

Antibiotic resistance: How many more final warnings before it's too late?

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A special WHO-sanctioned session at this year's European Congress on Clinical Microbiology & Infectious Diseases (ECCMID) will ask how many more warnings the world needs before it is too late to address the growing threat of antimicrobial resistance (AMR), increasing in all areas of medicine.

A panel that includes the former Chief Medical Officer for England, Professor Dame Sally Davies (now the UK Special Envoy on AMR) will look at the scant progress made in recent years despite the multiple calls to action and warnings of an antibiotic apocalypse threatening all of the [modern medicine](#) we depend on for daily life.

"Time and again, the alarm bells have sounded for the broken antibiotic market. Compared to \$8billion of profit for cancer drugs, the \$100million loss for antimicrobials means that our medicine cabinets are becoming emptier—because of bankruptcies, not lack of scientific brainpower," explains Dame Sally. "As it stands, the weak market and lack of access leaves patients paying. And [future generations](#) will suffer even more."

This trend is, she says, not sustainable, especially when COVID-19 shows how much patients globally depend on scientific innovation. "I have been saying that 'there is no time to wait', but for many it is already too late—they have died. Unless we act now, the alarm bells will soon turn into the death knell for modern medicine," says Dame Sally.

With more innovation, experts believe AMR is containable. Last month, the G7 nations committed to strengthen research and development for [new antibiotics](#). In the US, The PASTEUR Act (which is pending a vote by the US Government House of Representatives and Congress) represents a game-changing mechanism to 'pull' through new antibiotics so that they reach the patients who need them most.

The hope that the PASTEUR Act offers is plain to see—under this legislation, the US Federal Government would provide market incentives to develop lifesaving antimicrobial drugs. Pharmaceutical companies/developers would be paid contractually agreed amounts annually, for an agreed period between five years up to the antimicrobial's patent life. These contracts would promote the

development of new antimicrobials.

Specifically, such contracts would promote the development of antimicrobials against the 'superbugs' considered the most threatening by the US Centers for Disease Control and Prevention (CDC) including *Candida auris*, a fungus, and bacteria such as *Clostridioides difficile* and carbapenem-resistant *Acinetobacter*. The PASTEUR-based contracts would also act as an incentive to develop new classes of antimicrobials with completely new mechanisms of action to turn the tide against these drug-resistant infections.

The UK, meanwhile, has launched a world-first 'Netflix-style' payment model, that will pay [pharmaceutical companies](#) a fixed amount by subscription for access to their innovative antibiotic products, rather than fees based on how much product is used. In December 2020 the UK Government selected two antimicrobials—Shionogi's Fetcroja (Cefiderocol) and Pfizer's Zavicefta (ceftazidime with avibactam) (Zavicefta), to be purchased via the Netflix-style subscription payment model. The European Union's Pharmaceutical Strategy published in 2020 also commits to implementing a new 'pull' model to further boost the ailing new antimicrobial pipeline.

Dame Sally concludes: "It is our collective responsibility to ensure that our research and policy-making reflects this. From early-stage research, to clinical trials, to patient access, inclusivity must define our innovation. Globally, we need to we move forward together, working in partnership across sectors and countries."

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