# Analyzing Antimicrobial Resistance Data in NHSN

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March 2016, NHSN Training

# Outline

- Annual Facility Survey: antibiotic stewardship questions
- NHSN analysis output options for antibiotic resistance
- Unusual Susceptibility Alerts
- New CDC web platform to view antibiotic resistance across the nation

*Note: all screen shots and data used in this presentation are fictitious

# Stewardship Questions on Annual Survey

- All facilities except ASCs
- Includes 12 questions on antibiotic stewardship practices

- Used to determine presence of a stewardship program
- If unsure, review instructions document and consult with Physician and/or Pharmacist

**Antibiotic Stewardship Practices (continued)**

*25. Is there at least one pharmacist responsible for improving antibiotic use at your facility?

☐ Yes ☐ No

*26. Does your facility provide any salary support for dedicated time for antibiotic stewardship activities?

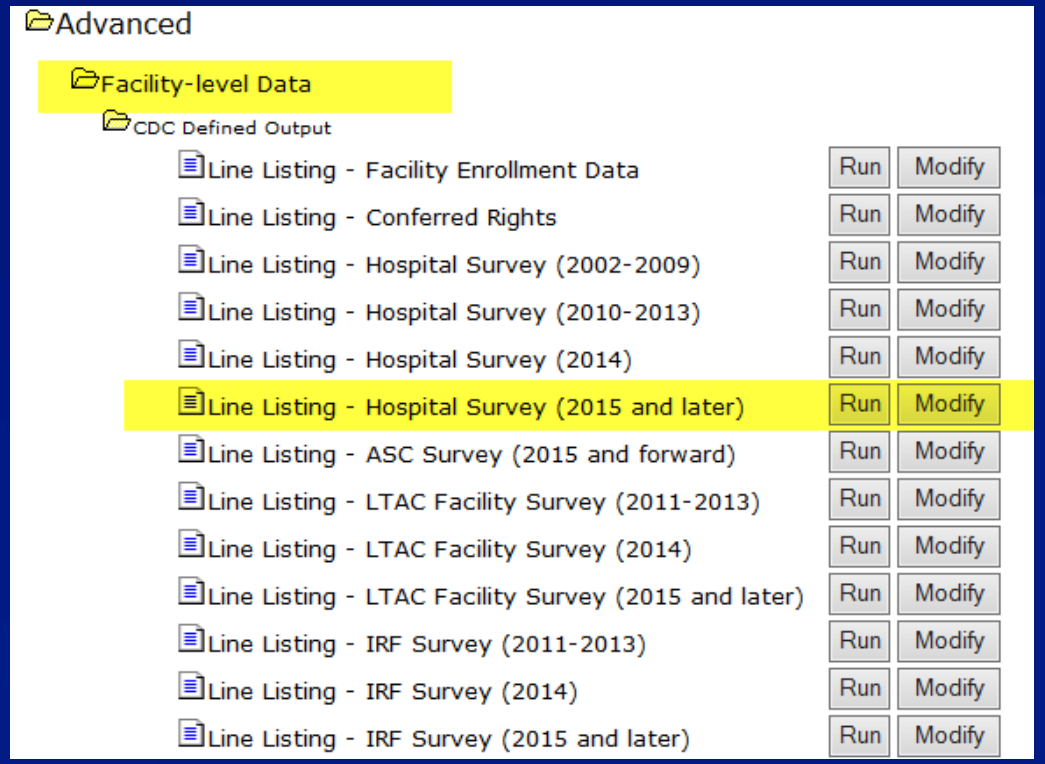
☐ Yes ☐ No

- Future analysis report within NHSN

Survey Instructions: http://www.cdc.gov/nhsn/forms/instr/57_103-toi.pdf

# Annual Survey Line List

- Found in the Advanced folder
- Hospital, LTAC, IRF, and Dialysis survey line lists are available
- Use option marked as "2015 and later"
- Groups (e.g., QIOs, State Health Depts.)
- Review NHSN data dictionary for stewardship variables

