

The Review has played a key role in defining AMR as an economic issue

Commissioned by the UK Prime Minister in 2014, the Review established the case that drug resistance threatens our future development and prosperity, as well as our health



A ten-point plan to tackle drug resistance

TACKLING ANTIMICROBIAL RESISTANCE ON TEN FRONTS



We need to significantly reduce demand for antimicrobials

In all parts of the world, much of our use antimicrobials is excessive or unnecessary



We also need comprehensive action to re-invigorate the supply of new antimicrobials

We are witnessing the legacy of decades of under-investment in antibiotic development. Global action is needed to correct this market failure



We will need reliable, sustainable ways to fund this

A comprehensive, global package of action on AMR would cost \$40bn over a decade.

Compared to the costs of inaction, this is money well spent, and governments of the G20 can easily afford it. But other mechanisms for raising 'new money' exist that reduce political risk of long-term funding commitments:

- Given the systemic risk to the pharmaceutical industry, the sector could contribute to supporting market entry rewards - on a 'pay or play' basis
- International financial institutions
- Taxation options - particularly on the agricultural use of antibiotics

Next steps

- The Review has now concluded as a process - but its positive legacy endures.
- Need a broad coalition of companies, NGOs and overseas governments to maintain momentum behind continued global action - including work now in hand through the OECD for the G20, and UN.

The Review on Antimicrobial Resistance: global solutions to drug-resistant infections

Lord Jim O'Neill

Chairman, Review on Antimicrobial Resistance

The Review has played a key role in defining AMR as an economic issue

Commissioned by the UK Prime Minister in 2014, the Review established the case that drug resistance threatens our future development and prosperity, as well as our health



A ten-point plan to tackle drug resistance

TACKLING ANTIMICROBIAL RESISTANCE ON TEN FRONTS



We need to significantly reduce demand for antimicrobials

In all parts of the world, much of our use antimicrobials is excessive or unnecessary



We also need comprehensive action to re-invigorate the supply of new antimicrobials

We are witnessing the legacy of decades of under-investment in antibiotic development. Global action is needed to correct this market failure



Next steps

- The Review has now concluded as a process - but its positive legacy endures.
- Need a broad coalition of companies, NGOs and overseas governments to maintain momentum behind continued global action - including work now in hand through the OECD for the G20, and UN.

The Review on Antimicrobial Resistance: global solutions to drug-resistant infections

Lord Jim O'Neill

Chairman, Review on Antimicrobial Resistance

We will need reliable, sustainable ways to fund this

A comprehensive, global package of action on AMR would cost \$40bn over a decade.

Compared to the costs of inaction, this is money well spent, and governments of the G20 can easily afford it. But other mechanisms for raising 'new money' exist that reduce political risk of long-term funding commitments:

- Given the systemic risk to the pharmaceutical industry, the sector could contribute to supporting market entry rewards - on a 'pay or play' basis
- International financial institutions
- Taxation options - particularly on the agricultural use of antibiotics



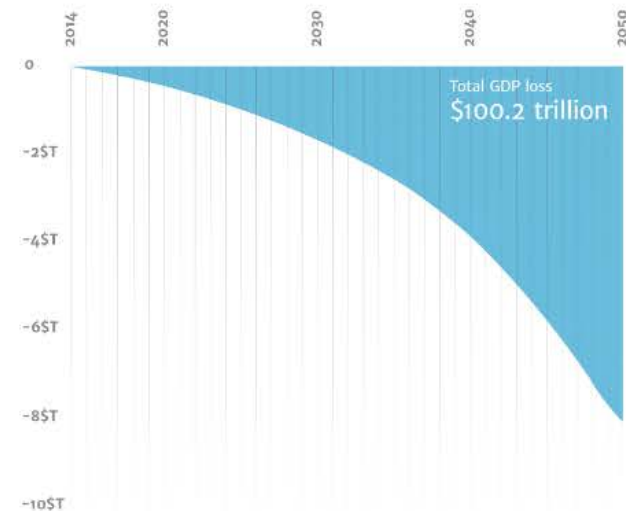
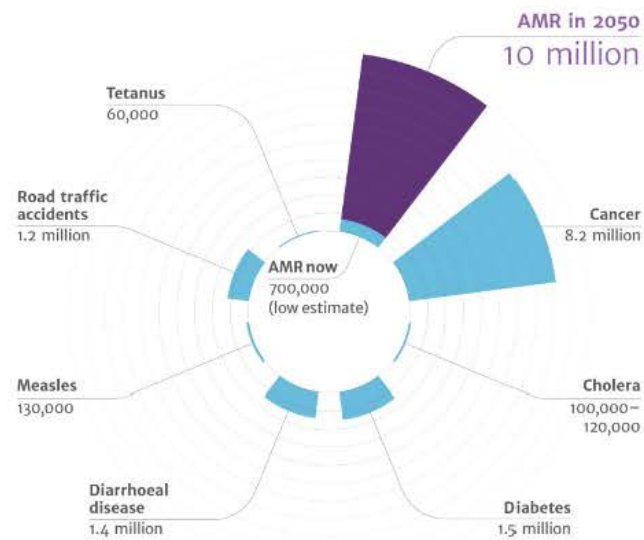
Tackling drug-resistant infections globally

