

The background of the image is a wooden surface. Scattered across it are several blister packs of medicine. Some contain dark, capsule-shaped pills, while others contain light-colored, oval-shaped tablets. A medical thermometer with a blue handle and a clear glass tube is positioned diagonally across the lower-left portion of the image. The thermometer's scale is visible, showing temperatures from 35 to 41 degrees Celsius. The red liquid inside the thermometer is at approximately 37.5 degrees Celsius.

# **ANTIBIOTICS**

**21<sup>st</sup> century time bomb**

**By Keith Wassung**



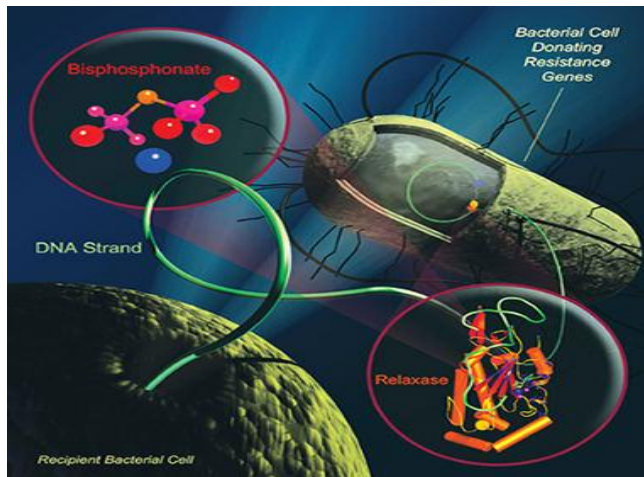
The first antibiotic, penicillin, became widely available in 1940. Antibiotics have since become a popular weapon in the medical arsenal against disease. Over one-third of all hospital patients are given antibiotics and each year in excess of 240 million antibiotic prescriptions are dispensed in the United States. Although no one can dispute that antibiotics have a place and a purpose, especially in emergency and lifesaving situations, a growing number of doctors and medical researchers contend that antibiotics have been grossly overused and abused, and, as a result, produce adverse reactions as well as strains of bacteria that have become resistant to antibiotics.

"We're at the point where the antibiotic cupboard is almost bare. We are victims of our own blindness. We have been taking too many of them and new, deadlier organisms, like the powerful drug-resistant tuberculosis strain, have been emerging as a result."<sup>1</sup>

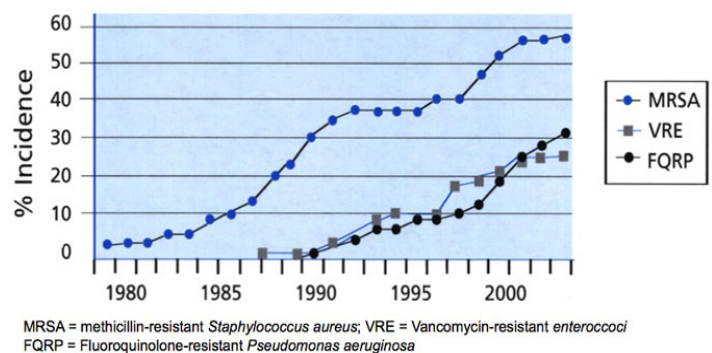
Jeffrey A. Fisher, M.D.  
"The Plague Makers"



There are patients in hospitals that have bacterial infections against which no antibiotics are effective. This is only fifty years after antibiotics were introduced. Until around 1975, almost every case of gonorrhea was treatable with penicillin. Today, in places like Thailand and the Philippines, 90% of all cases are penicillin-resistant. In the U.S, it is above fifty percent.