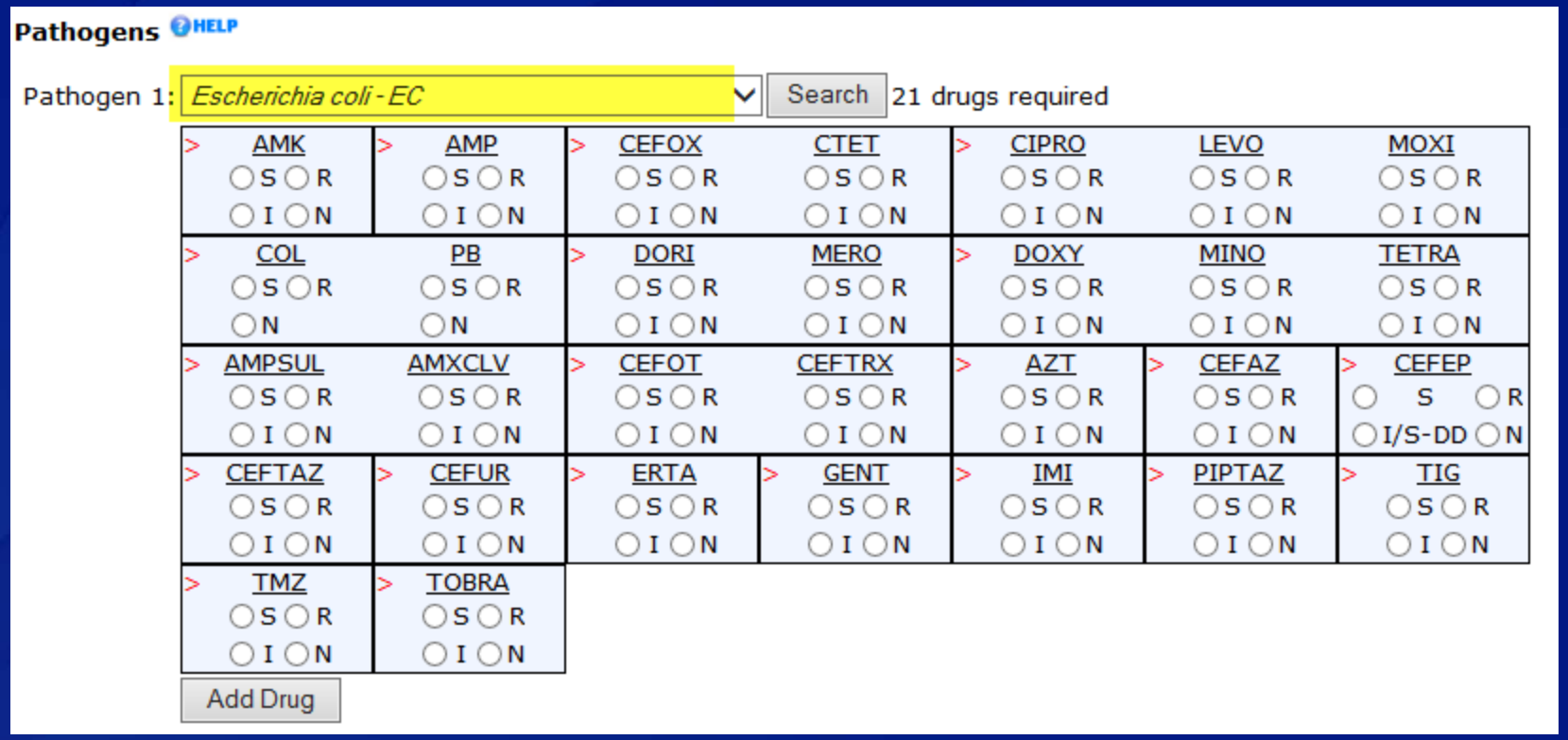



Data Dictionary: http://www.cdc.gov/nhsn/ps-analysis-resources/index.html

# NHSN ANALYSIS REPORTS FOR ANTIBIOTIC RESISTANCE

# Review – Pathogen and Antibiotic Resistance Data Entry

- Results for each drug are entered as either S, I, R, or N

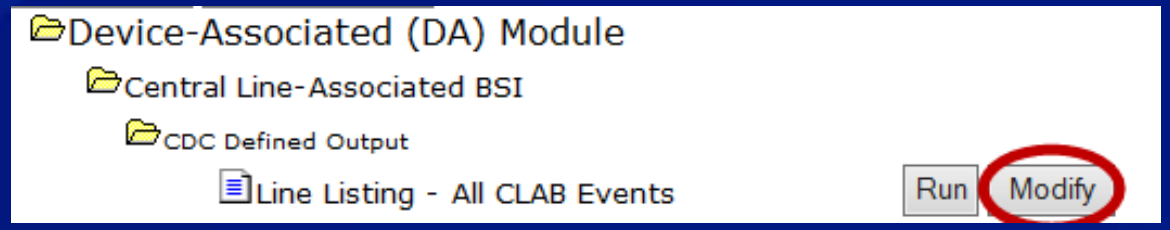


# FAQ from NHSN Helpdesk

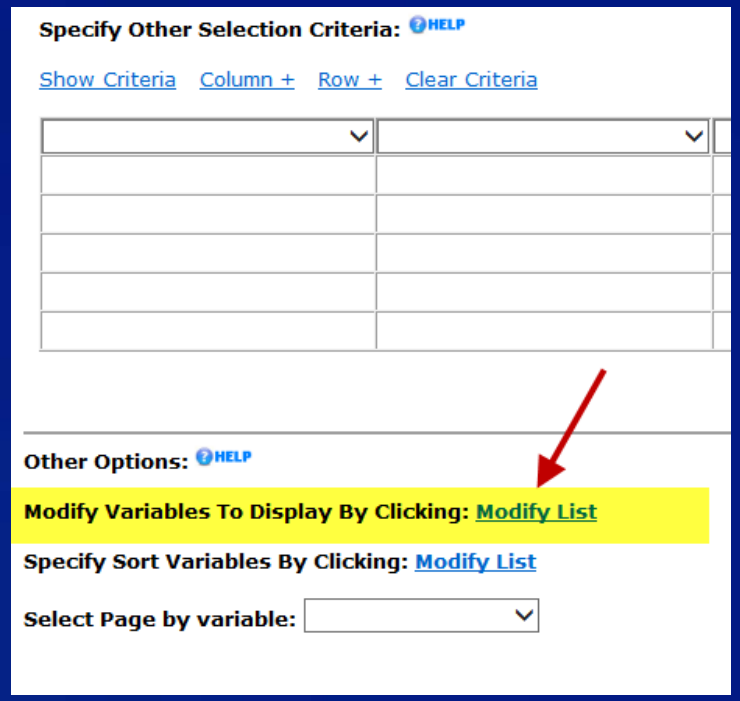
- "I am trying to determine which specific pathogens are common in my facility. How can I review the pathogens I have entered for CLABSIs?"

# Manually Add Pathogen Variables to Line List

- Step 1. Modify the CLABSI line list

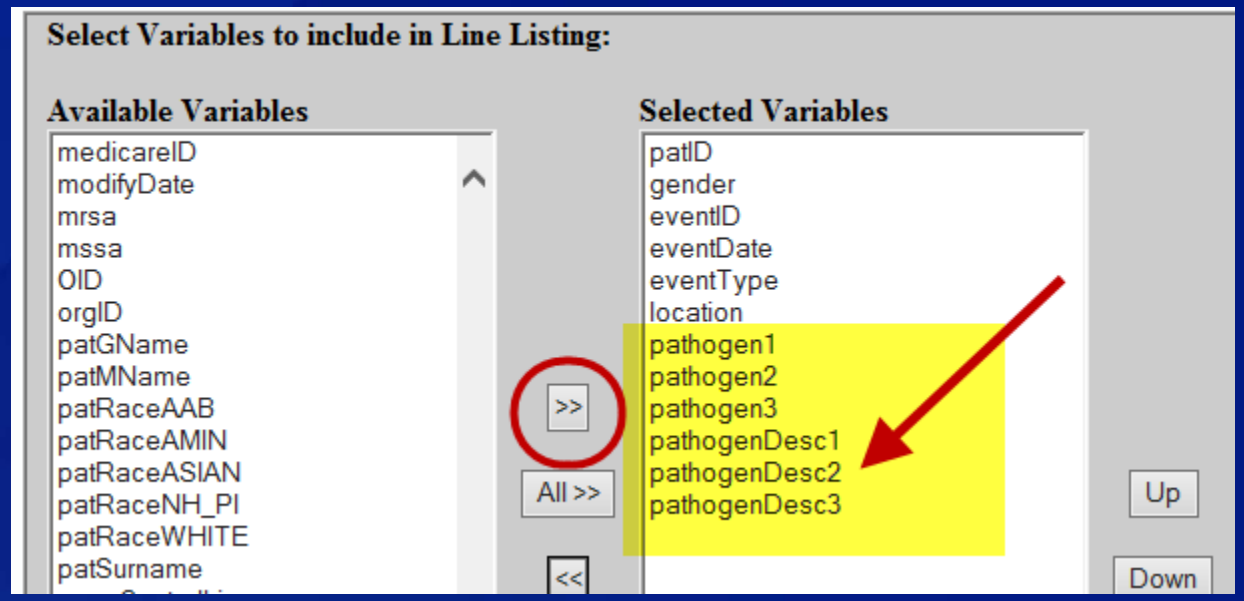



- Step 2. At the bottom of the Modify screen, select option to modify variables



# Manually Add Pathogen Variables to Line List

- **Step 3. Move pathogen1/2/3 over to the right column**
  - "Pathogen" = NHSN code for the organism
  - "PathogenDesc" = Full organism name (i.e., description)



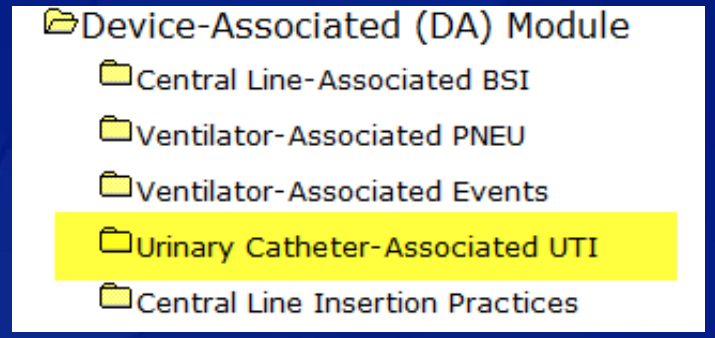
# CLABSI Line List Output

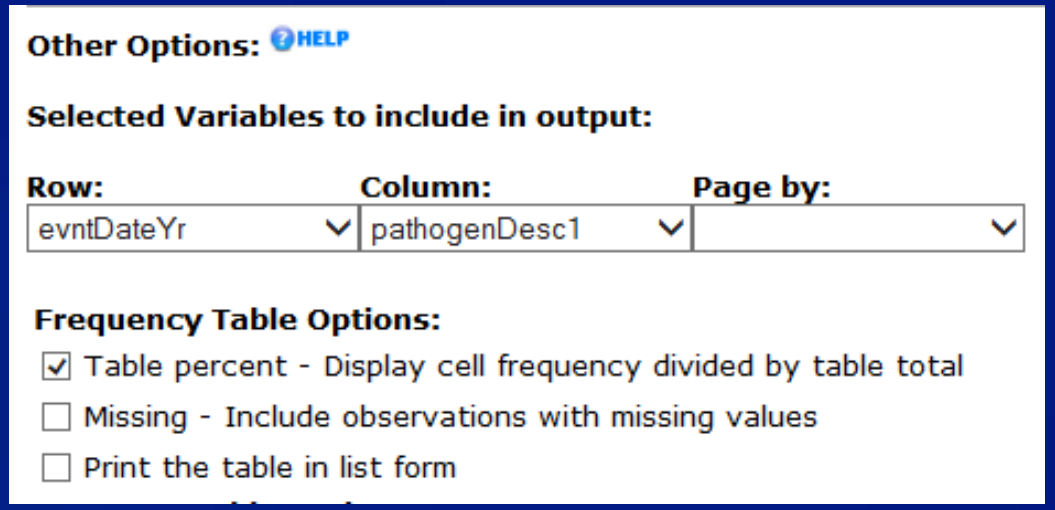
**National Healthcare Safety Network**
**Line Listing for All Central Line-Associated BSI Events**
As of: February 8, 2016 at 4:58 PM
Date Range: All CLAB_EVENTS

| patID | eventDate | location | pathogen1 | pathogen2 | pathogen3 | pathogenDesc1 | pathogenDesc2 | pathogenDesc3 |
|---|---|---|---|---|---|---|---|---|
| 020202CG | 11/10/2015 | 3N | CAMSP | | | Campylobacter spp. - CAMSP | | |
| 0510 | 11/19/2013 | TELE | ACBLI | | | Actinobacillus lignieresii - ACBLI | | |
| 05283 | 10/20/2014 | ICU | EC | | | Escherichia coli - EC | | |
| 1113 | 03/02/2014 | BURN | ENTA2 | | | Enterobacter amnigenus Biogroup 2 - ENTA2 | | |
| 1502 | 11/13/2013 | TELE | CORCOY | | | Corynebacterium coyleae - CORCOY | | |
| 1503 | 12/16/2013 | TELE | NEIEL | | | Neisseria elongata - NEIEL | | |
| 2225 | 09/09/2014 | BURN | KO | | | Klebsiella oxytoca - KO | | |
| 2660 | 11/06/2013 | LEUK | CLOPS | | | Clostridium putrefaciens - CLOPS | | |
| 3006 | 10/06/2013 | HEME | ACBLI | | | Actinobacillus lignieresii - ACBLI | | |
| 45234523 | 11/15/2013 | NICU | ENTFS | | | Enterococcus faecalis - ENTFS | | |
| 4653 | 06/02/2014 | MED | ENOT | EC | | Enteric other - ENOT | Escherichia coli - EC | |

