ANTIMICROBIAL RESISTANCE

TAKING THE ECONOMIC ROUTE

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Antimicrobials in livestock
from scrutiny to action in low-income countries
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Antimicrobial effectiveness is a finite resource and a valuable asset for the world

- Over past 70 years, antimicrobials have saved **hundreds of millions of lives**
- Worth between **$20-54 trillion** (const. 2007 US$) and critical to the **human capital**
- The free or weakly-regulated market has resulted in a "**first-come first-served**" allocation of the finite stock of antimicrobial effectiveness
- **More antibiotics are used in agriculture** than for humans, and contribute to AMR
- Access to this scarce resource is not managed to maximize overall welfare and to reduce **negative externalities**
- Human activities cause avoidable **emergence and spread** of AMR
- This is **setting back major development and economic gains**, including progress towards Sustainable Development Goals for 2030
- If trend continues unchecked, infectious diseases with "**no cure and no vaccine**"

Containment of AMR is a global public good

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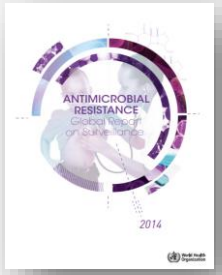
Where are we coming from?



2014

First WHO global report on AMR surveillance

2015

68th World Health Assembly

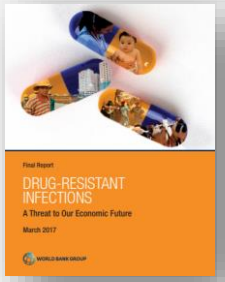
Global Action Plan endorsed by WHO, FAO and OIE

2016

O Neill Review on Antimicrobial Resistance

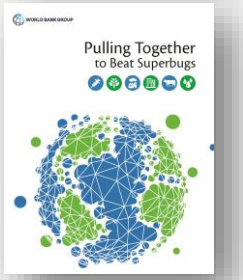
71st UNGA Political Declaration of the High-Level Meeting on AMR

Inter Agency Coordination Group (IACG)



2017

World Bank "Drug-Resistant Infections: A Threat to Our Economic Future"



2019

IACG report - No Time to Wait: Securing the future from drug-resistant infections
World Bank report – knowledge and implementation gaps in addressing AMR

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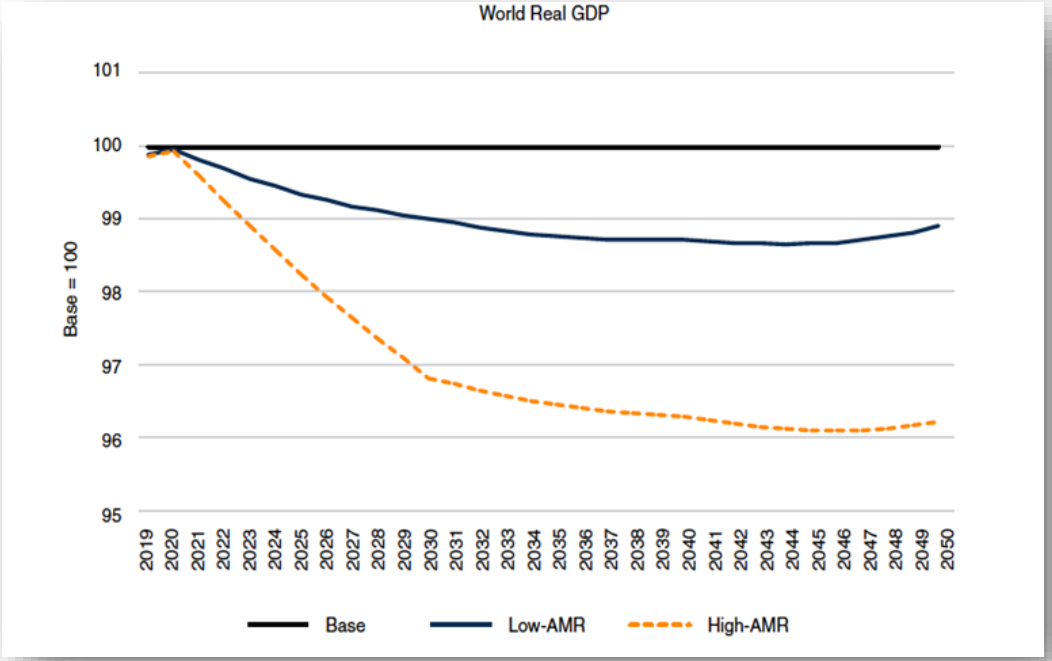
The World Bank has quantified projected impact of unchecked AMR spread on global GDP

