



**PRESS NOTICE**

**04 December 2015**

## **Jim O’Neill calls for a phased reduction of global antibiotic use in livestock and measures to stop antibiotics polluting the environment**

**The use of antibiotics in agriculture around the world represents a critical threat to public health. Any use of antibiotics promotes the development and spread of so-called drug-resistant infections (‘superbugs’). Given the world uses far more antibiotics in animals than it does in humans, agricultural use must be reduced globally, according to a major new report published today by the independent Review on Antimicrobial Resistance (AMR), chaired by Jim O’Neill. The report recommends stricter rules on the type of drugs used in agriculture depending on their importance to humans.**

The report also identifies a problem with the manufacturing of antibiotics, where the active ingredients from antibiotics are sometimes discharged into the nearby environment, potentially increasing the risk of drug-resistant bacteria developing.

This is the latest in a series of reports by the Review on AMR, before final recommendations are published in the late spring of 2016 setting out a package of action to tackle drug-resistant infections globally. The report sets out the scale of use of antimicrobials in agriculture – in livestock, aquaculture and crops. In the US, for example, more than 70% of the use of medically important antibiotics is in animals, with only 30% in humans<sup>[1]</sup>.

The risks associated with this are threefold. Firstly, drug-resistant strains can be passed on to the human population through direct contact between humans and animals. Secondly, these drug-resistant strains have the potential to be passed on through the food chain, for instance from eating undercooked meat. Finally, there is a further indirect threat to human health as a result of animals excreting bacteria and antibiotics together into the environment.

A particular concern to public health is the fact that some ‘last-resort’ antibiotics for humans are also being used extensively in animals, with nothing to replace these drugs once they become ineffective. This problem was highlighted by a recent finding in China of a bacterial gene conferring resistance to colistin, a last-resort antibiotic for treating multidrug-resistant infections, but which is also used extensively in livestock, including in Europe.

The O’Neill report also sets out the results of a literature review using a sample of 280 published, peer-reviewed research articles that address the issue of antibiotic use in agriculture. Of the 139 academic studies covered, only seven (five percent) argued that there was no link between antibiotic consumption in animals and resistance in humans, while 100 (72 percent) concluded that there was evidence to support limiting the use of antibiotics in agriculture.

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<sup>[1]</sup> Animal consumption figure of 8,893,103kg from FDA, 2012. Human consumption of 3,379,226kg in 2012 based on calculations by IMS Health. The figures are rounded from 72.5% used in animals (and 27.5% used in humans).

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The report argues that there is a compelling case for urgent, global action to tackle these problems, and proposes three interventions to achieve this.

1. ***A global target to reduce antibiotic use in food production to an agreed level per kilogram of livestock and fish, along with restrictions on the use of antibiotics important for humans.***
  - a. The report recommends a reduction in the overall global levels of antibiotic use in agriculture and aquaculture by establishing targets for antibiotic use to an agreed limit for each country, while allowing individual countries to decide how best to achieve this goal. A phased global target would make this possible. An ambitious but achievable target is needed, to reduce use over the next 10 years. There are countries that have advanced farming systems with very low levels of antibiotic use, particularly in Scandinavia. Denmark has combined low use with being one of the largest exporters of pork in the world. Reducing levels of use to that of Denmark for example, an average of less than 50mg of antibiotics used a year per kilogram of livestock in the country, may be a good starting point for such a target. The report suggests that this should be feasible without harming the health of animals or the long-term productivity of farmers. This is based on an analysis of academic literature and case studies. The exact level of a target would, however, need to be discussed and tested by experts. Some low and middle-income countries may need more time to achieve such a target, while some others are already below the threshold.
  - b. As well as reducing the quantity being used, the types of antibiotics used are also important. Currently many antibiotics that are important for humans are used in animals. Countries need to come together and agree to restrict, or even ban, the use of antibiotics in animals that are important for humans.
2. ***The rapid development of minimum standards to reduce antimicrobial manufacturing waste released into the environment.*** This needs to be viewed as a straightforward issue of industrial pollution, and is the responsibility of all actors in the supply chain to ensure that industrial waste is treated properly as a matter of good manufacturing practice. The risk of drug-resistance must urgently become a key environmental consideration for all pharmaceutical companies, healthcare buyers and regulatory agencies everywhere. Failing to do this does most harm to the health of populations living near the manufacturing sites who can be exposed to polluted water, and are in a way paying the price of cheap antibiotics for the rest of the world. However, resistance spreads and these strains will in time become a shared global problem.
3. ***Improved surveillance to monitor these problems, and progress against global targets.*** There remain too many knowledge gaps regarding patterns of antimicrobial use in agriculture and release during manufacturing, what this means for resistance and, ultimately, human health. This needs to change if meaningful progress is to be made.