# Add Pathogen to a Frequency Table

- **What types of pathogens were reported in our facility among CAUTIs?**
  - Modify CAUTI frequency table to show pathogen as either the Row or Column variable



# CAUTI Frequency Table

- Counts of CAUTI pathogens reported during each year

Table of evntDateYr by pathogenDesc1

| evntDateYr | pathogenDesc1 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Citrobacter braakii - CITBRA | Enterobacter aerogenes - EA | Escherichia coli - EC | Enterobacter cloacae - ENC | Enterobacter hormaechei - ENTHO | Klebsiella oxytoca - KO | Klebsiella pneumoniae - KP | Pseudomonas aeruginosa - PA | Staphylococcus aureus - SA | Total |
| 2014 | 0 | 1 | 4 | 1 | 1 | 2 | 1 | 0 | 6 | 16 |
| | 0.00 | 3.45 | 13.79 | 3.45 | 3.45 | 6.90 | 3.45 | 0.00 | 20.69 | 55.17 |
| | 0.00 | 6.25 | 25.00 | 6.25 | 6.25 | 12.50 | 6.25 | 0.00 | 37.50 | |
| 2015 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 12 |
| | 3.45 | 0.00 | 3.45 | 0.00 | 0.00 | 0.00 | 0.00 | 3.45 | 0.00 | 41.38 |
| | 8.33 | 0.00 | 8.33 | 0.00 | 0.00 | 0.00 | 0.00 | 8.33 | 0.00 | |
| Total | 1 | 1 | 5 | 1 | 1 | 2 | 1 | 1 | 6 | 29 |
| | 3.45 | 3.45 | 17.24 | 3.45 | 3.45 | 6.90 | 3.45 | 3.45 | 20.69 | 100.00 |

Frequency Missing = 2

Are any of these pathogens resistant to key antibiotics?

# Antimicrobial Resistance (AR) Output Options

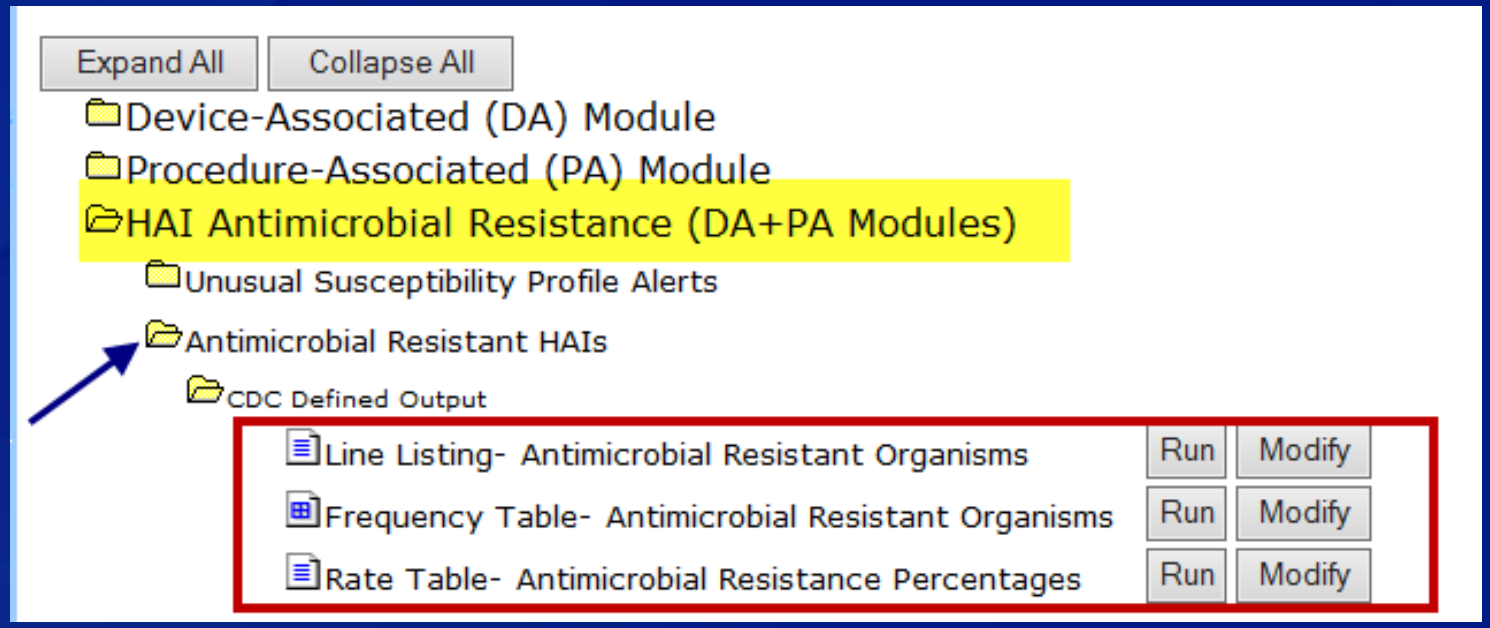
- Analysis reports are available that identify HAIs with a significant antimicrobial resistance pattern ("phenotype")

- CDC identified 11 AR phenotypes of interest
  - CRE
  - MRSA
  - VRE
  - Multidrug-resistant organisms
  - …etc.

- Documentation available that identifies and defines each of the 11 phenotypes
  - http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/phenotype_definitions.pdf

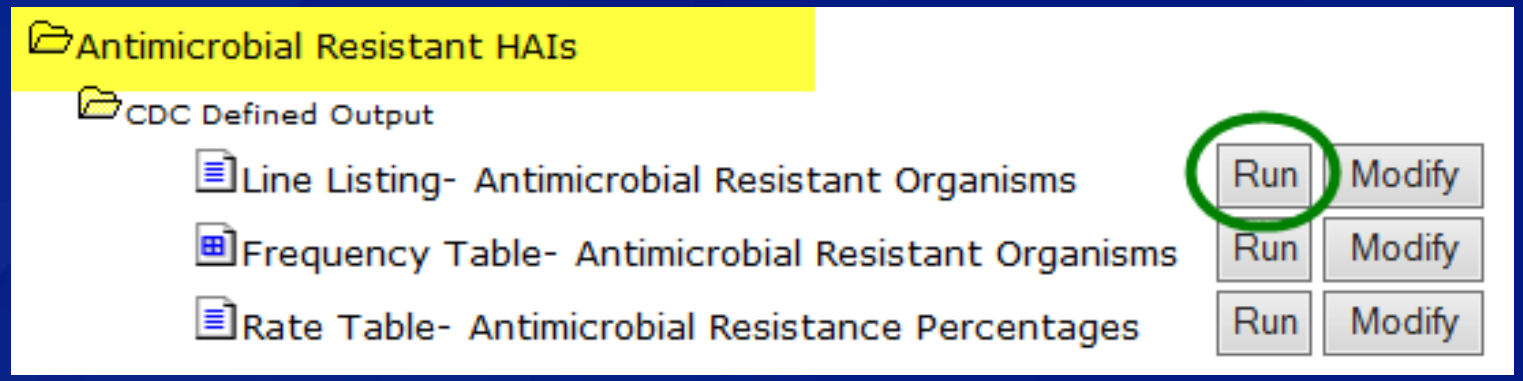
# Three Output Options

- **Line List, Frequency Table, and Rate Table**
  - Include <u>all</u> device and procedure-associated HAIs (CLABSI, CAUTI, SSI, VAE, etc.)
  - All time periods
  - Available for Groups



# Three Output Options

- Click modify to select time period or phenotype of interest
- Or, just click Run!
  - Will capture *all previously entered data* with any of the 11 phenotypes



# 1. Line List

By default, separate line list for each phenotype

**National Healthcare Safety Network**
**Line Listing- Antimicrobial Resistant Organisms**
**MRSA_HAI - Methicillin-resistant Staphylococcus aureus**
As of: February 1, 2016 at 9:45 AM
Date Range: All ANTIBIOGRAM_HAI

| orgID | patID | dob | gender | admitDate | eventID | eventDate | eventType | location | pathogenDesc |
|---|---|---|---|---|---|---|---|---|---|
| 10401 | 8942 | 10/12/1992 | M | 10/09/2014 | 45540 | 11/19/2013 | SSI | | Staphylococcus aureus - SA |
| 10401 | 4689 | 07/08/1982 | M | 07/12/2014 | 45542 | 07/18/2014 | UTI | MED | Staphylococcus aureus - SA |
| 10401 | 2226 | 12/05/1956 | F | 09/01/2014 | 45544 | 08/21/2014 | UTI | BURN | Staphylococcus aureus - SA |
| 10401 | 4448 | 08/21/1990 | M | 08/15/2014 | 45545 | 09/05/2014 | UTI | BURN | Staphylococcus aureus - SA |
| 10401 | 8897 | 02/16/1976 | F | 05/10/2014 | 45551 | 05/21/2014 | BSI | MED | Staphylococcus aureus - SA |
| 10401 | 8883 | 12/03/1968 | F | 05/29/2014 | 45557 | 10/02/2015 | BSI | 2N | Staphylococcus aureus - SA |

