NHSN Antimicrobial Use Option

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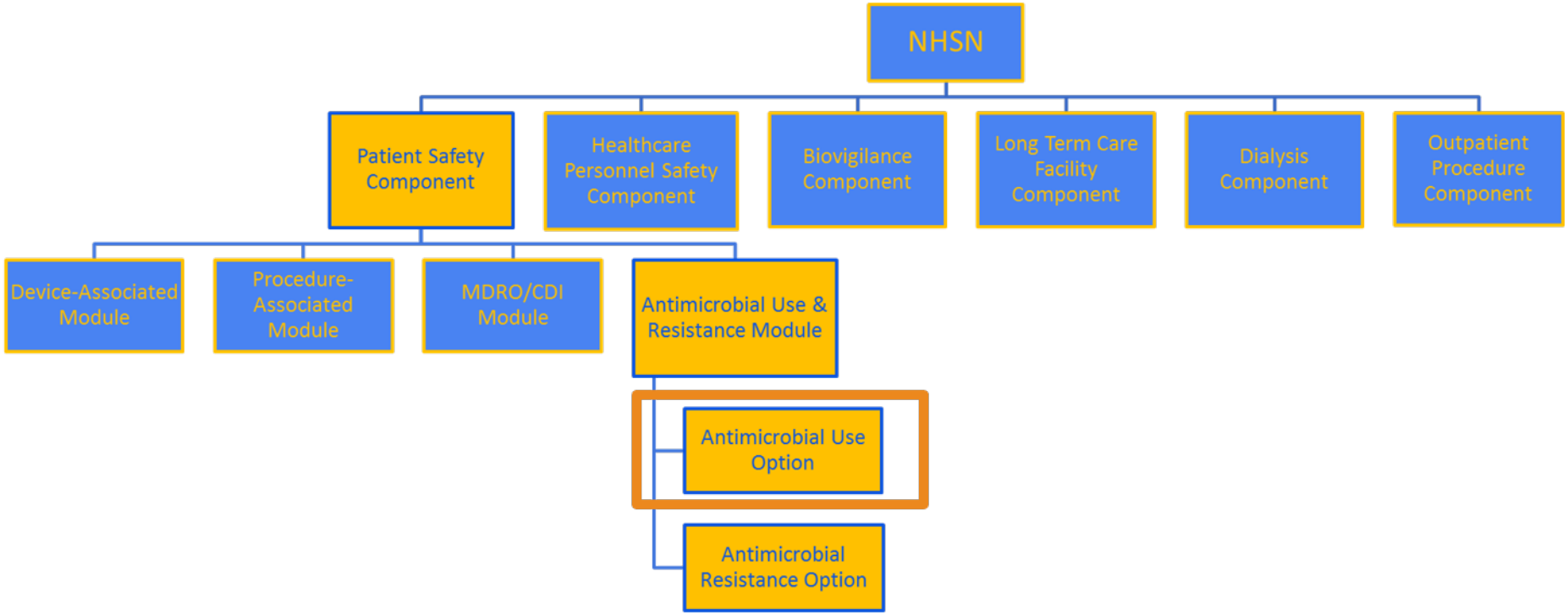
Objectives

- Outline the requirements for participation in the NHSN AU Option
- Discuss the data elements collected in the NHSN AU Option
- Describe the analysis reports currently available within the NHSN AU Option

NHSN Structure



Antimicrobial Use (AU) Option Reporting

AU Option

- Released in 2011
- Purpose:
  - Provide a mechanism for facilities to report and analyze antimicrobial usage as part of antimicrobial stewardship efforts at their facility
- Voluntary reporting
  - Not part of CMS Quality Reporting Programs
  - *Included as one option for Public Health Registry reporting for Promoting Interoperability (formerly called Meaningful Use Stage 3)

*MU 3 Final Rule: https://www.federalregister.gov/articles/2015/10/16/2015-25595/medicare-and-medicaid-programs-electronic-health-record-incentive-program-stage-3-and-modifications
*NHSN MU3 page: https://www.cdc.gov/nhsn/cdaportal/meaningfuluse.html

CMS Promoting Interoperability Program

- Data for **both** AU and AR Options required
- Steps for participation
  - Prerequisite – have a certified vendor: https://chpl.healthit.gov/#/search
  - Step 1: Register intent to submit within NHSN application
  - Step 2: Testing and validation of CDA files
  - Step 3: Reporting production data
- Resource guide: https://www.cdc.gov/nhsn/pdfs/cda/MU3-Facility-Guidance.pdf
- **Important note**: AUR Module is the only part of NHSN that qualifies

Requirements for AU Data Submission
Who Can Participate?

- 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

AU Option Data Elements – Numerator

- Numerator: Antimicrobial days (Days of Therapy) – sum of days for which **any** amount of specific agent was administered to a patient
  - 91 antimicrobials – includes antibacterial, antifungal, and anti-influenza agents
    - Sub-stratified by route of administration:
      - Intravenous (IV)
      - Intramuscular (IM)
      - Digestive (oral → rectal)
      - Respiratory (inhaled)
  - 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

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- Example: Patient admitted to 1 South (Medical Ward) Monday 2200 & discharged Wednesday 1200

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Meropenem 1 gram IV every 8 hours			
Amikacin 1000mg IV every 24 hours			
Total Antimicrobial Days			

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	Monday	Tuesday	Wednesday
Meropenem 1 gram IV every 8 hours	Given: 2300		
Amikacin 1000mg IV every 24 hours	Given:2300		
Total Antimicrobial Days	Meropenem = 1 Amikacin = 1		

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- Example: Patient admitted to 1 South (Medical Ward) Monday 2200 & discharged Wednesday 1200

	Monday	Tuesday	Wednesday
Meropenem 1 gram IV every 8 hours	Given: 2300	Given: 0700 Given: 1500 Given: 2300	
Amikacin 1000mg IV every 24 hours	Given:2300	Given:2300	
Total Antimicrobial Days	Meropenem = 1 Amikacin = 1	Meropenem = 1 Amikacin = 1	

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- Example: Patient admitted to 1 South (Medical Ward) Monday 2200 & discharged Wednesday 1200

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Meropenem 1 gram IV every 8 hours	Given: 2300	Given: 0700 Given: 1500 Given: 2300	Given: 0700
Amikacin 1000mg IV every 24 hours	Given:2300	Given:2300	
Total Antimicrobial Days	Meropenem = 1 Amikacin = 1	Meropenem = 1 Amikacin = 1	Meropenem = 1 Amikacin = 0

Antimicrobial Days – Total vs Sub-Stratified Routes

- 1 antimicrobial day per: 1 patient, 1 drug, **1 route**, 1 location, 1 calendar day
  - 1 total antimicrobial day per drug & 1 antimicrobial day for **each** route per drug
  - Antimicrobial day counted on the day of administration only