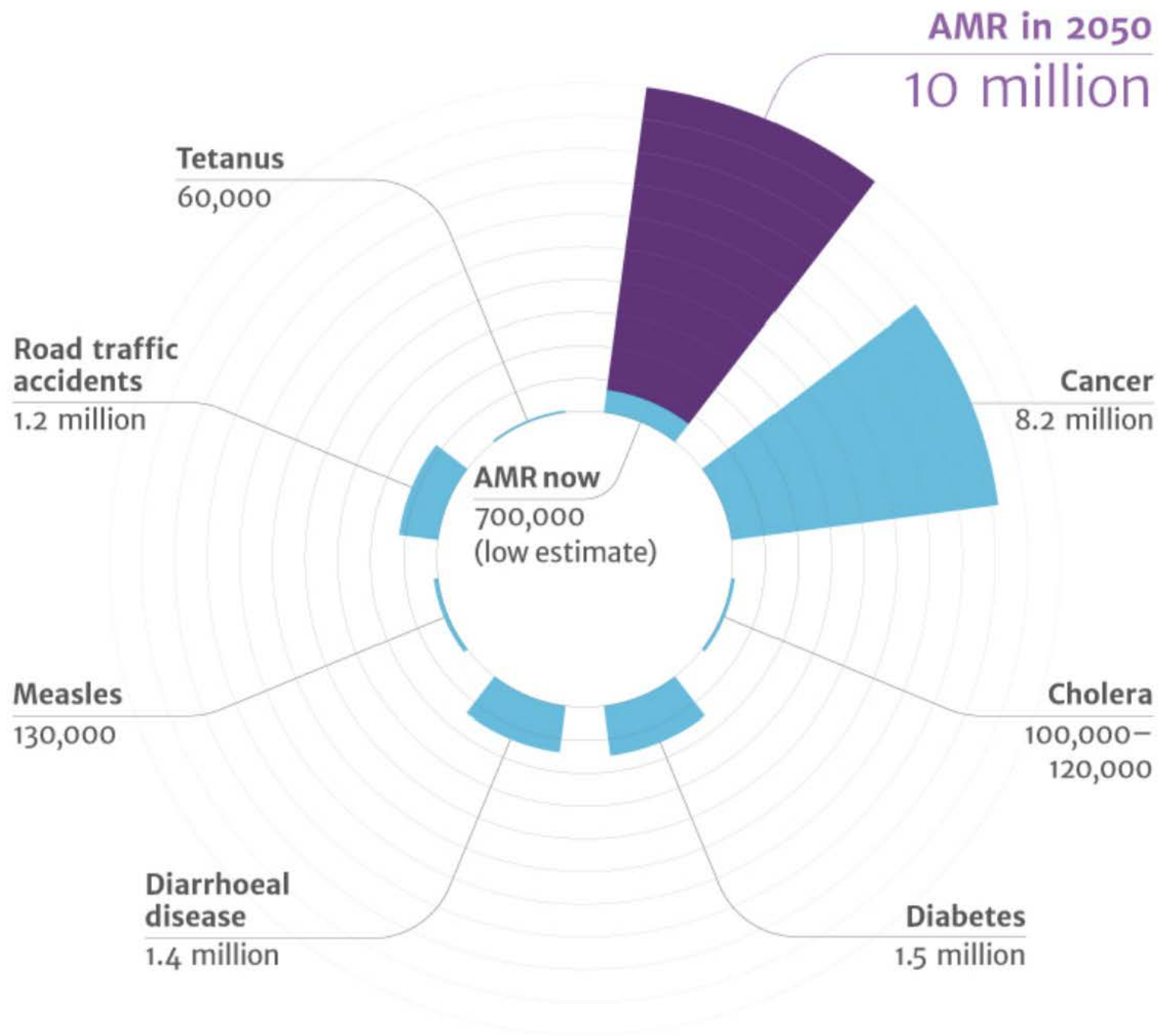
www.amr-review.org

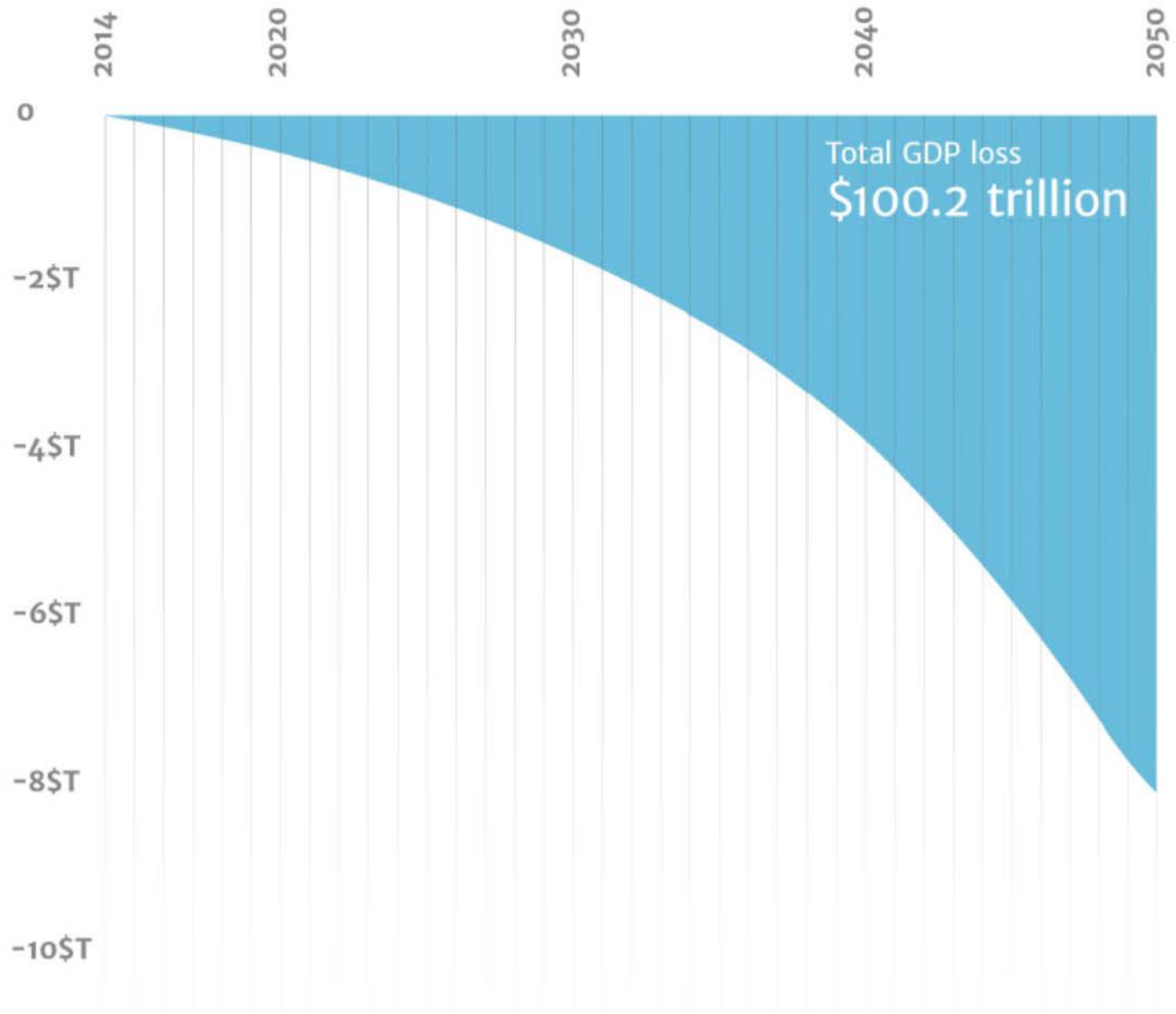
@ReviewonAMR

The Review has played a key role in defining AMR as an economic issue

Commissioned by the UK Prime Minister in 2014, the Review established the case that drug resistance threatens our future development and prosperity, as well as our health







A ten-point plan to tackle drug resistance

TACKLING ANTIMICROBIAL RESISTANCE ON TEN FRONTS



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



**Public
awareness**



**Sanitation
and hygiene**



**Antibiotics in
agriculture and
the environment**



**Vaccines and
alternatives**



Surveillance



**Rapid
diagnostics**



Human capital



Drugs



**Global
Innovation Fund**



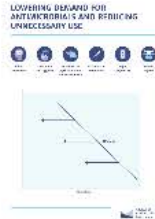
**International
coalition for action**

