

## NEWS

# Medics braced for fresh superbug

If you haven't heard of *Acinetobacter*, chances are you soon will. Reports that the bacterium is infecting US army personnel, mostly soldiers wounded in Iraq, are drawing attention to the little-known organism. Medical experts are concerned that if antibiotic overuse in hospitals is not curbed, drug-resistant strains of *Acinetobacter baumannii* could become a serious killer in intensive-care wards worldwide.

The latest data come from two US army medical centres, the Landstuhl Regional Medical Center in Germany and the Walter Reed Army Medical Center in Washington DC. Drug-resistant *A. baumannii* has infected at least 240 US soldiers since 2003, and five seriously ill patients who shared wards with them became infected and died.

"It's a big problem," says Colonel Bruno Petrucelli, the army's director of epidemiology and disease surveillance, pointing out that both civilian and military hospitals are being hit. "Hospitals are dangerous places to be."

## Resistance fighting

Detailed epidemiological data are sparse because surveillance of *Acinetobacter* is voluntary, but the number of outbreaks seems to be rising alarmingly. The UK Health Protection Agency (HPA) says that, in the past four years, outbreaks have been reported in 24 London hospitals alone. And Arjun Srinivasan, an epidemiologist from the Centers for Disease Control and Prevention in Atlanta, Georgia, who coordinates a programme on hospital-acquired infections in 300 US medical centres, says that the number of cases is rising there too, although they are still relatively uncommon.

"Twenty years ago, only around 1.5% of all cases of pneumonia acquired in the US hospitals we survey were caused by *Acinetobacter* infection," he says. "Now that number is 7% and most are drug-resistant." Similar increases have been seen for other types of infection, such as in blood or at surgical sites.

Unlike methicillin-resistant *Staphylococcus aureus* (MRSA), another serious hospital-acquired, drug-resistant infection, *A. baumannii* is unlikely to infect many outside hospitals. "This bug is not the same as MRSA," says Tyrone Pitt, a bacteriologist at the HPA. "It is not a normal human pathogen." The bacterium normally lives in soil or water and is not very pathogenic in healthy people.



Hard case: *Acinetobacter* (below) rapidly evolves drug resistance, and survives hygiene measures.

But it can kill people who are already sick or whose immune systems are compromised. And it has several characteristics that could make it a serious threat in intensive-care wards. "The situation needs to be monitored," says Pitt.

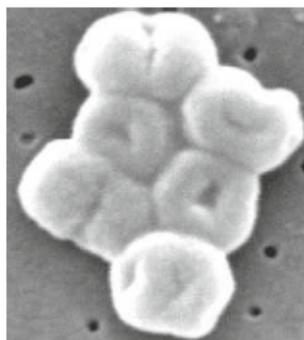
Most worrying is the bacterium's ability to evolve resistance to a broad range of antibiotics unusually quickly,

**"40% of our patients who become infected with *Acinetobacter* die because of it."**

leaving few treatments for those who succumb. Scientists do not understand how this happens, but they know that the microbe has many ways to acquire resistance genes. And some strains naturally contain enzymes that break down some antibiotics.

Researchers are also studying how the bacterium can survive on dry surfaces, particularly plastics, for many weeks. This enables bacteria to hang around on wards even when strict hygiene is maintained.

Those handling the outbreaks stress the importance of using antibiotics sparingly, to reduce the selective pressure on the bacterium



to develop resistance. *Acinetobacter* acquires resistance to even more drugs than MRSA; doctors have been forced to turn to colimycin, an antibiotic abandoned in the 1960s because of its relative toxicity. On occasion, even this remedy has failed.

Petrucelli says that military field hospitals are particularly guilty of overusing antibiotics. Sterility is difficult to maintain, so doctors tend to throw broad-spectrum antibiotics at the wounded. "But this removes options later on," he warns.

Yehuda Carmeli, an infectious-disease physician at the Tel Aviv Sourasky Medical Center in Israel, describes the situation as "a real danger". The bacterium is endemic in many wards in his hospital, surviving hygiene measures that have seen off MRSA.

Carmeli also speculates that the bacterium has become more virulent as it has acquired antibiotic resistance. "We have calculated that 40% of our patients who become infected with *A. baumannii* die because of it," he says. ■

**Alison Abbott**