Unusual Susceptibility Profiles Alert

National Healthcare Safety Network (NHSN) is a surveillance system for healthcare-associated infections (HAIs) that includes data collection on antimicrobial susceptibility testing results for certain reported pathogens. Microorganisms with specific resistance patterns are of epidemiological significance and can have substantial infection control implications. The importance of early detection and implementation of intervention measures to prevent transmission and propagation cannot be understated. Redundancy across many systems to ensure identification of these important unusual susceptibility profiles is beneficial. NHSN notifies users when any of the twelve unusual susceptibility profiles listed below and further described in the Unusual Susceptibility Profiles Alert Table (found at the end of document) are reported to NHSN. This applies to in-plan events only.

1. Carbapenem-resistant Enterobacterales
2. Carbapenem-intermediate or -resistant *Acinetobacter baumannii*
3. Carbapenem-intermediate or -resistant *Pseudomonas aeruginosa*
4. Highly Drug-Resistant Enterobacterales
5. Highly Drug-Resistant *Pseudomonas aeruginosa*
6. Highly Drug-Resistant *Acinetobacter baumannii*
7. Colistin/Polymyxin B-resistant *Acinetobacter baumannii*
8. Colistin/Polymyxin B-resistant *Pseudomonas aeruginosa*
10. Vancomycin-resistant *Staphylococcus aureus* (VRSA)
11. Daptomycin non-susceptible and Linezolid-resistant and Vancomycin-intermediate *Staphylococcus aureus*
12. Vancomycin-resistant *Staphylococcus*, coagulase negative (VRSE)

When a user enters a pathogen’s susceptibility testing result into the NHSN application that aligns with one of the unusual susceptibility profiles, upon saving the event, a “pop-up” message will appear on the screen. The message text will be tailored to the specific profile identified. There are three message types.

1. **CR** (Carbapenem-Resistant)
2. **VRSA** (Vancomycin-Resistant *Staphylococcus aureus*)

![USP Alert](image)

3. **Other**

![USP Alert](image)
When a message appears, the user will have the ability to do one of the following:

- Verify the data entry as accurate by selecting **CONFIRM**. This will complete the “Save” process.
- Return to the event susceptibility data entry screen by choosing **CANCEL**. The user can review and amend incorrect data entry if necessary.
- Acknowledge the notification by selecting **OK**. This selection will enable the user to complete the “Save” process without verifying or editing the data entry. This will generate an Alert on the Alerts screen. The Alert will appear under the Alert tab labeled “Unusual Susceptibility Profile” and will display the type of Alert message, as well as the profile identified. The user will have the ability to return to the event susceptibility data entry screen at a later point in time, directly from the Alert tab. The Alert will remain until the unusual susceptibility profile is verified to be accurate by selecting **CONFIRM** or amending the data entry such that an unusual susceptibility profile is no longer identified.
When an Unusual Susceptibility Profile Alert “pop-up” message appears the user can select the details link to gather additional information.
In analysis, the user will be able to generate line list, frequency table, bar and pie chart outputs. The output options can be found in the HAI Antimicrobial Resistance folder within the Unusual Susceptibility Profile Alerts sub-folder. The outputs will identify the type of profiles (variable: suscCode), number and location of each profile and in addition, whether the profile has been confirmed to be accurate (variable: suscConfirm) or if the profile is pending verification (variable: suscPend). Please visit [http://www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.html](http://www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.html) for additional instructions on how to run NHSN analysis reports. Generate data sets prior to creating reports.
<table>
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<th>Unusual Susceptibility Profiles</th>
<th>Profile Codes</th>
<th>Definition of Unusual Susceptibility Profiles</th>
<th>Alert Message Type</th>
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<tbody>
<tr>
<td>Carbapenem-resistant Enterobacterales</td>
<td>CRE</td>
<td>Carbapenem (imipenem, meropenem, doripenem, eraptapenem, imipenem/relebactam, meropenem/vaborbactam) is Resistant(R)</td>
<td>CR</td>
</tr>
</tbody>
</table>
| Highly Drug-Resistant Enterobacterales               | HDR_E         | Defined as highly drug-resistant if all **five** drug classes have at least one drug within the class reported as either Intermediate(I) or Resistant(R):  
• Extended spectrum cephalosporin (cefpime, cefotaxime, ceftriaxone, ceftazidime, ceftazidime/avibactam, ceftolozane/tazobactam)  
• Fluoroquinolones (ciprofloxacin, levofloxacin, moxifloxacin)  
• Aminoglycosides (amikacin, gentamicin, tobramycin)  
• Carbapenems (imipenem, meropenem, doripenem, eraptapenem imipenem/relebactam, meropenem/vaborbactam)  
• Piperacillin/tazobactam                                                                                                                                                                                                                                                     | Other             |
| Colistin/Polymyxin B-resistant *Pseudomonas aeruginosa* | PR_PA         | Colistin/polymyxin B is Intermediate(I) or Resistant(R)                                                                                                                                                                                                                                                                                                                                                                               | Other             |
| Carbapenem-intermediate or -resistant *Pseudomonas aeruginosa* | CR_PA         | Carbapenem (imipenem, meropenem, doripenem, imipenem/relebactam, meropenem/vaborbactam) is Intermediate(I) or Resistant(R)                                                                                                                                                                                                                                                                               | CR                |
| Highly Drug-Resistant *Pseudomonas aeruginosa*       | HDR_PA        | Defined as highly drug-resistant if all **five** drug classes have at least one drug within the class reported as either Intermediate(I) or Resistant(R):  
• Extended spectrum cephalosporin (cefepime, ceftazidime, ceftazidime/avibactam, ceftolozane/tazobactam),  
• Fluoroquinolones (ciprofloxacin, levofloxacin)  
• Aminoglycosides (amikacin, gentamicin, tobramycin)  
• Carbapenems (imipenem, meropenem, doripenem)  
• Piperacillin/tazobactam                                                                                                                                                                                                                                                                                                               | Other             |
| Colistin/Polymyxin B-resistant *Acinetobacter baumannii* | PR_ACBA       | Colistin/polymyxin B is Resistant(R)                                                                                                                                                                                                                                                                                                                                                                                   | Other             |
| Carbapenem-intermediate or -resistant *Acinetobacter baumannii* | CR_ACBA      | Carbapenem (imipenem, meropenem, doripenem) is Intermediate(I) or Resistant(R)                                                                                                                                                                                                                                                                                                                                     | CR                |
| Highly Drug-Resistant *Acinetobacter baumannii*      | HDR_ACBA      | Defined as highly drug-resistant if all **six** drug classes have at least one drug within the class reported as either Intermediate(I) or Resistant(R):  
• Extended spectrum cephalosporin (cefpime, ceftazidime, cefotaxime, ceftriaxone),  
• Fluoroquinolones (ciprofloxacin, levofloxacin)  
• Aminoglycosides (amikacin, gentamicin, tobramycin)  
• Carbapenems (imipenem, meropenem, doripenem)  
• Piperacillin/tazobactam  
• Ampicillin/sulbactam                                                                                                                                                                                                                                                                                                                      | Other             |
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<tr>
<td>Daptomycin susceptible-dose dependent, resistant or non-susceptible and Linezolid-resistant <em>Enterococcus</em> spp.</td>
<td>HDR_ENTSP</td>
<td>Daptomycin is Susceptible-dose dependent (S-DD), Resistant(R) or Non Susceptible (NS) AND Linezolid is Resistant(R)</td>
<td>Other</td>
</tr>
<tr>
<td>Vancomycin-resistant <em>Staphylococcus aureus</em> (VRSA)</td>
<td>VR_SA</td>
<td>Vancomycin is Resistant(R)</td>
<td>VRSA</td>
</tr>
<tr>
<td>Daptomycin non-susceptible and Linezolid-resistant and Vancomycin-intermediate <em>Staphylococcus aureus</em></td>
<td>HDR_SA</td>
<td>Daptomycin is Non Susceptible(NS) AND Linezolid is Resistant(R) AND Vancomycin is Intermediate(I)</td>
<td>Other</td>
</tr>
<tr>
<td>Vancomycin-resistant <em>Staphylococcus</em>, coagulase negative (VRSE)</td>
<td>VR_CSN</td>
<td>Vancomycin is Resistant(R)</td>
<td>Other</td>
</tr>
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