We need to significantly reduce *demand* for antimicrobials

In all parts of the world, much of our use antimicrobials is excessive or unnecessary

We need to 'shift the demand curve' for antimicrobials

Doing so will provide the most permanent, sustainable solutions to AMR



A new generation of diagnostics could cut the high rates of unnecessary antibiotic use

Significant volumes of antibiotics are prescribed inappropriately - a major driver of resistance



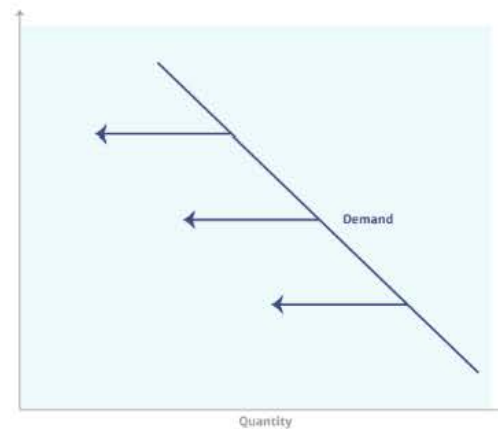
Public awareness of the problem needs to be dramatically improved - everywhere

- Too many gaps exist in public understanding of drug resistance - which drives excessive consumption
- We need an international public awareness campaign to change this - globally-coordinated, but locally tailored and delivered

