



Antimicrobial Resistance: “Nothing in Our Medicine Cabinet...”

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A “superbug” infection contracted in a hospital in India killed a Nevada woman in September 2016 as doctors stood by, powerless to intervene with an effective antibiotic drug. The woman in her 70’s had fractured her leg in India, leading to multiple hospitalizations in that country. She returned to the US in early August 2016 and was admitted to an acute care hospital later that month.

The pathogen responsible for the woman’s death, *Klebsiella pneumoniae*, was found to be resistant to 26 antibiotics. A co-author of a [Centers for Disease Control and Prevention \(CDC\) report](#) on the incident noted in a [Reno-Gazette-Journal article](#) that the CDC “basically reported that there was nothing in our medicine



cabinet to treat this lady.”

A Global Problem

Antibiotic resistant germs are a serious global public health threat. In the US, there are over two million infections and 23,000 deaths caused by antibiotic resistant bacteria annually, according to the CDC. The dangerous proliferation of these germs can be traced to several factors:

- Overuse and misuse of antibiotics in developed regions of the world. Too often, antibiotics are automatically prescribed, even without confirmation of a bacterial infection. Furthermore, patients do not always complete their prescribed course.
- Indiscriminate use of antibiotics in developing countries where antibiotics may be available over-the-counter.
- Inappropriate use of antibiotics in food animals, including for growth promotion or increased feed efficiency. Antibiotic use in food animals is approved by the [Food and Drug Administration](#) for disease treatment, control and prevention.
- Inadequate infection prevention. *Preventing* the spread of infection by promoting healthy lifestyles and adequately sanitizing common surfaces is a preferred strategy for addressing the global threat of antimicrobial resistance.
- Increasing world travel, including tourism, especially to underdeveloped countries, exposes more people to potentially deadly microbial infections every year.

- Antibiotic resistance is outpacing the development and approval of new antibiotics. Key to reclaiming the upper hand against antimicrobial resistant superbugs in the US is The Generating Antibiotics Incentives Now (GAIN) Act, signed by President Obama in 2012. The law provides incentives to pharmaceutical companies to develop new antibacterial drugs.

Focus on Healthcare-associated Infections

The Nevada woman likely contracted her fatal infection with *Klebsiella pneumoniae*, a carbapenem-resistant *Enterobacteriaceae* (CRE) during one of her hospital stays in India. CREs have been dubbed “nightmare bacteria” by CDC Director Dr. Tom Frieden because they pose a triple threat: (1) They are resistant to almost all antibiotics, even drugs of last-resort; (2) They have high mortality rates; and (3) They are able to spread their resistance to other bacteria.

The [CDC reports](#) over the past decade, the most common type of CRE has increased seven-fold, and that one type of CRE has been detected in medical facilities in 42 states. Hospitals and other healthcare facilities need to act now to stop the spread of this highly drug resistant bacteria. CDC recommends health care facilities obtain a history of “health care exposures” outside their region when admitting patients and consider screening for CRE when patients report travel outside the US or in regions of the US known to have a higher incidence of CRE. CDC reports patients in hospitals, nursing homes and other healthcare settings are most vulnerable to CRE, particularly those whose care requires ventilators, catheters and long courses of certain antibiotics. Patients with CRE infections must be isolated [according to CDC guidelines](#) and infection prevention efforts escalated.

Gaining the Upper Hand

Whereas healthy people are less vulnerable to superbug infections, we should all be aware of, and do our part to help prevent, antibiotic resistance. This includes the responsible use of antibiotics and appropriate sanitation to prevent the spread of infection. Making progress against antibiotic resistance will help save lives in the future. If we do nothing, the forecast is frightening: Common surgical procedures, such as C-sections, hip replacements and chemotherapy will become more dangerous; tuberculosis and gonorrhea, and other diseases currently thought of as under control, could become untreatable.¹ It’s a forecast we hope will never come true.

¹ Baggaley, K., Exactly how bad is antibiotic resistance right now? *Popular Science*, Online. Available: <http://www.popsci.com/so-how-bad-is-antibiotic-resistance-right-now>.