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	Monday	Tuesday	Wednesday
Ciprofloxacin twice daily	*Admitted*: 1200 Given IV: 2300		
Antimicrobial Day Counts	**Cipro Total**: 1 Cipro IV: 1 Cipro Digestive: 0		

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	Monday	Tuesday	Wednesday
Ciprofloxacin twice daily	*Admitted* 1200 Given IV: 2300	Given IV: 1100 Given oral: 2300	
Antimicrobial Day Counts	**Cipro Total**: 1 Cipro IV: 1 Cipro Digestive: 0	**Cipro Total**: 1 Cipro IV: 1 Cipro Digestive: 1	

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	Monday	Tuesday	Wednesday
Ciprofloxacin twice daily	*Admitted* 1200 Given IV: 2300	Given IV: 1100 Given oral: 2300	Given oral: 1100 *Discharged* 1500
Antimicrobial Day Counts	**Cipro Total**: 1 Cipro IV: 1 Cipro Digestive: 0	**Cipro Total**: 1 Cipro IV: 1 Cipro Digestive: 1	**Cipro Total**: 1 Cipro IV: 0 Cipro Digestive: 1

Antimicrobial Days – Sum of the Routes

- 1 patient can attribute 1 antimicrobial day to **multiple** routes in the same calendar day
- Routes **cannot** be summed to come up with the total antimicrobial days
- For drugs given more than once daily via multiple routes:
  Total antimicrobial days ≤ Sum of the routes

	Monday	Tuesday	Wednesday
Ciprofloxacin twice daily	*Admitted*: 1200 Given IV: 2300	Given IV: 1100 Given oral: 2300	Given oral: 1100 *Discharged*: 1500
Antimicrobial Day Counts	**Cipro Total**: 1 Cipro IV: 1 Cipro Digestive: 0	**Cipro Total**: 1 Cipro IV: 1 Cipro Digestive: 1	**Cipro Total**: 1 Cipro IV: 0 Cipro Digestive: 1

AU Option Data Elements – Denominators

- Denominators:
  - Days Present – number of days in which a patient spent **any** 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 (including HAI & AR)
  - 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:			

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
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
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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
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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:			

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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Totals:		Medical Ward = 3 Medical ICU = 3 Step Down = 1	Medical Ward = 3 Medical ICU = 1 Step Down = 0

AU Option: Summary Data

- Monthly aggregate, summary-level data
  - By location
    - All inpatient locations individually
    - All inpatient locations combined (Facility-wide Inpatient - aka FacWideIN)
    - 3 outpatient locations (ED, pediatric ED, 24 hour observation)
    - **Use same mapped locations throughout all of NHSN**
  - **Important**: Requires accurate/complete electronic capture of both the numerator and denominator for the given location
- Data are aggregated prior to sending to NHSN
- No patient-level data shared with NHSN for AU Option

Submitting AU Data into NHSN

Clinical Document Architecture (CDA)

- Data must be uploaded via CDA
  - Too much data to enter by hand!
- Health Level 7 (HL7) standard
- Provides facilities with standardized way to package & upload data
  - AU, AR, & HAI
- CDA ≠ CSV (Excel)
  - CDA uses XML

```
</participant>
<!-- Number of Patient-present Days -->
<entryRelationship typeCode="COMP">
  <observation classCode="OBS" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.5.6.69"/>
    <code codeSystem="2.16.840.1.113883.6.277"
          codeSystemName="cdcNHSN"
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          displayName="Number of Patient-present Days"/>
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  </observation>
</entryRelationship>
<!-- the Drug, aggregate data, no specified route of administration -->
<entryRelationship typeCode="COMP">
  <observation classCode="OBS" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.5.6.69"/>
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          code="2524-7"
          displayName="Number of Therapy Days"/>
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    <participant typeCode="CSM">            <!-- antimicrobial Drug -->
      <participantRole classCode="MANU">
        <code codeSystem="2.16.840.1.113883.6.88"
              codeSystemName="RxNorm"
              code="620"
              displayName="Amantadine"/>
      </participantRole>
    </participant>
  </observation>
</entryRelationship>
<!-- stratified data: Drug + route -->
```

From eMAR/BCMA to CDA

1. eMAR/BCMA captures drug administration
2. Vendor or “Homegrown” system extracts & aggregates data elements
   a) Numerator – eMAR/BCMA
   b) Denominator – ADT (admission, discharge, transfer) system
3. Vendor or “Homegrown” system packages AU data into CDA files
   a) 1 file per month per patient care location (unit)

Monthly AU Data Submission

- Recommend: 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

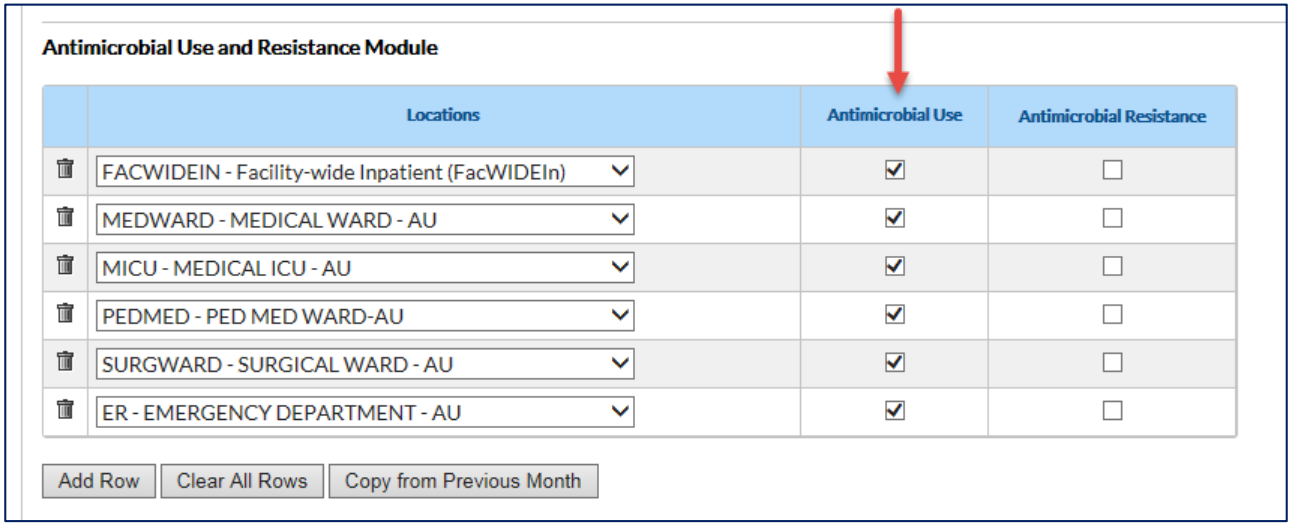
Example Monthly AU Data Submission

- Remember: 1 CDA file per location & 1 CDA file for FacWideIN

- Example for a facility with 4 patient care locations
  - 1 CDA for 1 North - Adult Medical/Surgical ICU
  - 1 CDA for 1 South - Adult Medical/Surgical Ward
  - 1 CDA for 2 North - Pediatric Medical/Surgical Ward
  - 1 CDA for Emergency Department
  - 1 CDA for FacWideIN (combination of all 3 NHSN-defined inpatient locations above)

