

“IS THAT ALL?” VERY LITTLE INVESTMENT NEEDED TO SAVE US\$ 100 TRILLION IN AMR COSTS!



AN INTERVIEW WITH LORD JIM O'NEILL, CHAIR, THE REVIEW ON ANTIMICROBIAL RESISTANCE, BY GARANCE FANNIE UPHAM, EDITOR, AMR CONTROL

➔ **Question:** The Review on AMR has emerged as a major expertise and advocacy group globally in the movement to face antimicrobial resistance (AMR); you come from the financial sector yourself, how do you view the engagement of investors, ministers of finance development banks in AMR ?

➔ **Jim O'Neill:** The simple truth is that until our AMR Review commenced – and hence its purpose – outside of the specialized health world, there was very little awareness, never mind focus, on AMR.

I remember soon after I agreed to lead The Review, I was speaking at the annual conference of one of the world's largest private equity funds, here in London, with 400 people present, and I asked the audience how many of them knew what AMR was? I could count the hands that were raised on less than one hand, it was very small indeed!

Part of our purpose is, of course, to raise awareness amongst people.

Another ambition is to get some kind of G20 agreements relative to some key parts of the antimicrobial question, particularly in terms of more drugs. In the traditional world of G20 policy issues, there is normally a finance ministers' track and a so-called sherpas' track. For many of the finance ministers' staff that we raise the issue with, around the world, their first reaction has typically been: “What has it got to do with us?” Until we explain it to them a bit more. And my last, and most important, comment was explaining some of our research and ideas to a very experienced hedge fund friend of mine, when I told him about the costs, our estimates of the costs of the solutions, he said: “Is that all?”

So, if I put it all together, I think there is more awareness, and more focus than there was when we started.

➔ **Question:** At the World Alliance Against Antibiotic Resistance, we follow very closely what you're doing, and we do our share of advocacy, but it's an uphill battle. As I understand

Excerpts from AMR Review press release on Davos call
DECLARATION BY THE PHARMACEUTICAL, BIOTECHNOLOGY AND DIAGNOSTICS INDUSTRIES

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Lord Jim O'Neill

“With discussions at this year's UN General Assembly and as part of China's G20 presidency looking likely, 2016 is set to be a pivotal year in the global fightback against AMR. This Declaration provides a strong basis for my Review, for governments and for NGOs to progress conversations with industry in the coming months about how we can turn these ideas and principles into concrete action. “The pharmaceutical industry, as well as society at large, cannot afford to ignore the threat of antibiotic resistance, so I commend those companies who have signed the Declaration for recognizing the long-term importance of revitalising R&D in antibiotics, and for their leadership in overcoming the difficult issues of collective action at play here.”

it, The Review on AMR was a key player behind the Davos call for joint parallel efforts for the private pharmaceutical and diagnostic sectors with governments, signed by over 80 VIPs. Is that correct? Could you comment on the Davos call?

➔ **Jim O'Neill:** Let me say that we played a facilitating role in that declaration. We were extremely eager to make sure it came from industry, in their own style and was their own contribution on the substance, but I think it is probably fair to say that had we not played the convening role that we played, it might not have happened.

But let me say also something more important: if somebody had suggested to me three months before the Davos meeting, say last October, that more than 85 companies, [and now exactly 100], led by the world's largest pharmaceutical companies, would have signed a declaration like that, I would've said, “you're joking!” So we are really pleased that this has happened.

➔ **Question:** Among the first expert works of reference carried out by The Review on AMR was the economic analysis

of probable impact of AMR by KPMG and Rand Europe. It shocked the world with the amount of economic losses, even conservatively estimated, please tell us more? What was your own reaction to the experts' estimations?

➔ **Jim O'Neill:** Obviously, with it being our first report, I played a pretty hands-on role in making sure how we presented it and advised KPMG and Rand on what we wanted them to do. I was very actively involved, that's my first comment.

