

Taking up the fight against 'superbugs'

October 11 2012, by Alec Rosenberg



Drug-resistant bacteria such as MRSA are potentially deadly, taking lives and costing the health care system in this country more than \$20 billion a year.

Career paths can start to take shape in many unexpected ways. For UCLA physician Daniel Uslan, it all started in a class for kids called "It's a Small World." That's when the five-year-old made sourdough bread with his father.

The tiny, bread-making bugs completely captivated him. "I was so fascinated by these microscopic bugs being able to create food," recalled Uslan, now an assistant clinical professor of [infectious diseases](#).

That early fascination with the world of small, living things drew him into a large-scale battle against drug-resistant "[superbugs](#)" and the improper [use of antibiotics](#) in treating infections.

Sadly, up to half of all [antibiotic use](#) is inappropriate or unnecessary, he said. This happens for many reasons; Physicians, for example, can err on

the side of overprescribing [antibiotics](#) if they worry about missing an infection in their diagnosis.

The consequences of such practices are steep: Antibiotic-[resistant infections](#) cost the U.S. [health care system](#) more than \$20 billion a year, with problems that include a dramatic rise in potentially deadly, [drug-resistant bacteria](#) such as MRSA.

"Overuse or misuse of antibiotics leads directly to patient harm. It leads directly to [bacterial resistance](#)," Uslan said. "We are really at a crisis right now. We are now seeing bacteria for which we have no effective antibiotics."

Uslan has been determined to do something about it.

Uslan, who joined UCLA in 2007, directs UCLA's Antimicrobial Stewardship Program, which has managed to reduce antibiotic use by 15 percent and saved more than \$1 million over the past two years by advising physicians on giving the right antibiotic at the right dose for the right duration.

Launched at UCLA in 2010, the program has helped decrease antibiotic use in some categories by as much as 33 percent.

Uslan and his team have helped improve outcomes for patients being treated with antibiotics for infection by providing oversight of antibiotic use as well as coaching providers who can advise physicians about when and how to use antibiotics appropriately.

This is no small feat. Team members, who are all experts in appropriate antibiotic use, have achieved an 85 percent acceptance rate among UCLA physicians, who have been given recommendations for improved antibiotic use based on audits of their patients' charts.

Now Uslan is working to expand these efforts across the UC health system. Last December, he received a UC Center for Health Quality and Innovation fellowship to explore development of a UC-wide antimicrobial stewardship program.

"These programs are absolutely essential. They provide value by increasing the quality of care of patients with infections and by decreasing costs," Uslan said.

Each UC medical center has an antimicrobial stewardship program in place, but they differ in how they are implemented, he explained. Uslan is analyzing what's working and what can be changed. The goal is to provide substantial value. "We're trying to learn from each other," Uslan said. "By improving antibiotic use, you limit resistance. You limit antibiotic-associated toxicity. You improve patient outcomes. That's sustainable."

To accomplish these goals, a successful program requires a lot of coordination, from infectious disease physicians and pharmacists to microbiologists, project managers and infection control professionals, Uslan said. Doctors, for one, have to get comfortable with someone looking over their shoulder while prescribing, he said.

While change can be uncomfortable, momentum is building to address the antibiotics issue. In 2010, California developed the only statewide antimicrobial stewardship initiative to promote appropriate antibiotic use in health care facilities. A UC-wide antimicrobial stewardship program could help set standards for other California hospitals to follow.

"The only solutions are for drug companies to develop new antibiotics or for physicians to use antibiotics appropriately," Uslan said. "This is a really tremendous opportunity for UC to lead in the state of California. UC can be a model for the rest of the state."

As we enter cold and flu season, people can do their part to reduce the threat of antibiotic resistance, according to Uslan:

- 1) If you are seeing your doctor for a cold or flu, discuss the use of antibiotics with your physician. If it's a viral infection, antibiotics aren't effective and will only add to the problem of antibiotic resistance. Antibiotics are appropriately prescribed for only bacterial infections.
- 2) If your doctor determines that you do not have a bacterial infection, do not pressure your doctor to prescribe antibiotics. Instead, ask about methods you can use to reduce your symptoms.
- 3) Take antibiotics exactly as prescribed by your physician, even if you feel better.
- 4) Do not save leftover antibiotics for the next time you become sick.
- 5) Do not take antibiotics prescribed for someone else.
- 6) Do not assume that yellow or green mucus means that you need antibiotics. It is normal for mucus to get thick and change color during a viral cold.
- 7) The vast majority of sore throats do not require antibiotics. Only 5 percent to 15 percent of adult cases of sore throat are due to "strep." If your doctor suspects strep throat, ask whether a throat swab is appropriate.

Provided by University of California, Los Angeles

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