**CREall_HAI - Carbapenem-resistant Enterobacteriaceae**
As of: February 1, 2016 at 9:45 AM
Date Range: All ANTIBIOGRAM_HAI

| orgID | patID | dob | gender | admitDate | eventID | eventDate | eventType | location | pathogenDesc |
|---|---|---|---|---|---|---|---|---|---|
| 10401 | 8886 | 02/14/1992 | M | 11/29/2014 | 45577 | 12/01/2014 | BSI | 2N | Klebsiella pneumoniae - KP |
| 10401 | 8895 | 08/12/1987 | M | 04/11/2014 | 45584 | 05/02/2014 | UTI | 2N | Enterobacter cloacae - ENC |
| 10401 | 6214 | 06/03/1961 | M | 01/28/2014 | 45585 | 02/02/2014 | UTI | BURN | Escherichia coli - EC |
| 10401 | 05283 | 01/01/1983 | F | 10/15/2014 | 48511 | 10/20/2014 | BSI | ICU | Escherichia coli - EC |
| 10401 | 6234 | 01/01/1957 | M | 11/26/2014 | 48512 | 12/02/2014 | BSI | 4W | Escherichia coli - EC |

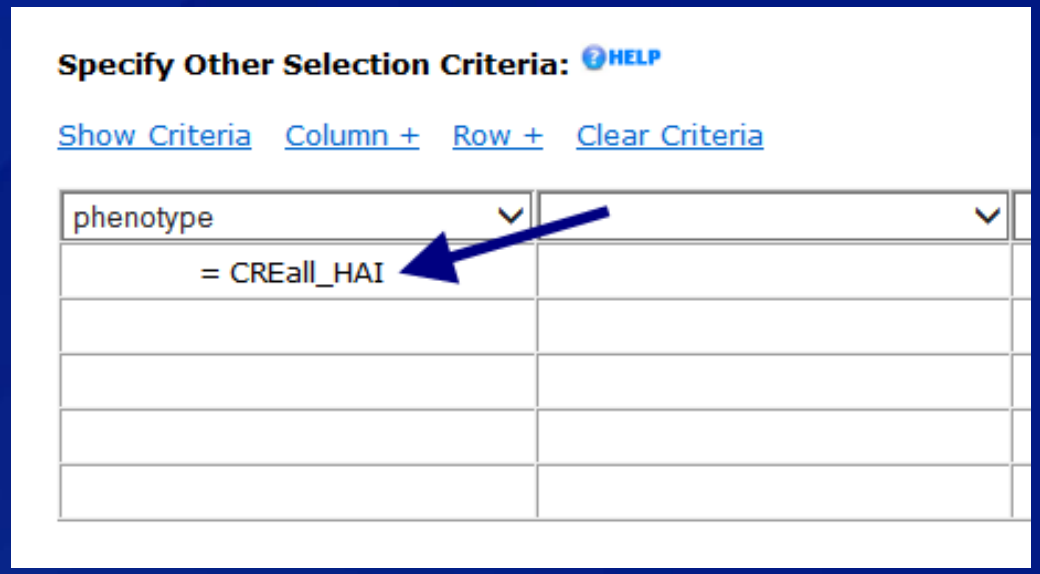
**MDR_Acine_HAI - Multidrug-resistant Acinetobacter spp.**
As of: February 1, 2016 at 9:45 AM
Date Range: All ANTIBIOGRAM_HAI

| orgID | patID | dob | gender | admitDate | eventID | eventDate | eventType | location | pathogenDesc |
|---|---|---|---|---|---|---|---|---|---|
| 10401 | 6612 | 06/12/1941 | M | 03/12/2014 | 45594 | 03/13/2014 | SSI | | Acinetobacter baumannii - ACE |

Criteria used to define each phenotype can be found on the Patient Safety Analysis Resources webpage.
Sorted by orgID eventDate
Data contained in this report were last generated on January 28, 2016 at 11:52 AM.

# Antimicrobial Resistant Line List

- Use the Modify screen to identify phenotype of interest
- Example: We are interested in viewing a line list of CRE cases




Hint: Each phenotype has a code in NHSN. Refer to resources at the end of the presentation.

# CRE Line List

- Will include all Enterobacteriaceae species: *Klebsiella*, *E coli*, and *Enterobacter*

**Line Listing- Antimicrobial Resistant Organisms**
**CREall_HAI - Carbapenem-resistant Enterobacteriaceae**
As of: February 10, 2016 at 1:46 PM
Date Range: All ANTIBIOGRAM_HAI

| orgID | patID | dob | gender | admitDate | eventID | eventDate | eventType | location | pathogenDesc |
|---|---|---|---|---|---|---|---|---|---|
| 10401 | 8886 | 02/14/1992 | M | 11/29/2014 | 45577 | 11/19/2013 | BSI | 2N | Klebsiella pneumoniae - KP |
| 10401 | 8895 | 08/12/1987 | M | 04/11/2014 | 45584 | 05/02/2014 | UTI | 2N | Enterobacter cloacae - ENC |
| 10401 | 6214 | 06/03/1961 | M | 01/28/2014 | 45585 | 02/02/2014 | UTI | BURN | Escherichia coli - EC |
| 10401 | 05283 | 01/01/1983 | F | 10/15/2014 | 48511 | 10/20/2014 | BSI | ICU | Escherichia coli - EC |
| 10401 | 6234 | 01/01/1957 | M | 11/26/2014 | 48512 | 11/10/2015 | BSI | 4W | Escherichia coli - EC |

Note: Unless you make specifications on the Modify screen, this will be inclusive of all HAI types and time periods.

# 2. Frequency Table

- By default: counts of each phenotype by HAI type
- Use the Modify screen to change the row/column variables

National Healthcare Safety Network
Frequency Table- Antimicrobial Resistant Organisms

| Frequency<br>Row Pct | Table of phenotype by eventType | | | |
|---|---|---|---|---|
| | eventType | | | |
| phenotype | BSI | SSI | UTI | Total |
| CREall_HAI | 3 | 0 | 2 | 5 |
| | 60.00 | 0.00 | 40.00 | |
| MDR_Acine_HAI | 0 | 1 | 0 | 1 |
| | 0.00 | 100.00 | 0.00 | |
| MRSA_HAI | 2 | 1 | 3 | 6 |
| | 33.33 | 16.67 | 50.00 | |
| carbNS_Acine_HAI | 0 | 1 | 0 | 1 |
| | 0.00 | 100.00 | 0.00 | |
| Total | 5 | 3 | 5 | 13 |

# ANTIMICROBIAL RESISTANCE PERCENTAGES (RATE TABLE)

# Antimicrobial Resistance Percentage

- Calculated for each phenotype, similar to a hospital's antibiogram report
- Percent of specific pathogens that are resistant to identified drugs (% R)

$$\frac{\text{\# of resistant organisms}}{\text{total \# of organisms tested}} \times 100\ \%$$

- Example: CRE

$$\frac{\text{\# Enterobacteriaceae } \underline{\textbf{resistant}} \text{ to carbapenems}}{\text{\# Enterobacteriaceae } \underline{\textbf{tested}} \text{ for susceptibility to carbapenems}} \times 100\%$$

# Example: CRE Resistance Percentage

## Rate Table- Antimicrobial Resistance Percentages

As of: May 29, 2015 at 1:53 PM

Date Range: All ANTIBIOGRAM_RATESHAI

orgID=10000 phenotypeDesc=CREall_HAI - Carbapenem-resistant Enterobacteriaceae

| orgID | phenotype | NumIsolated | NumTested | numResistant | pctResistant | pctResistant_CI |
|---|---|---|---|---|---|---|
| 10000 | CREall_HAI | 24 | 23 | 6 | 26.1 | 11.3,46.6 |

CRE includes the appropriate pathogens that tested Resistant ('R') to imipenem, meropenem, doripenem, or ertapenem.

Criteria used to define each phenotype can be found on the Patient Safety Analysis Resources webpage.

Percent Non-Susceptible is only calculated when at least 20 isolates have been tested.

If the percent of isolates tested is less than 70%, caution should be used when interpreting the percent non-susceptible.

