

Rise of the "super bug"

Literature, Russian Literature



A child cries, " Mommy, I don't feel good. " " Okay, baby, we'll get you some medicine. ", replies a mother. All too often that medicine she is talking about will be antibiotics, and the reason the child is feeling bad is because they have a cold or the flu, which is a viral infection not a bacterial infection. Antibiotics are made to treat bacterial infections such as strep throat, pneumonia, whooping cough, and acne. The misuse and over use of antibiotics is causing antibiotic-resistant infections or " super bugs" to surface. In 1967, penicillin-resistant pneumonia, called pneumococcus, surfaced in a small remote village in Papua, New Guinea. Around the same time, American military personnel in southeast Asia were acquiring penicillin-resistant gonorrhea from prostitutes. Then in 1983, a hospital recorded an intestinal infection caused by the bacterium *Enterococcus faecium*. This bacteria joined the already growing list of " super bugs" learning to outwit penicillin (Lewis). Antibiotic resistance spreads very fast. Between 1979 and 1987, of a large number of patients infected with pneumococcus, only .02% were penicillin resistant. The CDC's survey included 13 hospitals in 12 states. In 1994, 6.6 percent of pneumococcus strains were resistant. In 1992, 13,300 hospital patients died because of resistant (bacterial) infections (Lewis). There are multiple ways bacteria can become resistant. They all involve changes in the bacteria's DNA. Bacterial genes can mutate, just like larger organisms' genes can mutate. Some of these changes happen randomly, some because of chemical or radiation exposure. No one is sure why the genes change. Bacteria with a changed gene is more likely to survive and multiply when antibiotics are around. This is more likely to happen if the amount of antibiotics around isn't enough to kill the bacteria quickly. This

happens if you don't take enough antibiotics to keep the levels of it in your body high, or you stop taking it too soon (Antibiotic Resistance). Although antibiotic resistance is a natural phenomenon, society is factoring into the problem. The major factors are increasing infection transmission, along with the misuse of antibiotics (Lewis). Not all bacteria are harmful, though; in fact, less than one percent cause disease (Germs). But harmless bacteria can mutate just like harmful bacteria. This harmless bacteria can build immunity to antibiotics and then "trade" that gene with a harmful bacteria (Antibiotic Resistance). Though some people obviously need to be treated with antibiotics, experts are concerned that these powerful drugs are being misused. "Many consumers have an expectation that when they're ill, antibiotics are the answer. They put pressure on the physician to prescribe them. Most of the time the infection is viral, and antibiotics are not the answer.", says Michael Blum, M. D. (Lewis). That is why you cannot demand antibiotics when your doctor says they are not needed (Get Smart). "Antibiotics kill bacteria, not viruses." Antibiotics will not help with Colds, the Flu, most coughs and Bronchitis, sore throats (except those resulting from strep throat), and some ear infections (About Antibiotic Resistance). Many people are beginning to take antibiotics for granted. A child develops strep throat or an ear infection, and soon a bottle of pink medicine makes everything better. The next time they feel under the weather they want more "pink medicine". Or an adult suffers from a sinus headache, which antibiotics control quickly. The next time they get a headache, they want more antibiotics (Lewis). "Each antibiotic is only effective for certain types of infections." That is why only a doctor should decide which antibiotics will

work the best, with the symptoms you have (Antibiotics). Another problem with antibiotic use is when a patient starts to feel better they will often times stop taking the drug before they are supposed to. This encourages resistance bacteria to multiply. The infection returns a few weeks later, and a different antibiotic has to be used to treat it (Lewis). That is why you must take antibiotics EXACTLY how they are prescribed, and for as long as they are prescribed (About Antibiotic Resistance). Antibiotic resistance can occur in many places. The FDA is now investigating whether antibiotic resistance can occur in animals, and cause disease in humans. Though cooking meat thoroughly reduces any chance of ingesting any possible antibiotic-resistant bacteria, it is still possible for the bacteria to survive. Bacteria that are resistant to all drugs other than flourquinolones, a type of antibiotic, have survived in meat to infect humans. For example, in 1983, in 4 midwestern states, 18 people developed a multi-drug-resistant salmonella food poisoning after they ate beef from cows that had been fed antibiotics. One person died, while eleven others were hospitalized (Lewis). A study by Alain Cometta, M. D., and colleagues, showed that the increase in antibiotic-resistance matches the increase in antibiotic use in humans. They examined a large group of cancer patients they were given flourquinolones to prevent infection, because of their low white blood cell count, due to treatment. Between the years of 1983 and 1993, the percentage of patients receiving antibiotics rose to 45% from 1.4%. Between those years, researchers isolated E. coli bacteria annually from patients, and tested them against five types of fluoroquinolones. All 92 E. coli strands were easily killed between the years of 1983 to 1990. But from 1991 to 1993, 11 of 40 strands that were tested