### Rise of Antibiotic Resistance in Various Common Infections



Nearly every disease known to medicine has become resistant to at least one antibiotic and several are immune to more than one. One of the MOST alarming things about the cholera epidemic, which has killed as many as 50,000 people in Rwanda, is that it involves a strain of bacterium which cannot be treated with standard antibiotics. Tuberculosis, too, has learned how to outwit doctors. Tuberculosis is an unusually tough microbe. Several strains of TB have emerged in the U.S. that cannot be treated with common antibiotics. Even infections such as staph and strep have become harder to treat as they have acquired resistance to standard antibiotics. One strain of hospital-dwelling staph can now be treated only with a single antibiotic and public health officials have no doubt that it will soon become immune to that one as well. Hospitals could become dangerous places to go and even more so if strep develops universal resistance.<sup>2</sup>

## Study says doctors overuse antibiotics

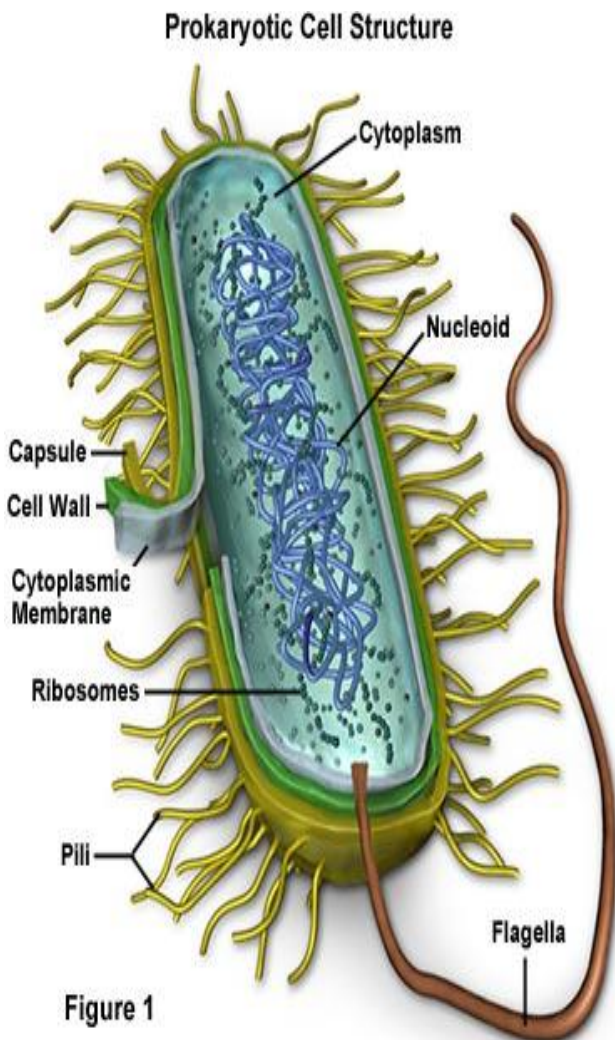
AP: Doctors wrote 12 million antibiotic prescriptions in a single year for colds, bronchitis and other respiratory infections against which drugs are almost always useless, a study found. Such indiscriminate use of antibiotics has contributed to the emergence of drug-resistant bacteria, a growing problem in the United States.<sup>3</sup>



## THE WAR ON BACTERIA

Bacteria, one of the smallest and most plentiful life forms on Earth, thrive successfully in the most inhospitable places and quickly adapt to new conditions in order to survive. We commonly assume that these tiny animals are evil little beasts out to destroy higher forms of life. In fact, all they are trying to do is survive and reproduce, just as humans do.

Bacterial drug resistance is a matter of natural adaptation. The longer a bacterium is exposed to a given drug, the more likely it is to develop universal resistance. Bacteria pull out all of the stops in order to resist drugs. They may release special enzymes that render a drug impotent or change their outer membrane that a drug cannot gain entrance. They can even alter their internal structures so that they are no longer susceptible to the drug.



## BACTERIA FACTS

The Dutch merchant and amateur scientist Anton van Leeuwenhoek (1632–1723) was the first person to observe bacteria and other microorganisms. Using single-lens microscopes of his own design, he described bacteria and other microorganisms (calling them "animalcules") in a series of letters to the Royal Society of London between 1674 and 1723.

Bacteria are generally classified into three groups based on their shape. They are described as spherical (coccus), rodlike (bacillus), or spiral or corkscrew (spirochete [pronounced SPY-ruh-keet] or spirilla). Some bacteria also have a shape like that of a comma and are known as vibrio.

