

Jim O'Neill calls for new rapid diagnostics to stop unnecessary use of antibiotics and tackle superbugs

Our arsenal of antibiotics is losing its effectiveness against drug-resistant bacteria, the so called 'superbugs', posing a huge health risk to people across the world. Unnecessary use of antibiotics drives this rise in resistance and yet the way bacterial infections are diagnosed has seen minimal improvement since the 1940s.

In a report published today, Jim O'Neill's Review on Antimicrobial Resistance sets out proposals to transform antibiotic use through better use of rapid diagnostics over the next 5 years. This is the latest in a series of reports by the Review on AMR, before our final recommendations setting out a global package of actions in the late Spring of 2016.

The report sets out the scale of the problem, taking the example of a modern health system such as that in the United States. Looking at adult patients visiting the doctor to treat respiratory problems, a study found that more than two-thirds of courses of antibiotics were likely to have been inappropriately prescribed for conditions that were not infections at all, or infections caused by viruses – for which an antibiotic would do nothing. That amounts to 27 million courses of antibiotics wasted a year in just one set of indications, in the United States alone.

The Review on AMR also explains why healthcare systems are not embracing the use of rapid diagnostics that exist today and why investment in new and better ones is lagging. It is cheaper and quicker for individuals to go straight to using an antibiotic, 'just in case' it is effective, without checking with a diagnostic test. Yet the immense benefits to society of using rapid tests to stop unnecessary use of antibiotics are not captured by each of our individual decisions to use an antibiotic.

This is why there is a compelling case for governments and healthcare systems to support innovative rapid diagnostics with three interventions proposed by the Review on AMR in this fourth report.

- 1. Diagnostic Market Stimulus (DMS) pots to overcome the mismatch between the cost and benefits of diagnostics. The DMS would provide a revenue stream for developers of the most useful products to stop unnecessary use of antibiotics.** This support would come from the same global payer the Review on AMR proposed in our paper on incentivising new antibiotics, but the funding needed would be on a scale far less than what is necessary to stimulate the antibiotic market. As such, it could be incorporated within the same 16 –

37 billion USD market intervention over ten years that is proposed to stimulate the antibiotics pipeline.

- 2. Jump start further innovation in diagnostics by getting more money into early stage research.** Our last paper discussed a global antimicrobial resistance (AMR) Innovation Fund of around 2 billion USD over 5 years to help boost funding for blue-sky research. As well as accepting bids for new drugs, this should be open to bids from companies or academics developing rapid diagnostics that help combat AMR.
- 3. Help build the long-term economic case for rapid diagnostics.** Objective studies are needed to prove a new product's clinical and cost-effectiveness, before it can be adopted by health-care systems. Usually, the company developing the technology bears the costs of such studies, which can be prohibitively expensive, especially for small companies. For health-care systems, however, they would amount to a sensible and affordable investment, to reduce unnecessary use of antibiotics.

We do not underestimate the scale of the behaviour changes needed to alter long-established ways of using antibiotics by doctors and patients. But we need new technology to support these new behaviours and a viable financial proposition to make that innovation happen. Even if it were possible, it would not be good enough to make the standard of antibiotic prescription in the BRICS reach a similar level to that of the United States and Europe. For material progress to happen over the next five years healthcare systems need to leapfrog to using rapid diagnostics wherever possible, before using an antibiotic.

The Review will spend the coming months engaging with governments, NGOs and industry globally to discuss and develop these proposals further, with input from an international advisory group. We will present a more detailed final package of actions in the late Spring of 2016 covering the whole AMR landscape.

Quotes about the report

Lord Jim O'Neill, Chairman of the Review on AMR, said:

“For far too long we haven't recognised the huge cost to society of increasing resistance when we use antibiotics that we don't need – such as antibiotics for flu which have no effect except to increase the chances of superbugs developing.

To avoid the tragedy of 10 million people dying every year by 2050, the world needs rapid diagnostics to improve our use of antibiotics. They are essential to get patients the right treatment, cut down on the huge amount of unnecessary use, and make our drugs last for longer.”

Dame Sally Davies, Chief Medical Officer for England, said:

“As this report from Lord O’Neill clearly sets out, rapid diagnostics have a pivotal role to play in the fight against drug resistant bacteria. Without them, it is much harder for prescribers to know with any certainty whether an antibiotic will treat the infection. We need coordinated international action to help spur innovation and improve antibiotic use before it is too late.”