This rate table only displays data when at least 1 applicable organism has been entered in NHSN (i.e., number isolated is at least 1).

Source of aggregate data: Not available

# Example: CRE Resistance Percentage

**Rate Table- Antimicrobial Resistance Percentages**
As of: May 29, 2015 at 1:53 PM
Date Range: All ANTIBIOGRAM_RATE SHAI

orgID=10000 phenotypeDesc=CREall_HAI - Carbapenem-resistant Enterobacteriaceae

| orgID | phenotype | NumIsolated | NumTested | numResistant | pctResistant | pctResistant_CI |
|---|---|---|---|---|---|---|
| 10000 | CREall_HAI | 24 | 23 | 6 | 26.1 | 11.3,46.6 |

CRE includes the appropriate pathogens that tested Resistant ('R') to imipenem, meropenem, doripenem, or ertapenem.
Criteria used to define each phenotype can be found on the Patient Safety Analysis Resources webpage.
Percent Non-Susceptible is only calculated when at least 20 isolates have been tested.
If the percent of isolates tested is less than 70%, caution should be used when interpreting the percent non-susceptible.
This rate table only displays data when at least 1 applicable organism has been entered in NHSN (i.e., number isolated is at least 1).
Source of aggregate data: Not available

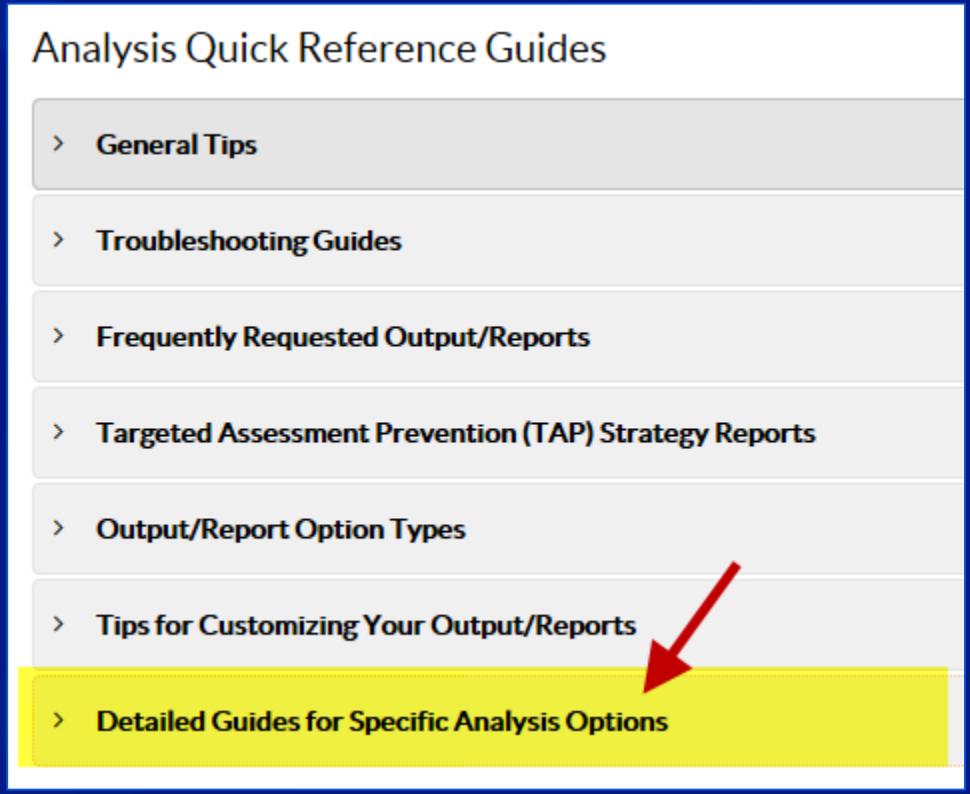
- NumIsolated = 24 Enterobacteriaceae reported to NHSN
- NumTested = 23 Enterobacteriaceae tested for carbapenems
- NumResistant = 6 Enterobacteriaceae resistant to carbapenems (CRE)
- PctResistant = (6/23 * 100) = 26.1% of Enterobacteriaceae tested in the facility were resistant to carbapenems
- 95% confidence interval around percentage to indicate precision

# More about AR Percentages

- Percentages are only calculated when at least 20 organisms have been tested (i.e., denominator must be ≥20)
  - Rate tables only calculated at the quarter-level or higher
  - "Group by" a wider time variable to include more data
- Detailed footnotes beneath the rate tables
  - Provide definition for the phenotype and important details about the percentage calculation
- National benchmarks for resistance are available- http://www.cdc.gov/nhsn/dataStat.html

# Quick Reference Guides Available

- Phenotype Definitions
- Line List
- Frequency Table
- Rate Table (%R)




http://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html

# National Antimicrobial Resistance Report

- National %R for select phenotypes
- CLABSI, CAUTI, VAP, SSI

TABLE 7. Percentage of Pathogenic Isolates Resistant to Selected

| Pathogen, antimicrobial[a] | CLABSI: No. of isolates reported | CLABSI: No. (%) of isolates tested | CLABSI: Resistance, % |
|---|---|---|---|
| *Staphylococcus aureus* | 3,735 | | |
| OX/METH | | 3,611 (96.7) | 54.6 |
| *Enterococcus* spp. | | | |
| *E. faecium* | 2,118 | | |
| VAN | | 2,069 (97.7) | 82.6 |
| *E. faecalis* | 2,680 | | |
| VAN | | 2,578 (96.2) | 9.5 |
| *Klebsiella* (*pneumoniae*/*oxytoca*) | 2,407 | | |
| ESC4 | | 2,109 (87.6) | 28.8 |
| Carbapenems | | 1,858 (77.2) | 12.8 |
| MDR1 | | 1,932 (80.3) | 16.8 |

# National AR Report

- Provides information on the most common pathogens reported to NHSN, for each HAI type

TABLE 5. Distribution of Rank Order of Selected Pathogens Associated with Healthcare-Associated Infections (HAIs) 2009–2010

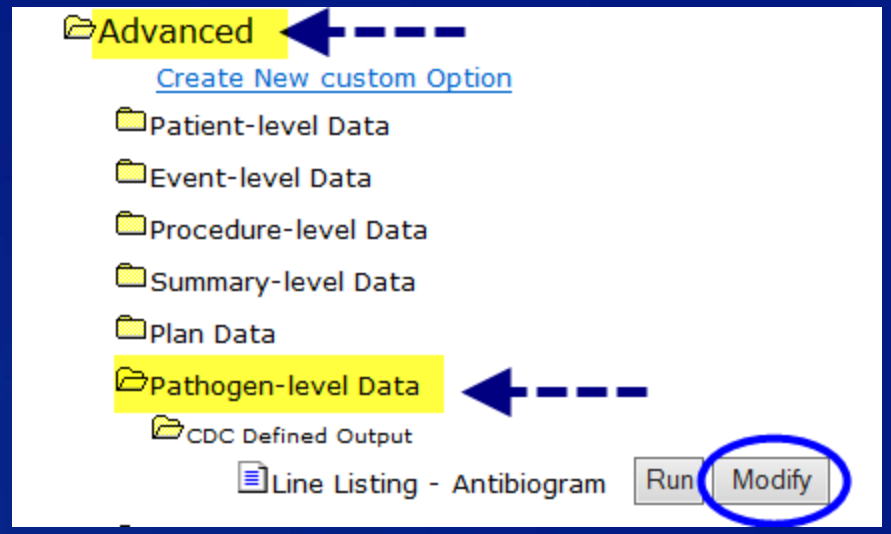
| Pathogen | Overall | | CLABSI | | CAUTI | |
|---|---|---|---|---|---|---|
| | No. (%) of pathogens | Rank | No. (%) of pathogens | Rank[a] | No. (%) of pathogens | Rank[a] |
| *Staphylococcus aureus* | 12,635 (15.6) | 1 | 3,735 (12.3) | 2 | 442 (2.1) | ... |
| *Escherichia coli* | 9,351 (11.5) | 2 | 1,206 (4.0) | 9 | 5,660 (26.8) | 1 |
| Coagulase-negative staphylococci | 9,261 (11.4) | 3 | 6,245 (20.5) | 1 | 467 (2.2) | ... |
| *Klebsiella (pneumoniae/oxytoca)* | 6,470 (8.0) | 4 | 2,407 (7.9) | 5 | 2,365 (11.2) | 3 |
| *Pseudomonas aeruginosa* | 6,111 (7.5) | 5 | 1,166 (3.8) | 10 | 2,381 (11.3) | 2 |

http://www.jstor.org/stable/10.1086/668770

# Other Drug Results

- Individual drug susceptibilities can be found in the Antibiogram Line List (Advanced folder)
- Use this to review each drug result for each pathogen