We need to 'shift the demand curve' for antimicrobials

Doing so will provide the most permanent, sustainable solutions to AMR

LOWERING DEMAND FOR ANTIMICROBIALS AND REDUCING UNNECESSARY USE



LOWERING DEMAND FOR ANTIMICROBIALS AND REDUCING UNNECESSARY USE



Public awareness



Sanitation and hygiene



Antibiotics in agriculture and the environment



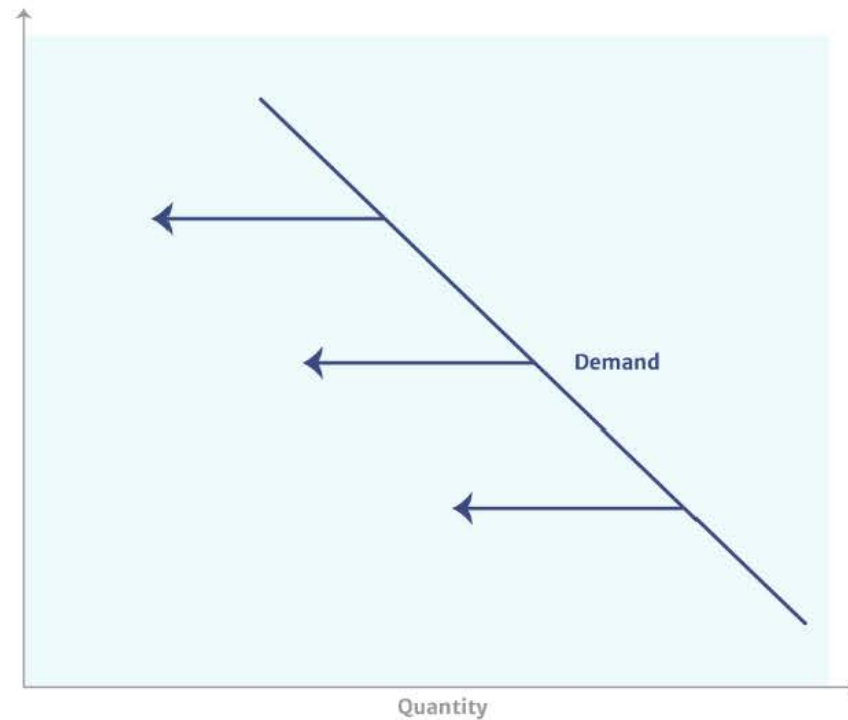
Vaccines and alternatives



Rapid diagnostics



Human capital

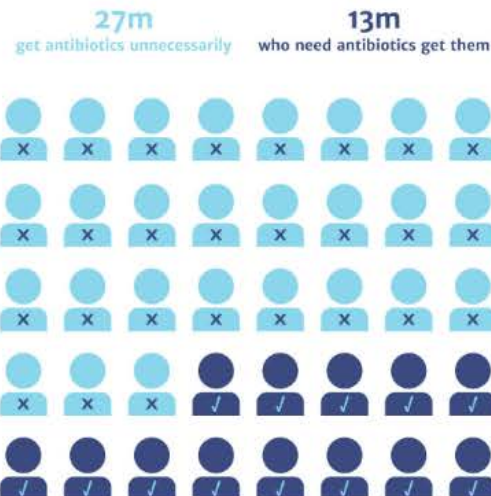


