



PRESS NOTICE

22 March 2016

Jim O’Neill highlights the power of simple measures to prevent infections and slow the rise of drug-resistant superbugs

Fundamental changes are needed to better prevent and monitor the spread of drug-resistant infections globally, according to a new report published today by Jim O’Neill’s independent Review on Antimicrobial Resistance (AMR). Addressing the root causes of infections by improving access to water and sanitation reduces the demand for antibiotics as well as the opportunities for bacteria to become drug-resistant. Prevention is the most permanent, sustainable solution to slow down the rise of superbugs.

The paper, *Infection prevention, surveillance and control: limiting the development and spread of drug resistance*, is the last in a series of interim reports by the Review, before it presents its final recommendations to the UK Prime Minister in May 2016, which will set out a package of actions to tackle drug-resistant infections globally. It makes the case that many countries made the greatest progress in tackling infectious diseases in the 19th century, long before modern antimicrobial drugs were available, by focussing on disease prevention and investing in public sanitation infrastructure.

Such an approach is still vital today. Yet the focus on prevention has weakened over recent decades, and public spending has shifted towards treatment as cheap and effective antimicrobial drugs have become more and more available, including antibiotics. But these drugs are losing their effectiveness because over time microbes evolve to resist them. For example, 500,000 people suffer from multi-drug-resistant tuberculosis today and 200,000 of them die every year. Global action to support the development of useful products like new antibiotics, rapid diagnostics and vaccines – as called for by the Review in earlier reports – remains essential, but it must be underpinned by more fundamental action to reduce the infectious disease burden and thus demand for these antimicrobials.

The report highlights **three areas** where decisive action has the potential to ‘shift the demand curve’ for antibiotics and other antimicrobials:

Improved access to clean water and sanitation. Inadequate access to safe water and sanitation infrastructure increases the global burden of infections. This is particularly true given its impact on the burden of diarrhoeal disease, the second leading cause globally of death in children under five years old. The enormous number of preventable cases of diarrhoea is a major driver of antibiotic consumption (most of it unnecessary since diarrhoeal illness is most commonly caused by viruses, which do not respond to antibiotic treatment), and in turn the development of drug resistance. Analysis commissioned by the Review suggests that across India, Indonesia, Brazil and Nigeria, diarrhoeal illness could account for the consumption of at least 500 million courses of antibiotics today, growing to more than 622 million cases by 2030 – a figure that could be reduced by more than 60% if these countries had universal access to improved water and sanitation.

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Poor sanitation also plays a key role in fostering ‘superbug’ infections because exposure to unsanitary conditions provides greater opportunities for drug-resistant strains of bacterial infections to develop and move between humans and the environments, and substantially increases

Finally, the report presents analysis showing that, when national income and healthcare expenditure are controlled for, a 50% increase in access to improved sanitation is associated with an increase in national life expectancy of more than nine years.

A greater focus on infection prevention and control in healthcare settings. Hospitals and other care environments, like residential homes for the elderly, are high-risk environments for the spread of drug-resistant infections. In high-income countries, at least one patient in 10 will contract a healthcare-associated infection whilst admitted to hospital, a figure that rises to one in three for patients in intensive care. MRSA (methicillin-resistant *Staphylococcus aureus*) is a well-recognised problem following worrying outbreaks in many countries over the past two decades, but for which infection rates have substantially fallen in recent years. The report argues that concerted efforts to prioritise infection prevention – led by governments, regulators and other health system leaders – are key to fending off existing and newly-emerging superbugs. These efforts must be supported by empowering the staff who lead infection control efforts within hospitals. Better research is also important into behavioural interventions that can ‘nudge’ doctors, nurses and other carers to follow what are sometimes simple steps such as washing hands and following checklists.

Substantial improvements to the global surveillance of emerging drug-resistant infections. To manage the rise of drug resistance we must be able to effectively measure it and monitor it. This is far from the case at present. There is no globally-coordinated system that allows us to track the consumption of antimicrobials, or identify the emergence and spread of new drug-resistant strains of infections, not even in the most advanced economies and the gaps are much worse in developing countries. The report identifies many promising initiatives– such as the UK Government’s 375m USD Fleming Fund, and work by the WHO and non-government organisations like the Gates Foundation, Wellcome Trust, and Institut Pasteur – but stresses that much more needs to be done to build adequate global capabilities. As well as building conventional lab-based infrastructure, efforts also need to take account of the emergence of new rapid diagnostic technologies. These new diagnostics have the potential to deliver real-time surveillance of resistance on an unprecedented scale in all parts of the world. Governments, industry and civil society need to consider how to best make use of this information, tackling questions of data sharing, ownership and intellectual property today, to realise the potential of these new technologies tomorrow.

Action on all three fronts represents a vital part of a broader series of interventions the world needs to make to tackle drug resistance. 2016 will be critical in making this happen with the G7, G20 and UN General Assembly all gearing up to discuss the global response to this challenge.

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, before presenting a final report in the May 2016, covering the whole AMR landscape.