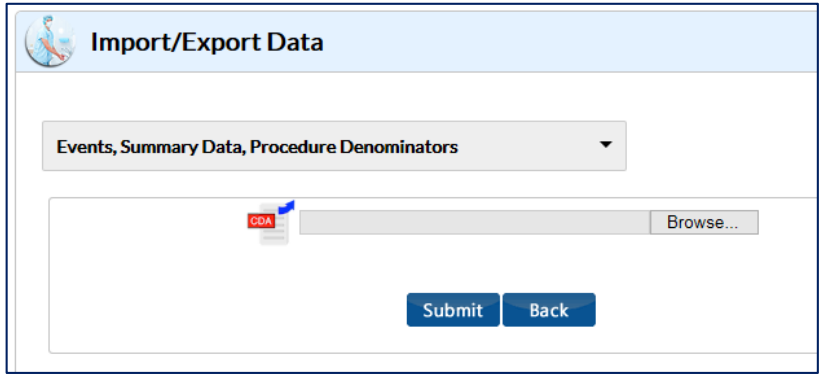
Monthly Reporting Plans

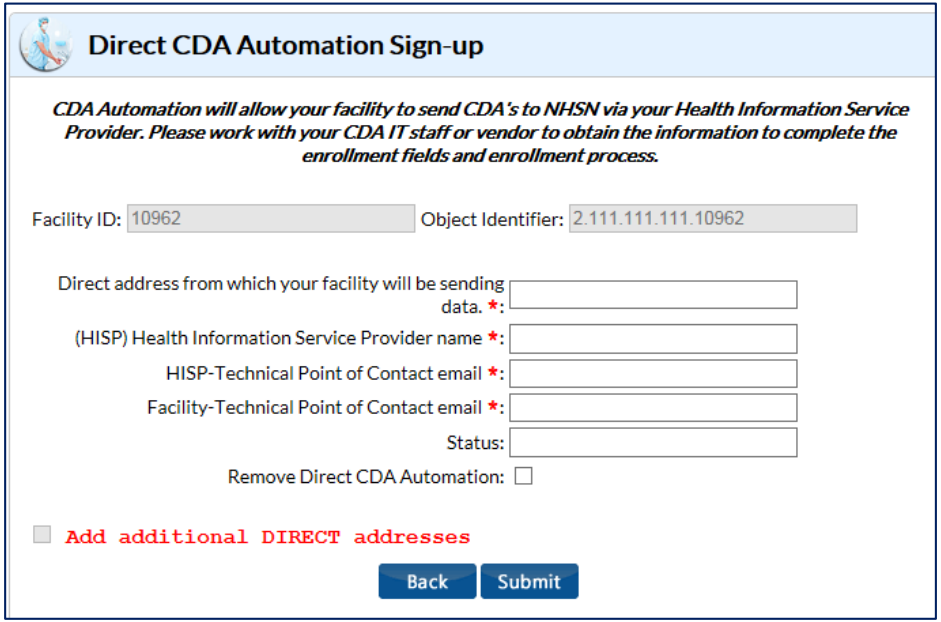
- Add locations to monthly reporting plan prior to uploading data
  - Along with FacWideIN, each inpatient and outpatient location is listed separately
- Same monthly reporting plan used for HAI reporting



Importing CDA Files into NHSN

- Manual upload
- Automatic upload from vendor/IT solution using DIRECT CDA Automation





Quick Learn Video - Uploading CDA Files into NHSN: https://youtu.be/T4DLtimpB5M

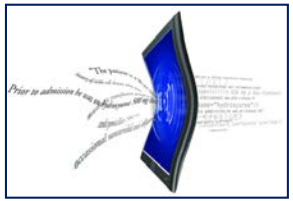
Flow of AU Data: From Bedside to NHSN

eMAR/BCMA & ADT

Vendor/Homegrown System
- Monthly summary
- Location specific & FacWideIN
  - 91 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)

