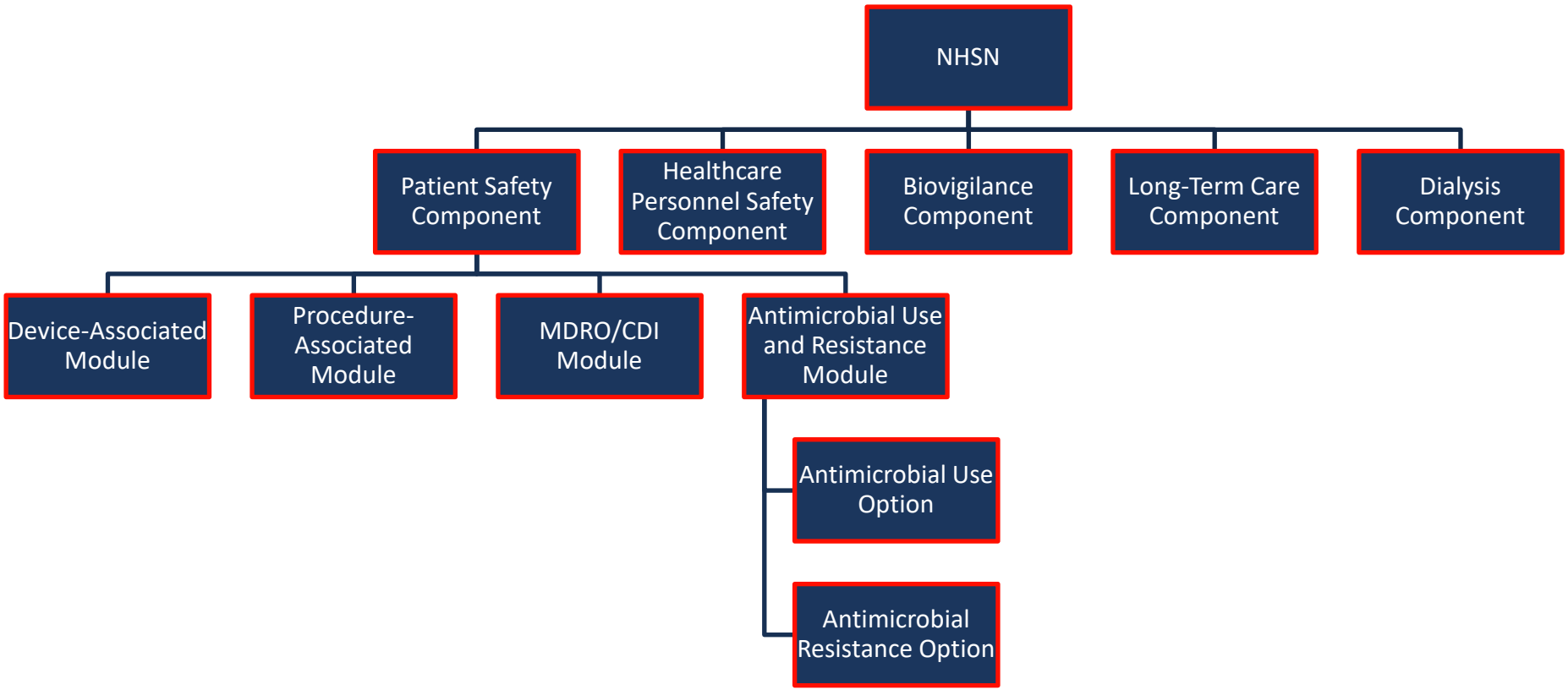
NHSN Structure



Antimicrobial Stewardship Metrics

- **Measures of Utilization**
  - Defined Daily Doses (DDD)
  - Days of Therapy (DOT)*
  - Antimicrobial Durations
  - Financial Data
  - Indications Data
  - Adherence to Guidelines/Interventions
  - Redundant Therapy Review*
- **Unintended Consequences Review**
  - Adverse Event Occurrence
  - MDRO Pathogen Surveillance*
  - Antimicrobial Susceptibility Rates (Antibiogram)
  - *C. difficile* Rates*
  - Mortality
    - Attributable to Infection
    - All-cause
  - Length of Stay and Readmissions

*Recommended by Structured Taskforce of Experts Working at Reliable Standards for Stewardship (STEWARDS) panel

Clinical Infectious Diseases 2017;64(3):377–83.

AU Option

- **Released in 2011**
- **Purpose:**
  - **Facilitate risk adjusted inter- and intra-facility benchmarking of antimicrobial usage.**
  - **Evaluate trends of antimicrobial usage over time at the facility and national levels**
  - **Benchmarking to other similar institutions**

[1]https://www.tn.gov/content/dam/tn/health/documents/hai/antibiotic-stewardship/Supp%20Doc%20to%20Comm%20Letter_Final_20210406.pdf
[2]https://www.federalregister.gov/documents/2022/08/10/2022-16472/medicare-program-hospital-inpatient-prospective-payment-systems-for-acute-care-hospitals-and-the

NHSN Required Metrics - Numerator

- **Antimicrobial Therapy (DOT)**
  - **Monthly aggregate, summary-level data**
  - **95 Antibiotics (IV, IM, Oral, Inhaled)**
  - **See CDC Antimicrobial Use and Resistance Module Protocol Appendix B for Full List**
    - **https://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf**
  - **Only administration data (eMAR/BCMA)**
- **Counting Antimicrobial Days**
  - **1 antimicrobial day per: 1 patient, 1 drug, 1 location, 1 calendar day**
    - **Regardless of how many administrations patient receives**
    - **Does NOT = Duration of Therapy**

Patient Case Example

- **A 57-year-old woman is being treated for VAP. She is initially started on vancomycin and meropenem, and amikacin is added for "dual gram-negative coverage" the next day. Vancomycin was removed when initial respiratory cultures grew gram-negative rods, which was finalized as *Pseudomonas aeruginosa*, susceptible to meropenem. Her MAR is detailed below:**

