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New, modern tools are needed to aid in the decision-making process of prescribing antibiotics

Action is needed to minimise the economic impact of AMR

Antibiotic resistance is not inevitable but will require collaboration

By Lorena Tonarelli

The threat posed by antimicrobial resistance (AMR) is virtually global. "If no action is taken, 35 years from now we could have 10 million more people dying every year globally due to AMR – more than 10 times the number of AMR-related deaths occurring today," says Lord Jim O'Neill, Commercial Secretary to the Treasury. "The increased mortality would substantially reduce the size of the workforce, resulting in a loss of global economic output of \$100 trillion by 2050 – a huge cost to society."

Improving surveillance

"A major challenge is that the available data on resistance are not particularly good," adds Lord O'Neill. "So anything we say about present and future economic consequences, we must bear in mind that we need better surveillance."

The government is already pursuing this. In March, it launched the £195 million Fleming Fund, which aims to improve surveillance networks for drug-resistant infections in developing nations.

Moving forwards

Lord O'Neill was appointed by the government to lead an independent review that looks at the impact of AMR on the world's health and economy. The review, which has published so far a series of four interim reports, identifies possible strategies to avoid a global crisis. Amongst the key recommendations

is the need to boost the development of new antimicrobial agents.

There are three key steps to take in this regard, says Lord O'Neill. "Firstly, we need to encourage more postgraduate research on drug resistance. It is quite striking how few people work in this field of medical research. Secondly, we proposed in May the creation of a \$2 billion global fund to help organisations pay for early-stage research related to the development of new antibiotics.

"Thirdly, we recommend providing financial incentives for the production of 15 new antimicrobial drugs every 10 years, which our analysis suggests would be useful in ensuring an adequate supply of antimicrobials for future generations."

Using antimicrobials wisely

While developing new drugs is paramount, it is unrealistic to think that this alone can help minimise the global human and economic impact of drug resistance.

As Lord O'Neill notes, it's just as crucial to reduce the misuse of antimicrobials, particularly antibiotics. He highlights four ways to achieve this: encouraging people to wash their hands frequently to stop the spread of infections; developing global awareness campaigns that educate the public on the dangers of misusing antibiotics; promoting innovation in diagnostics to ensure appropriate prescribing, for example by providing physicians with new, modern tools that can inform their decision as to whether or not

"We need to encourage more postgraduate research on drug resistance"

to prescribe antibiotics to patients; and increasing the use of alternative therapies, especially vaccines. The last point is of particular importance, says Lord O'Neill, "because if we can develop effective vaccines for illnesses we take antibiotics for, then we wouldn't need the latter."

Global commitment

How can we ensure that the above strategies are implemented and stay in place? Lord O'Neill says we need more analyses that look at the macroeconomic consequences of AMR, and to make sure that they are influential at a global level.

He adds: "In line with this, we are actively pushing for a United Nations agreement, in September 2016, whereby all UN countries agree to fundamental changes, with regard to both antibiotic usage and interventions to boost the supply of new drugs. In addition, and crucially I hope, we are trying to encourage China to place antimicrobial resistance as a priority on the G20, which the country will chair next year."

Not inevitable

According to Lord O'Neill, we can avoid the economic cost of drug-resistant infections, and a return to the dark age of medicine, when antibiotics didn't exist. Central to this is a collaborative effort to develop new drugs and diagnostics and to reduce drug misuse through improved awareness, prevention and vaccine use. ■



Lord Jim O'Neill
Chairman of the Review of antimicrobial resistance and commercial secretary to the Treasury