Quotes about the report

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

“The challenges of antimicrobial resistance are complex, but some of the most effective and permanent solutions will lie in getting the basic things right. There is nothing new or controversial in saying that we should look to prevent infections from spreading from person to person, and not overly rely on our ability to cure them. But in the age of effective and relatively cheap antimicrobials, we have too often lost sight of this simple idea. Investment in public infrastructure like water and sanitation can reap enormous benefits for individual countries by improving the health of their populations and their economic prosperity, and for the whole world by reducing unnecessary use of antibiotics and the development of drug resistance.

I find it alarming that despite what we know about the scale of the threat posed by rising drug resistance, our ability to monitor its development and spread in a systematic, global way is extraordinarily limited. Much more needs to be done to fix the surveillance blindspots that exist across all parts of the world – because if we can’t measure the growing problem of drug resistance, we can’t manage it. A new generation of rapid diagnostics, combined with developments in technologies like artificial intelligence and cloud computing, have the potential to revolutionise this field, but the opportunity to realise these benefits will be missed if we don’t start building a consensus now about how we can gather, share and use this data in a consistent and coherent way.

Even in healthcare settings, where the importance of infection prevention and control is well-recognised and well-understood, there is a lot more that we can do to break the chains of transmission between patients and deny superbugs the opportunities to develop and spread, starting with making it a priority in health systems around the world. At the front line, basic things like better handwashing can have a huge positive impact on this, but even with the best of intentions we know that healthcare workers don’t do it as much as they should: we need to understand the behavioural factors that get in the way of best practice, and empower professionals to make this change happen.”

Mr Yasuhisa Shiozaki, Minister of Health, Labour and Welfare for Japan, said:

“Japan welcomes this report. It rightly recognises that effective disease surveillance is essential to counter the grave threat of drug-resistant infections that Jim O’Neill is outlining. Without good surveillance, we cannot effectively counter the threat that antimicrobial resistance poses to health systems and people all over the world. It is also vital that countries work together to make sure old and new technologies are rolled out in a way that supports better global “One Health” AMR surveillance including animals and the environment.

Japan stands ready to work with other countries through our leadership as the G7 Presidency and the Tokyo Meeting of Health Ministers on AMR in Asia this year. We support other countries by sharing my country’s expertise in developing the state-of-the-art JANIS system, Japan Nosocomial Infections Surveillance system.”

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

“As Jim O’Neill’s latest report shows, it is crucial that we remember to get the basics right as the foundations of the global response to antimicrobial resistance: good sanitation, safe water, cleaner

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hospitals, and better surveillance are all fundamental parts of the problem of drug-resistant infections. Building an effective, comprehensive global surveillance system to monitor the spread of antibiotic resistance will take time, but I'm pleased that through the leadership of the WHO and initiatives like the UK Government's 265m GBP [375m USD] Fleming Fund, we are making the important first steps towards this ambitious but vital goal."

Dr Jeremy Farrar, Director of the Wellcome Trust, said:

"Clean water, better sanitation, hand washing in hospitals and wider surveillance are all critical elements in preventing the spread of drug-resistant infections. But absolutely none of these measures will be a surprise to those working in any area of medicine, who have been discussing them for decades. The time for talk is over. People are dying of infections that doctors are unable to treat now, and millions more lives are at risk. All countries must translate these recommendations into national policy and, above all, action, as a matter of urgency."

Dr Keiji Fukuda, the Director General's Special Representative for Antimicrobial Resistance at the World Health Organization (WHO), said:

"The basics of public health – clean water, good sanitation and hygiene, infection prevention and control and surveillance – are as critical for reducing the impact of antimicrobial resistance as they are for infectious disease control. While we also need new technologies and medicines, and better use of existing medicines, we cannot let attention to fundamental public health practices suffer, or else antimicrobial resistance will continue to thrive."

Dr Val Curtis, Director of the Environmental Health Group, London School of Hygiene & Tropical Medicine, said:

"One of the best ways to prevent antimicrobial resistance is to prevent infections in the first place, so antimicrobials aren't needed. We won't solve this problem properly until we tackle the problem in the countries with the biggest burden of infection. We need to act to get toilets to the two billion that don't have them, and new norms of behaviour to the four out of five people on the planet who don't wash their hands with soap at key times. That's possibly the most cost effective way to rid us of both disease and the AMR that is its consequence."

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, *Infection prevention, control and surveillance: Limiting the development and spread of drug resistance*, will be published on the Review's website at www.amr-review.org on Tuesday, 22 March. 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.
3. 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

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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.

4. While action to encourage the use and development of vaccines and alternative approaches is crucial to tackling AMR, this represents one part of the solution to the diverse challenges of increasing drug resistance, as outlined in our [previous papers](#) and those still to be published in 2016. The Review will be covering health infrastructure in the coming months, before producing its final report in May 2016.
5. 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.
6. The Review will be tweeting about the report via its official account, @ReviewonAMR

This press release will also be available on Tuesday 22 March at www.amr-review.org.

Media enquiries should be addressed to the AMR team on: info@amr-review.org and +44 (0)20 7611 5722.