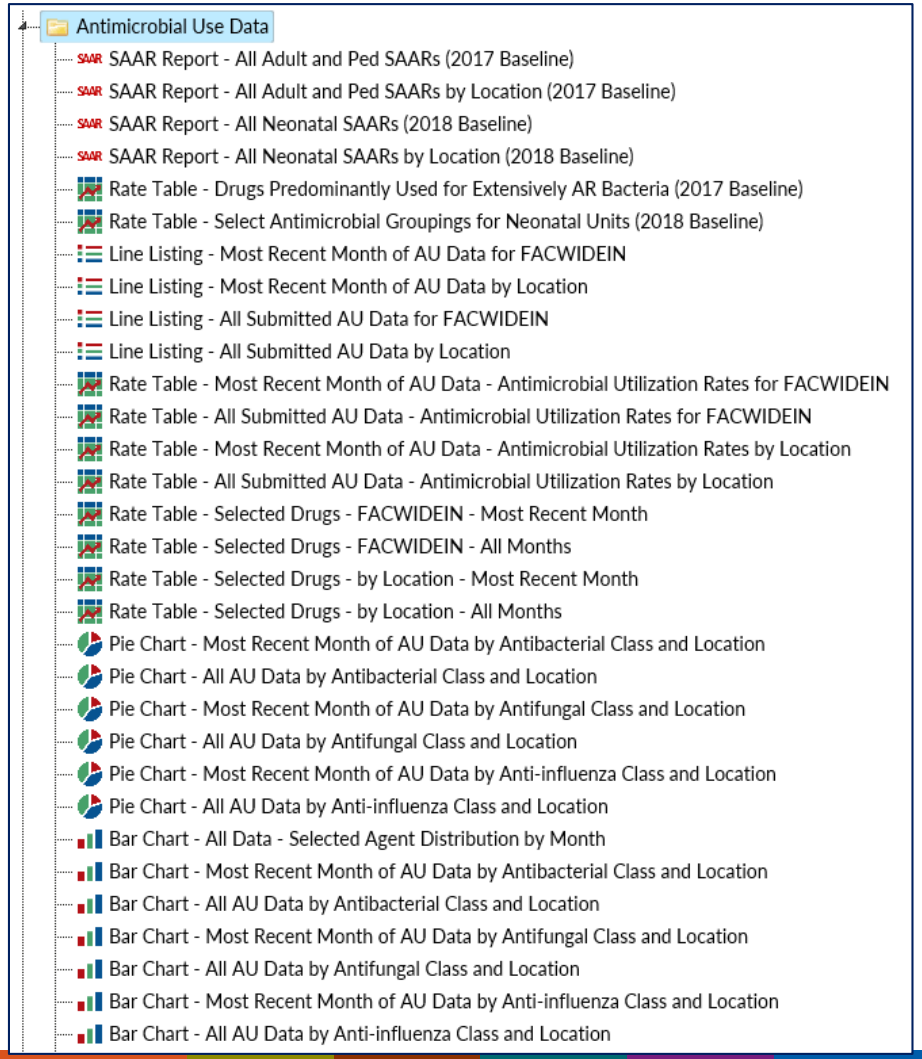
Steps for Facility Participation

- Prerequisite: eMAR/BCMA system for inpatient locations
- Identify facility lead(s)/champion(s) for AU Option
- Gain support!
- Gather information on current CDA submission capabilities
  - Activate, obtain, or develop system for aggregating and packaging data into CDA files
- Validation - https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/AU-Option-Implementation-Data-Validation-P.pdf
- Monthly submission

AU Option Analysis Reports

AU Option Report Types

- Line Lists & Rate Tables
  - Most recent month or All months
  - By individual location or FacWideIN
  - Rate table only: category/class or selected drugs
- Pie Charts & Bar Charts
  - Most recent month or All months
  - Specific categories/classes
- SAARs
  - All SAAR locations combined or individual SAAR locations



Line List – Example

- Default report: Line List – Most recent month of AU Data by Location
  - Default reports show NHSN variable names as column headers

National Healthcare Safety Network
Line Listing - Most Recent Month of AU Data by Location
As of: February 14, 2019 at 12:47 PM
Date Range: All SUMMARYAU1MONTH
if (((location ~= FACWIDEIN)))

location=PEDSURG

orgID	summaryYM	drugIngredientDesc	location	antimicrobialDays	numDaysPresent	numAdmissions	IM_Count	IV_Count	digestive_Count	respiratory_Count
13860	2018M09	AMAN - Amantadine	PEDSURG	0	379	.	0	0	.	0
13860	2018M09	AMK - Amikacin	PEDSURG	25	379	.	0	20	0	5
13860	2018M09	AMOX - Amoxicillin	PEDSURG	19	379	.	0	0	19	0
13860	2018M09	AMOXWC - Amoxicillin with Clavulanate	PEDSURG	7	379	.	0	7	0	0
13860	2018M09	AMP - Ampicillin	PEDSURG	20	379	.	3	17	0	0
13860	2018M09	AMPH - Amphotericin B	PEDSURG	0	379	.	0	0	0	0

- Location: PEDSURG (pediatric surgical ward)

Data for example only

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13860	2018M09	AMPH - Amphotericin B	PEDSURG	0	379	.	0	0	0	0

- Showing September 2018: summaryYM = 2018M09
- One row per drug: drugIngredientDesc

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- Total antimicrobial days for the drug: antimicrobialDays
- Routes of administration: IM_Count, IV_Count, digestive_Count, respiratory_Count

Data for example only

Line List – Example

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Line Listing - Most Recent Month of AU Data by Location
As of: February 14, 2019 at 12:47 PM
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13860	2018M09	AMP - Ampicillin	PEDSURG	20	379	.	3	17	0	0
13860	2018M09	AMPH - Amphotericin B	PEDSURG	0	379	.	0	0	0	0

- Total days present for the location: numDaysPresent
- Total admissions: numAdmissions
  - Value only populated on FacWideIN record

Data for example only

Line List – Example

National Healthcare Safety Network
Line Listing - Most Recent Month of AU Data by Location
As of: February 14, 2019 at 12:47 PM
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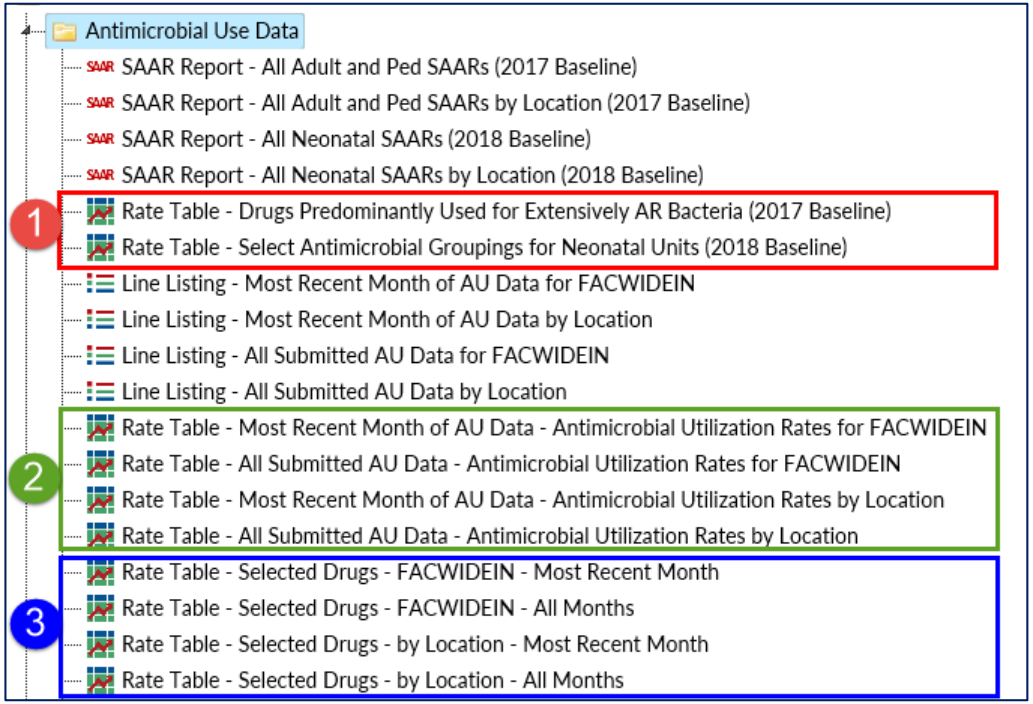
13860	2018M09	AMPH - Amphotericin B	PEDSURG	0	379	.	0	0	0	0

- In September 2018, in the PEDSURG unit, Amikacin was used for a total of 25 antimicrobial days
  - 20 days via IV route
  - 5 days via respiratory route

