Understanding Antibiotic Resistance: What You and Your Loved Ones Need to Know

WHAT IS ANTIBIOTIC RESISTANCE?

Antibiotics work by killing germs called bacteria (they do not kill viruses, such as colds and the flu). These drugs save lives but can drive antibiotic resistance, which happens when germs change in ways that make antibiotics less effective or not work against the resistant germs at all. All resistance makes bacterial infections harder to treat with antibiotics.

Antibiotic resistance is a global threat to public health because it reduces the effectiveness of these medications for all of us and may affect you and your loved ones. Fortunately, we know how germs develop resistance to antibiotics and how resistant germs spread. Most importantly, we know how to reduce the chances that antibiotic resistance will develop. Using this information, we have the power to protect ourselves and our families from antibiotic resistance.

WHY SHOULD I BE CONCERNED?

Antibiotic resistant germs are difficult to treat and may require treatment with strong antibiotics or multiple different antibiotics at the same time. They may increase the number of visits you have with health care providers or even require days in a hospital.

HOW DO GERMS BECOME RESISTANT TO ANTIBIOTICS?

Antibiotics save lives, but any time they are used there is a risk that bacteria can adapt and gain the ability to resist their effects. This is more likely to happen when antibiotics are inappropriately prescribed, or when individuals do not follow dosing schedules, miss doses, or do not finish prescribed medications. After taking antibiotics, sometimes not all of the germs are killed, and the strongest ones are left to grow and spread. The more often an antibiotic is used, the greater the chance that the germs will become resistant.

Tufts Medical Center

IDSA ANTIMICROBIAL STEWARDSHIP CENTER OF EXCELLENCE

HOW DO RESISTANT GERMS SPEAD?

As bacteria reproduce, resistance can be inherited genetically from generation to generation, just like brown hair might be passed down in your family. Unlike us, bacteria can also pass their resistance genes directly to other germs they come into contact with.

HOW LONG DOES RESISTANCE TAKE TO DEVELOP?

Germs can become resistant to antibiotics within days to weeks of taking an antibiotic. See tips below on how to help prevent resistance.

WHAT ARE SOME RESISTANT GERMS I SHOULD KNOW ABOUT?

Some germs have become resistant to antibiotics that are our last line of defense for serious infections, like carbapenem antibiotics. The bacteria resistant to carbapenems are called carbapenem-resistant organisms, like carbapenem-resistant *Enterobacterales* (CRE). Other bacteria, like methicillin-resistant *Staphylococcus aureus* (MRSA), can be resistant to more common antibiotics like penicillins. All resistance makes infections harder to treat.

WHAT CAN I DO?

Slowing the spread of antibiotic resistance takes all of us. Limit the use of antibiotics to when they are really needed.

- Do not request an antibiotic when the doctor or medical provider says it is not needed.
- Do not take an antibiotic for a virus (cold or flu).
- Do not take unprescribed antibiotics or “leftover” antibiotics from a previous infection.
- Do not share your antibiotics with friends or family members.
- Prevent infection by cleaning your hands and staying up to date on vaccinations.