Drug	Day 1	Day 2	Day 3	Day 4
Amikacin 500mg IV q8		0700 1500 2300	dc'd 0659	
Meropenem 1000mg IV q8	2200	0600 1400 2200	0600 1400 2200	0600 1400 2200
Vancomycin 1000mg IV q12h	2300	1100 dc'd 1200		

Counting Antimicrobial Days

Drug	Day 1	Day 2	Day 3	Day 4
Amikacin 500mg IV q8		0700 1500 2300	dc'd 0659	
Meropenem 1000mg IV q8	2200	0600 1400 2200	0600 1400 2200	0600 1400 2200
Vancomycin 1000mg IV q12h	2300	1100 dc'd 1200		
Total DOT				

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Total DOT	**A = 0 DOT** **M = 1 DOT** **V = 1 DOT**			

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Days of Therapy

- **Pros**
  - **Aggregate patient-level data**
  - **Expert opinion to be benchmarking standard**

- **Cons**
  - **For NHSN reporting, requires bar code administration or eMAR data**
  - **May over-estimate actual usage**
  - **Difficult to obtain without surveillance software systems**

NHSN Required Metrics - Denominators

- **Days Present – number of days in which a patient spent <u>any</u> time in specific unit or facility**
  - **Reported for all individual locations & FacWideIN**
  - **Days present ≠ Patient days**
  - **Used for AU data only**
    - **Patient days throughout rest of NHSN**

- **Admissions – number of patients admitted to an inpatient location in the facility**
  - **Reported for FacWideIN only**
  - **Same definition used throughout NHSN**

Counting Days Present

	Patient Movement	Days Present	Patient Days (Midnight count)
Patient A	Medical Ward: 00:01-24:00	Medical Ward = 1	Medical Ward = 1
Patient B			
Patient C			
Patient D			
Totals:			

Counting Days Present

	Patient Movement	Days Present	Patient Days (Midnight count)
Patient A	Medical Ward: 00:01-24:00	Medical Ward = 1	Medical Ward = 1
Patient B	Medical ICU: 00:01-24:00	Medical ICU = 1	Medical ICU = 1
Patient C			
Patient D			
Totals:			

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	Patient Movement	Days Present	Patient Days (Midnight count)
Patient A	Medical Ward: 00:01-24:00	Medical Ward = 1	Medical Ward = 1
Patient B	Medical ICU: 00:01-24:00	Medical ICU = 1	Medical ICU = 1
Patient C	Medical ICU: 00:01-08:30 Medical Ward: 08:31-24:00	Medical ICU = 1 Medical Ward = 1	Medical ICU = 0 Medical Ward = 1
Patient D			
Totals:			

Counting Days Present

	Patient Movement	Days Present	Patient Days (Midnight count)
Patient A	Medical Ward: 00:01-24:00	Medical Ward = 1	Medical Ward = 1
Patient B	Medical ICU: 00:01-24:00	Medical ICU = 1	Medical ICU = 1
Patient C	Medical ICU: 00:01-08:30 Medical Ward: 08:31-24:00	Medical ICU = 1 Medical Ward = 1	Medical ICU = 0 Medical Ward = 1
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Totals:			

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Patient C	Medical ICU: 00:01-08:30 Medical Ward: 08:31-24:00	Medical ICU = 1 Medical Ward = 1	Medical ICU = 0 Medical Ward = 1
Patient D	Medical ICU: 00:01-10:00 Step Down: 10:01-15:00 Medical Ward: 15:01-24:00	Medical ICU = 1 Step Down = 1 Medical Ward = 1	Medical ICU = 0 Step Down = 0 Medical Ward = 1
Totals:			

Counting Days Present

	Patient Movement	Days Present	Patient Days (Midnight count)
Patient A	Medical Ward: 00:01-24:00	Medical Ward = 1	Medical Ward = 1
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Totals:			

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Patient D	Medical ICU: 00:01-10:00 Step Down: 10:01-15:00 Medical Ward: 15:01-24:00	Medical ICU = 1 Step Down = 1 Medical Ward = 1	Medical ICU = 0 Step Down = 0 Medical Ward = 1
Totals:		Medical Ward = 3 Medical ICU = 3 Step Down = 1	Medical Ward = 3 Medical ICU = 1 Step Down = 0

Steps for Reporting Preparation

- **Ensure eMAR or barcode medication administration (BCMA) data**
  - **Talk to your pharmacy department to obtain numerator data**
- **Identify facility leads for AU Option**
  - **Collaboration with Infection Prevention and Antimicrobial Stewardship**
  - **Review Unit Mapping in NHSN**
- **Gain support**
  - **Hospital administration, hospital epidemiologist, pharmacy administration**
  - **CMS to require in 2024 for all hospitals**
- **Develop system for collecting and packaging eMAR/BCMA data into CDA**
  - **Surveillance Software vs. Homegrown**
- **Validation**
  - **Review internal EMR data compared to vendor data**
- **Monthly submission**

Requirements for AU Data Submission

- **Hospitals* that have:**
  - **Electronic Medication Administration Record (eMAR), or**
  - **Bar Coding Medication Administration (BCMA) systems and**
  - **Admission Discharge Transfer (ADT) System**

AND

  - **Ability to collect and package data using HL7 standardized format: Clinical Document Architecture**
    - **Commercial software vendors: http://www.sidp.org/aurvendors**
    - **"Homegrown" vendors (facility's internal IT/Informatics resources)**

*General acute care hospitals, long-term acute care hospitals (LTAC), inpatient rehabilitation facilities (IRF), oncology hospitals, critical access hospitals enrolled in NHSN & participating in the Patient Safety Component

Clinical Document Architecture

- **Data must be uploaded via CDA**
- **Health Level 7 (HL7) standard**
- **Provides facilities with standardized way to package & upload data**
  - **AU, AR, & HAI**
- **CDA ≠ CSV (Excel)**

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          displayName="Number of Patient-present Days"/>
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  </observation>
</entryRelationship>
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  <observation classCode="OBS" moodCode="EVN">
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          code="2524-7"
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              displayName="Amantadine"/>
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    </participant>
  </observation>
</entryRelationship>
<!-- stratified data: Drug + route -->
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Finding a Vendor