Dr Margaret Chan, Director General of the World Health Organisation, said:

“One of the five objectives of WHO’s new global action plan on antimicrobial resistance is to increase investments in diagnostics. Today, antibiotics are rarely prescribed based on a definitive diagnosis. Diagnostic tests can show whether or not an antibiotic is actually needed, and which one. Having rapid, low-cost, and readily available diagnostics is an essential part of the solution to this urgent problem.”

Dr Tom Frieden, CDC Director, said:

“Innovative diagnostic tests are an important part of global efforts to combat antibiotic resistance,” said CDC Director Tom Frieden, M.D., M.P.H. “New diagnostic tests can give doctors the information they need when they need it. Faster, more reliable tests increase the chance that every antibiotic prescribed will be effective and can help us stop the growing problem of antibiotic-resistant superbugs.”

Professor Anthony So, Director of the Program on Global Health and Technology Access, Duke University, said:

“This timely report brings important attention to the need for effective diagnostics, not just drugs, in tackling the challenge of antibiotic resistance. Bringing these diagnostics to the bedside will be critical to ensuring that patients in need globally receive the right antibiotic at the right time.”

Mark Miller, bioMérieux Chief Medical Officer, said:

“As a major global player in the diagnosis of infectious diseases, bioMérieux is an ardent advocate for the rational use of antibiotics. We have been developing diagnostic tests and educational tools which play a highly instrumental part in the fight against antimicrobial resistance, an increasingly global concern which requires a collaborative healthcare approach. Building on more than 50 years of commitment to serving global public health and its leadership position in microbiology, bioMérieux applauds the unprecedented support for the key role of diagnostic testing for infectious diseases, as recommended by the Review on Antimicrobial Resistance.”

Dr Manica Balasegaram, Executive Director at MSF, said:

“Diagnostics for antimicrobial resistance is an undervalued - yet critically and urgently needed - tool to help us better respond to this crisis. Diagnostic tests should consider the often-forgotten needs of developing countries, needing to be inexpensive, able to be used at the point of care, and provide rapid results. New incentive models in research and development are crucial to getting useful tools into the field, including biomarkers that can distinguish bacterial vs other infectious causes of fever.”

Notes for Editors

1. AMR or ‘antimicrobial resistance’ is the term used to describe drug-resistant infections, sometimes referred to as ‘superbugs’. Antimicrobials include antibiotics (which act only on bacteria), antivirals, antiparasitics and antifungals.
2. The Report, *Rapid diagnostics: Stopping unnecessary use of antibiotics*, will be published on the Review’s website at www.amr-review.org on Friday 23rd October.
3. The UK Prime Minister, David Cameron, commissioned the Review on Antimicrobial Resistance in July of last year to address the growing global problem of drug-resistant infections. It is Chaired by Lord Jim O’Neill and backed by the Wellcome Trust and the UK Government.
4. Lord Jim O’Neill is the current Commercial Secretary to HM Treasury, as well as the Chairman of the Review on AMR. He is an internationally published economist and until 2013 was Chairman of Goldman Sachs Asset Management, having previously been the organisation’s Head of Economic Research. Before chairing the Review on Antimicrobial Resistance he led the Cities Growth Commission which played a central role in the Government’s decision to devolve significant new powers to large urban centres in the UK starting with Manchester and the Northern Powerhouse project. He is particularly well known for his work in relation to developing and middle-income economies, having coined the BRIC (Brazil, Russia, India, China) acronym – meaning that he is especially well-placed to understand the broad range of international interests raised by antimicrobial resistance.
5. We are pleased to announce that **Dr Yusuf K. Hamied**, Chairman of Cipla, **Congressman Antonio Brito**, Chair of the Commission on Health and Social Security of the Brazilian Parliament, and **Dr Milton O. Moraes**, Dean of graduate Programs, Fundação Oswaldo Cruz in Brazil, have agreed to join current members of our international advisory group to the Review on AMR. More details are available on the Review’s website (www.amr-review.org).
6. While action to stimulate the development and use of rapid diagnostics is important in the global battle against AMR, this represents one part of the solution to the diverse challenges of increasing drug resistance, as outlined in our [previous three papers](#) and those still to be published in 2015 and early 2016. The areas the Review will be covering in the coming months include: antibiotic use in agriculture and the environment, infection control and alternatives to antibiotics.
7. The Wellcome Trust is a global charitable foundation that spends more than £700 million a year on advancing human and animal health. It is the second highest-spending charitable foundation in the world, after the Bill & Melinda Gates Foundation, investing principally in biomedical science, the medical humanities and public engagement. The Trust is providing part-funding for the work of the Review, and hosting the team at its London headquarters.