Bacteria most commonly reproduce by fission, the process by which a single cell divides to produce two new cells. The process of fission may take anywhere from 15 minutes to 16 hours, depending on the type of bacterium.

A number of factors influence the rate at which bacterial growth occurs, the most important of which are moisture, temperature, and pH.

Most bacteria require a pH of 6.7 to 7.5 (slightly more or less acidic than pure water). Other bacteria, however, can survive at a pH more severe than that of battery acid.



## ANTIBIOTICS & COLDS



Many people go to their doctors and request antibiotics when they have a cold. Antibiotics have no effect on the vast majority of colds that are viral in nature and toxic side effects often occur.

Taking antibiotics for colds is not only dangerous, but also a tremendous waste of time and financial resources, a fact that has been repeated by many leading scientists and health care authorities.

**Antibiotics are still being prescribed widely to treat the common cold, despite evidence that they are completely ineffective against colds and flu viruses. Such indiscriminate use of antibiotics has created a serious problem involving bacteria that are resistant to antibiotics.**<sup>4</sup>

### CONSUMERS GUIDE TO MEDICAL TREATMENT

## ANTIBIOTICS & ANIMALS

The livestock industry is a major source of the antibiotic overuse that has led to bacterial resistance. **IT ALONE PURCHASES OVER ONE-HALF OF ALL ANTIBIOTICS SOLD.** The drugs are incorporated into feed in order to kill bacteria that stunt the growth of animals. However, this gives resistant bacteria the opportunity to develop and multiply. As a result, when you eat these animals, you become infected with the resistant strains. Cooking the meat will kill the bacteria, but the antibiotic remains in the flesh and is absorbed into your bloodstream when the meat is consumed.



**Antimicrobial drugs approved for use in food-producing animals: 2009 sales and distribution data reported by drug class**

Drug class	Kilograms	Pounds	% of total
Food, animal use			
Aminoglycosides	339,678	748,862	2%
Cephalosporins	41,328	91,113	0%
Ionophores	3,740,627	8,246,671	23%
Lincosamides	115,837	255,377	1%
Macrolides	861,985	1,900,352	5%
Penicillins	610,514	1,345,953	4%
Sulfas	517,873	1,141,715	3%
Tetracycline	4,611,892	10,167,481	28%
N1R	2,227,366	4,910,501	14%
Subtotal	13,067,100	28,808,024	79.8%
Human medical use	3,300,000	7,275,255	20.2%
Total	16,367,100	36,083,279	100%



“Infections caused by resistant microorganisms often fail to respond to conventional treatment, resulting in prolonged illness and greater risk of death. About 440 000 new cases of multidrug-resistant tuberculosis (MDR-TB) emerge annually, causing at least 150 000 deaths.”<sup>5</sup>

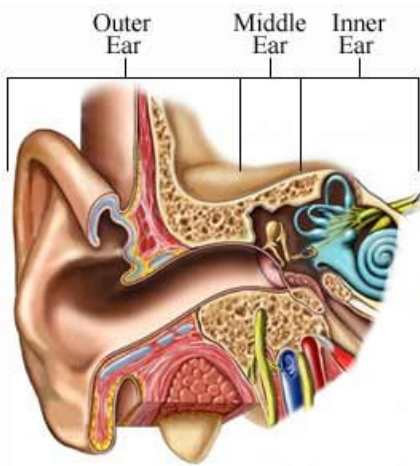
#### WORLD HEALTH ORGANIZATION

“Adverse events from antibiotics cause an estimated 142,000 emergency department visits per year in the United States.”<sup>6</sup>

#### SCIENCE DAILY

“Penicillin-resistant pneumonia is on the rise and most cases have occurred in people who have had recent antibiotic therapy. In 2010, deaths from pneumonia outnumbered those from automobile accidents.”<sup>7</sup>