- **Most use commercial software vendor**
  - **AU SDS Validated Vendors**
- **Vendor must undergo AU Synthetic Data Validation**
- **Possible to use "homegrown" vendor solution (Not recommended)**

Monthly AU Data Submission

- **Recommended: Upload within 30 days following the completion of the month**
- **1 CDA file per location & 1 CDA file for FacWideIN**
  - **Each single CDA file contains numerator and denominator(s) for given location**
  - **All CDA files can be uploaded within 1 Zip file**
    - **Maximum: 1000 CDAs or file size of 2 MB per zip file**
- **Encourage reporting data from ALL applicable inpatient and select outpatient locations**

Flow of AU Data: Bedside to NHSN

eMAR/BCMA & ADT

Vendor/Homegrown System

- Monthly summary
- Location specific & FacWideIN
  - 95 antimicrobials
  - Days present & admissions

Report in standard format

NHSN Servers

Local access of data: NHSN Analysis & data sharing via NHSN Group

Stewards can compare:

- Internally by months/locations
- Externally using Standardized Antimicrobial Administration Ratios (SAARs)

NHSN AU Output

NHSN Output

- **Line Lists**
  - **AU linelist**
  - **SAAR linelist**
  - **Data quality linelist**

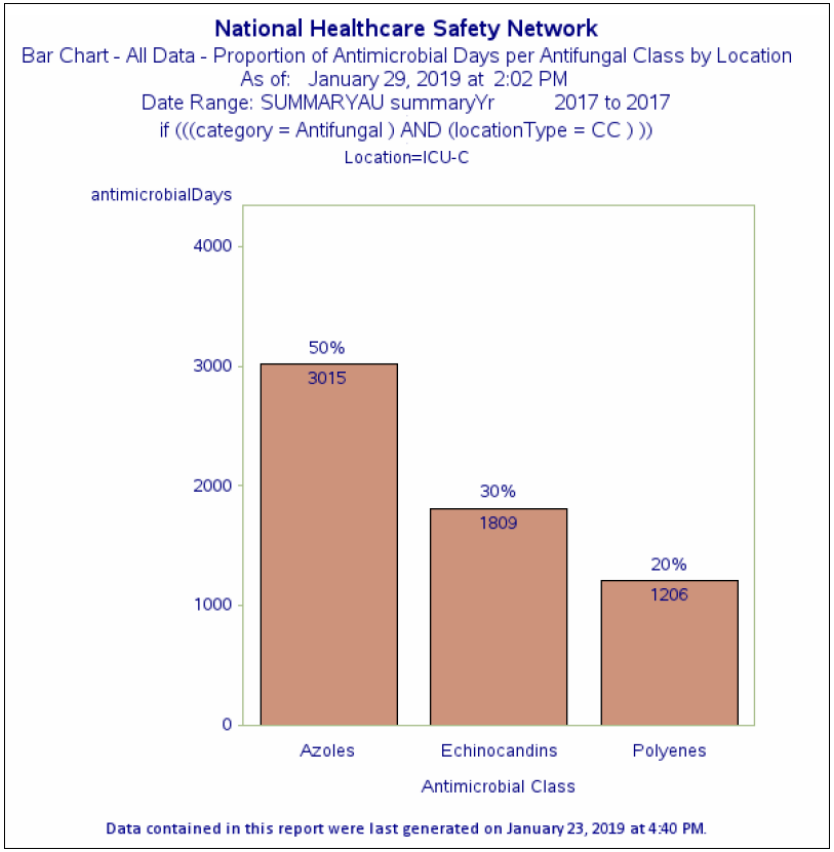
National Healthcare Safety Network
Line Listing - All Submitted AU Data by Location
As of: December 3, 2018 at 3:09 PM
Date Range: SUMMARYAU summaryYQ 2017Q3 to 2017Q3
if (((location = 4MICU)))

Location=4MICU

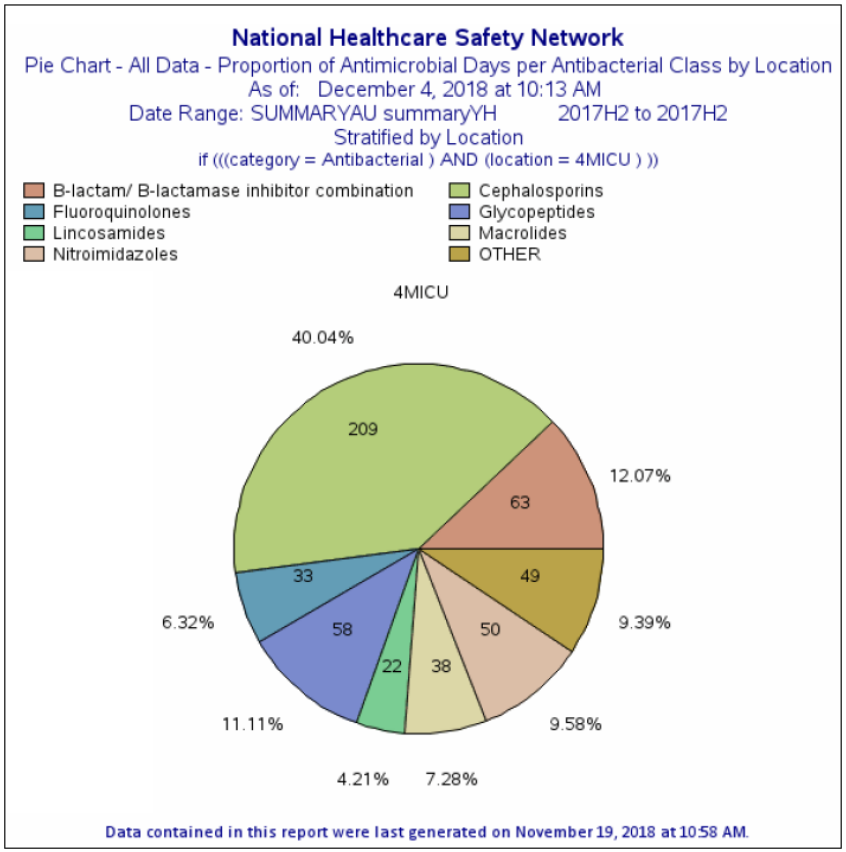
Summary Year/Month	Antimicrobial Agent Description	Antimicrobial Days	Days Present	Admissions	Route: IM	Route: IV	Route: Digestive	Route: Respiratory	Location
2017M07	AMAN - Amantadine	0	500	.	0	0	0	0	4MICU
2017M08	AMAN - Amantadine	0	482	.	0	0	0	0	4MICU
2017M07	AMK - Amikacin	0	500	.	0	0	0	0	4MICU
2017M08	AMK - Amikacin	0	482	.	0	0	0	0	4MICU
2017M07	AMOX - Amoxicillin	0	500	.	0	0	0	0	4MICU
1 2017M08	AMOX - Amoxicillin	2	482	.	0	0	2	0	4MICU
2017M07	AMOXWC - Amoxicillin with Clavulanate	2	500	.	0	0	2	0	4MICU
2017M08	AMOXWC - Amoxicillin with Clavulanate	2	482	.	0	0	2	0	4MICU
2017M07	AMP - Ampicillin	0	500	.	0	0	0	0	4MICU
2 2017M08	AMP - Ampicillin	6	482	.	0	6	0	0	4MICU
2017M07	AMPH - Amphotericin B	0	500	.	0	0	0	0	4MICU
2017M08	AMPH - Amphotericin B	0	482	.	0	0	0	0	4MICU
2017M07	AMPHOT- Amphotericin B Liposomal	0	500	.	0	0	0	0	4MICU