- Impacts of AMR on human health: increased illness and mortality;
- Costs of increased illness and mortality include loss of output caused by a reduced effective labor supply;
- More labor-intensive sectors would tend to have greater declines in output growth but all sectors will be affected;
- Additional reductions in human welfare likely to result from AMR* not included these estimates



Low AMR: global GDP falls short by 1.1 percent annually by 2050, shortfall exceeds $1 trillion annually after 2030

High AMR: global GDP falls short by 3.8 percent annually by 2050, shortfall reaches $3.4 trillion annually after 2030

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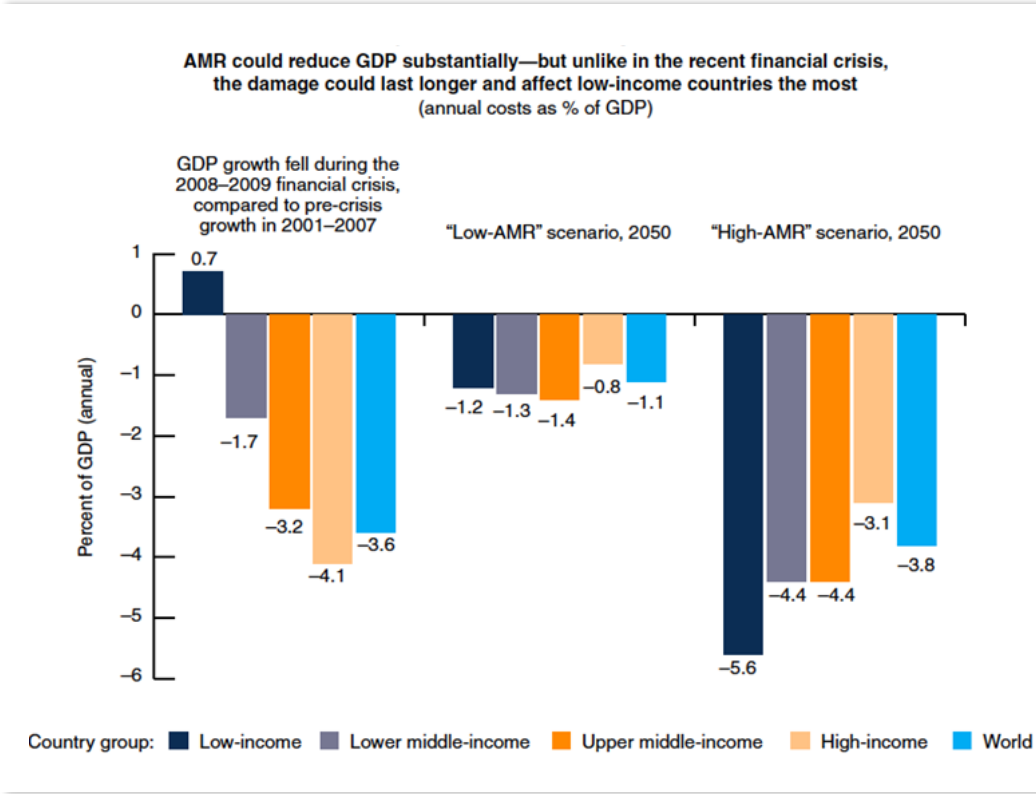
* E.g.: subjective valuation of life, reduced availability of surgical procedures, cost of resorting to inferior treatment methods

