

The Review on Antimicrobial Resistance

The global challenge of drug-resistant infections

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[@ReviewonAMR](#)

Background to the Review

- Established by the former UK Prime Minister David Cameron in 2014, chaired by economist Lord Jim O'Neill
- Looked globally at the problems of AMR focusing on economic costs and solutions
- Helped to build an international consensus for bold action



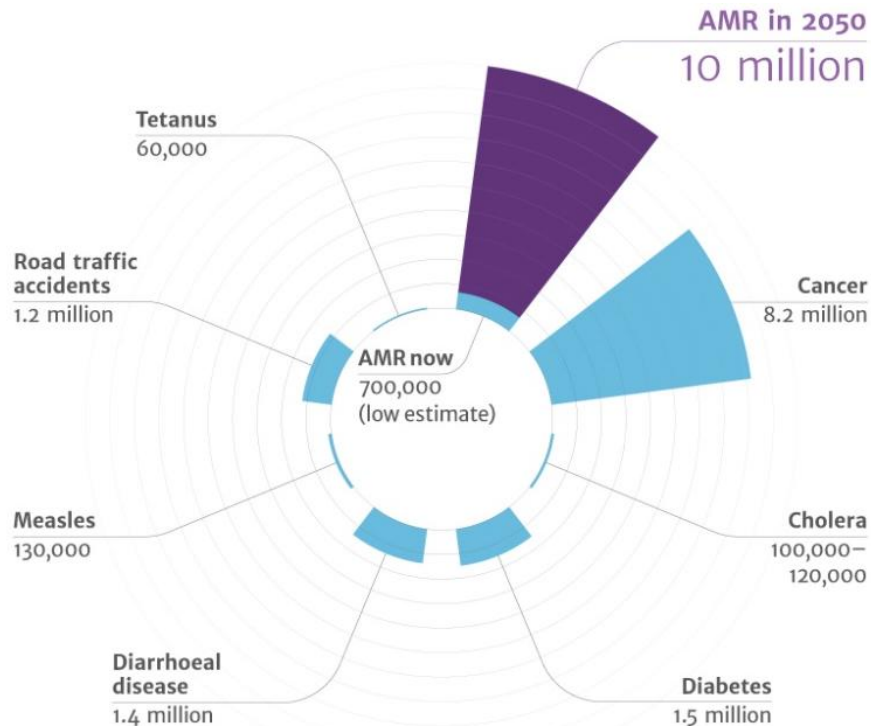
Jim O'Neill, Review Chair

AMR as an economic problem

The Review's economic projections supported scientists' claims that the future human and economic burdens of AMR are too great to ignore.

By 2050:

- **10 million deaths annually**
- **\$100 trillion lost from GDP**



A ten-point plan for action

- Eight interim reports over 18 months.
- Final report in May set out proposals for action on ten fronts.
- Argues for global action to reduce unnecessary use, as well as increasing the supply of new drugs.



Public awareness



Sanitation and hygiene



Antibiotics in agriculture and the environment



Vaccines and alternatives



Surveillance



Rapid diagnostics



Human capital



Drugs



Global Innovation Fund



International coalition for action

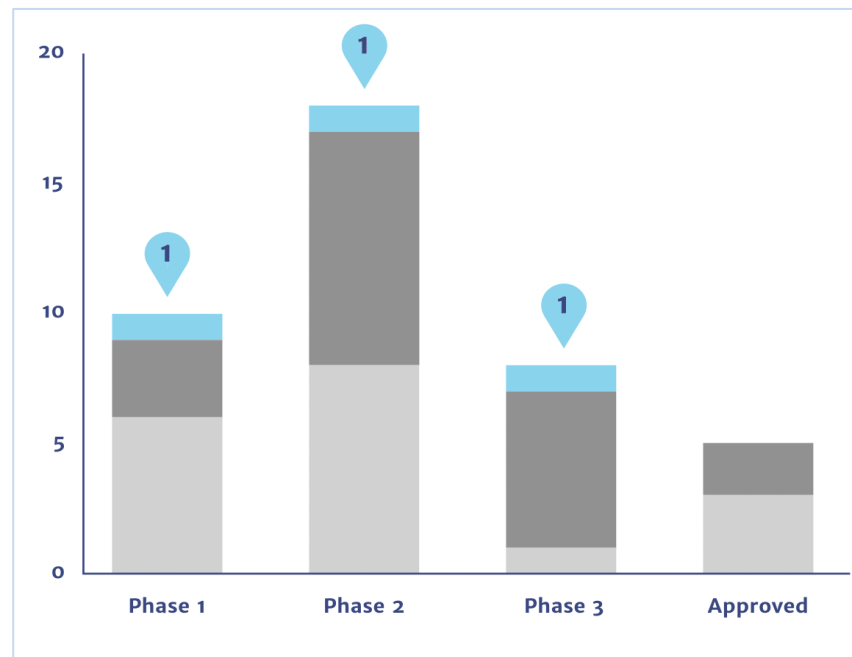
Stimulating the discovery and development of new antibiotics