The second thing I would say is that I deliberately took the decision to choose 2050 as the year in the future we would look at because of my own historical professional background. Probably one of the reasons why I was chosen to lead this review was due to my founding of the concept of what are now called the "BRICS" countries and with that thought imagining a world where investors and business would focus on what the world would look like by 2050. And so I deliberately guided Rand and KPMG, and our own paper, to show the same world in 2050 where AMR would be the growing problem that we have portrayed, so I wasn't surprised, because I was heavily involved in the whole design of the project. What I would also add, is the scale of the numbers sounds and seems very big, and they are. We are very pleased that nearly 18 months later, wherever you read a reference to the AMR global challenge, virtually everywhere, all cite the numbers, especially about deaths, as well as the economic costs, from our Review, which is very gratifying, it has become the global benchmark of how people talk about it. More importantly, we estimated that it could cost the world US\$ 100 trillion, that means that the cost of the successful interventions we are talking about, and the costs of others, are relatively small compared to that enormous economic cost. My final comment on this is that we were pretty conservative, and it was very difficult to do, so of course it is only an estimate.

Some people might think that we were being deliberately aggressive in how big the cost would be, but I could quite easily spend time arguing that we might have underestimated the cost, because we did not consider anything beyond six individual transmission mechanisms (MRSA, *E. Coli*, *K. pneumoniae*, HIV, TB, Malaria¹), and, in particular, we didn't consider any inevitably growing problems with common forms of surgery across the world, particularly in the

developed world, such as hip replacements or knee surgeries, or any surgery for that matter, or chemotherapy (impossible without working antibiotics – NDLR), even though obviously by definition, and I am very experienced in this sort of thing, projecting economic scenarios and costs into the future is not a very scientific subject, and shouldn't be regarded as such. All that said, we are very happy to stand by what we said 18 months ago!

➔ **Question:** I noted that, awesome as it is, the report did not take into consideration the possibility of the emergence of new epidemics of drug-resistant diseases, while today the global spread of NDM-1 and the latest news on Colistin resistance, means that your next study could be more frightening than last, isn't it the case?

➔ **Jim O'Neill:** Of course. As I said, we think that if anything we were conservative, it could easily be bigger.

➔ **Question:** We are all still awaiting the World Bank's study on the economic impact of AMR (as stated in the last WHO STAG meeting 23 November 2015 by the chair Dame Sally Davies). The Bank has put out a study on the impact of Ebola in 2014 (US\$ 3.6 billion for sub-Saharan Africa's economic output), which is quite telling of the destruction that can be caused by diseases without a cure! Are you going to spur the Bank on with the issue of AMR economics?

➔ **Jim O'Neill:** When I hear about the difficulties and the time it is taking the World Bank, it just makes me very pleased and proud that members of my small team have managed to do the substantive work in such a short time! And I would humbly suggest that, as authoritative as the World Bank's report will be when it comes out, now that our numbers are cited so widely around the world, I do not know what it will add, other than, of course, the strength of a global voice, a globally respected, authoritative voice. I still welcome the World Bank's continued ambition to complete this research, but I can't help saying that it makes me very pleased with the speed and efficiency of my own team's work.

Ebola broke out just as we were launching our Review, and I have actually said exactly what you just referred to, if you look at the cost of solving Ebola [compared to its impacts and costs], it is very, very small: and the cost to society and to the world economy of Ebola is very small compared to antimicrobial resistance, and yet policy-makers quickly came up with solutions, so that gives me hope that our policy recommendations, published in May 2016, will get a similar response.

➔ **Question:** Peter Sands, a man like yourself coming from the

1. - www.kpmg.co.uk

The Global Economic Impact of Anti-Microbial Resistance "Given the complexity involved in estimating the full impact of AMR, the analysis was limited to a selection of three bacteria and three diseases with reasonable incidence and coverage and with relevant available data. These were *Staphylococcus aureus* (best known in its methicillin resistant form – MRSA), *Escherichia coli* (widely known as *E. coli*), and *Klebsiella pneumoniae*, HIV, Tuberculosis and Malaria. The analysis also excluded a noteworthy part of the effect of morbidity and other secondary health effects, as well as wider economic effects from the analysis. As a result, projections in this report are likely to underestimate the full impact."

financial sector (Standard Chartered plc) is to play a role in global health, as Chair of the Commission set up by the US National Academy of Medicine, (The Neglected Dimension of Global Security, A Framework to Counter Infectious Disease Crises) noted that calling for US\$ 3.4 billion per year in investment wasn't much considering that any emerging pandemic would cost US\$ 60 billion. The Commission calls on IMF, the World Bank, to force countries to invest massively in health services so as to face the risks of infectious disease outbreaks. Your view on these recommendations?