Data for example only

AU Rate Tables

- Show the rate of utilization per 1,000 days present or 100 admissions
- Three types:
  1. Rates for SAAR-like agent groupings
  2. Rates by antimicrobial category & class by location & time period
  3. Rates by specific agent
     - Single drug, drugs within the same class, drugs in multiple classes



Rate Tables

National Healthcare Safety Network
Rate Table - All Submitted AU Data - Antimicrobial Utilization Rates for FACWIDEIN
Rate per 1,000 Days Present
As of: December 19, 2019 at 4:40 PM
Date Range: AU_RATESFACWIDEIN summaryYM 2019M06 to 2019M06

Facility Org ID=13860

Summary Year/Month	Antimicrobial Category	Antimicrobial Class	Antimicrobial Days	Days Present	Rate per 1000 Days Present
2019M06	Antibacterial	-- All --	923	700	1318.571
2019M06	Antibacterial	Aminoglycosides	15	700	21.429
2019M06	Antibacterial	B-lactam/ B-lactamase inhibitor combination	18	700	25.714
2019M06	Antibacterial	Carbapenems	12	700	17.143
2019M06	Antibacterial	Cephalosporins	48	700	68.571
2019M06	Antibacterial	Fluoroquinolones	15	700	21.429
2019M06	Antibacterial	Folate pathway inhibitors	6	700	8.571

- In June 2019, in all the inpatient locations combined (FacWideIN) all antibacterial agents were used at a rate of 1318.571 days per 1,000 days present

*Data for example only

Rate Tables

National Healthcare Safety Network
Rate Table - All Submitted AU Data - Antimicrobial Utilization Rates for FACWIDEIN
Rate per 1,000 Days Present

As of: December 19, 2019 at 4:40 PM
Date Range: AU_RATESFACWIDEIN summaryYM 2019M06 to 2019M06

Facility Org ID=13860

Summary Year/Month	Antimicrobial Category	Antimicrobial Class	Antimicrobial Days	Days Present	Rate per 1000 Days Present
2019M06	Antibacterial	-- All --	923	700	1318.571
2019M06	Antibacterial	Aminoglycosides	15	700	21.429
2019M06	Antibacterial	B-lactam/ B-lactamase inhibitor combination	18	700	25.714
2019M06	Antibacterial	Carbapenems	12	700	17.143
2019M06	Antibacterial	Cephalosporins	48	700	68.571
2019M06	Antibacterial	Fluoroquinolones	15	700	21.429
2019M06	Antibacterial	Folate pathway inhibitors	6	700	8.571

- Carbapenems were used in all the inpatient locations combined at a rate of 17.143 days per 1,000 days present

*Data for example only

Standardized Antimicrobial Administration Ratio (SAAR)

What is a SAAR?

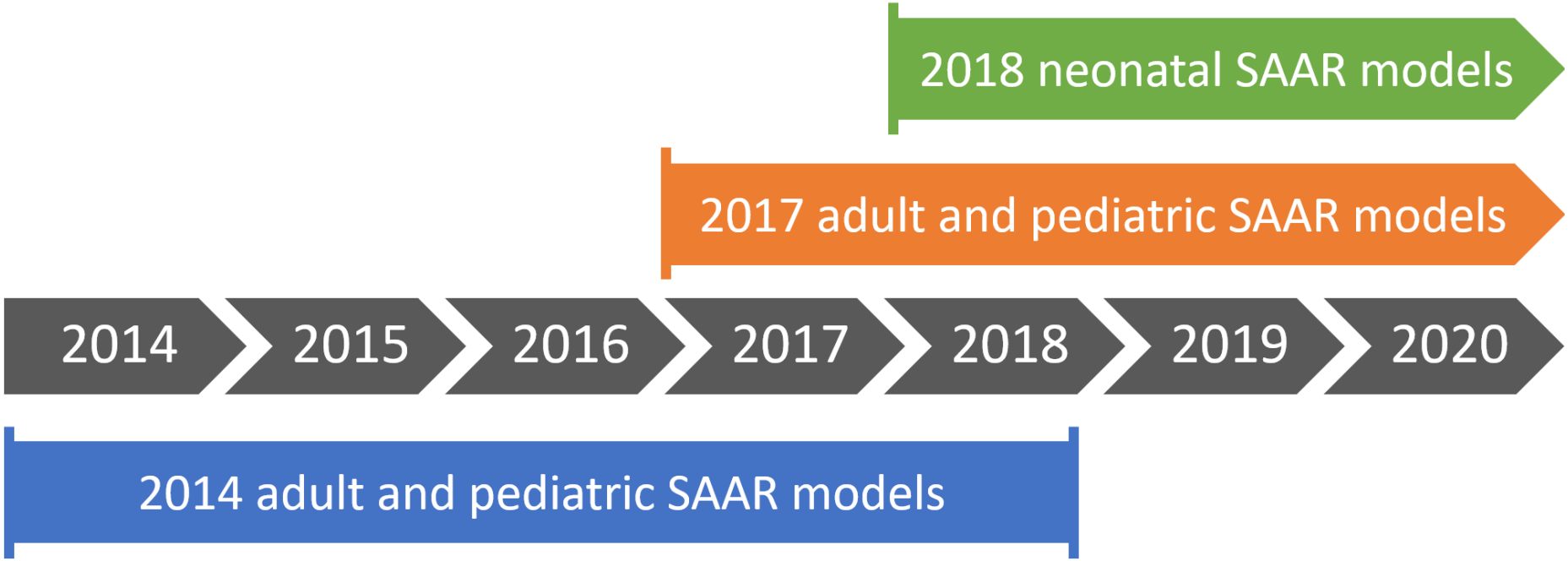
- SAAR Definition
  - Standardized risk-adjusted metric of antimicrobial use
  - Available to facilities reporting to the AU Option in NHSN
  - Compares observed to predicted days of antimicrobial use

$$\frac{\boldsymbol{Observed}}{\boldsymbol{Predicted}} = \frac{\textbf{100 antimicrobial days observed}}{\textbf{85 antimicrobial days predicted}} = \textbf{1.176}$$

Where can I find the SAAR details?