This Press Release will also be available on Friday 23 October 2015 on www.amr-review.org.

Media enquiries should be addressed to the AMR team on: press@amr-review.org and 020 7611 5722.

Infographic: Rapid diagnostics would reduce unnecessary prescription



Additional quotes

Dr Catharina Boehme, Chief Executive Officer, Foundation for Innovative New Diagnostics, said:
“The central role that diagnostics will play in tackling antimicrobial resistance has been widely acknowledged. However, the global health community has only recently begun to address the complex question of how new tools and practices can be effectively implemented in health systems. By taking a holistic approach, this paper offers valuable contributions to the conversation about how to cultivate effective development and adoption of new diagnostic tools.”

Duncan Selbie, Chief Executive of Public Health England, said:
“This latest report highlights how vital rapid diagnostic testing is in tackling antimicrobial resistance; improving diagnostic testing is an essential component of the UK cross-government Antimicrobial Resistance Strategy.”

“Tackling antimicrobial resistance is a national priority for Public Health England, and we are supporting work to develop diagnostics that will help to get the right drug to the right patient at the right time.”

Giovanni Monti, Director of Healthcare Innovation, Walgreens Boots Alliance, said:

“Incorporating innovative rapid point-of-care diagnostic tests in healthcare decision-making can help drive better patient outcomes, and long-term savings for healthcare systems. Walgreens Boots Alliance supports the AMR Review’s call-to-action to introduce new technology to deliver the right antibiotics to the right patient at the right time. As a leading global pharmacy-led health and wellbeing enterprise, we are strongly aware of the crucial role community pharmacies play in this process, and are already working on solutions to make innovative diagnostics more accessible and widespread.”

Jonathan O’Halloran, Chief Scientific Officer and Co-founder of QuantuMDx, said:

“Advanced Rapid Diagnostics (ARDs) not only provide a better patient experience, but also enable surveillance of evolving resistance leading to the stewardship of anti-infectives. The information provided by these ARDs help doctors prescribe the right drug at the right time with no trial and error. This paper clearly demonstrates that the O’Neill review understand this significant tool in our fight against AMR and what is needed to inspire innovation in diagnostics.”

Dr Sanjeev Chaudhry, Managing Director, SRL Limited (a leading Indian diagnostic laboratory network), said:

"Antimicrobial Resistance is by far the most formidable global public health challenge. Its severity and long term consequences need to be loudly articulately in India and other developing countries before it becomes too late. The complexity of this challenge and the intensity of its impact call for a concerted multi-disciplinary and multi-agency action to be chaperoned and monitored by the political leadership at the very highest level in every country".

David J. Ecker, Ph.D, Divisional Vice President, Research & Development for Abbott’s Ibis Biosciences business, said:

“Committed to the fight against antimicrobial resistance, we are encouraged by the O’Neill Review’s report that emphasizes the critical role for diagnostics. Abbott reinforces the value of innovative diagnostic testing, both in the hospital laboratory or at the point of care. These are two distinct but overlapping microbial ecosystems, and it’s important to address both to effectively combat antimicrobial resistance.”

Debra Moore, Marketing Manager for Infectious Disease, Western Europe, said:

“It is great news that the O’Neill review team recognise the role of rapid point of care diagnostics in antimicrobial resistance (AMR) and the need for their widespread adoption. Rapid diagnostics in the form of C-reactive protein (CRP) point of care testing are already available to help healthcare professionals determine if a patient needs antibiotics for a respiratory tract infection (RTI). In fact, evidence suggests that CRP point of care testing reduces antibiotic prescribing for RTIs in primary care by up to 42% and could save the NHS £56 million a year in prescription and dispensing costs alone.”