The antibiotics pipeline remains too weak

Not enough antibiotics in the pipeline due to well documented commercial challenges

Need to 'shift the supply curve':

- 'Push' funding to channel more money into early research
- Novel 'pull' funding mechanisms to correct the antibiotics market

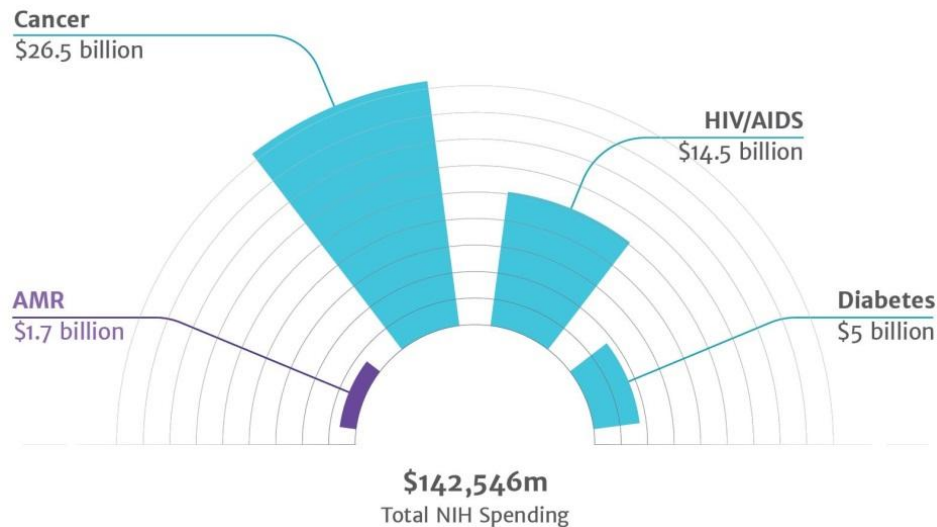


High priority, Medium priority, Low priority

Stimulating antibiotic development – ‘push’

Improved **global innovation funding** to provide new funding opportunities for researchers:

- Proposed that we need an extra \$2bn over five years
- Governments are already acting on this – more than £600m in new government funding globally announced in past two years, with US and UK at forefront



US National Institutes of Health grant funding for selected disease areas, 2010-14.

Source: NIH

Stimulating antibiotic development – ‘pull’

New funding needed to ensure a market ‘pull’ by ‘de-linking’ the profitability of an antibiotic from the volume sold.

- Globally-administered market entry rewards of \$1-1.3bn for antibiotics meeting most urgent unmet needs
- Conditions attached for global access and stewardship
- Supporting c. 15 new drugs over a decade would cost approx. \$16bn

MARKET ENTRY REWARDS WOULD HAVE A POWERFUL IMPACT ON ANTIBIOTIC R&D

Patented antibiotics form a small percentage of the total \$40 billion per year antibiotics market, so \$1.6 billion a year would have a material impact.



\$4.7 bn

Patented
antibiotics market



\$1.6 bn

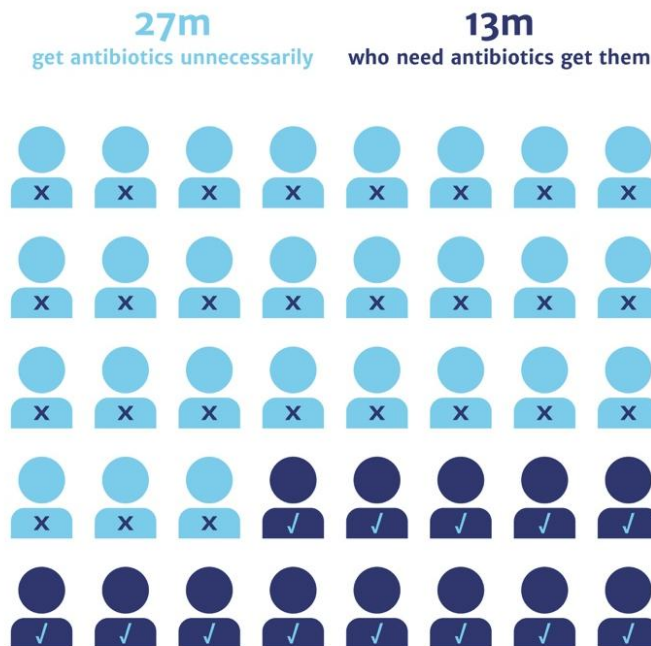
Market entry
reward

Reducing unnecessary demand for antimicrobials

The potential of new diagnostics

Out of 40m people who are given antibiotics for respiratory issues, annually in the US:

- Significant volumes of antibiotics are prescribed unnecessarily.
- Rapid diagnostic technology can change this but are under-used and invested in.
- The benefits of diagnostics accrue to society, not just the individual doctor or patient.



