

SUMMARY OF RESULTS



The Antibacterial Resistance Leadership Group (ARLG) funds, designs, and conducts clinical research that will help prevent, diagnose, and treat infections caused by bacteria that are resistant to antibiotics.

The ARLG, along with the team of study doctors, scientists, and researchers, are pleased to describe the results from a study focused on antibiotic review strategies in community hospitals to prevent overuse of antibiotics.

WHAT IS THE STUDY TITLE?

The Study Network of *Acinetobacter baumannii* as Carbapenem-Resistant Pathogen (SNAP) as part of the Multi-Drug Resistant Organism Network



MANUSCRIPT OF PRIMARY RESULTS OR CLINICAL STUDY REPORT.

<https://doi.org/10.1093/cid/ciad556>

IS THE STUDY REGISTERED WITH CLINICALTRIALS.ORG?

[NCT03646227](#) – Multi-Drug Resistant Organism Network (MDRO Network)



WHAT IS THE PURPOSE OF THE RESEARCH? WHAT IS THE PRIMARY ENDPOINT?

The purpose of this research was to investigate differences in how bacteria called Carbapenem-resistant *Acinetobacter baumannii* affect patients in various regions of the world. Infections with *A. baumannii* that do not respond to treatment with carbapenem antibiotics, which are commonly used to treat the most severe

types of bacterial infections, are considered to be a significant healthcare issue leading to high rates of death. Often, Carbapenem-resistant *A. baumannii* infections occur in people with other serious health problems, particularly people who are already admitted to a healthcare facility.

The SNAP study reviewed cases of patients diagnosed with Carbapenem-resistant *A. baumannii* throughout the world to find out whether:

- There were any common features
- There were basic differences in the bacteria itself based on the location of the infection in the body
- Patient outcomes differed depending upon region.

WHY WAS THIS RESEARCH CONDUCTED? WHAT IS THE RATIONALE?



It is important to find out which types of patients are affected and how they fare over the course of

infection in different parts of the world. Researchers in this study also wanted to learn how those strains differ in origin (where do the infections come from), demographics (which patients are most vulnerable), location (what parts of the body are most susceptible), and survival of the infection depending on where they are from.



WHEN DID THE RESEARCH TAKE PLACE?

September 2017
to November 2019

Changes to your healthcare should not be made based on information in this summary without first consulting a doctor. If you have questions about these results, speak with your doctor.





WHO WAS INVOLVED?

This study initially enrolled 990 cases from international locations. Of those cases, 842 were ultimately included in the SNAP study.

Cases came from patients hospitalized in 46 different hospitals across 5 regions of the world:

- 44% USA
 - 35% China
 - 9% Middle East
 - 9% South-Central America
 - 4% Australia-Singapore
- 536 of the 842 cases included in the study were found to have infection from Carbapenem-resistant *A. baumannii*.



WHAT HAPPENED DURING THE STUDY?

In this study, researchers collected information about cases from patients' electronic health records (EHRs), including demographic and clinical information. Participating hospitals sent samples from each patient selected to a central laboratory

for testing. Follow-up information on each case was also collected from the EHRs to learn how the infections progressed and the outcomes of the patients 30 and 90 days after the infection was identified.



WHAT WERE THE RESULTS?

The SNAP study found variability in sources and types of Carbapenem-resistant *A. baumannii* infections across regions of the world. The most common location in the body for infection was the respiratory tract (e.g., the lungs), followed by wounds, bloodstream, and urinary tract. However, the most prevalent location varied depending upon the region of the world (e.g., most Carbapenem-resistant *A. baumannii* infections in China were located in the respiratory tract, while wound and bloodstream infections were more common in the US and South-Central America).

One specific type of strain of Carbapenem-resistant *A. baumannii* was detected in 88% of the cases, followed by 4 other strain types. In the 842 cases included in the SNAP study, 20% of the patients died within 30 days of being diagnosed with the bacteria. Of the 536 cases from patients found specifically to have Carbapenem-resistant *A. baumannii* infections, 24% died within that same time frame.

Bloodstream infections were associated with a higher risk of death compared to other types of infections. There were regional differences in rates of death 30 days after diagnosis, with infections from cases in South-Central America having the highest (49%) and Australia-Singapore having the lowest (6%).



WHY IS THIS RESEARCH IMPORTANT TO PATIENTS, CLINICIANS, AND OTHER RESEARCHERS?

Identifying the Carbapenem-resistant *A. baumannii* strains (subtypes) that are prevalent in various regions of the world, how they differ from one another, and the clinical outcomes associated with them will help doctors better understand:

- Which strains are most concerning and where those strains are located
- The underlying reasons why they are common in a given area
- The anticipated challenges for good clinical outcomes.



HOW WILL THE RESULTS HELP PATIENTS AND DOCTORS?

Carbapenem-resistant *A. baumannii* infections pose significant treatment challenges for doctors across the globe.

However, there are differences in the nature of those challenges depending upon factors like the strain of *A. baumannii* and the region of the world. Findings from this study provide doctors with real-world information about these infections, with facts specific to their region so they can better treat patients at risk.



WHAT'S NEXT?

Research is needed to study Carbapenem-resistant *A. baumannii* strains in regions like Europe and Africa — regions that weren't included in this study. An important

question is whether there are reasons why some strains of Carbapenem-resistant *A. baumannii* are prevalent in some parts of the world, but not in others. Investigations of the effectiveness of new antibiotic therapies in treating Carbapenem-resistant *A. baumannii* infections are critical to improving clinical outcomes in people affected by these types of infections, and the results from this study inform how those investigations will be designed. The findings of this study underscore the distinct challenges posed by Carbapenem-resistant *A. baumannii*, as well as the need to identify what factors support the spread of Carbapenem-resistant *A. baumannii* in certain regions of the world.

