

Anti-biotics 101: A short course in understanding and treating serious bacterial infections

By **JESSICA RONGITSCH, M.D.**

My friend, David, is an emergency room doctor with soft southern manners, a quiet drawl, and an endless supply of stories containing idioms like “ne’er do wells” and “two shakes of a lamb’s tail.”



Last week, David called me from a hospital bed in the same county hospital where he works.

Despite being an almost compulsive hand-washer, he had contracted a methicillin-resistant

Staph.aureus (MRSA) skin infection and had been gravely ill. After a week in the hospital, on three different intravenous (IV) antibiotics, he was “weak as a newborn kitten,” but he was going to be ok. Over the phone, he told me of his frightening encounter with an antibiotic-resistant bacteria:

Upon leaving his shift in the emergency room (ER), David had noticed a small red patch on his index finger. It was painless and not particularly impressive, so he ignored it and

went for a run. By the end of his five-mile route, his entire hand was red and swollen; and it was beginning to throb.

David, recognizing that he had a skin infection known as cellulitis, then did what any good doctor would do – he dug through his medicine cabinet and pulled out an antibiotic (probably expired) that could treat a skin infection. He swallowed a pill and went to bed, only to awaken several hours later with shaking chills, a high fever, and an unrecognizable beefy-red arm, swollen up to his elbow.

David then did dumb-doctor-thing number three when he got in his car and drove himself – one-armed and delirious – to his own ER where, he was met with a jittery new nurse wielding an IV needle. David went on to experience the Human Pincushion Condition (HPC) – a condition our patients know all too well.

Because of the infection’s aggressiveness, the ER doctor on duty admitted David to the hospital, and started IV Vancomycin – a “big gun” antibiotic used as a last defense to kill multi-drug resistant bacteria like MRSA. Nevertheless, David’s condition deteriorated further overnight, as the infection marched up his arm to his axilla “like an army of fire ants on a watermelon.”

His blood pressure began to drop, indicating the bacteria had reached his bloodstream. Alarmed, David’s doctor transferred him to the

Intensive Care Unit (ICU) and began two additional IV antibiotics.

Fortunately, the three antibiotics halted the infection that blood cultures confirmed to be MRSA.

So what is this MRSA and drug-resistant bacteria?

When you take an antibiotic for an infection, it usually kills most of the bacteria. But sometimes a few persistent bugs survive and multiply, despite the presence of the antibiotic. These germs then adapt their cellular structure and become resistant to the antibiotic, so if it is used in the future, it won’t work.

Staph is a bacteria that normally lives on our skin and in our noses. Under certain conditions, it can cause infections. MRSA is staph that has been exposed to antibiotics, and has become resistant to them. This means the typical antibiotics used to kill staph are ineffective on MRSA. As seen in David’s case, it can be hard to treat.

When I was in medical school, less than 10 years ago, MRSA was unusual. It was a bug that sick patients, with weakened immune systems, contracted from hospitals and nursing homes. Now it is a bug that healthy people are starting to give to one another in the community, like the common cold.

Fortunately, severe infections like David’s are very rare. Usually community-acquired MRSA infections cause pimples, boils, or

abscesses, rather than life-threatening infections.

Unfortunately, bacteria seems to be developing resistance faster than scientists can come up with new antibiotics. In the future, there may be “superbugs” that are resistant to our armamentarium of pharmaceuticals.

The moral of David’s story is not to live in fear. (That’s what the bird flu is for.) But, it is a reminder that we must safeguard antibiotics and use them wisely. This means:

Understand when to use an antibiotic. Don’t expect to take an antibiotic every time you’re sick. Antibiotics only work for bacterial infections – not viruses, like colds or the flu.

Take antibiotics exactly as prescribed. Try not to forget a dose, and finish the entire course, even if you are feeling better.

Never take antibiotics without a prescription. Don’t take someone else’s antibiotic or left-overs. Taking the wrong kind, or not enough of an antibiotic, could leave you with a resistant bug.

Try to stay healthy in the first-place. Take care of yourself. Get enough rest, eat healthy foods, stay away from sick people if you can, keep up-to-date on immunizations, and wash your hands often.

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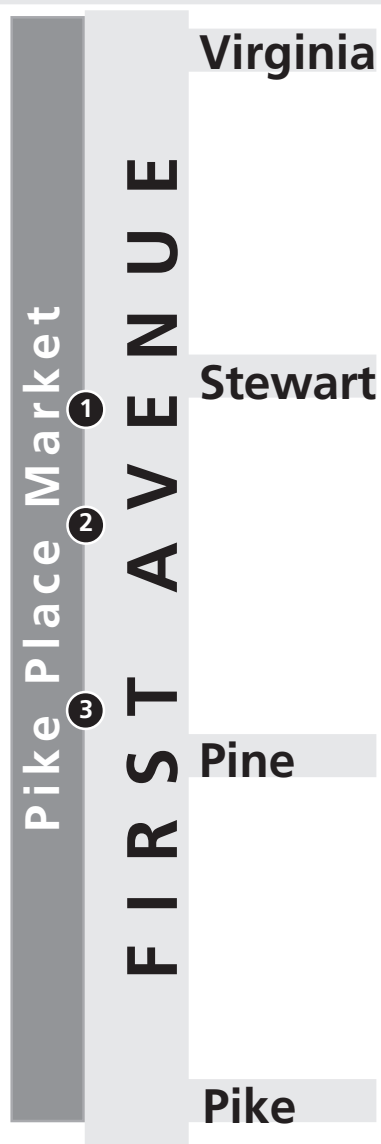


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