Proposals to support innovation and uptake of new diagnostics

In **high-income** countries:

- Improved reimbursement within health systems to incentivise the use of diagnostics
- Mandating their use, by 2020, where the technology is available

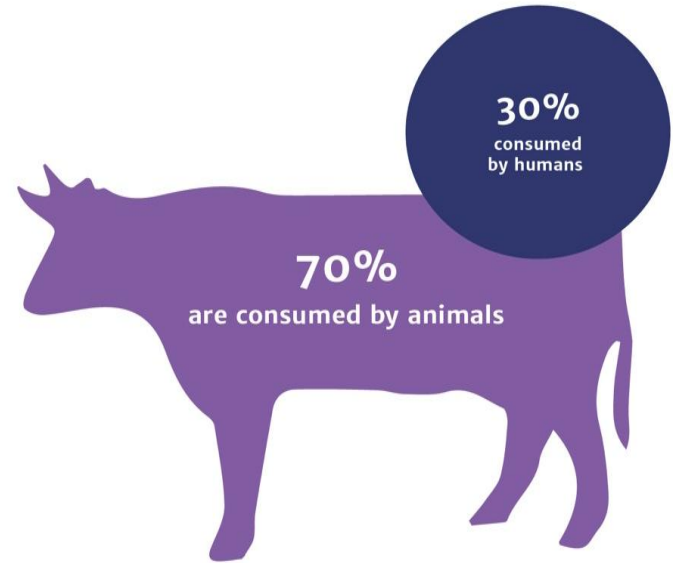
In **lower-income** countries, a globally-funded 'diagnostic market stimulus' to incentivise the use of affordable, useful diagnostics

Reducing agricultural usage

Global community needs to go further, faster to reduce unnecessary use of antibiotics in livestock:

- Urgent improvements in surveillance to have better global data on usage
- Ten-year targets for reduction beginning by 2018 and set at the national level
- More transparency and better labelling for consumers to enable more informed choices

ANIMALS IN THE USA CONSUME MORE THAN TWICE AS MANY MEDICALLY IMPORTANT ANTIBIOTICS AS HUMANS



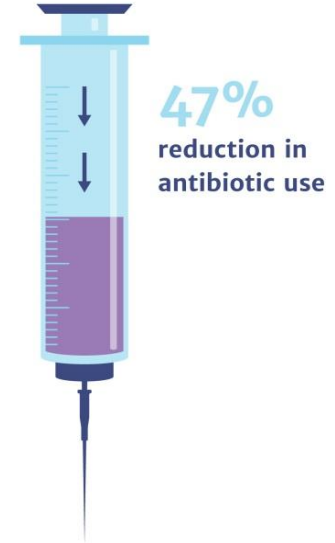
Preventing infections to reduce the need to treat

Need greater focus on preventive measures – such as vaccines, and improving sanitation.

1. Vaccines have potential to reduce antibiotic use for some bacterial infections, as well as unnecessary use for preventable viral infections (e.g. influenza).
2. Improved sanitation, including hand-washing, reduces the development of infections, and so reduces the need for antimicrobial use.

INCREASING COVERAGE OF VACCINES CAN REDUCE ANTIBIOTIC USE

Universal coverage by a pneumococcal conjugate vaccine could potentially avert 11.4 million days of antibiotic use per year in children younger than five, roughly a 47% reduction in the amount of antibiotics used for pneumonia cases caused by *S. pneumoniae*.



Towards implementation

Action is affordable – but needs to be sustainably funded

The total package of global action, across 10 fronts, would cost **\$40bn over a decade** – 0.05% of G20 countries' total healthcare spending.

Sounds high but today AMR costs the US alone \$20 billion per year in extra healthcare costs.

We have proposed four different options for funding:

- Reallocate from current health, R&D and development aid budgets
- Antibiotics investment charge levied on pharma industry
- A tax on antibiotics use
- Exchangeable 'vouchers' that would reward AMR innovators

Different approaches will work better in different countries – something that needs exploration.

Major steps forward in 2016

1. Commitment by **G20** leaders in September 2016 – initiating work from the OECD, WHO and others to address market failures.
2. **UN General Assembly** High-Level Meeting on AMR in 2016 saw 193 countries agree to act – and will establish new mechanisms to lead work by WHO and other UN agencies.
3. **Davos Declaration** and subsequent industry ‘roadmap’ provide framework for continued collaboration with private sector.
4. **The Review** is now closing down – but handing over its activities back into Government and Wellcome Trust.



Thank you

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