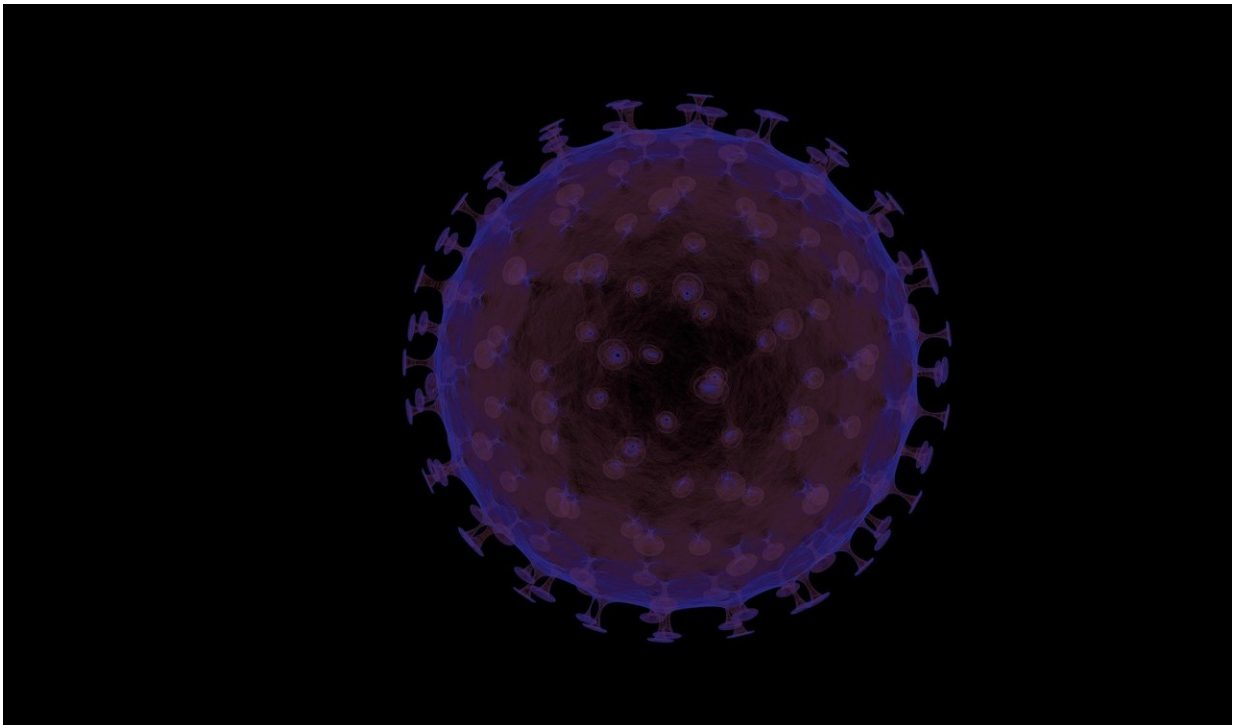


# What in the world is antimicrobial resistance?

November 23 2022, by Elizabeth Zimmermann

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Antimicrobials are medicines used to prevent and treat infections in humans, animals and plants. Antimicrobial resistance occurs when bacteria, viruses, fungi or parasites resist the effects of available antimicrobial medications. This makes it easier for infectious diseases to spread and to cause more severe illnesses and deaths.

In the U.S., the most pressing concern is a growing resistance to antibiotics (medications that eliminate toxic bacteria). Much of this can be attributed to misuse, in particular, expecting antibiotics to fight [viral infections](#).

For patients, the effects of overprescribing range from inconvenience and unnecessary expense to increased susceptibility to life-threatening infections and other serious health concerns. For communities, livestock and the environment, overuse of antibiotics leads to [antibiotic resistance](#), in which toxic bacteria evolve to evade existing medications.

"More than 2.8 million antibiotic resistant infections occur in the U.S. each year," says Abinash Virk, M.D., an [infectious diseases](#) specialist in Rochester, Minnesota, and chair of Mayo Clinic's Antimicrobial Stewardship Program. "Tens of thousands end in death—deaths which might have been prevented through better stewardship."

"Antimicrobial stewardship is a collective responsibility of all of us—clinicians and patients alike. We all need to participate in the conservation of the available antimicrobials by prescribing them only when needed and not using them indiscriminately," says Dr. Virk. "Thus, we can continue to control further emergence of resistant microorganisms and be able to treat patients effectively."

## **Everyone has a role to play**

Dr. Virk says there are some simple things that everyone can do to help prevent antimicrobial resistance and to safeguard antibiotics for when they will be most effective.

"First, when you or your child is sick, get advice from your primary care provider or nurse help line. Acquaintances on Facebook or your next-door neighbor are well meaning, but your health care team will offer

evidence-based care."

"Then take that advice," she continues. "If you are prescribed an antibiotic, use it as directed. When antibiotics are not used as directed, the harmful bacteria may build a resistance to that medication. This can hurt you. And when those resistant bacteria return to the environment, they then contribute to the global reduction in antimicrobial effectiveness."

"Also, don't take something that was not prescribed to you for your current diagnosis."

"In the fall and winter, we typically see an upsurge of upper respiratory infections and patients desperate for symptom relief," says Daniel Ilges, Pharm.D., the clinical pharmacist lead for antimicrobial stewardship efforts at Mayo Clinic in Arizona. "No matter how much we want to have a drug that wipes out these miserable infections caused by viruses, like the [common cold virus](#), influenza or RSV, antibiotics are not the answer for them."

"Now we have COVID-19 added to the mix as another source of cough, fever and other overlapping symptoms," he continues. "Unfortunately, this too is a viral infection that does not respond to antibiotics." (Other treatments have since been developed.)

"Patients are not without options," reminds Dr. Ilges. "Many over-the-counter medications can be very effective in treating symptoms. Your primary care provider or your local pharmacist can help you find the ones that will work best for you or your child."

## **Before you get sick, seek prevention**

"The third, but possibly most important, thing everyone can do to help

prevent [antimicrobial resistance](#) is to take steps to reduce their likelihood of infection," asserts Dr. Virk. "Exercise common infection [preventive measures](#), such as [hand hygiene](#), covering your cough, staying away from work when sick and getting vaccinated. Wash your hands with plain old soap and water for as long as it takes to sing 'Happy Birthday' two times.

"Get all recommended vaccinations for yourself and your loved ones according to your age and medical conditions. Why risk a disabling or life-threatening infection when an effective prevention tool exists? And why not take that simple step to help avoid serious infections and the dangers of potentially unnecessary antibiotics?

"And don't forget the other day-to-day ways to prevent [infection](#)," she finishes. "Practice safe sex. Be mindful about safe ways to prepare and store food. Avoid sharing items, like a toothbrush, lip balm or water bottle."

Provided by Mayo Clinic

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