➔ **Jim O'Neill:** Well, it links with what we have talked about, as I've said, we regard this general area to be of such specific importance, we are writing a paper on infectious disease control, and with it, and something we will hopefully be precise on in our final recommendations, we have already proposed the idea of a global surveillance system to try and monitor and have big data about the spread of infectious diseases and drug resistance and, rather encouragingly, the British government has committed itself to the Fleming Fund² to begin to cover the general needs of surveillance and its interplay within infection disease control and treatment. Coming to the last part of what I heard from your question, one of the reasons why we are very eager to pursue a UN agreement, after our recommendations, and with our recommendations, is for exactly the reason that you broadly and specifically imply, which is we have to have the adoption of better practices around the world, and we think that will be a key part of what the United Nations will do for us hopefully, this autumn.

➔ **Question:** If I understand you well, the plans for September, as we have heads of states all together in New York, is to have them listen to what's needed to face AMR?

➔ **Jim O'Neill:** That's the plan! [laughs] Again, this is my background, and probably partly why I was chosen; I realised very early on that we have the remarkable coincidence: this year China chaired the G20, which is the organization that presides over discussions of the 20 countries, or actually few more, and nearly 90% of Global GDP; and of course with China being the champion of the emerging world, or it likes to see itself that way, we thought it would be helpful to push to get it on the agenda. Another thing we were very pleased about, and again surprisingly so, at the end of the Turkish G20 statement was a very small section on an agreement to focus on AMR at

the next G20, and so we have been involved in discussions with governments and their advisers about how to progress this. Those developments and discussions have taken place, or are already taking place and will hopefully intensify, and culminate at the Chinese G20 in September, which will be very close to, nearly same time as the UN General Assembly. What precise form that will take, remains part of very active and if anything, intensifying discussions.

➔ **Question:** There has been quite a bit of a collaboration between your government and China, I noted the Shanghai research meeting some months ago, with the agreement on doing joint research when the heads of state met – David Cameron and Xi Jinping in the autumn of 2015³. Can you comment on that?

➔ **Jim O'Neill:** That is a very important question you asked. Again, as with anything in the modern world, you can't solve any global problem without China, and so they important to the AMR problem and solution. I spend probably more time thinking about China, than possibly any other country – other than the UK, and that is purely just because the UK is, of course, my boss in terms of The Review – but I spend a huge amount of time thinking and trying to engage with China, and my former boss [in my ministerial role at the UK Treasury] George Osborne on returning from a visit to China for the finance leaders meeting leading to the G20 successfully negotiated with them a specific contribution from the Chinese authorities to our proposed global innovation fund, so we are very pleased about that.

➔ **Question:** Another aspect, not yet the object of economic study, like the the World Bank estimates on Ebola, is the high cost of weak infection prevention and control (IPC) systems in countries' health systems. IPC was recommended by the G7 and G20 as a priority to face AMR in 2015. Would you envision an economic cost/impact study on IPC?

➔ **Jim O'Neill:** A paper we published in March this year was on this exact subject, infection control. Which Jeremy Knox led on, for the exact reasons you say. It is quite obvious to me for example, if I think about India, where Prime Minister Modi has this Clean India campaign, the challenge for Indian policy-makers about AMR is to see it in the context of the Clean India campaign.

➔ **Question:** And investment in water and waste management as well, I am sure you are aware of that?

➔ **Jim O'Neill:** Yes, we think it is of sufficient importance that it is going to be the sixth of our six specialist papers.

2. <http://www.wellcome.ac.uk/News/Media-office/Press-releases/2015/WTP058933.htm>

Fleming Fund announcement: "The UK Government is working with the Wellcome Trust and other global organisations to tackle the growing problem of drug-resistant infection with a new £195 million fund, announced in today's Budget." March 18, 2016 are likely to underestimate the full impact."