Agreeing and implementing a global target for antibiotic use in agriculture will not be easy, because it requires an international agreement and involves many actors to implement it, from small farm holders to large industrial estates. But it is vital if antibiotics are to be kept effective, whether for animals or humans. A phased reduction must allow rational use of antibiotics for animals when they have an infection, and it need not meaningfully reduce the productivity of farmers or increase the cost of meat protein. It is well established that farm productivity is not closely tied to the amount of

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antibiotics a farm uses. But farms may need time and some money to transition to cleaner practices that rely on using fewer antibiotics to keep infections at bay or to raise animals.

This transition to lower use may well be partially aided by a consumer-led drive. Indeed, several companies, including fast food chains in the US, wholesale producers and food retailers, have recently imposed voluntary guidelines and targets to reduce the use of antibiotics in their supply chains.

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 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:**

*"I find it staggering that in many countries most of the consumption of antibiotics is in animals, rather than humans. This creates a big resistance risk for everyone, which was highlighted by the recent Chinese finding of resistance to colistin – an important last-resort antibiotic which has been used extensively in animals.*

*As we've highlighted, most of the scientific research provides evidence to support curtailing antibiotic use in agriculture, it's time for policy makers to act on this. We need to radically reduce global use of antibiotics and to do this we need world leaders to agree to an ambitious target to lower levels, along with restricting the use of antibiotics important to humans."*

**Nigel Gibbens, Chief Veterinary Officer for the UK, said:**

*"This paper provides a compelling case that to tackle the global threat posed by antibiotic resistance we must prevent unnecessary use in animal production and minimise the incidence of disease that would necessitate the use of antibiotics. This will not only reduce the potential risk to humans but also the risk to animal health and welfare of the development of resistance in bugs that cause disease only in animals. Such a change will need to be founded on good standards of animal husbandry and disease prevention which will also lead to additional benefits in improved productivity."*

**Dr. Yusuf K Hamied, Chairman of Cipla Limited, said:**

*"I strongly believe that the three key issues facing the world are healthcare, food, and agriculture. They are interlinked, have to be studied together and tackled on all fronts. Problems in these result from human error, human habits and human ignorance - be it the medical profession, patients, farmers, vets, or the public. We are the only species with intelligence and hence should put our scientific knowledge to its best use and update this on a continuous basis. This paper from the Review on AMR importantly sheds light on these issues for resistant infections and offers solutions to tackle them."*

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

*"This urgently needed report brings together the best evidence linking the overuse of antibiotics in agriculture with the worrying spread of infections that are becoming increasingly difficult, if not impossible, to treat in humans. We can now be certain that the health of livestock animals, and how we care for them, is inextricably linked to our own health and the effectiveness of medicines we rely on every day."*

*"To address this critical public health threat we need international governments, policy makers and the agricultural industry to coordinate their actions and set tangible targets for the reduction and better use of antibiotics in animals."*

**Dr Jianzhong Shen, Chinese Academic Member of Engineering and Dean of College of Veterinary Medicine, China Agricultural University (and one of the authors of the recent report in the Lancet on colistin) said:**

*"The antibiotic usage in food animals is indeed becoming a global issue associated with food safety and public health. All countries in the world should use the antibiotics in food animals more prudently and rationally. Concerning the antibiotics used as feed additives in food animals, now it is the time to act globally to restrict or prohibit the use of antibiotics in feeds for the purpose of growth promoter or disease preventing, and this should be done on the basis of the evaluation of risk assessments of such antibiotics."*