Advanced > Pathogen-level Data > Antibiogram Line List

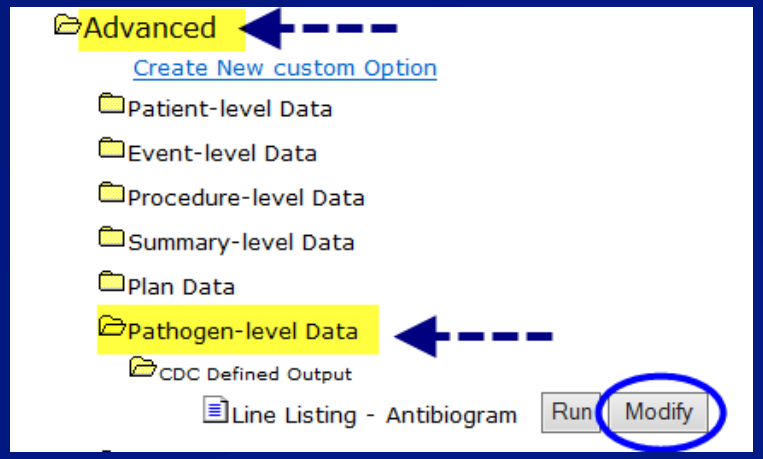


# Example Antibiogram Line List

- Your hospital pharmacist is interested in the types of resistance patterns seen among HAIs in your facility, and would like to know if any HAI pathogens tested resistant to vancomycin.
- Because you are an expert at NHSN analysis, you volunteered to help!

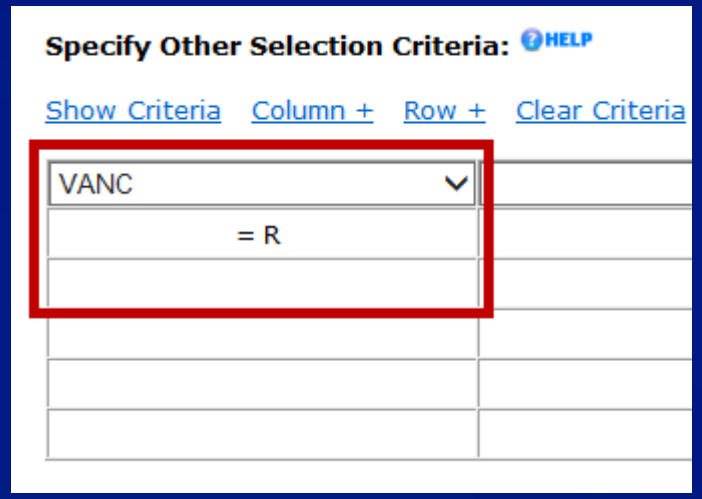
# Goal: Create a line list showing only those pathogens resistant to vancomycin

1. Click "Modify" next to the Antibiogram Line List

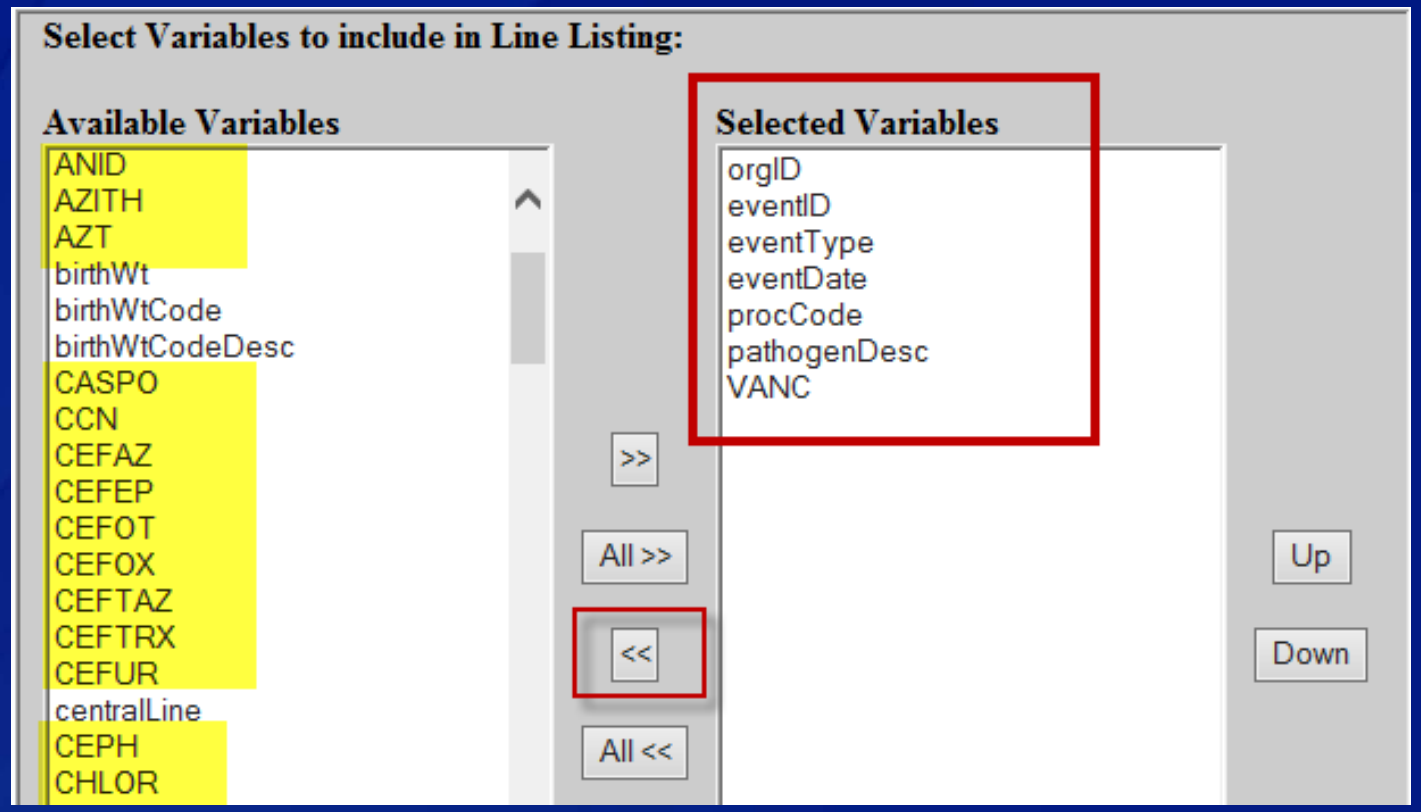



2. Use the selection criteria grid to set "VANC" = 'R'

Hint: Each drug has an abbreviation in NHSN. Refer to the NHSN data dictionary.



3. By default, the line list will include ALL antibiotics. Remove the antibiotics you don't need for this report by transferring them to the LEFT column.



# Line List of Vancomycin-Resistant HAIs

**National Healthcare Safety Network**
**Line Listing - Antibiogram**
As of: February 9, 2016 at 10:02 AM
Date Range: All ANTIBIOGRAM

| orgID | eventID | eventType | eventDate | procCode | pathogenDesc | VANC |
|---|---|---|---|---|---|---|
| 10401 | 45540 | SSI | 10/12/2014 | HPRO | Enterococcus faecalis - ENTFS | R |
| 10401 | 45541 | UTI | 08/04/2014 | | Enterococcus faecalis - ENTFS | R |
| 10401 | 45543 | UTI | 01/15/2014 | | Enterococcus faecalis - ENTFS | R |
| 10401 | 45557 | BSI | 06/11/2014 | | Staphylococcus aureus - SA | R |