#### The Informed Consumer's Pharmacy



“Antibiotic therapy is not an effective treatment against otitis media (ear infection) and rates of recurrent infection are significantly higher in children who have been treated with antibiotics.”<sup>8</sup>

#### Journal of the AMA

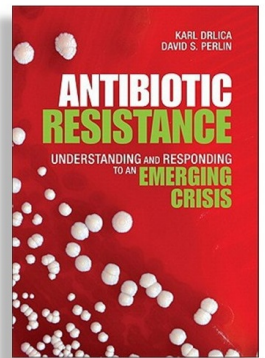
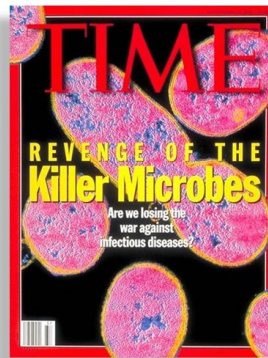
“Chronic middle ear problems in children have not diminished, despite the number of antibiotics being used to treat them. We have created a whole new kind of ear problem. We have used antibiotics so excessively in the 1<sup>st</sup> year of life that we have depressed the development of the child's immune system”<sup>9</sup>

**Walter Belenky, M.D.**

### When the Best Medication for Kids Is No Medication at All

If you ask long enough for antibiotics for your children's viral infections, chances are your doctor might just prescribe them -- even though the doctor knows antibiotics won't help your child get better. Antibiotics don't work for viruses and may put a child at risk for side effects, but many times children receive the medication anyway. Physicians will prescribe antibiotics for viral infections 62 percent of the time when asked by a patient, and only seven percent of the time when they think a patient does not want it, according to a study published in *Pediatrics*. Common scenarios where antibiotics are unnecessarily prescribed to children include some sinus infections, coughs and some ear infections. Children are more likely to suffer side effects such as diarrhea and abdominal pain from antibiotics. In addition, using antibiotics for ear infections may increase the likelihood of getting another ear infection, according to a recent British Medical Journal study. When antibiotics do become necessary for bacterial infections, the treatment may not work for some children who have used the medication too often. While antibiotics are needed to treat bacterial infections, drug-resistant bacteria are a growing problem worldwide.<sup>10</sup>

#### ABC NEWS





# Antibiotics could mess up infant's metabolism

When antibiotics are given early in life, the recipient has a greater chance of becoming obese. Researchers discovered that when antibiotics were given during a critical part of early development, the bacteria or microbes in the digestive system were reprogrammed

Scientists say that disrupting the bacterial make-up of the gastrointestinal tract could affect the way the body's metabolism works. A slower metabolic lead to obesity, because the body does not burn calories as quickly.

Childhood obesity creates a substantial increase in family expenses with the price tag coming out to \$19,000 per child, according to researchers from Duke Global Health Institute and Duke-NUS Graduate Medical School in who published their findings in the journal *Pediatrics*.



“Infancy is a time of growth and development where stem cells are dividing — they’re choosing if they’re going to become muscle or fat or bone. There have been other studies that show changes early in infancy can impact body composition later on. We know microbes can affect metabolism, so potentially these metabolic early life interactions could be either speeding up a child’s growth or not.”

**Laura Cox, Ph.D.**



## A DIFFERENT APPROACH

Our bodies contain complex and powerful disease-fighting weapons, consisting primarily of the immune system which works 24 hours a day attacking and destroying foreign invaders such as bacteria and viruses. When this system is functioning at an optimum level, the body can best combat invading microbes. Many of the characteristic symptoms of illness, such as fever and swollen glands, are signs that the immune system processes are proceeding on schedule.

Medical science is beginning to realize that the key to fighting and preventing illness is by strengthening the degree of natural immunity, the natural body defenses and the overall vitality of the individual



**“There is no healing force outside of the human body.”**

Dr. Isaac Jennings



Whenever the immune system deals successfully with an infection, it emerges from the experience stronger and better able to confront similar threats in the future. Our immune system develops in combat. If, at the first sign of infection, you always jump in with antibiotics, you do not give the immune system a chance to grow stronger.”<sup>11</sup>

ANDREW WEIL, M.D.

