

WHO warns against 'post-antibiotic' era

Agency recommends global system to monitor spread of resistant microbes.

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30 April 2014



Melissa Dankel/CDC

Methicillin-resistant *Staphylococcus aureus* (MRSA) is now invulnerable to many antibiotics.

The 'post-antibiotic' era is near, according to a report released today by the World Health Organization (WHO). The decreasing effectiveness of antibiotics and other antimicrobial agents is a global problem, and a surveillance system should be established to monitor it, the group says.

There is nothing hopeful in the WHO's report, which pulls together data from 129 member states to show extensive resistance to antimicrobial agents in every region of the world. Overuse of antibiotics in agriculture — to promote livestock growth — and in hospitals quickly leads to proliferation of drug-resistant bacteria, which then spread via human travel and poor sanitation practices.

"A post-antibiotic era — in which common infections and minor injuries can kill — far from being an apocalyptic fantasy, is instead a very real possibility for the twenty-first century," writes Keiji Fukuda, WHO assistant director-general for health security, in a foreword to the report.

Perhaps the most worrying trend is the spread of resistance to carbapenems, the 'antibiotics of last resort', says Timothy Walsh, a medical microbiologist at Cardiff University, UK, who was an adviser for the report. "That's taken us by surprise," he says. "All of us are rather like rabbits in front of the headlights in how quickly this has taken off."

The report finds that, in some areas of the world, more than half the infections caused by one major category of bacteria — Gram-negative, which includes *Escherichia coli* and *Klebsiella pneumoniae* — involve species resistant to carbapenem drugs.

There are few if any replacements for carbapenems in development, says Elizabeth Jungman, director of drug safety and innovation at the Pew Charitable Trusts in Washington DC. Companies lack economic incentives to develop new antibiotics, she says, and researchers have found it difficult to find new ways to get Gram-negative bacteria to take up antibiotics.

Ultimately, the report's most surprising finding may be the lack of global data on antimicrobial resistance. "Despite the fact we've known the potential of this going cataclysmic for ten years, as a global unit we haven't managed to get our act together," says Walsh. Just 22

of the 129 WHO member states that contributed to the report had data on the nine antibiotic–bacteria pairs of greatest concern.

Although the report calls for the establishment of a global monitoring network, it is unlikely that any extra money is forthcoming. “It’s a huge problem and I’m not sure the resources are available,” says Keith Klugman, an epidemiologist at the Bill and Melinda Gates Foundation in Seattle, Washington.

Nature | doi:10.1038/nature.2014.15135