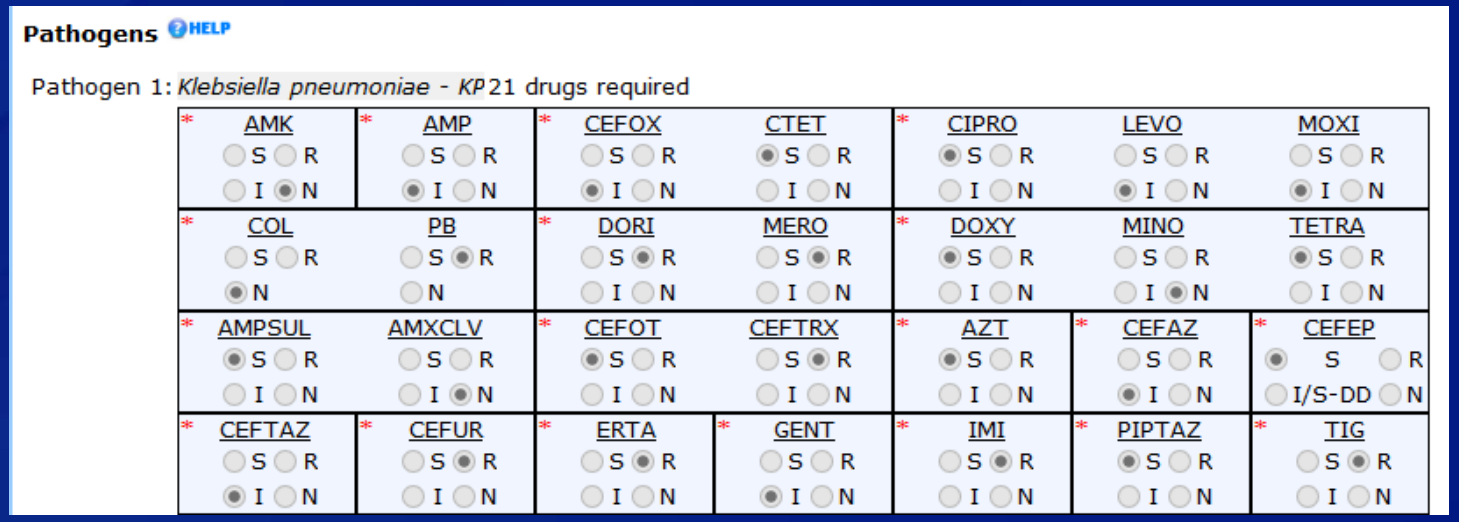
**Hint:** Consider sorting the line list by HAI type or by pathogenDesc.

**More information on how to modify a line list:**
http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/linelists.pdf

# UNUSUAL SUSCEPTIBILITY ALERTS

# Alert for an Unusual Susceptibility Profile

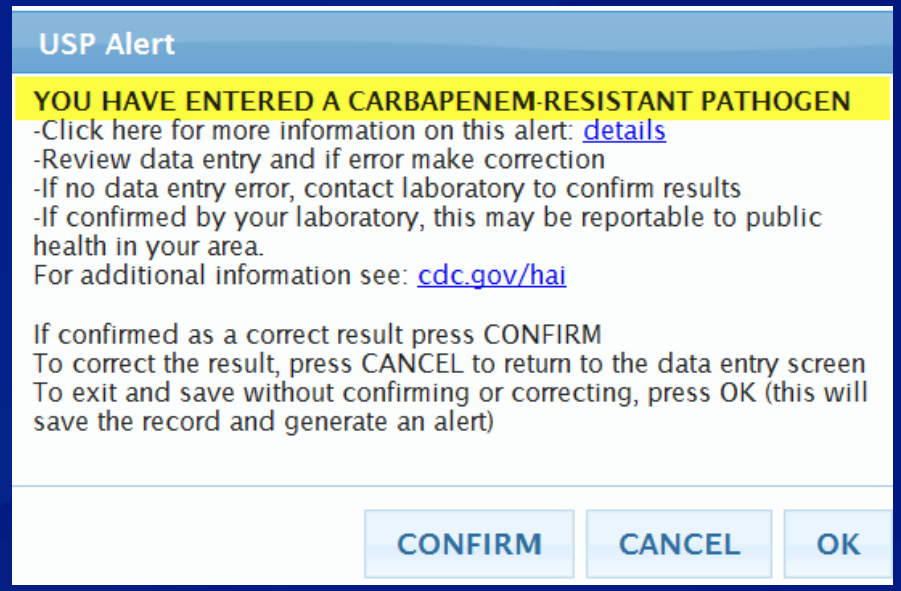
- Highlights reporting of an epidemiological significant pathogen
  - Prompt infection control interventions
  - Assist with data cleaning
- User will be notified when unusual susceptibility profiles are entered into NHSN for in-plan events
- Will be notified immediately after saving the event



# Unusual Susceptibility Profiles

| |
|---|
| Carbapenem resistant Enterobacteriaceae |
| Carbapenem intermediate or resistant *Acinetobacter baumannii*, *Pseudomonas aeruginosa* |
| Highly Drug Resistant * Enterobacteriaceae, *Pseudomonas aeruginosa*, *Acinetobacter baumannii* |
| Colistin/Polymyxin B resistant *Acinetobacter baumannii*, *Pseudomonas aeruginosa* |
| Daptomycin non-susceptible and Linezolid resistant *Enterococcus* spp. |
| Vancomycin resistant *Staphylococcus aureus* (VRSA) |
| Daptomycin non-susceptible and Linezolid resistant and Vancomycin intermediate *Staphylococcus aureus* |
| Vancomycin resistant *Staphylococcus*, coagulase negative (VRSE) |
| *all defined drug classes have at least one drug within the class reported as either Intermediate (I) or Resistant (R) |

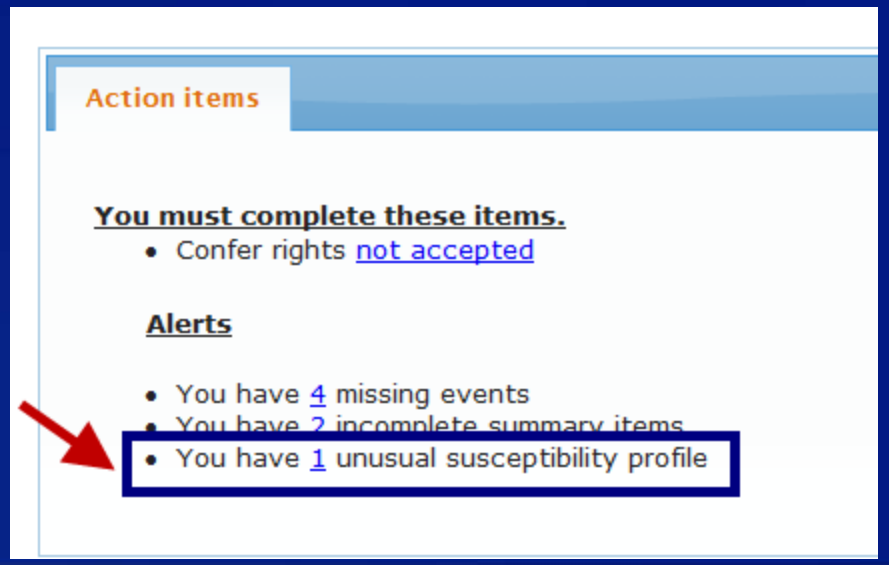
# Unusual Susceptibility Profile Alert




- Upon saving an event, a pop-up window will appear
- Click details to view more information about this specific alert
- The user can confirm accurate data entry and susceptibility reporting by clicking confirm, or amend data entry by clicking cancel
- Click OK to acknowledge the alert and save the record without immediately confirming the result

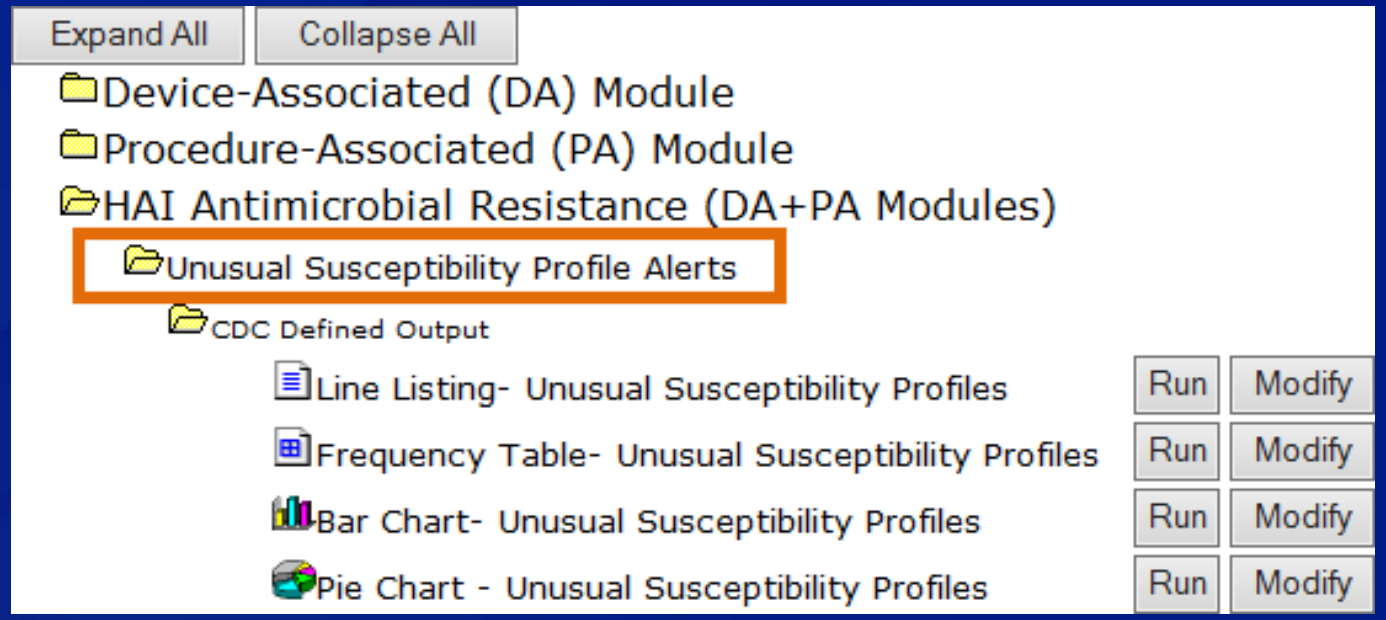
# If you click "OK"….

