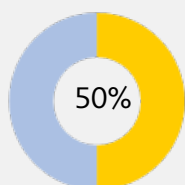
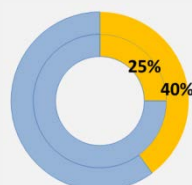


Antimicrobial resistance in G7 countries

Key facts



Antibiotic-resistant bacteria are highly prevalent. Up to **50% of infections in G7 countries may be resistant** to first-line antibiotics



Globally **25%** of countries have **national policies** to tackle AMR and **40%** have **infection and control programmes**



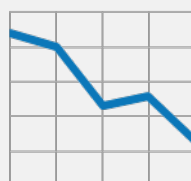
Patients with AMR have **2-3 times higher mortality and risk of complications** (e.g.: local progression of disease and sepsis)



AMR treatment costs **additional 10-40K USD** per patient and **extra 23 billion USD** for **healthcare systems** in Europe and North America



About **50,000 deaths** may be caused each year by antibiotic-resistant infections in **Europe and North America**



Even by accounting for extra healthcare costs, by **2050 up to 2.9 trillion USD of GDP** could be **lost across OECD countries** due to AMR, at current resistance rates

Antimicrobial resistance is a global threat

Modern medicine and surgery would not be possible without antibiotics. They have markedly decreased the burden of infections and have allowed the introduction of complex medical interventions. Organ transplants, advanced surgery and care of premature babies are some of the procedures endangered by increasing spread of resistant organisms.

Antimicrobial resistance (AMR) is a natural phenomenon, which is however accelerated by human actions. These include inappropriate prescribing and use of antimicrobials as well as insufficient hospital hygiene. The extensive use of antimicrobial in the livestock sector is further sustaining the growth of AMR, particularly because, worldwide, the bulk of antimicrobials is given to animals. Global consumption of antimicrobials in the livestock sector is projected to increase by two thirds by 2030. Global trade and travel are also accelerating the spread. The development pipeline of new antibiotics is drying up.

Health and economic burden

AMR is the cause of significant health burden

Patients with resistant infections are more likely to receive therapies that are inadequate or receive the appropriate therapies with delay. This increases the risk that the infection spreads locally and to other organs. Patients are more likely to die. Globally, about 700,000 deaths may be caused each year by AMR. If current resistance rates increase by 40%, up to 9.5 million people may die each year.

AMR increases the cost of healthcare

Patients infected by resistant bacteria require more intensive and expensive care and are more likely to be admitted to a hospital. Over half of the extra expenditure is due to nursing and medical care cost, as well as more aggressive antimicrobial therapies and additional laboratory tests. Physicians are more likely to prescribe more expensive second-line drugs if AMR prevalence is perceived as increased.



Variability of antibiotic consumption across OECD countries

Antibiotic consumption in 2013 (defined dose per 1000 inhabitants per day)



Source: OECD Health Statistics.

AMR puts a heavy burden on economies and societies

Societal costs of AMR may be as high as the healthcare costs. Loss of income comes from the cost associated to ill-health and from death. The loss in productivity due to time away from work, as well as the informal care requirements from family or friends is significant.

If no effective strategies are put in place, OECD countries will have to cope with 2.1 million deaths of people in their working age. The total GDP effect, accounting for increased healthcare expenditure, would amount to 2.9 trillion USD by 2050, at current resistance rates. With 100% resistance rates, the total GDP effect across OECD countries would be five times higher.

AMR policies in G7 countries

G7 countries have made significant progress but a global response is limited

All G7 countries have developed policies to tackle AMR in the human and animal sector. National policies generally aim at rationalising use of antimicrobials, preventing the spread and encouraging the development of new antimicrobials. Most G7 countries are considering or plan changes in legislation or regulation to address AMR, and they incorporate one-health approaches – which include actions in the human, animal and physical environment – in their plans. Outside G7 countries, the policy response is limited with only 25% of countries having implemented national plans and less than 40% have infection prevention and control programmes on AMR.

Responding to the rise of AMR in humans

Interventions to tackle excessive or unnecessary use of antimicrobials and prevention of transmission in humans, as well as R&D, are needed to contain the health and economic burden caused by AMR:

1. Avoiding emergence

Effective interventions for rationalising antimicrobial consumption include stewardship programmes to educate healthcare personnel and prevent excessive use of antibiotics, awareness campaigns, as well as enhanced immunisation programmes. Price policies and behavioural approaches (e.g. delayed prescriptions) are increasingly considered as potential tools to decrease unnecessary consumption.

2. Avoiding spread

Wider implementation of early detection of resistant infections and enhanced hospital sanitation can be effective at preventing and controlling transmission in humans. Effective strategies for adherence include implementing the five WHO principles on hand washing, coupled with goal setting, incentives or accountability.

3. Stimulating R&D

New ways of paying for new antibiotics which do not encourage higher antibiotic sales are needed, such as prizes. An ideal approach should encourage global innovation by lowering early development costs and should boost the reward at the end of the development process. Global research platforms will make research spending more cost-effective.

With the exception of national antibiotic consumption, the figures provided in this Brief are not based on OECD data.

Contact details:

Michele Cecchini – Health policy analyst

✉ Michele.cecchini@oecd.org

☎ +33-1-4524.7857

* This policy brief and the data herein presented are based on a review of published studies, available at <http://www.oecd.org/health/health-systems/antimicrobial-resistance.htm>.