NHSN Output

- **Bar Charts**



- **Pie Charts**



Standardized Antimicrobial Administration Ratio (SAAR)

- **SAAR Definition**
  - **Standardized risk-adjusted metric of antibiotic use**
  - **Compares observed to predicted days of antimicrobial use**
  - **Quantitative tool for hospitals to make AU comparison within and across facilities**

$$\text{SAAR} = \frac{\textit{Observed}\ \text{antimicrobial days}}{\textit{Predicted}\ \text{antimicrobial days}}$$

SAAR Reports

- **SAARs reports can be produced by month, quarter, half year, year or cumulative time periods**

National Healthcare Safety Network

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

As of: November 17, 2015 at 3:10 PM

Date Range: All AU_SAAR

SAAR title

All antimicrobials used in adult ICUs and wards

Denominator

Facility Org ID	Summary Yr/Qtr	SAAR Type	Antimicrobial Days	Predicted Antimicrobial Days	Days Present	SAAR	SAAR p-value	95% Confidence Interval
13860	2014Q1	IND-Adult-1	4416	4421.364	6326	0.999	0.9437	0.970, 1.029
13860	2014Q2	IND-Adult-1	3998	3856.677	5668	1.037	0.0240	1.005, 1.069
13860	2014Q3	IND-Adult-1	3568	3952.912	5765	0.903	0.0000	0.873, 0.933
13860	2014Q4	IND-Adult-1	6835	5731.061	9247	1.193	0.0000	1.165, 1.221
13860	2015Q1	IND-Adult-1	4060	3113.877	5358	1.304	0.0000	1.264, 1.344

Observed Use

Predicted Use

Calculated SAAR Values

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 were last generated on November 11, 2015 at 5:57 PM.

Interpreting the SAAR

- **SAAR > 0**
- **1 suggests equivalency between observed and predicted antimicrobial use**
  - **Higher SAAR (>1) – may indicate excessive use**
  - **Low SAAR (<1) = may indicate under use**
- **NOT a measure of appropriateness or judicious antimicrobial use**

Predicted Days of Therapy

- **Modeling done by negative binomial regression**
  - **Uses a set of parameters for each SAAR type**
  - **Estimates the number of predicted antibiotic days**
  - **The general formula:**

$$log\,(\lambda) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_i X_i$$, where:

α = Intercept

β_i = Parameter estimate

X_i = Value of risk factor (categorical variables: 1 if present, 0 if not present)

i = Number of predictors

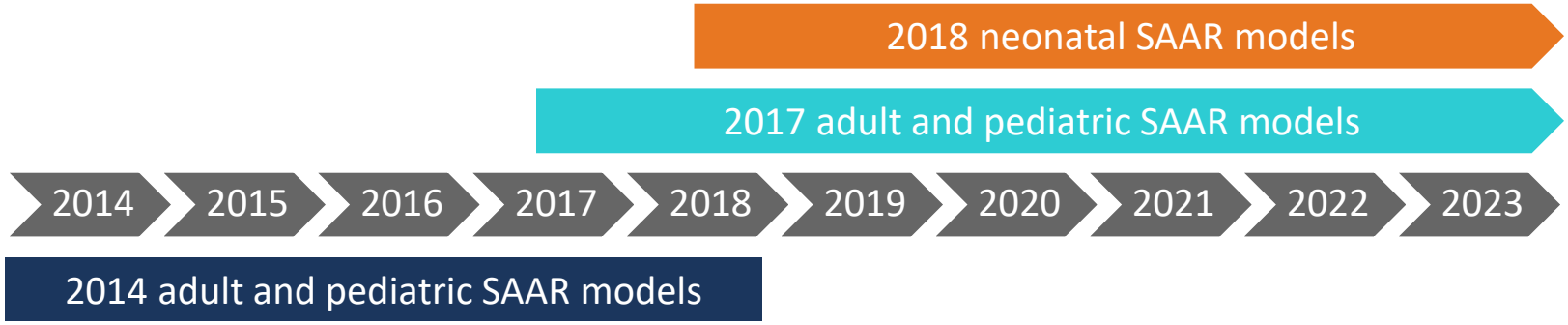
Factors

Factor	Parameter Estimate	P-value
Intercept	-2.3357	<.0001
Location type = Medical ICU	1.0084	<.0001
Location type = Medical-Surgical ICU, Surgical ICU	0.8825	<.0001
Location type = General Hematology-Oncology Ward	0.3795	<.0001
Location type = Step down Unit	0.2197	<.0001
Location type = Medical Ward	0.0781	0.0041
Veteran's Affairs hospital (facility type = HOSP-VA)	-0.1821	<.0001
Critical access hospital (facility type = HOSP-CAH)	-0.2465	0.0049
Military hospital (facility type = HOSP-MIL)	-0.6278	<.0001
Women's hospital (facility type = HOSP-WOM)	-1.1920	0.0003
≥8 ICU beds	0.1734	0.0003
≥3.6 average length of stay, facility-wide (in days)	0.1091	<.0001
Undergraduate teaching facility	0.1394	<.0001

