

SAMPLE CAUSE-AND-EFFECT ESSAY

Cold Comfort

by Michael Castleman

Not so long ago, many of us resisted separating the glass, cans, and paper out of our garbage. What a hassle. Today, of course, every second-grader knows that the world's resources are limited and that recycling helps preserve them. We act locally, while thinking globally. It's time to bring the same consciousness to health care as we face a growing medical crisis: the loss of antibiotic effectiveness against common bacterial illnesses. By personally refusing—or not demanding—antibiotics for viral illnesses they won't cure, we can each take a step toward prolonging overall antibiotic effectiveness.

Media reports have likely made you aware of this problem, but they have neglected the implications. Your brother catches a cold that turns into a sinus infection. His doctor treats him with antibiotics, but the bacteria are resistant to all of them. The infection enters his bloodstream—a condition known as septicemia—and a few days later, your brother dies. (Septicemia is what killed Muppets creator Jim Henson a few years ago.) Or instead of a cold, he has an infected cut that won't heal, or any other common bacterial disease, such as an ear or prostate infection.

Far-fetched? It's not. The antibiotics crisis is real. Consider *Streptococcus pneumoniae*: This common bacterium often causes post-flu pneumonia. (Pneumonia and influenza combined are the country's sixth leading cause of death, killing 82,500 Americans in 1996.) Before 1980, less than 1 percent of *S. pneumoniae* samples showed any resistance to penicillin. As of last May, researchers at the Naval Medical Center in San Diego discovered that 22 percent of *S. pneumoniae* samples were highly resistant to it, with another 15 percent moderately so. And the most recent statistics from the Sentry Antimicrobial Surveillance Program, which monitors bacterial resistance at 70 medical centers in the U.S., Canada, Europe, and South America, show that 44 percent of *S. pneumoniae* samples in the U.S. are highly resistant, and worldwide, resistance is at an all-time high (55 percent).

Strains of *S. pneumoniae* are also now resistant to tetracycline, erythromycin, clindamycin, chloramphenicol, and several other antibiotics. And there's a "plausible risk" that we'll run out of options for treating other types of pneumonia as well, according to infectious disease expert Joshua Lederberg of Rockefeller University in New York. The not-too-distant future promises the potential failure of medicine's ability to treat a broad range of bacterial infections—from urinary tract infections to meningitis to tuberculosis.

Bacterial resistance to antibiotics is a direct outgrowth of the overuse of these drugs. In classic Darwinian fashion, the more doctors prescribe antibiotics, the more likely it is for some lucky bacterium blessed with a minor genetic variation to survive antibiotic assault—and pass its resistance along to its offspring. The solution is obvious: Doctors should prescribe antibiotics only as a last resort.

This strategy works. In the early 1990s, Finnish public health authorities responded to rising bacterial resistance to erythromycin by discouraging its use as a first-line treatment for certain infections. From 1991 to 1992, erythromycin consumption per capita dropped 43 percent. By 1996, bacterial resistance to the antibiotic had been cut almost in half. But American doctors are doing a spectacularly lousy job of keeping their pens off their prescription pads, most notably by prescribing antibiotics for the common cold and other upper respiratory tract infections (URIs). Data from the National Ambulatory Medical Care Survey show that bronchitis and URIs account for a third of the nation's antibiotic prescriptions. Antibiotics treat only bacterial infections and are completely powerless against viral illnesses. Every doctor knows this. Yet, according to a recent study by Dr. Ralph Gonzalez, an assistant professor of medicine at the University of Colorado Health Sciences Center in Denver, when adults consult physicians for URIs and the bronchitis that often follows them, more than half walk out with a prescription for an antibiotic. If doctors simply stopped prescribing antibiotics for conditions they know don't respond to them, we'd instantly be well on our way to minimizing antibiotic resistance.

Why are doctors so ready to prescribe antibiotics? Physicians are quick to blame the public. Patients, they say, demand antibiotics, and doctors are so terrified of malpractice suits they prescribe them to keep their customers happy and their lawyers at bay.

There's another side to the story: Doctors are trained that there's a pill for every ill (or there should be). All of their medical education conspires to make an antibiotic prescription their knee-jerk reaction to any infection, which may or may not have a bacterial cause.

In addition, prescribing antibiotics is the doctors' path of least resistance. It's easier than taking the time to explain that antibiotics are worthless against viral infections, and to recommend rest, fluids, and vitamin C—or, God forbid, an herbal, homeopathic, Chinese, or other complementary treatment. Most medical practices schedule patients at 15-minute intervals. Rather than doing what they know is right for public health, it's much quicker for doctors to whip out the prescription pad and send people on their merry, albeit misinformed way.

In a better world, medical education would be less drug-oriented and the health care system would encourage doctors to take the time to be effective health educators. But even in our imperfect world, some basic health education can help prevent frivolous antibiotic use from boomeranging.

Like our doctors, we Americans have been socialized into believing that antibiotics are miracle drugs that can cure just about everything. They aren't, and they don't. We've also been trained to think that colds and their lingering coughs should clear up in a few days. They usually don't—even if you load up on cold formulas that promise to make all symptoms magically vanish. A study by University of Virginia professor of medicine Jack Gwaltney, one of the nation's top cold researchers, shows that nearly one-third of adults with colds are still coughing after 10 days. Meanwhile, according to a recent survey by researchers at Louisiana State University Medical Center in New Orleans, after just five days of cold symptoms, 61 percent of adults are ready to head for their doctors—and ask for unnecessary antibiotic prescriptions.

My fellow Americans, the next time you feel a cold coming on, mark your calendar. Unless you start coughing up lots of green sputum or develop unusual symptoms— for example, a fever that does not respond to aspirin, acetaminophen (Tylenol), or ibuprofen (Advil, Motrin)—think twice about calling your doctor before two weeks have passed.

What I do instead is, from the moment I feel the infection coming on, I drink lots of hot fluids, take 500 to 1,000 milligrams of vitamin C four times a day, suck on a zinc lozenge every two waking hours, and mix half a teaspoon of tincture of echinacea, an immune-boosting herb, into juice or tea three times a day. Reliable studies show that these approaches reduce the severity and duration of colds. If you develop a persistent cough at the tail end of your cold, keep taking vitamin C and try an over-the-counter cough suppressant containing dextromethorphan.

If we hope to preserve antibiotic effectiveness, it's up to us, the public, to convince doctors to prescribe these drugs only when they're necessary. This from-the- bottom-up approach is nothing new. Health consumers have taken the lead in showing doctors the value of fitness, nutrition, and alternative therapies. It's time we get serious about antibiotics.

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