3. <https://www.mrc.ac.uk/about/events/uk-china-amr-workshop>

➔ **Question:** Another one of your outstanding reports was on diagnostics, the World TB Programme has shown the way with the extensive use of drug susceptibility studies (Mario Raviglione's article in this issue), this concurs with the WHO point-of-care diagnostics work stream in the WHO AMR programme. Added to this, both in wealthy and developing countries, diagnostic tools to identify the pathogen are underused or in short supply. The recent WHO meeting on the AMR Framework highlighted the reluctance of doctors to use simple diagnostics, even in OECD countries like France. And diagnostics are a key feature in the Davos call. Your remarks on this?

➔ **Jim O'Neill:** I am very happy to talk about this: in some ways, state-of-the-art, point-of-care, and other diagnostics, are possibly the single most important intervention that would help.

I frequently describe the AMR challenge from an economic perspective as both a supply problem and a demand problem: the supply problem is seen primarily as the supply of new drugs, but also the process leading up to new drugs, more research, new vaccines as well, and that's what most people think when they focus on the AMR challenge. And indeed, when I was asked to chair The Review, that was how it was presented to me.

But I soon concluded, very early on in the process, that whilst if we had success on new supply of drugs, that would change the challenge for a few years, for a generation to the better, it wouldn't change it permanently, so doing something about what I call the demand side, which is how we all behave, all 7 billion of us, in terms of our education, our behaviour, and, most importantly, in terms of how antibiotics, in particular, are prescribed and used, is possibly the single most important thing to change. Seen in an economic sense, there, I believe, you could make a significant permanent shift in the situation. So by forcing our medical practitioners and our clinicians to use what I like to call "google for doctors" [state-of-the-art, point-of-care, rapid diagnostics] we could really make progress. It is a huge irony in my view that we live in an era where mobile phones dominate more and more our lives, and yet doctors in most parts of the world may take calculated guesses as to whether we need an antibiotic or not, and, of course, an equally calculated guess as to what kind of antibiotic! And the same dilemma exists, if not even more so, in the use of antibiotics for animals. So, I believe any venture to support state-of-the-art diagnostics is absolutely going to be one of our important recommendations.

➔ **Question:** The Review on AMR has been publishing expert reports on many areas, including diagnostics and the environment, and yet, you published a new major output at the

**AMR REVIEW: Global Report
TACKLING DRUG-RESISTANT INFECTIONS GLOBALLY:
AN OVERVIEW OF OUR WORK**

Following 19 months of consultation and eight interim papers, each focusing on a specific aspect of antimicrobial resistance (AMR), this report sets out the Review on Antimicrobial Resistance's final recommendations to tackle AMR in a global way, as commissioned by our sponsors, the UK Government and the Wellcome Trust.

The magnitude of the problem is now accepted. We estimate that by 2050, 10 million lives a year and a cumulative US\$ 100 trillion of economic output are at risk due to the rise of drug resistant infections if we do not find proactive solutions now to slow down the rise of drug resistance. Even today, 700,000 people die of resistant infections every year. Antibiotics are a special category of antimicrobial drugs that underpin modern medicine as we know it: if they lose their effectiveness, key medical procedures (such as gut surgery, caesarean sections, joint replacements, and treatments that depress the immune system, such as chemotherapy for cancer) could become too dangerous to perform.

World Health Assembly at the United Nations, Geneva, in May 2016 with recommendations for all governments. Can you tell us about it?

➔ **Jim O'Neill:** Yes, it was very exciting but also, a little bit scary, for a couple of reasons, I mean, as the person, who is chairing this AMR Review, it's been one of the most fun things I have done in my professional career. I started 18 months ago with absolutely no knowledge whatsoever about AMR, no idea about any of this.

But I think in some ways that was our strength, because we didn't want to be bogged down by the details which WHO, WHA, food and health authorities, and everybody else had, as experts. We wanted to come up with our own independent broad view, with strong ideas about solving it, and I hope that our May paper was the culmination of that work with some very precise recommendations, to get a lot of buy in and policy response from policy-makers around the world. ■

Lord Jim O'Neill is the Chairman of the UK independent Review on Antimicrobial Resistance. He is also currently a minister in the UK Government, serving as Commercial Secretary to Her Majesty's Treasury. Prior to this, he worked for Goldman Sachs from 1995 until April 2013, spending most of his time there as Chief Economist. He earned his BA and MA degrees in economics from Sheffield University in 1978 and a PhD from the University of Surrey in 1982.