 # predicted DOT = Exp [-2.3357
+ 1.0084 (Location type: Medical ICU)
+ 0.8825 (Location type: Med-Surg ICU, Surgical ICU)
+ 0.3795 (Location type: Hematology-Oncology Ward)
+ 0.2197 (Location type: Step-down Unit)
+ 0.0781 (Location type: Medical Ward)
+ -0.1821 (Facility type: VA hospital)
+ -0.2465 (Facility type: Critical access hospital)
+ -0.6278 (Facility type: Military hospital)
+ -1.1920 (Facility type: Women's hospital)
+ 0.1734 (ICU beds: ≥8)
+ 0.1091 (Average length of stay: ≥3.6 days)
+ 0.1394 (Teaching status: undergraduate) **] x # days present**

Model Variables

- **NHSN develops new models every few years → re-baselining**
- **Only unit and facility-level data (no patient level data)**
- **Factors considered**
  - ***Facility level*: Hospital bedsize, ICU beds, percent of ICU beds, Average facility length of stay, teaching status**
  - ***Location level*: Location bedsize, ICU status, ward types: medical, medical/surgical, surgical wards; adult vs. pediatric location**



SAAR Types

- **SAARs can be generated for 22 antimicrobial agent categories (7 adult, 8 pediatric, and 7 neonatal)**

- **SAAR Calculations available for**
  - **Adult medical, medical/surgical, and surgical ICUs**
  - **Adult medical, medical/surgical, and surgical wards**
  - **Adult step down**
  - **Pediatric medical, medical/surgical, and surgical ICUs**
  - **Pediatric medical, medical/surgical, and surgical wards**
  - **NICUs**
  - **Neonatal step down**

Adults SAAR Types

- **Adult SAAR antimicrobial agent categories**
  - **All antibacterial agents**
  - **Broad spectrum antibacterial agents predominantly used for hospital-onset infections**
  - **Broad spectrum antibacterial agents predominantly used for community-acquired infections**
  - **Antibacterial agents predominantly used for resistant Gram-positive infections (e.g., MRSA)**
  - **Narrow spectrum beta-lactam agents**
  - **Antibacterial agents posing the highest risk for CDI Antifungal agents predominantly used for invasive candidiasis**
  - **Antifungal agents predominantly used for invasive candidiasis**

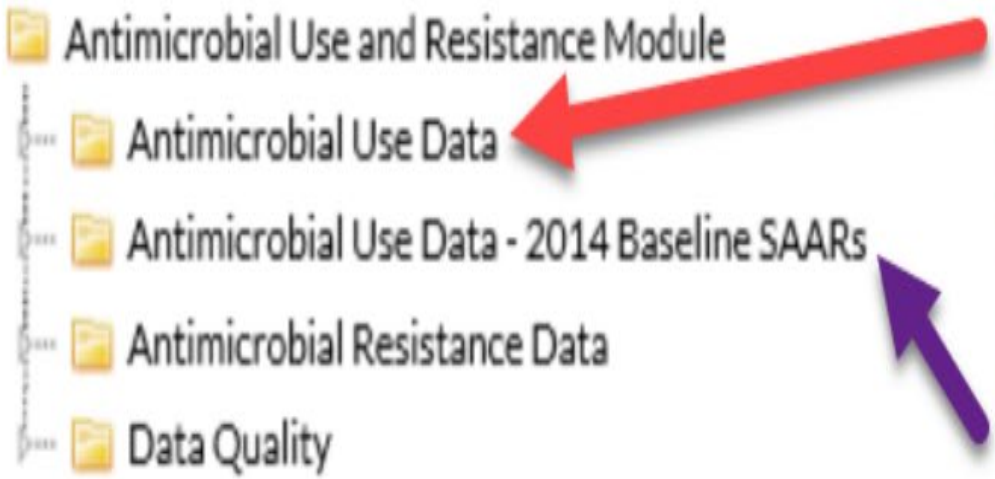
Pediatric and Neonatal SAAR Types

- **Pediatric SAAR antimicrobial agent categories**
  - **Azithromycin**
  - **+ Adults SAAR Types**
- **Neonatal SAAR antimicrobial agent categories**
  - **All neonatal antibacterial agents**
  - **Vancomycin predominantly used for treatment of late-onset sepsis**
  - **Third generation Cephalosporins**
  - **Ampicillin predominantly used for treatment of early-onset sepsis**
  - **Aminoglycosides predominantly used for treatment of early-onset and late-onset sepsis**
  - **Fluconazole predominantly used for candidiasis**

Available SAAR Drug Groupings

- **Broad spectrum agents used primarily for hospital-onset infections**
  - **Aminoglycosides, cefepime, ceftazidime, meropenem, doripenem, imipenem, piperacillin/tazobactam, aztreonam**
- **Broad spectrum agents used primarily for community-acquired infections**
  - **Ertapenem, some cephalosporins, some fluoroquinolones**
- **Anti-MRSA Agents**
  - **Ceftaroline, dalbavancin, daptomycin, linezolid, oritavancin, Synercid, tedizolid, telavancin, vancomycin**

Where to find the reports?



