

WTE column January 15, 2015. Editor's headline: "Watch out for 'superbugs'"
Casper Star Tribune of Jan 17, 2015: "Mote to do to resist 'superbugs'"

Hospitalization may be hazardous to your health. You may encounter "superbugs" that are impervious to treatment with any available antibiotics.

Antibiotic resistance is becoming a health threat of immense proportions. The U.S. Center for Disease Control and Prevention (CDC) documents that about two million Americans are infected with antibiotic-resistant bacteria every year, of which 23,000 die as a direct result.

One such bacterium, often picked up in healthcare facilities, is the methicillin-resistant staph, better known as MRSA. It kills more Americans each year—including young, otherwise healthy people—than the combined total of emphysema, HIV/AIDS, Parkinson's disease, and homicide.

Emily Thorp of the Wyoming Department of Health reports that her department has formed a response unit, the Wyoming Infection Prevention Advisory Group (WIPAG), that's focused on surveillance, education, and prevention. Ms. Thorp is a surveillance epidemiologist with the Infectious Disease Epidemiology Unit. Her group has begun a project of antimicrobial stewardship in Wyoming.

More needs to be done, especially at Wyoming's health-care facilities.

Patients in nursing homes and "long-term acute care" facilities (an intensive-care alternative for long-time sufferers) often bring antibiotic resistance with them when admitted to hospital, which puts at risk healthcare personnel, other patients, and visitors alike. Today's hospitals often screen incoming patients and isolate those who carry highly resistant bacteria. Unfortunately, anyone can be infected with a superbug in non-hospital settings as well.

First, a reminder that microorganisms are all around, even inside us. Teeming microbial communities make their living on our eyelashes. Our gastrointestinal tract houses some 100 trillion bacteria that manage 80 percent of the proper functioning of our immune system. Indeed, the indiscriminate killing of bacteria in efforts to achieve cleanliness can be counterproductive, since bacteria of all kinds serve important roles in the environment and in human health.

By the way, gut bacteria outnumber the body's cells by about 10 to one. On earth, microorganisms outweigh the human population 100 million times.

So, how and why did antibiotic resistance arise?

The continuous use of low-dose antibiotics allows bacteria to survive while increasing hardiness and drug-resistance. When we eat meat from antibiotic-treated animals, we consume low doses of antibiotics. Worse, as much as half of all antibiotics used in hospitals and homes may be inappropriately used. For example, antibiotics are sometimes mistakenly used to treat viral infections. Other times, patients underdose with antibiotics. The massive doses administered to long-term, terminal-care patients add to the problem.

Then there's agriculture, which accounts for about 80 percent of all antibiotics used in the U.S.

A staggering 440,000 Americans are sickened every year from "superbugs" in food, resulting in an estimated 3000 deaths, writes Dr. Jackson at Center for Science in the Public Interest. He faults overuse of antibiotics in meat production and, overseas, in farm-raised fish and shrimp. These antibiotics are dispensed in food and water to speed growth and prevent disease in the filthy, overcrowded conditions in which the animals must live. In the U.S., three times more antibiotics are sold for use in animal farming than are dispensed for human treatment.

"Actually, the threat posed by feeding antibiotics to food-producing animals is overplayed," says former Wyoming state veterinarian Walter Cook, now a professor at Texas A & M's School of Veterinary Medicine. "For one thing, these are not the same antibiotics as those used in the treatment of people." He points to research showing that, by far the most common causes of antibiotic resistance are due to misuse of antibiotics in humans.

Nevertheless, Dr. Cook acknowledges that "the widespread use of antibiotics as feed additives for production purposes" may generate antibiotic resistance and that "most scientists believe it should be discontinued."

One problem is that 97% of medically-important antibiotics used in food-producing animals are sold over the counter, with no veterinary oversight. These may or may not be used at proper dosages and time intervals, thus increasing the potential for antibiotic resistance.

Recently the FDA issued "Guidance #213," urging drug companies to voluntarily discontinue labeling and selling antibiotics in feed and water for production purposes in food animals. Once the labels have been changed, it will be illegal to use the antibiotics except in compliance with the Veterinary Feed Directive. A voluntary process, the FDA believes, will produce more rapid change than regulatory action.

For now consumers may want to stay clear of meats and other animal products from animals raised in confined animal feeding operations (CAFOs). As grass-fed and grass-finished (antibiotic- and hormone-free) meat is hardly an option for those of us on limited food budgets, vegetarianism may be "the" alternative.

As for preparing for healthcare-associated infections, Wyoming's medical institutions, including the VA Medical Center, should plan for MRSA contingencies. They might retain infectious disease specialists, among other measures.