**“In a state of health, people are shut off from the invasion of germs.”**

Louis Pasteur

**GREATER EXPECTATIONS: The future of health care lies not in treating illness, but preventing it**

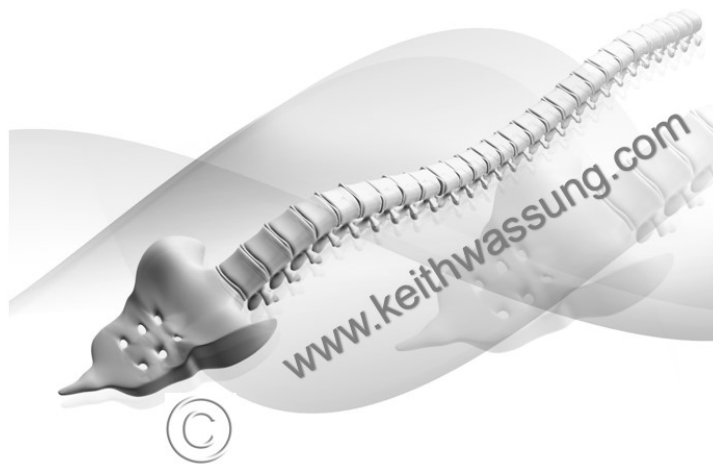
To maintain a high level of fitness, we must avoid physical decline—not repair it. Open heart surgery, even at its most effective, will never make the heart as good as new. The most effective preventive measures involve change in lifestyle. In addition, as genetic profiles and other predictive tools improve, the art of prevention will grow more sophisticated. Pressed by patients and advancing technology, health care will soon change its focus from treatment to enhancement, from repair to improvement, from diminished sickness to increased performance. The transformation has already begun. Accompanying this will be an increased emphasis on psychoimmunology, the science that deals with the mind's role in helping the immune system to fight disease, which will become a vitally important clinical field — perhaps the most important field in the 21st century.<sup>12</sup>

Michael Crichton, M.D.



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# THE EDUCATION AND TRAINING OF A DOCTOR OF CHIROPRACTIC

Educational requirements for doctors of chiropractic are among the most stringent of any of the health care professions. The typical applicant at a chiropractic college has already acquired nearly four years of pre-medical undergraduate college education, including courses in biology, inorganic and organic chemistry, physics, psychology and related lab work. Once accepted into an accredited chiropractic college, the requirements become even more demanding — four to five academic years of professional study are the standard. Because of the hands-on nature of chiropractic, and the intricate adjusting techniques, a significant portion of time is spent in clinical training.

Doctors of chiropractic — who are licensed to practice in all 50 states, the District of Columbia, and in many nations around the world — undergo a rigorous education in the healing sciences, similar to that of medical doctors. In some areas, such as anatomy, physiology, rehabilitation, nutrition and public health, they receive more intensive education than their MD counterparts.

Like other primary health care doctors, chiropractic students spend a significant portion of their curriculum studying clinical subjects related to evaluating and caring for patients. Typically, as part of their professional training, they must complete a minimum of a one-year clinical-based program dealing with actual patient care. In total, the curriculum includes a minimum of 4,200 hours of classroom, laboratory and clinical experience. The course of study is approved by an accrediting agency which is fully recognized by the U.S. Department of Education. This has been the case for more than three decades.

Records from insurance and court cases have constantly shown that chiropractic is the safest portal of entry health care available to the public today. Although no healthcare procedures are 100% safe, chiropractic stands on its record of safety and effectiveness unmatched in healthcare.

The chiropractic adjustment is a safe, efficient procedure which is performed nearly one million times every working day in the United States.

There is a singular lack of actuarial data that would justify concluding that chiropractic care is in any way harmful or dangerous. Chiropractic care is non-invasive, therefore, the body's response to chiropractic care is far more predictable than its reactions to drug treatments or surgical procedures. Of the nearly one million adjustments given every day in this country, complications are exceedingly rare.

## COMPLIMENTS OF



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