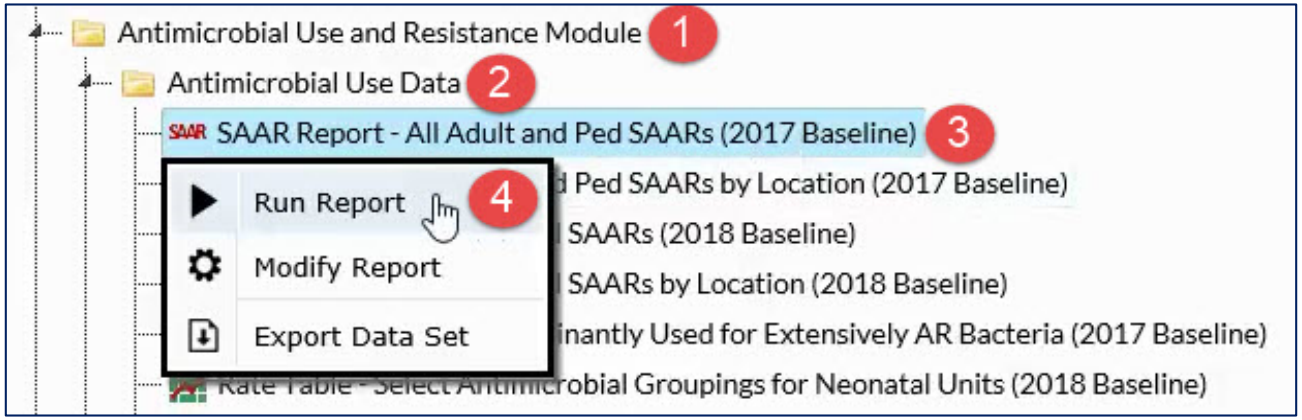
- AUR Module Webpage: https://www.cdc.gov/nhsn/acute-care-hospital/aur/index.html
  - Training videos
  - Protocol
  - Analysis resources

SAAR Baselines



Generating SAAR Reports

- After clicking Analysis then Reports:



- Select “All SAARs” to see SAARs rolled up to *location group* level
  - For example: BSHO SAAR for all adult SAAR ICUs combined
- Select “All SAARs by Location” to see SAARs at *location* level
  - For example: BSHO SAAR for Med ICU, Surg ICU, and MS ICU separated

Basic SAAR Report

National Healthcare Safety Network

SAARs Table - All Adult and Pediatric Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2017 Baseline)

As of: January 3, 2020 at 10:10 AM
Date Range: All AU_SAAR_2017

Reported or Observed Use

Predicted Use

SAAR Value

Broad spectrum antibacterial agents predominantly used for hospital-onset infections used in adult SAAR wards

Facility Org ID	SAAR Type 2017 Baseline	Location	Summary Year/Month	CDC Location	Antimicrobial Days	Predicted Antimicrobial Days	Days Present	SAAR	SAAR p-value	95% Confidence Interval
13860	Adult_BSHO_Ward_2017	5GNORTH	2019M03	IN:ACUTE:WARD:MS	144	131.744	1145	1.093	0.3058	0.925, 1.283
13860	Adult_BSHO_Ward_2017	5GNORTH	2019M04	IN:ACUTE:WARD:MS	158	62.248	541	2.538	0.0000	2.165, 2.958
13860	Adult_BSHO_Ward_2017	700	2019M03	IN:ACUTE:WARD:S	146	129.213	1123	1.130	0.1560	0.958, 1.325
13860	Adult_BSHO_Ward_2017	700	2019M04	IN:ACUTE:WARD:S	134	129.213	1123	1.037	0.6967	0.872, 1.224
13860	Adult_BSHO_Ward_2017	MEDWARD	2019M03	IN:ACUTE:WARD:M	131	87.085	700	1.504	0.0000	1.263, 1.779
13860	Adult_BSHO_Ward_2017	MEDWARD	2019M04	IN:ACUTE:WARD:M	33	87.085	700	0.379	0.0000	0.265, 0.526

Any reported use of Colistin will be combined with and reported as Colistimethate. Any reported use of Amikacin Liposomal will be combined with and reported as Amikacin.

Includes data for January 2017 and forward.

The SAAR is only calculated if the number of predicted antimicrobial days (numAUDaysPredicted) is >=1.

If antimicrobial days exceed days present for any SAAR categories except the All Antibacterial SAAR, a SAAR will not be calculated and data should be validated for accuracy.

Data restricted to medical, medical-surgical, surgical, step down and oncology locations.

Source of aggregate data: 2017 NHSN AU Data

Data contained in this report were last generated on December 11, 2019 at 3:13 PM. to include data beginning January 2016

Data for example only

Reading the SAAR Report

National Healthcare Safety Network
SAARs Table - All SAARs by Location (2017 Baseline)
As of: December 7, 2018 at 1:16 PM
Date Range: AU_SAAR_2017 summaryYM After and Including 2018M07

Broad spectrum antibacterial agents predominantly used for hospital-onset infections used in adult SAAR wards

orgID	SAARType_2017	location	summaryYM	locCDC	antimicrobialDays	numAUDaysPredicted	numDaysPresent	SAAR	SAAR_pval	SAAR95CI
13860	Adult_BSHO_Ward_2017	5GNORTH	2018M07	IN:ACUTE:WARD:MS	158	62.248	541	2.538	0.0000	2.165, 2.958
13860	Adult_BSHO_Ward_2017	700	2018M07	IN:ACUTE:WARD:S	134	129.213	1123	1.037	0.6967	0.872, 1.224
13860	Adult_BSHO_Ward_2017	MEDWARD	2018M07	IN:ACUTE:WARD:M	160	46.528	374	3.439	0.0000	2.936, 4.004

- 5GNorth reported 158 antimicrobial days in the BSHO category

Data for example only

Reading the SAAR Report

National Healthcare Safety Network
SAARs Table - All SAARs by Location (2017 Baseline)
As of: December 7, 2018 at 1:16 PM
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13860	Adult_BSHO_Ward_2017	700	2018M07	IN:ACUTE:WARD:S	134	129.213	1123	1.037	0.6967	0.872, 1.224
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- 5GNorth reported 158 antimicrobial days in the BSHO category
- Based on the SAAR model, 62.248 antimicrobial days were predicted

Data for example only

Reading the SAAR Report

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- 5GNorth reported 158 antimicrobial days in the BSHO category
- Based on the SAAR model, 62.248 antimicrobial days were predicted
- 5GNorth SAAR = $\frac{158\ Reported\ Antimicrobial\ Days}{62.248\ Predicted\ Antimicrobial\ Days}$ = 2.538

