



Battling Superbugs

Saudi microbiologist Hosam Zowawi has drug-resistant bacteria in his sights

BY IAN LLOYD NEUBAUER/BRISBANE

IN A WORLD FULL OF VERY clear and present dangers—like the Ebola virus, terrorism and climate change—some burgeoning global threats can remain below the radar, garnering comparatively little attention. Among that group are ordinary bacteria that have developed such resistance to antibiotics that scientists refer to them as superbugs. The World Health Organization says bacterial resistance has reached “alarming levels in many parts of the world” and warns

that the problem is so serious it threatens the achievements of modern medicine.

Among the researchers battling superbugs is Hosam Zowawi, a 30-year-old doctoral student in microbiology who decided to make drug-resistant bacteria the focus of his research after working as an infection-control trainee at a hospital in the Saudi city of Jeddah in 2006. Zowawi, who is a Saudi citizen, witnessed firsthand the problem of hospital-acquired infections: patients going

into hospitals for crucial operations and acquiring infections there that led to disability and even death.

Now studying at the University of Queensland Centre for Clinical Research in Brisbane, Australia, Zowawi is working on developing a rapid diagnostic test to identify bacterial infections. He explains that the test will take only three or four hours to detect superbugs rather than the current average of three days. It is just months away from being ready for use, he says.

Although the test relies on sophisticated, expensive machinery—which will limit the test’s availability—Zowawi hopes it will be a first step toward ending the practice of doctors prescribing antibiotics on a trial-and-error basis because they don’t have the ability to make a rapid diagnosis in emergency situations.

“We’re still a fair way from *Star Trek*, where they wave a device and get an instant result, but Hosam’s work is significantly narrowing that gap,” says Dr. David Looke, president of the Australasian Society for Infectious Diseases.

Zowawi’s native Saudi Arabia and the surrounding Gulf states are among the regions of the world most impacted by superbugs. Poor prescription practices, a boom in medical tourism, and large numbers of both expatriates and refugees from conflict zones in the Middle East have all contributed to a high prevalence of resistant bacteria in the region.

Zowawi is now raising awareness of the threat posed by antibiotic resistance in the Gulf states through an education campaign that began with him tweeting about the subject. He also gives public lectures and makes appearances on television.

In June the Rolex Awards for Enterprise selected Zowawi as one of the watch manufacturer’s five Young Laureates for 2014, awarding him nearly \$60,000 to help him pursue his work.

Zowawi believes the struggle against superbugs will be a long one. “Even if we have new antibiotics, bacteria will figure out a way to overcome them,” he says. “But if I wasn’t optimistic, I wouldn’t be doing this. I think we can tackle this.”