2017 baseline adult and pediatric SAAR reports, 2018 baseline neonatal SAAR reports

2014 baseline adult and pediatric SAAR reports

SAAR Outputs

National Healthcare Safety Network

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

As of: November 10, 2015 at 12:56 PM
Date Range: All AU_SAAR

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

orgID	summaryYQ	SAARType	antimicrobialDays	numAUDaysPredicted	numDaysPresent	SAAR	SAAR_pval	SAAR95CI
13860	2014Q1	TAR-Adult-1	931	676.939	2800	1.375	0.0000	1.289, 1.466
13860	2014Q2	TAR-Adult-1	1066	563.535	2215	1.892	0.0000	1.781, 2.008
13860	2014Q3	TAR-Adult-1	926	591.879	2339	1.565	0.0000	1.466, 1.668
13860	2014Q4	TAR-Adult-1	658	368.558	1441	1.785	0.0000	1.653, 1.926
13860	2015Q1	TAR-Adult-1	265	180.954	700	1.464	0.0000	1.296, 1.649

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 were last generated on November 9, 2015 at 1:19 PM.

National Healthcare Safety Network

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

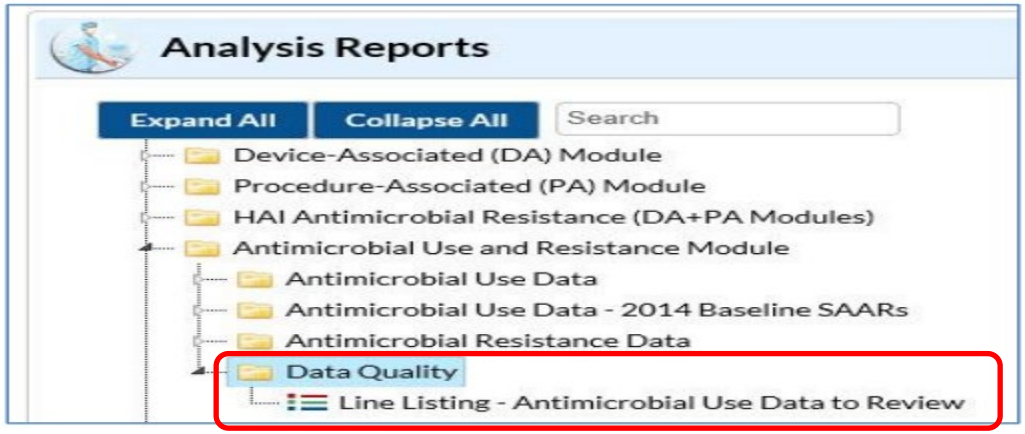
As of: November 10, 2015 at 12:56 PM
Date Range: All AU_SAAR

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

orgID	summaryYQ	SAARType	antimicrobialDays	numAUDaysPredicted	numDaysPresent	SAAR	SAAR_pval	SAAR95CI
13860	2014Q1	TAR-Adult-2	151	381.046	3526	0.396	0.0000	0.337, 0.463
13860	2014Q2	TAR-Adult-2	175	373.157	3453	0.469	0.0000	0.403, 0.542
13860	2014Q3	TAR-Adult-2	131	370.239	3426	0.354	0.0000	0.297, 0.418
13860	2014Q4	TAR-Adult-2	112	252.662	2338	0.443	0.0000	0.367, 0.531
13860	2015Q1	TAR-Adult-2	51	123.521	1143	0.413	0.0000	0.311, 0.539

Data Validation

- **Initial and On-going**
- **Focuses on key AU Option protocol definitions and CDA requirements including potential sources of error**
- **Data quality linelist available as of 2023:**
  - **Zero or Missing Antimicrobial Days**
  - **Antimicrobial Days Reported when Patients were Not Present**
  - **Antimicrobial Days ≥ Days Present**
  - **Sum of Routes < Total Antimicrobial Days**



CDC Data Quality Sample Reports

National Healthcare Safety Network
Line Listing for Antimicrobial Use Data to Review
Zero and/or "." antimicrobial days for all drugs in a specific location or FacWideIN
As of: December 4, 2019 at 4:12 PM
Date Range: AU_DATAQUALITY summaryYM After and Including 2019M01
Locations appearing in this table have reported zero or N/A antimicrobial days for all antimicrobials in the given month. Please review these records to ensure data accuracy. In the event that no patients were present in this unit during this month, these data are accurate.

Facility Org ID=13860

Facility Org ID	Summary Year/Month	Location
13860	2019M04	MEDWARD

National Healthcare Safety Network
Line Listing for Antimicrobial Use Data to Review
Antimicrobial days for a single drug greater than or equal to days present for given location or FacWideIN
As of: December 9, 2019 at 2:55 PM
Date Range: AU_DATAQUALITY summaryYM 2019M06 to 2019M06
Carefully review this list which includes individual drugs for which the total number of antimicrobial days are greater than or equal to the number of days present in the given location and month. Since a patient can contribute only one antimicrobial day per drug per location, the total antimicrobial days should never be greater than or equal to days present. This is a data quality error that should be addressed.

Facility Org ID=13860

Facility Org ID	Summary Year/Month	Location	Antimicrobial Agent Description	Antimicrobial Days	Days Present
13860	2019M06	MEDWARD	PENG - Penicillin G	701	700

TDH AU Quality Reports

- **Initiated in Q1-2021**
- **Flags some data accuracy concerns**
- **Reported back to statewide facilities reporting into NHSN and conferred rights to TDH**
- **Disseminated quarterly**
  - **Data downloaded 6 weeks after end of quarter**
  - **~4 weeks to analyze, prepare and review**

AU Quality Reports: Flags

- Antimicrobial Days Reported for any Drug when Days Present Reported as Zero
- Reported Antimicrobial Days for a Single Drug Greater than Days Present
- Sum of Routes Less than Reported Total Days of Therapy
- Ceftriaxone IM not used in ED
- Cefazolin not used in OR
- Sum of Routes Greater than Reported Total Days of Therapy for Drugs given Once Daily
- Drug Route Mismatch

AU Quality Reports: Flags

- Drug-Level AU Rate Above/Below Outlier Boundaries
- Days Present for All Specific Locations LESS than Facility-wide Days Present
- Days of Therapy for All Specific Locations LESS than Facility-wide Days of Therapy
- Location-Level
  - Days Present Greater/Less than Outlying Upper or Lower Boundaries
  - AU Rate Greater/Less than Outlying Upper or Lower Boundaries

TDH Data Quality Sample Report

Days of Therapy for All Specific Locations LESS THAN Facility-wide Days of Therapy

No Flags Identified

Rationale: Because antimicrobials administered multiple times per day may contribute 1 day of therapy to multiple units on a given day, the sum of days of therapy for all specific locations should be greater than the FACWIDEIN days of therapy.