- You are tentatively saving the event – but confirmation of data entry is still needed!
- You will receive an Alert on your home screen
- To clear the alert, you must
  - Confirm the resistance profile
  - Modify the susceptibilities on the event form with corrected data



# Analysis of Unusual Susceptibility Profiles

- Analysis options are available that track all unusual susceptibility alerts in a facility that have been confirmed or are pending confirmation



**National Healthcare Safety Network**
**Line Listing of All Unusual Susceptibility Profiles**
As of: November 4, 2014 at 9:50 AM
Date Range: All SUSCEPTIBILITY

Unusual Susceptibility Profile has been confirmed

suscCode=HDR_ACBA

| orgID | patID | dob | admitDate | eventDate | eventID | eventType | location | pathogen | suscCode | suscConfirm | suscPend |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10401 | CG06181401 | 06/06/1980 | 06/02/2014 | 06/09/2014 | 44133 | VAE | TELE | ACBA | HDR_ACBA | Y | |

suscCode=HDR_ENTSP

| orgID | patID | dob | admitDate | eventDate | eventID | eventType | location | pathogen | suscCode | suscConfirm | suscPend |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10401 | CG071808 | 07/13/1950 | 05/01/2014 | 05/12/2014 | 44141 | VAE | LEUK | ENTFS | HDR_ENTSP | | Y |

Sorted by eventDate
Data contained in this report were last generated on October 29, 2014 at 1:34 PM.

Unusual Susceptibility Profile is pending

**National Healthcare Safety Network**
**Frequency Table of All Unusual Susceptibility Profiles**
**As of: November 4, 2014 at 9:47 AM**
**Date Range: All SUSCEPTIBILITY**

Frequency
Percent
Row Pct
Col Pct

Table of eventType by suscCode

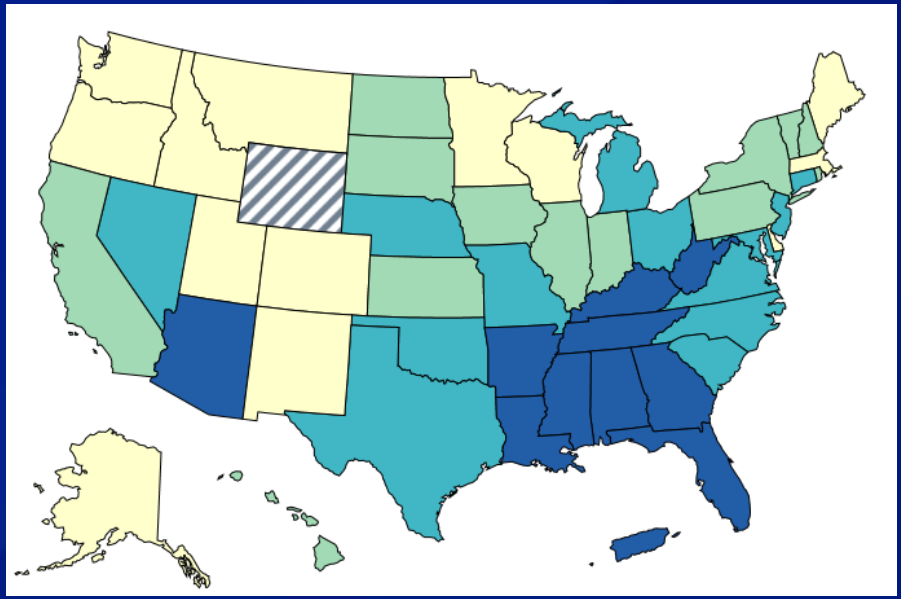
| eventType | suscCode HDR_SA | VR_SA | Total |
|---|---|---|---|
| BSI | 0 | 3 | 3 |
| | 0.00 | 50.00 | 50.00 |
| | 0.00 | 100.00 | |
| | 0.00 | 75.00 | |
| UTI | 2 | 1 | 3 |
| | 33.33 | 16.67 | 50.00 |
| | 66.67 | 33.33 | |
| | 100.00 | 25.00 | |
| Total | 2 | 4 | 6 |
| | 33.33 | 66.67 | 100.00 |

- Examples of line list and frequency table
- Available for facilities and Groups
- Applies to 2014 data and forward

# More Guidance on Unusual Susceptibility Alerts

- Information on unusual phenotypes
- How to run analysis reports
- Steps to take if you receive an alert

http://www.cdc.gov/nhsn/pdfs/gen-support/usp-alert-current.pdf



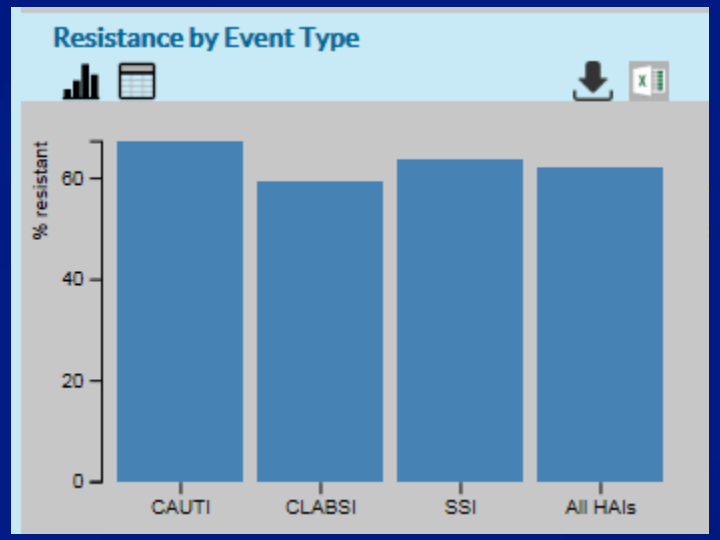
# OPEN WEB PORTAL FOR RESISTANCE DATA

# Background

- Historically, national antimicrobial resistance data from NHSN have been published for a select number of phenotypes
- Agency goal to increase public availability of AR data
  - Improve access of AR data to wide audiences with multiple uses
- National Action Plan to Combat Antimicrobial Resistant Bacteria (CARB)

# Antibiotic Resistance Patient Safety Atlas

- Coming soon! March 2016
- Open, web-based platform allows review of %R for 31 different phenotypes
- Data summarized at the national, state, and regional levels
- Interactive, color-coded maps
- Exportable images and Excel files



# Data Included in the Atlas

- Pathogen and drug susceptibility information are taken from CLABSIs, CAUTIs, and SSIs reported to the Patient Safety Component
  - Does not capture all resistance in the community or within a hospital
- Can view %R for different years, age groups, and HAI types in your state
- First version will include data from 2011-2014
  - Annual updates with new data
  - Future updates to the Atlas will provide additional filters and allow for the creation of custom reports

# How Do I Use These Data??

- Run the reports in NHSN and become familiar with resistance phenotypes and %R in your facility
- Explore the Patient Safety Atlas to review %R in your state and across the nation
- Share these data with relevant colleagues: pharmacists, physicians, hospital epidemiologists, etc.

CDC's 2013 AR Threat Report: http://www.cdc.gov/drugresistance/threat-report-2013/

# Resources

- NHSN Data Dictionary (antibiotic codes):

http://www.cdc.gov/nhsn/xls/analysis/nhsn-data-dictionary-8.4.xlsx

- Reference Guide for AR Line List:

http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/linelist_qrg.pdf

- Reference Guide for AR Frequency Table:

http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/freqtable_qrg.pdf

- Codes and Definitions for NHSN Phenotypes:

http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/phenotype_definitions.pdf

- Patient Safety Atlas: http://www.cdc.gov/hai/surveillance/ar-patient-safety-atlas.html
- CDC's 2013 AR Threat Report:

http://www.cdc.gov/drugresistance/threat-report-2013/index.html

- National Action Plan to Combat Antibiotic-Resistant Bacteria (CARB): http://www.cdc.gov/media/dpk/2014/dpk-carb.html

- **NEW! CDC's Vital Signs on HAIs and Antimicrobial Resistance:**

http://www.cdc.gov/vitalsigns/

Live Demonstration – Patient Safety Atlas

http://www.cdc.gov/hai/surveillance/ar-patient-safety-atlas.html

# Thank you!

## NHSN@cdc.gov

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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.