were resistant to all five types of the antibiotic (Lewis). Antibiotic resistance can effect anyone, from adults to children. January 24, 2009, a beautiful young model, Mariana Bridi da Costa, died from a rapid-spreading infection that led to septic shock and severe tissue damage. Weeks earlier doctors amputated her hands and feet, trying to stop the fast spreading infection. The infection that ended her life, was an antibiotic bacteria *Pseudomonas aeruginosa* (Clinton). A similar situation recently hit much closer to home. Jack Stamp of Persia, Iowa, a family friend, contracted an antibiotic-resistant flesh eating bacteria. The infection rapidly spread from his leg to his stomach. Within 48 hours, he went into cardiac arrest, as his body began to shut down. When it became apparent no drug could stop the spread of the bacteria the doctors did the only left to do in an attempt to save his life. They began removing healthy tissue on the borders of the diseased tissue to prevent it from spreading further. After spending months in intensive care, multiple tissue grafts, and intense rehabilitation, Jack is on the road to recovery. To this day the original source of the bacteria remains a mystery (Stamp). Infections still can and do kill, because of a complex combination of factors (Lewis). There are several ways of preventing infections. Foremost, wash your hands! Washing your hands is one of the simplest and easiest ways to prevent infections. Wash your hands thoroughly after coughing or sneezing, after using the bathroom, or before and after preparing food. Secondly, take care of cuts and scrapes. Clean cuts or scrapes after you get them. Use neosporin or other antibiotic creams and bandages to keep them from becoming infected. Finally, get yourself vaccinated. Vaccines are one of the best lines of defense against infections and diseases. Many vaccines are

given during childhood, but adults must still routinely be vaccinated. It is also important to seek medical attention if you believe you may have a bacterial infection. If you have any of the following symptoms you should seek medical help: an animal or human bite, difficulty breathing, a fever of 100. 4 or more, periods of rapid heartbeat, a rash, especially if it is accompanied by a fever, blurred vision or other difficulty seeing, persistent vomiting, or an unusual or severe headache (Germs). Scientist say that antibiotic resistance is inevitable, but there are ways to slow it. Improving infection control, developing new antibiotics, and using the drugs more appropriately are all ways that could help slow the process. Drug manufacture's are now becoming interested in developing new antibiotics due to the appearance of new bacterial illnesses, Lyme disease and Legionnaire's disease, and also because of old illnesses such as Tuberculosis, that are now antibiotic resistant (Lewis). Any person can help slow the process. Take your antibiotic prescription exactly how it is prescribed to you, and do not skip doses. Don't save some antibiotics for the next time you get sick. Do not take someone else's antibiotics. Those may not be the correct antibiotics for your infection. By taking the wrong antibiotics you allow the bacteria to multiply and you delay the correct treatment. But the most important thing is that antibiotics treat bacterial infections not viral. Be sure the illness you have is due to bacteria. Your doctor is the best person to decide this (About Antibiotic Resistance). All experts agree that antibiotics should be prescribed to patients who truly have bacterial infections and need them. Hospitals are already beginning to do this, the routine use of antibiotics for surgical patients, to prevent infections, is being questioned. Antibiotic prophylaxis,

the use of antibiotics to prevent infections, is not only used in hospital settings. Antibiotics are given to children with reoccurring ear infections in hope of preventing future infections (Lewis). While we await the next "Wonder Drug" we have to appreciate and correctly use the ones we still have (Lewis). Antibiotic resistance is truly one of the worlds most pressing medical problems. But it is a problem each person can help with.