Data for example only

Reading the SAAR Report

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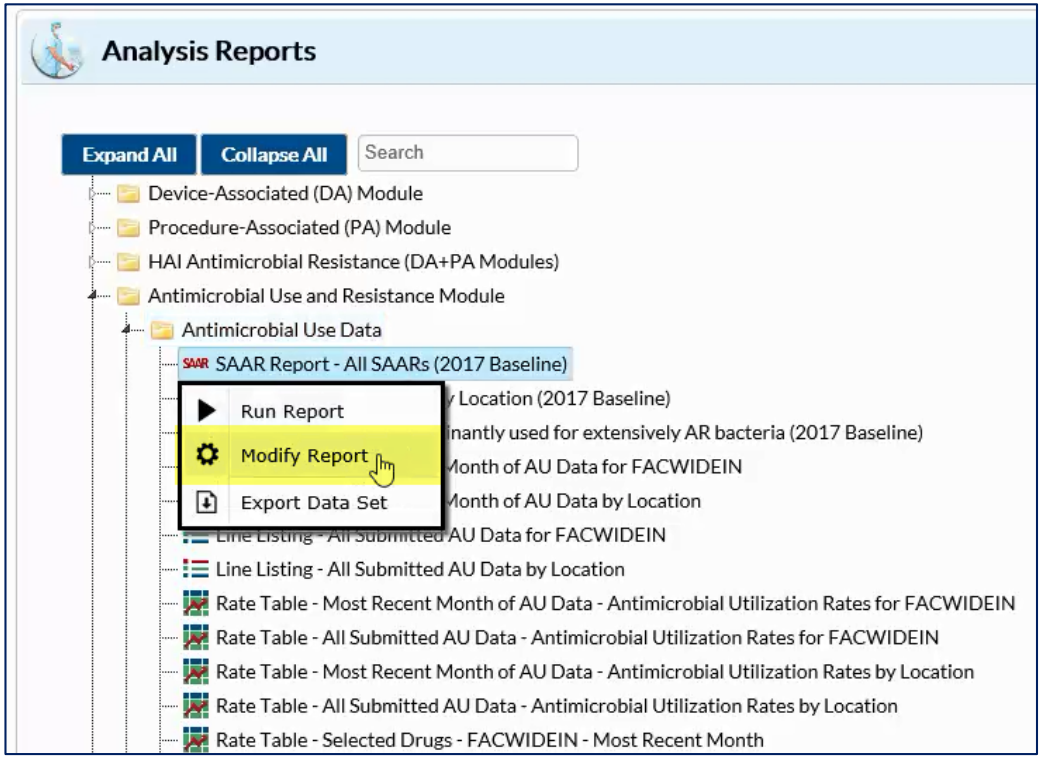
- 5GNorth reported 158 antimicrobial days in the BSHO category
- Based on the SAAR model, 62.248 antimicrobial days were predicted
- 5GNorth SAAR = $\frac{158\ Reported\ Antimicrobial\ Days}{62.248\ Predicted\ Antimicrobial\ Days}$ = 2.538
- Based on the p-value (0.0000) & 95% CI (2.165, 2.958), the SAAR is statistically different than 1

Data for example only

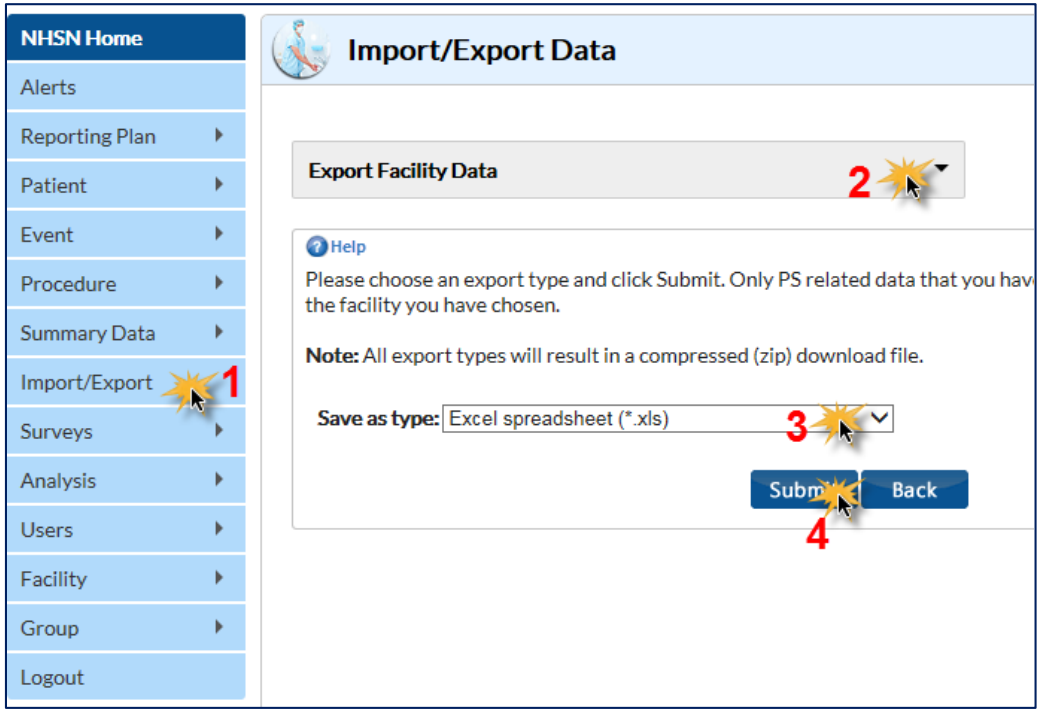
Additional Options for Analysis – Modifications

- Modify default NHSN reports
  - AU Analysis Quick Reference Guides: https://www.cdc.gov/nhsn/acute-care-hospital/aur/index.html



Additional Options for Analysis – Export

- Export data from NHSN
  - Excel, SAS, Access, etc.