A new generation of diagnostics could cut the high rates of unnecessary antibiotic use

Significant volumes of antibiotics are prescribed inappropriately - a major driver of resistance

RAPID DIAGNOSTICS WOULD REDUCE UNNECESSARY PRESCRIPTION

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

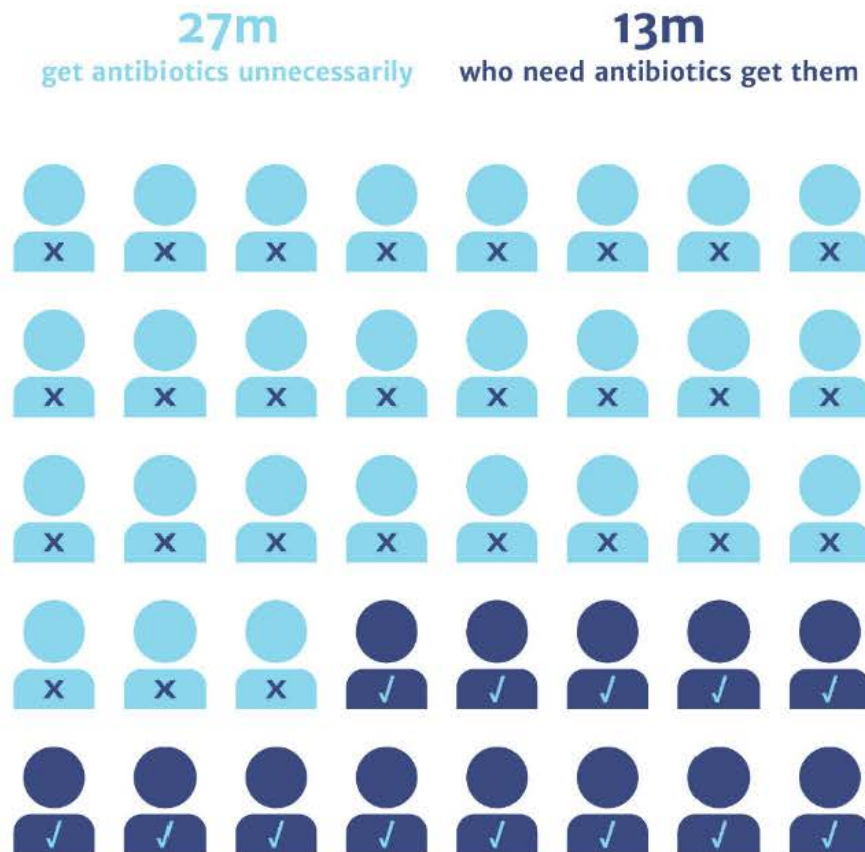


Data extracted from: Shapiro D J, Hicks L A, Pavia A T, Harsh A L. Antibiotic prescribing for adults in ambulatory care in the USA, 2007-09. *Journal of Antimicrobial Chemotherapy* 2013.