**Professor Bo Zheng, Professor at the Institute of Clinical Pharmacology, Peking University First Hospital, and Deputy Director of Academic Committee, China Antimicrobial Resistance Surveillance System, said:**

*"Use of antibiotics in agriculture will lead to a generation of resistant strains of bacteria that can be passed on from animals to humans, further threatening human health. In Europe, the use of avoparcin as a growth-promoter accelerated the development of vancomycin-resistant enterococci (VRE); after avoparcin was banned, the levels of VRE decreased. Therefore, as highlighted by this report, reducing overall use and promoting judicious use of antibiotics in agriculture is vital to the safeguarding of human health. The success of these practical solutions will rely on concerted global actions: no country can make it alone."*

**Dr Bernard Vallat, the OIE (World Organisation for Animal Health) Director General, said:**

*"To tackle the global threat that represent the antimicrobial resistance for human health as well as animal health and welfare, and to secure their efficacy in the future, it is essential to ensure that these previous medicine are used in animals under the supervision of veterinarians, as recommended by the OIE intergovernmental standards adopted by its 180 Member countries. A key action is also to develop public-private partnerships to boost the research on new molecules and on alternatives to antimicrobials agents."*

### **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, *Antimicrobials in agriculture and the environment: reducing unnecessary use and waste*, will be published on the Review's website at [www.amr-review.org](http://www.amr-review.org) on Tuesday 8th December.
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

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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. While action to reduce the use of antimicrobials in agriculture and improve manufacturing processes to reduce waste 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 early 2016. The areas the Review will be covering in the coming months include: infection control and alternatives to antibiotics.
6. 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.
7. The Review will be tweeting about the report via its official account, @ReviewonAMR

This Press Release will also be available on Tuesday 8th December 2015 on [www.amr-review.org](http://www.amr-review.org).  
Media enquiries should be addressed to the AMR team on: [info@amr-review.org](mailto:info@amr-review.org) and 020 7611 5722.

### Additional Quotes

***Karen Hækkerup, CEO at the Danish Agriculture and Food Council and former Minister of Agriculture in Denmark, said:***

*"There has been a strong focus on antibiotic use in agriculture for more than 20 years. That is why Denmark can have an intensive production with a low antibiotic use. This has been achieved by improving animal health and controlling diseases. Danish veterinarians have no economic incentive in prescribing large amounts of antibiotics, since they do not make a profit of selling antibiotics. They prescribe, and the pharmacy delivers the antibiotic. So the policy is to use as much as needed, but as little as possible".*

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

*"We are only beginning to understand the consequences of antibiotics on the microbiome within and around us. This report reminds us that our concerns over antibiotic resistance must take a One Health perspective, and our solutions must involve stewardship of these life-saving drugs both among humans and animal populations."*

***Professor Joakim Larsson, director for the Centre for Antibiotic Resistance Research at the University of Gothenburg, Sweden said:***

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*“The external environment plays important roles both in the emergence and spread of antibiotic resistance. Accordingly, any comprehensive action plan needs to take the environment into account. The current report identifies the urgent need to reduce the most severe cases of antibiotic pollution – those from manufacturing. As such, it will increase awareness and stimulate action at different levels.”*

**Karl Rotthier, CEO of DSM Sinochem Pharmaceuticals, said:**

*“Until now the role of the industry in fighting AMR has been limited to the call for the development of new antibiotics. We welcome and support the latest suggestions of Lord O’Neill and the AMR Review. As a leading manufacturer of sustainable antibiotics, DSP has remained vocal about the importance of introducing globally standardized environmental legislation for antibiotic production. We continuously promote the need to use the cleanest technologies and dedicated waste water treatment in combination with antibiotic residue testing in all waste streams. DSP is committed to closely working with the AMR Review team and key stakeholders to drive sustainable solutions in the complete value chain, from start to end.”*

**Dr Mark Toms, Medical Director, MSD UK and Ireland, said:**

*“Antimicrobial resistance is not just a concern within our hospitals or clinics, but increasingly in the environment, and it is critical that we work together to ensure the appropriate and responsible use of antibiotics across all settings. MSD is committed not only to developing new antibiotics, but also to championing appropriate use of these medicines, in order to safeguard them for future generations.”*