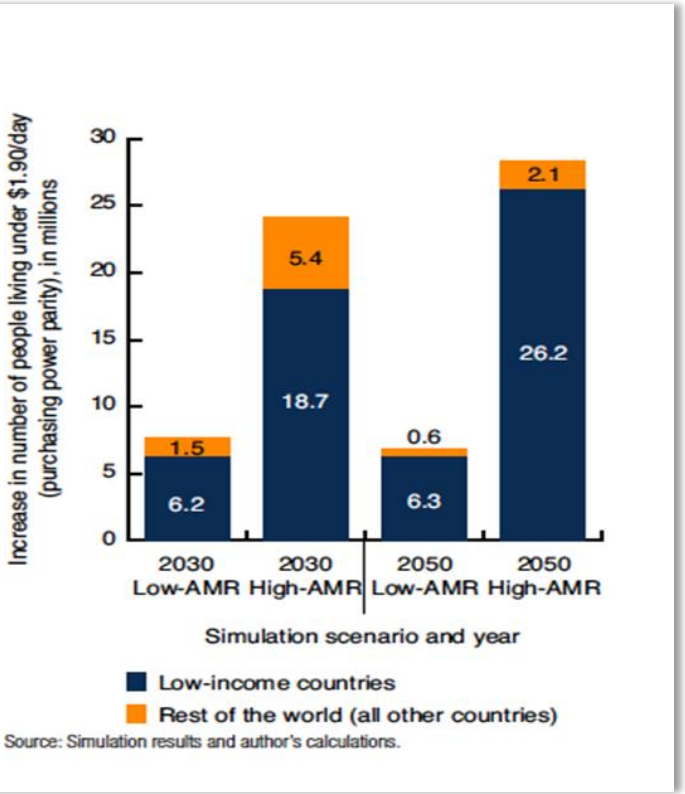
The poorest countries and peoples would be the most affected

Costly impacts of AMR not distributed equally among countries

- Higher incidence of infectious diseases and dependence on labor incomes in low-income countries
- If AMR is not contained, prospects for achievement of the SDGs in 2030 will diminish

Pronounced increase in extreme poverty:
+ 28.3 million in 2050 with high-AMR





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AMR containment is a high-return investment opportunity

- Test of expected economic rate of return is unambiguously satisfied (31% - 88%)
- Even a partial containment of AMR is a highly productive investment. Reducing AMR by just 10% (from 'low AMR' case) generates cumulative expected benefits of $2 trillion (3.5% discount rate), which more than justifies the $200 billion investment.
- These investments should be the highest priority among public sector investments

	Expected Annual Rate of Return
Low-AMR Impact Scenario	
10% containment achieved	31%
25% containment achieved	45%
50% containment achieved	58%
75% containment achieved	66%
High-AMR Impact Scenario	
10% containment achieved	47%
Reach low-AMR scenario	84%
75% containment achieved	88%

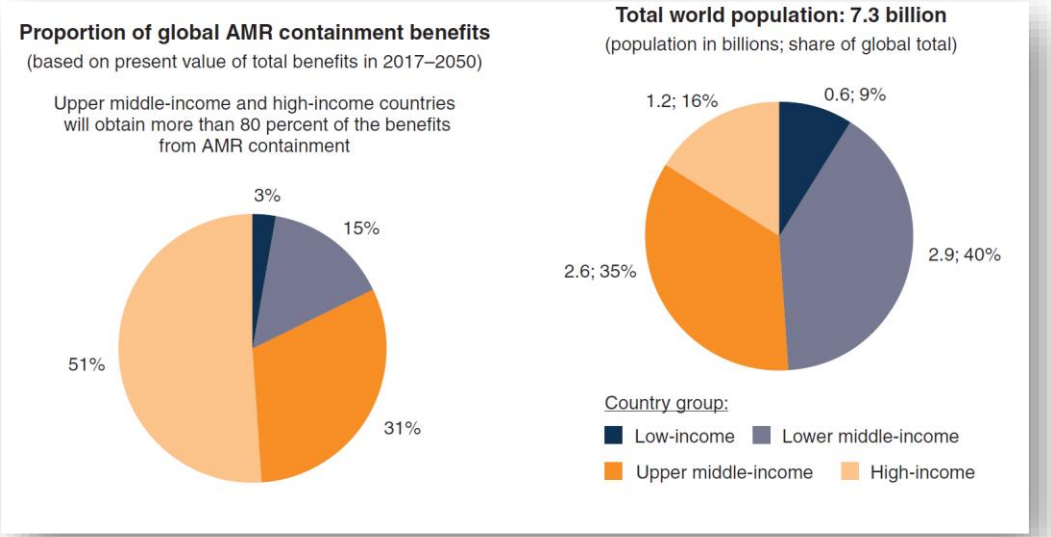
Source: Simulation results and authors' calculations.