Review on
Antimicrobial
Resistance

RAPID DIAGNOSTICS WOULD REDUCE UNNECESSARY PRESCRIPTION

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



Data extracted from: Shapiro D J, Hicks L A, Pavia A T, Hersh A L. *Antibiotic prescribing for adults in ambulatory care in the USA, 2007–09*. Journal of Antimicrobial Chemotherapy 2013.

Public awareness of the problem needs to be dramatically improved - everywhere

- Too many gaps exist in public understanding of drug resistance - which drives excessive consumption
- We need an international public awareness campaign to change this - globally-coordinated, but locally tailored and delivered

We also need comprehensive action to re-invigorate the *supply* of new antimicrobials

We are witnessing the legacy of decades of under-investment in antibiotic development. Global action is needed to correct this market failure

We need to also shift the supply curve for new products

INCREASING THE SUPPLY OF ANTIMICROBIALS TO KEEP UP WITH RISING RESISTANCE



The commercial challenges of antibiotic development are well-documented



We need to properly incentivise antibiotic development

- A global innovation fund to support early stage research - more money, spent in a more coordinated and strategic way
- Lump sum 'market entry rewards' - of as much as \$1-1.5bn - for successful developers of the products we most need - including a new TB treatment regimen
- \$16bn over a decade could support a re-vitalised pipeline of new antibiotics

Market entry rewards could be a powerful spur to antibiotic development



We need to also shift the supply curve for new products

INCREASING THE SUPPLY OF ANTIMICROBIALS TO KEEP UP WITH RISING RESISTANCE



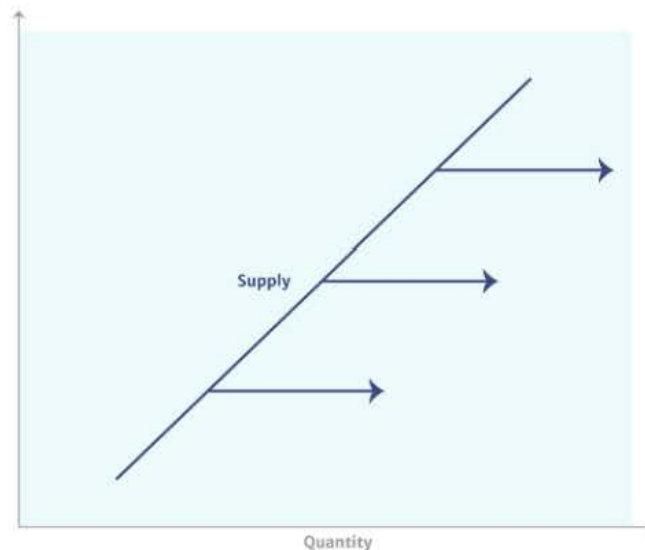
Drugs

- \$0.8 to \$1.3 billion market entry rewards for antibiotics
- International clinical trial platform



