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Antibiotic Resistance Growing as US Health Risk

(April 29) — Illnesses and infections once considered safely eradicated could soon make a dangerous comeback if Americans continue to misuse antibiotic drugs.

That was the stern warning of American health experts who spoke at a congressional subcommittee hearing today in Washington, D.C.

"This is not exaggeration or hyperbole — or even the stuff of some hypothetical computer model," said Rep. Henry Waxman, chairman of the Committee on Energy and Commerce. "The numbers are staggering."

CDC.gov

A page on the CDC's website provides information about the correct use of antibiotics. "Antibiotic resistance is a public health problem of increasing magnitude," said Thomas Frieden, the agency's director.

Waxman was referring to numbers like 90,000 — the number of Americans who die each year from preventable infections acquired during hospital stays and caused by bacteria that have become resistant to antibiotic drugs.

The bevy of wonder drugs, first created in the 1920s, is largely behind the remarkable improvements in prevention and treatment of once-deadly illnesses. They're even credited with "major gains in life expectancy experienced during the latter part of the last century," according to the World Health Organization.

But the very life-saving benefits we've enjoyed thanks to antibiotics are now at risk. As microbes evolve to resist commonly prescribed medications, health organizations worldwide are warning that potentially fatal diseases, including meningitis and hospital-acquired infections, could re-emerge as widespread killers.

"Antibiotic resistance is a public health problem of increasing magnitude," said Thomas Frieden, director of the Centers for Disease Control and Prevention, said at the hearing. "Doctors and nurses today are faced with treating infections where antibiotic options are very limited, and in some cases, where no effective antibiotics exist."

Resistance to antibiotics is entirely natural. When they're administered, bacteria either die — the ideal response in treating an illness — or they adapt, becoming resilient to future dosages of the same medication. The process has been expedited by human activities, most notably our over-reliance on antibiotics to treat common maladies or symptoms.

A myriad of other factors, like increased global travel, more elderly living in hospital-care settings, and an epidemic of HIV/AIDS patients whose compromised immune systems led to increased infection rates, are also implicated in the rise of antibiotic resistance.

And the implications extend beyond health. Once a community is resistant to first-line drugs, more expensive alternatives are necessary. Second-line drugs for tuberculosis, for example, are 100 times more pricey than their more common alternative.

As the specter of a post-antibiotic era looms, experts are putting much of the onus on patient responsibility.

Asking for antibiotics when they might not be warranted is a major problem, said Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases (NIAID).

"Physicians may inappropriately prescribe antibacterial drugs to patients ... because the patients expect — or demand — such treatment," he said, adding that doctors also prescribe antibiotics "just in case" when they're unable to offer a definitive diagnosis.

"These situations ... accelerate the development of antimicrobial resistance," he warned.

In a 2001 study published in the Journal of Family Practice, 79 percent of antibiotic prescriptions for the treatment of acute respiratory ailments were deemed unnecessary.

And self-medication, by taking antibiotics purchased illegally or acquired from a friend or family member, is another factor. It's often associated with a third major problem: Not finishing a prescribed dosage of antibiotic. If a patient's body hasn't killed off the entire population of bacteria, survivors will likely adapt and become resilient to drugs.

Our choices at the dining table also have an impact. About 50 percent of all antibiotics doled out in the U.S and Europe are for animals in food-production facilities.

"Antibiotic use in animals has lead to the emergence of resistant bacteria, and sometimes these resistant bacteria can be transferred from animals to humans by direct contact or by handling and/or consuming contaminated food," Frieden warned, referring to illnesses such as salmonella, which afflicts 1.4 million Americans each year.

In the U.S, the CDC has launched several efforts to combat antibiotic resistance. Those include an online hub for patient education called "Get Smart" and a surveillance tool for states and hospitals to monitor and share data on rates of infection.

Right now, Frieden said that 2,500 hospitals are participating in the program, with another 2,500 slated to begin by 2011.

The agency calls antibiotic resistance a "top concern," but notes that CDC-sponsored interventions have led to a 25 percent decrease in unnecessary antibiotic prescriptions to treat viral infection.

And while the CDC focuses on Web-

based interventions for patients and health care providers, NIAID is financing extensive research into new, more resilient lines of antibiotic drugs.

In particular, they're considering the potential efficacy of vaccines as alternatives to oral antibiotics, in an effort to minimize the impact of patient error in taking prescribed doses.

Despite recent innovations, Fauci warns that big pharma isn't interested in investing in drugs that won't be major money-makers. For now, he said, NIAID is collaborating with academic institutions and smaller companies — but resources are scarce.

"This community, by and large, lacks the resources to move a candidate antimicrobial drug all the way from preclinical testing through advanced development," he said. "We desperately need to develop new classes of drugs to ensure that we have viable treatment options."

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