Potential Solutions: Review NHSN mapping to ensure that non-inpatient units (e.g. ED, 24-hr observation units) are not being included in your FACWIDEIN AU Option data. Review NHSN mapping to ensure that a reportable inpatient unit is not being missed in your FACWIDEIN AU Option data. If either is the case, work with your NHSN Facility Administrator and/or vendor to correct.

Location-Level Days Present GREATER than Outlying Upper Boundary

Location	Month	Days Present	Outliers Upper Bound
DIALYSIS	2021M01	89	82
DIALYSIS	2021M02	92	82
IR SUITE	2021M01	209	195

Rationale: For historical comparison, we compare this metric to the median days present of the same quarter from the previous calendar year. If the days present from this quarter is greater than the median + 2 times the IQR for the previous quarter, this report will flag for an individual location. If historical data are not available from the same quarter of the previous calendar year, this report will read "Not Enough Historical Data Available".

Potential Solutions: This warrants a determination if significant changes have occurred in NHSN unit mapping. If a unit has a different patient population or significantly more or fewer days present than the previous year, this flag can typically be disregarded. If this is not the case, check with vendor to ensure surveillance software is accurately pulling and reporting ADT data.

SAAR Categories

- Categories
  - All antibacterial agents
  - Broad-spectrum antibacterial agents used for community-acquired infections
  - Broad-spectrum antibacterial agents used for hospital-acquired infections
  - Antibacterial agents used for resistant gram-positive infections
  - Pediatric all antibacterial agents*
- Locations*
  - ICU
  - Ward
  - Step-down

*if reporting data for this location or type

Sample SAAR Report

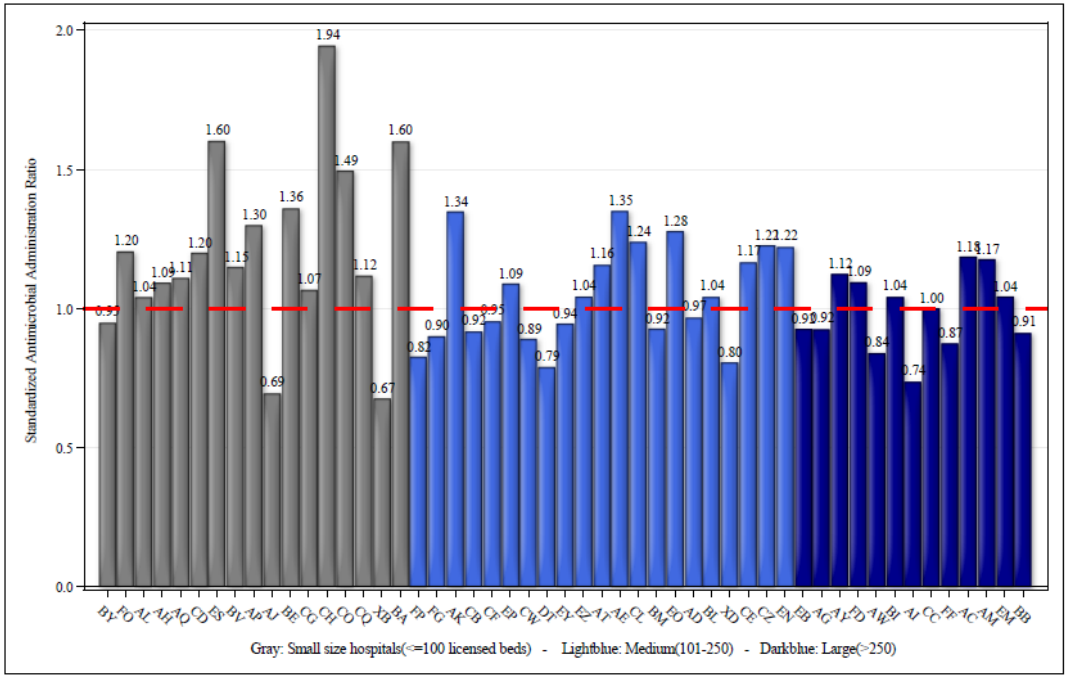
- Visualize your facility SAAR values compared to others of similar size
- Compare to benchmark SAAR of 1.0 (observed = predicted use)

TN Department of Health

SAAR QUARTERLY REPORT Q1 | Tennessee, 2023

All Antibacterial Agents

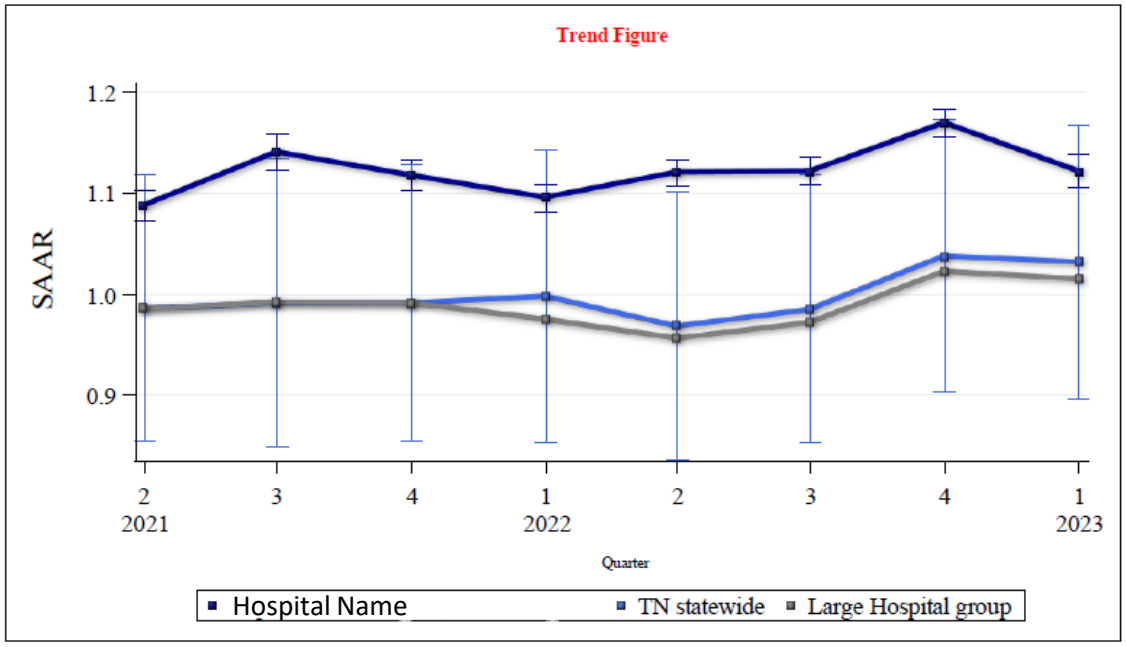
All antibacterial agents in the AUR protocol **except:** AMIKACIN LIPOSOME, CEFIDEROCOL, COLISTIN, DELAFLOXACIN, ERAVACYCLINE, IMIPENEM/CILASTATIN/RELEBACTAM, LEFAMULIN, MEROPENEM/VABORBACTAM, OMADACYCLINE, PIPERACILLIN, PLAZOMICIN, TICARCILLIN/CLAVULANATE