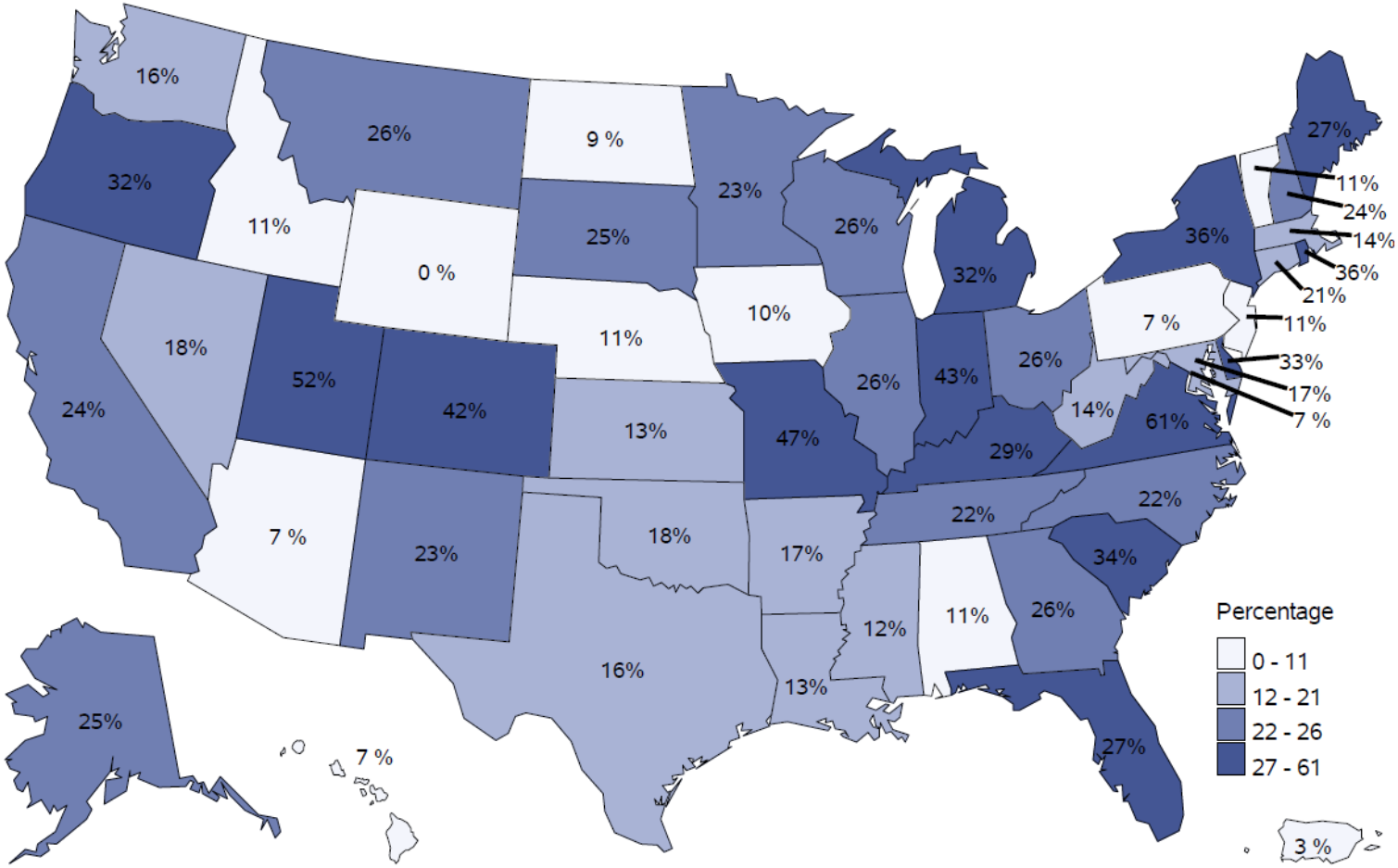
Reporting Metrics

Submission Metrics

- 1560 facilities submitted at least one month of data
  - From 49 states (+AE & DC)
  - Bed size
    - Average = 211
    - Median = 157
    - Min/Max = 3, 1455
  - Teaching status
    - Teaching: 70%
      - (of all Teaching) Major teaching: 53%

*As of Jan 1, 2020

Percentage of facilities reporting at least one month of data to NHSN's AU Option

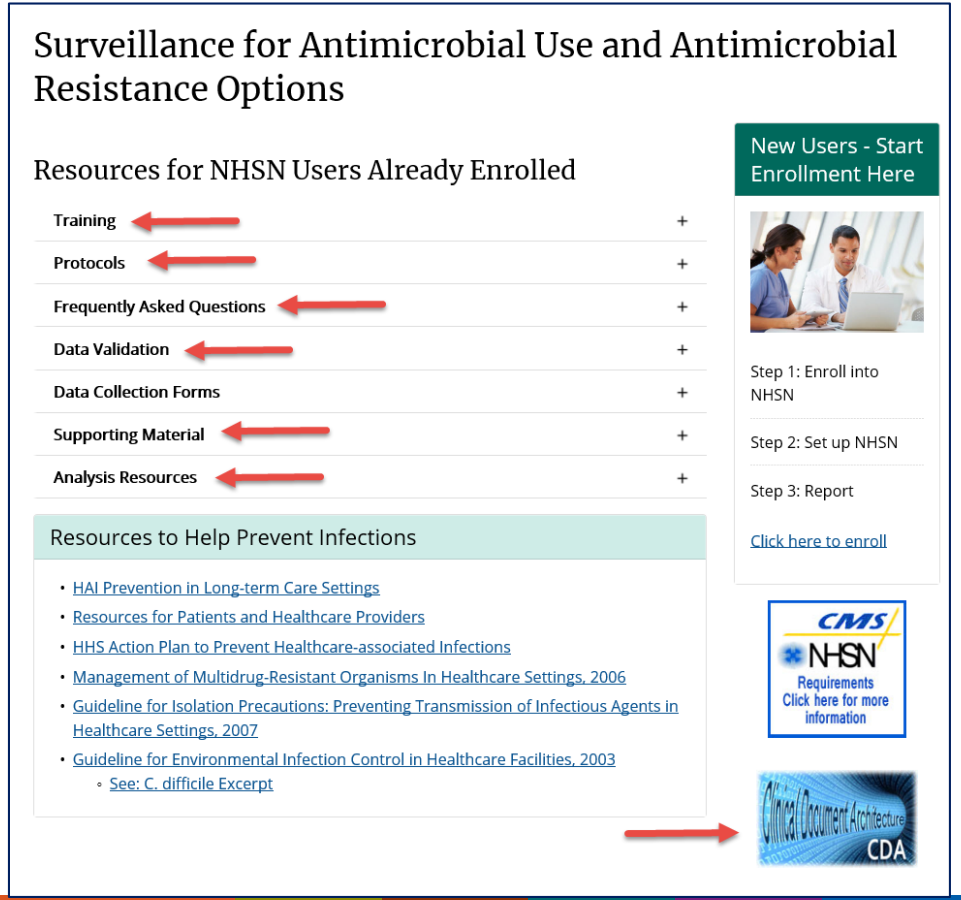


*As of 1/1/2020

AUR Module Reporting Resources

NHSN AUR Module Resources

- NHSN AUR Module webpage: http://www.cdc.gov/nhsn/acute-care-hospital/aur/index.html



NHSN AUR Module Resources

- NHSN AUR Protocol:
  - http://www.cdc.gov/nhsn/PDFs/pscManual/11pscAURcurrent.pdf
- NHSN Analysis Quick Reference Guides:
  - http://www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.html
- NHSN CDA Submission Support Portal
  - https://www.cdc.gov/nhsn/cdaportal/index.html

Thank you!

NHSN Helpdesk

(protocol & submission questions)

NHSN@cdc.gov

NHSN CDA Helpdesk

(technical CDA related questions)

NHSNCDA@cdc.gov

For more information, contact CDC
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TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.