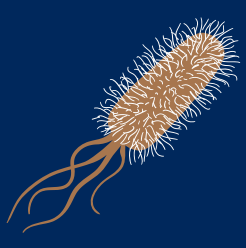
Antimicrobial Resistance (AMR)

What is Antimicrobial Resistance (AMR)?

Microbes are small living things like bacteria, viruses, parasites, and fungi. Harmful microbes, called infectious pathogens, can make us sick. Antimicrobials are an important class of medicines used to treat these infections by killing microbes and preventing them from spreading. Antibiotics are a type of antimicrobial that specifically treat bacterial infections. Similarly, antivirals treat viruses and antifungals treat fungal infections.

Importantly, microbes can evolve and mutate to evade the drugs used to kill them.



Antimicrobial resistance occurs when drugs cannot kill the microbes they were designed to treat. In some cases, microbes evolve to become impervious to all medications and can no longer be treated with medications available today.

Why is it important?

For people with CF, the dysfunctional CFTR protein leads to thick, sticky mucus in the lungs resulting in an environment especially vulnerable to bacterial pathogens. People with CF often need to be treated with antibiotics regularly from a young age to fight off their infections. Because people with CF have a lifetime of antibiotic use, patients are at an elevated risk of their infections becoming more and more resistant to drugs over time.

Eventually, these bacterial infections can evolve to become multidrug resistant or even pan-resistant, meaning mostly or completely resistant to all known antibiotics. These types of infections are commonly called superbugs.

Superbugs can be devastating for people with CF because they can evade all known antibiotics, lead to end-stage disease and complicate transplant eligibility.

AMR is not just a CF problem

AMR was responsible for 2.8 million infections and was associated with 35,000 deaths in the United States in 2019. The threat of AMR has only become worse since the beginning of the COVID-19 pandemic. Superbugs were named one of the top ten public health threats to humans by the World Health Organization.

The FDA-approved generic antimicrobials available now are based on evidence that was discovered almost 40 years ago. There are only a few companies developing new antimicrobials to combat the most deadly pathogens right now and they face a lack of resources, interest, and path to profitability.
Existing generic antimicrobials will become less and less effective over time as microbes continue to mutate, while the drug pipeline for novel antimicrobials remains shockingly bare.

New antibiotics have not been discovered since

1984

What can I do?

The PASTEUR Act is a proposed bill that supports investment in new antimicrobial development through a novel payment model for new classes of antimicrobial medicines.

This legislation would address the dire need for new antimicrobial development by promoting scientific innovation and establishing a steady supply of antibiotics to address emerging antimicrobial-resistant pathogens.

You can support the PASTEUR Act by urging your representatives to act using the links HERE and HERE.

Learn more:

- CDC: About Antimicrobial Resistance
- AMR Action Fund
- Race Against Resistance: The Life and Death Struggle to Save Antibiotics
- CFF: Championing a Sustainable Pipeline for Antibiotics
- Organizations Focused on Fight Against Superbugs Celebrate Reintroduction of the PASTEUR Act