

AMR Problem-Solving Case 1: Healthcare- Associated Infection

RESPONSES AND ANALYSIS

Thank you to all who participated in our first AMR problem solving case study! In this case, we investigated a hospital ICU patient in India with *Acinetobacter baumannii* complex ventilator-associated pneumonia (VAP). Below we summarize the steps we took to identify the organism and guide treatment.

Problem Solving	Learning Points
<p>Intubated patient is febrile with increased secretions and respiratory distress.</p> <p>Almost half of you immediately suspected VAP, but as AMR stewards, we wanted to identify the pathogen and perform susceptibility testing to guide treatment.</p>	<ul style="list-style-type: none"> • HAIs are a serious concern for patients, healthcare workers, and the community. • AMR stewardship should include pathogen diagnosis in order to provide appropriate treatment.
<p>Endotracheal aspirate and sputum were sent for culture and AST testing.</p> <p>Blood cultures ordered to rule-out bacteremia.</p> <p>Three days later, the microbiology laboratory informed us the endotracheal aspirate is growing <i>A. baumannii</i> complex.</p>	<ul style="list-style-type: none"> • Quality sampling is needed for quality test results. • Routine culture can take days and impact treatment and AMR. We need faster identification of pathogens.

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<p><i>A. baumannii</i> is a complex opportunistic gram-negative aerobic coccobacilli bacterial pathogen associated with HAI VAP.</p> <p>It is high risk, highly multi drug resistant, easy to spread, and difficult to treat. VAP is a severe infection with elevated mortality so we wanted to treat as soon as possible.</p>	<ul style="list-style-type: none"> • Know the pathogens causing HAIs in your setting. • HAIs are the top causes of death.
<p>Before starting antibiotics, we wanted to determine if this is disease or colonization. Because the endotracheal aspirate grew <i>A. baumannii</i> complex and the patient had clinical signs, it is likely that the growth was due to disease and not colonization and should be treated.</p>	<ul style="list-style-type: none"> • With colonization, no treatment is needed. • Treating colonization increases AMR.

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<p>The clinical scenario was concerning for VAP and warranted treatment while waiting for AST.</p> <p>We prescribed ampicillin-sulbactam and colistin.</p> <p>This can also be combined with another antimicrobial with good gram-negative coverage based on your local resistance data.</p> <p>In certain settings such as India, C/S-cefoperazone-sulbactam is another beta-lactam-beta-lactamase inhibitor that may be used.</p> <p>If you happen to be in a setting with low carbapenem resistance, you may consider combining meropenem with another agent that targets gram-negative bacilli to which your antibiogram shows possible <i>A. baumannii</i> susceptibility.</p>	<ul style="list-style-type: none"> • A clinician will often have to make quick decisions based on risks and benefits. • Regional resistance trends can help inform treatment.

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<p>The susceptibility results reveal that the organism is resistant to colistin but susceptible to ampicillin-sulbactam.</p> <p>You stop colistin and continue ampicillin-sulbactam. The patient improves over the coming days and is extubated and discharged home.</p>	<ul style="list-style-type: none"> • The clinic and the lab need to work together and share information for patient management. • Antimicrobial stewardship includes integrated interventions to optimize the use of antimicrobials in health care settings.