→ **It will take risk awareness and global leadership to avoid a "tragedy of the commons"**

→ **To contain AMR successfully, all countries will need to act in a coordinated way** (otherwise, all countries will eventually suffer from drug-resistant pathogens emerging at weakest links in worldwide chain of AM use)

High-Income and Upper Middle-Income economies stand to benefit the most from AMR containment

- Different countries stand to benefit from AMR control in different ways.
- Low-income countries will see substantial economic payoffs, relative to the size of their economies.
- The largest absolute and per capita gains, however, will actually flow to upper middle-income and high-income countries.



Assuming that only 10 percent of the modeled costs were averted through AMR containment measures, high-income countries would still obtain benefits of $0.9 trillion and $2.7 trillion, in the low and high AMR-impact scenarios, respectively. This is between four times and thirteen times more than the global investment cost

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AMR is a sustainable development challenge

- It cannot be solved with technical solutions alone
- **Failure to address AMR** will negatively affect some SDGs
- **Progress made on SDGs** will help to contain AMR

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Improve governance and reduce misuse of antimicrobials

- **Misuse**. Globally, only 50% of antibiotics are used correctly (WHO estimate)
- **Over-prescription.** Of the 150 million prescriptions for antibiotics in the U.S. every year, 50 million were not necessary (2016 study by Centers for Disease Control and Prevention)
- **OTC.** In many countries, antibiotics can be bought Over-The-Counter (OTC) from pharmacies, grocery stores, and street vendors
- **Sub-standards.** Up to 60% of AMs used in Africa and Asia may be sub-standard or counterfeit drugs
- **Non-therapeutic use**. 80% of the antimicrobials sold in the U.S. in 2012 was for animals; most of which to promote growth or to prevent diseases

Improve systems and infrastructures to address underlying weaknesses

- **Emergence and spread**. The use of antimicrobials has a bearing on emergence; spread of resistance is driven by a number of socioeconomic conditions, the local and national context
- **Context**. Lack of access to water and sanitation, inappropriate waste management, low expenditure on public health, weak governance, and corruption are associated with spread of resistance
- **Cobenefits**. Most policies designed to address at least equally important rationales (e.g. related to objectives of development, sustainability, and equity) can also have AMR impacts

Broadly, four types of countries in terms of AMR risk

	Type A	Type B	Type C	Type D
Antimicrobial use	Low	High	High	Low
Exposure to contextual risk factors	High	High	Low	Low
Expected level of risk	**Medium**	**High**	**Medium**	**Low**

- No blueprint but rather a **risk-based** approach for investments
- AMR containment can be thought in terms of **acceptable level of risk** (ALOR)



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Returns of AMR-sensitive interventions are highest in LMICs

	Type A	Type B	Type C	Type D
Importance of AMR-Se investments	+++	+++	++	+
Status of the AMR agenda	Focused on access to quality services and quality of medicinal products, strengthening of basic public and animal health systems, education on hygiene and infection prevention	Focused on responsible and prudent use of antimicrobials, health system strengthening and capacity building, baseline surveillance and monitoring, continued efforts on hygiene and infection prevention	Focus on building strong political and societal consensus on AMR, scaling up of pilot programs, monitoring and surveillance, complete policy and regulation reforms	Mature public and animal health systems, regular light-touch AMR interventions and programs, continuous adjustments needed to respond to new risks, maintained awareness, continued surveillance
Status of AMU and AMR	Low use of antimicrobials, lack of access to quality medicinal products, lack of basic systems and services, imperfect infrastructures	Increasing use of antimicrobials with economic growth, under-performing systems and services. AMR is slowly emerging as an issue in the civil society	Systems and infrastructures gradually able to limit emergence and spread of AMR, decrease of AMU, outcomes of surveillance and monitoring for AMR and AMU	Achievements in reducing use of antimicrobials, established capacity to detect emergence of new resistance determinant

Examples of WB support to countries investing in AMR

East Africa Public Health Laboratory Networking Project (EAPHLN)

Africa Center for Disease Control and Prevention (ACDC) Project

Health project in Serbia, aiming at improving the public health system (prescription, vaccination)

Sanitation and Water Project in the Greater Accra Metropolitan Area

Strengthening Governance in the Pharmaceutical Sector in Bangladesh

Southern Africa Tuberculosis and Health Systems Support Project

West Africa Regional Disease Surveillance Capacity Strengthening (REDISSE)

Accelerating Universal Access to Early and Effective Tuberculosis Care in India

Regional Sahel Pastoralism Support Project (PRAPS)

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Thank you very much for your attention

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