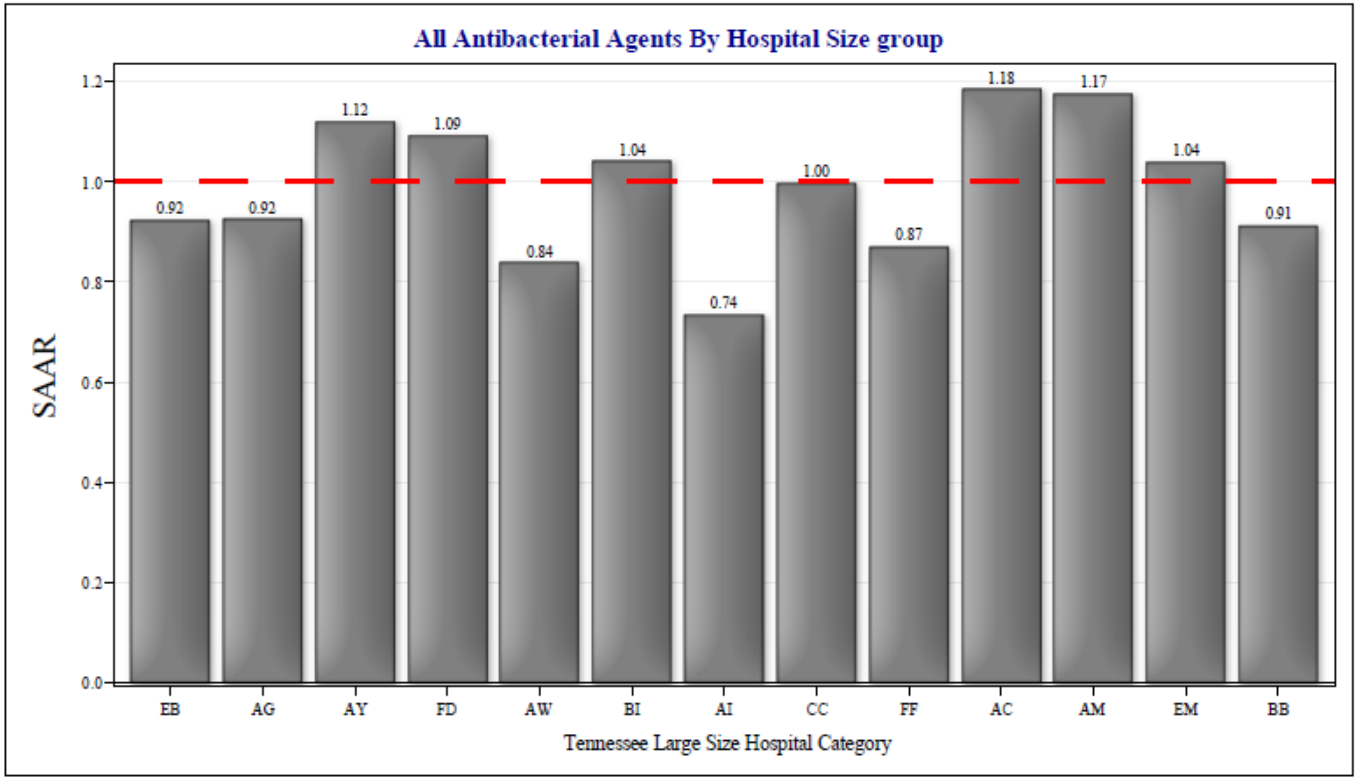


SAAR QUARTERLY REPORT Q1 | Tennessee, 2023

All Antibacterial Agents

All antibacterial agents in the AUR protocol **except:** AMIKACIN LIPOSOME, CEFIDEROCOL, COLISTIN, DELAFLOXACIN, ERAVACYCLINE, IMIPENEM/CILASTATIN/RELEBACTAM, LEFAMULIN, MEROPENEM/VABORBACTAM, OMADACYCLINE, PIPERACILLIN, PLAZOMICIN, TICARCILLIN/CLAVULANATE




All Antibacterial Agents By Hospital Size group
SAAR
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.92
0.92
1.12
1.09
0.84
1.04
0.74
1.00
0.87
1.18
1.17
1.04
0.91
EB
AG
AY
FD
AW
BI
AI
CC
FF
AC
AM
EM
BB
Tennessee Large Size Hospital Category

Where to Find More Information

- https://www.cdc.gov/nhsn/acute-care-hospital/aur/
- NHSN Trainings
  - AUR Module: https://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf
  - SAAR: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/au-saar-guide-508.pdf
  - AUR Protocol: https://www.cdc.gov/nhsn/PDFs/pscManual/11pscAURcurrent.pdf

Final Comment and Questions

- **Questions – Contact HAI.Health@tn.gov**