Global Innovation Fund

- A global fund for early-stage research and R&D lacking a commercial imperative



INCREASING THE SUPPLY OF ANTIMICROBIALS TO KEEP UP WITH RISING RESISTANCE



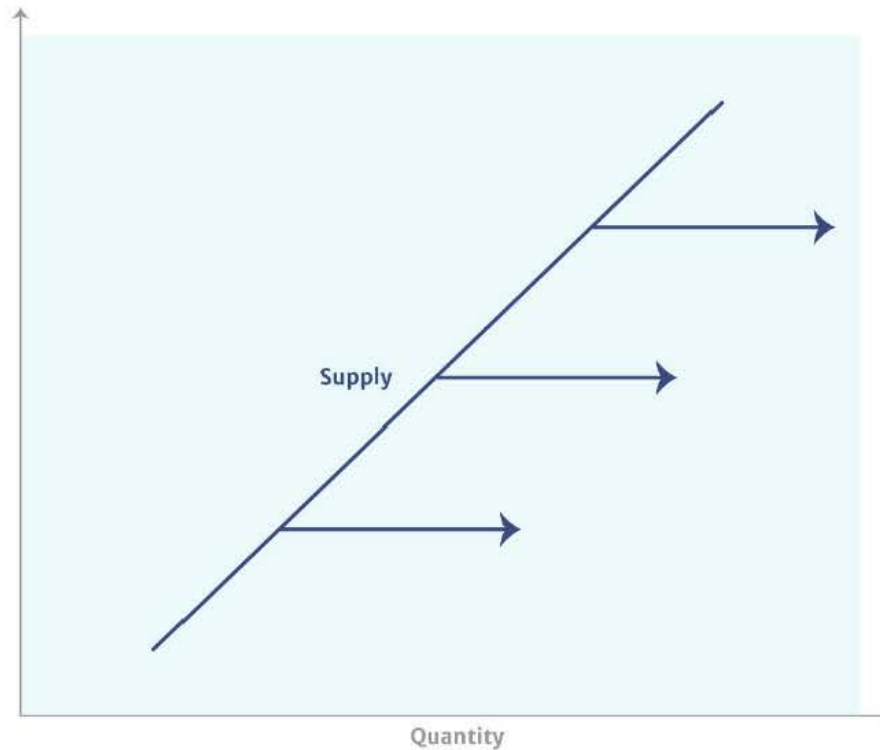
Drugs

- \$0.8 to \$1.3 billion market entry rewards for antibiotics
- International clinical trial platform



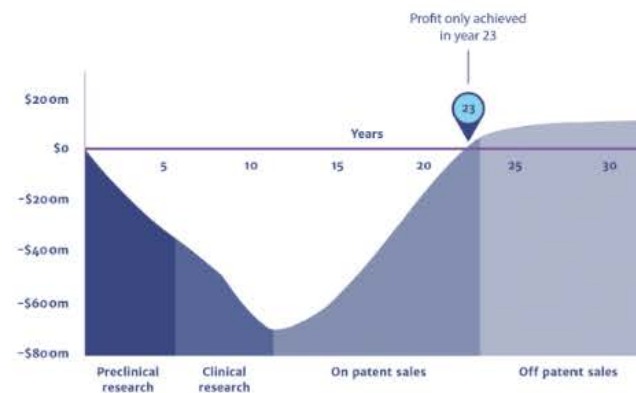
Global Innovation Fund

- A global fund for early-stage research and R&D lacking a commercial imperative



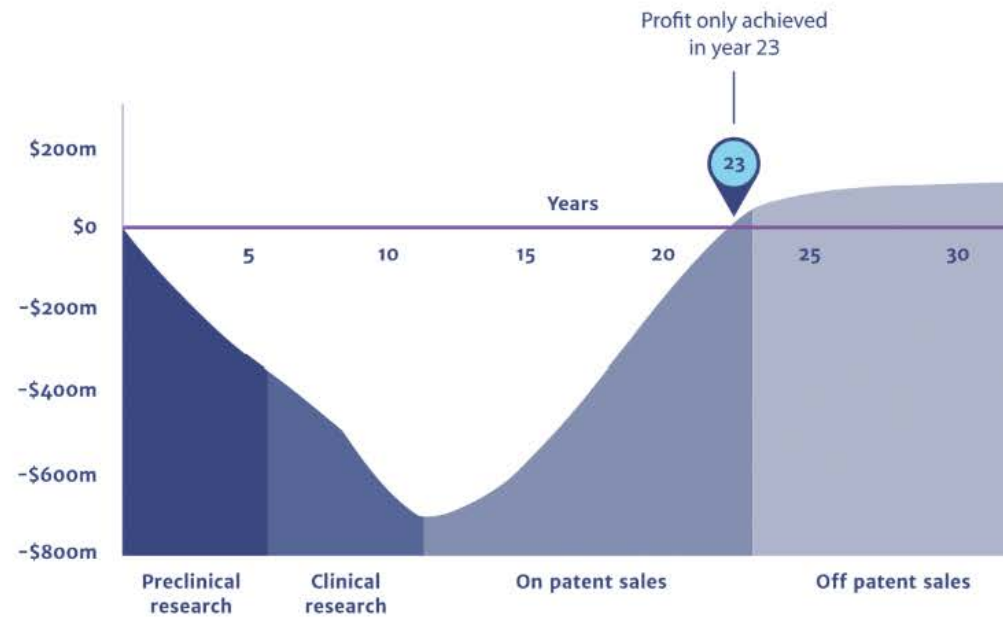
The commercial challenges of antibiotic development are well-documented

CUMULATIVE PROFITS FROM ANTIBIOTIC RESEARCH



Source: Review's own modelling of the discounted average expenditure and revenue for a sample of antibiotics R&D projects based on historical input dating back to 2002 and forward projections provided by BMJ health and selected pharmaceutical companies. More detail on the modelling can be found at www.review.org

CUMULATIVE PROFITS FROM ANTIBIOTIC RESEARCH



We need to properly incentivise antibiotic development

- A global innovation fund to support early stage research - more money, spent in a more coordinated and strategic way
- Lump sum 'market entry rewards' - of as much as \$1-1.5bn - for successful developers of the products we most need - including a new TB treatment regimen
- \$16bn over a decade could support a re-vitalised pipeline of new antibiotics

Market entry rewards could be a powerful spur to antibiotic development



\$4.7 bn
Patented
antibiotics market



\$1.6 bn
Market entry
reward

Data and analysis by IMS Health, in the countries they had patent data for only 12.3% (\$3.8bn) of sales were on patent while \$26.9bn were off patent. We then presumed that this ratio remained the same in the 20% of countries they did not have patent data for, even though these countries tend to buy less patented drugs, making the above figures a high estimate of the patented market.



Review on
Antimicrobial
Resistance

We will need reliable, sustainable ways to fund this

A comprehensive, global package of action on AMR would cost \$40bn over a decade.

Compared to the costs of inaction, this is money well spent, and governments of the G20 can easily afford it. But other mechanisms for raising 'new money' exist that reduce political risk of long-term funding commitments:

- Given the systemic risk to the pharmaceutical industry, the sector could contribute to supporting market entry rewards - on a 'pay or play' basis
- International financial institutions
- Taxation options - particularly on the agricultural use of antibiotics

Next steps

- The Review has now concluded as a process
- but its positive legacy endures.
- Need a broad coalition of companies, NGOs and overseas governments to maintain momentum behind continued global action
- including work now in hand through the OECD for the G20, and UN.

The Review has played a key role in defining AMR as an economic issue

Commissioned by the UK Prime Minister in 2014, the Review established the case that drug resistance threatens our future development and prosperity, as well as our health



A ten-point plan to tackle drug resistance

TACKLING ANTIMICROBIAL RESISTANCE ON TEN FRONTS



We need to significantly reduce demand for antimicrobials

In all parts of the world, much of our use antimicrobials is excessive or unnecessary



We also need comprehensive action to re-invigorate the supply of new antimicrobials

We are witnessing the legacy of decades of under-investment in antibiotic development. Global action is needed to correct this market failure



Next steps

- The Review has now concluded as a process - but its positive legacy endures.
- Need a broad coalition of companies, NGOs and overseas governments to maintain momentum behind continued global action - including work now in hand through the OECD for the G20, and UN.

The Review on Antimicrobial Resistance: global solutions to drug-resistant infections

Lord Jim O'Neill

Chairman, Review on Antimicrobial Resistance

We will need reliable, sustainable ways to fund this

A comprehensive, global package of action on AMR would cost \$40bn over a decade.

Compared to the costs of inaction, this is money well spent, and governments of the G20 can easily afford it. But other mechanisms for raising 'new money' exist that reduce political risk of long-term funding commitments:

- Given the systemic risk to the pharmaceutical industry, the sector could contribute to supporting market entry rewards - on a 'pay or play' basis
- International financial institutions
- Taxation options - particularly on the agricultural use of antibiotics

Review on Antimicrobial Resistance

Tackling drug-resistant infections globally

www.amr-review.org

@ReviewonAMR