

CATALYST DIALOGUE ON ANTIMICROBIAL RESISTANCE (AMR)

Antimicrobial resistance – a global challenge

A catalyst dialogue on the questions of why this challenge exists and what it means for politics and practice.

Antimicrobials – including antibiotics, antivirals, antifungals and antiparasitics – are medicines used to prevent and treat infectious diseases in humans, animals and plants.

Antimicrobial resistance (AMR) occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial drugs. As a result of drug resistance, antibiotics and other antimicrobial drugs become less effective and infections become difficult or impossible to treat. This increases the risk of spread of disease, serious illness, disability and death.

AMR is a natural process that occurs over time due to genetic changes in pathogens. Their emergence and spread is accelerated by human activities, especially the misuse and overuse of antimicrobials to treat, prevent or control infections in humans, animals and plants.¹

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Antimicrobial resistance (AMR) is one of the greatest global health threats and requires immediate, coordinated action. We need globally coordinated but regionally adapted measures that address the specific local challenges. And we need to take action and implement these measures now.

Recommendations

The following suggestions for German policy-makers and parliamentarians were formulated during the catalyst dialogue²:

National Aspects

- 🌐 Promoting a "One Health" approach that integrates the health of humans, animals and the environment through increased coordination between the ministries of health, agriculture and the environment.
- 🌐 Supporting this approach through a cross-sectoral governance body to coordinate and monitor the German Antibiotic Resistance Strategy (DART) and the associated action plan.
- 🌐 Increased education in agriculture to promote the responsible use of antibiotics and to address sector-specific challenges.
- 🌐 Develop and implement targeted communication strategies for better understanding in order to increase awareness of AMR among the population and stakeholders and generate the will to act.
- 🌐 Increased focus on infection prevention in outpatient, inpatient and care settings through hygiene measures, infrastructure strengthening and vaccination programs.

- 🌐 Implementation of a sustainable system for monitoring and reducing antibiotic prescriptions through antibiotic stewardship programs, including at the point of care, to ensure the responsible and needs-based use of antibiotics.
- 🌐 Promote the training and further education of professionals in AMR-sensitive practices across all relevant sectors, including human and veterinary medicine and environmental management.
- 🌐 Expand national funding and innovation support in the field of AMR to develop sustainable solutions, including research into new antibiotics and alternative treatment approaches, in order to reduce dependence on international supply chains.

International Aspects

- 🌐 Building a stronger German leadership role in the EU, G7, G20 and international bodies (e.g., WHO, UN) to promote a coordinated, global AMR strategy and its integration into global health and environmental strategies.
- 🌐 Supporting a global AMR monitoring platform for effective data collection and analysis, including promoting international monitoring programs for low- and middle-income countries (LMICs).
- 🌐 Developing and sharing best practices across countries and regions that can be flexibly adapted to specific needs and resources worldwide to strengthen national AMR capacities in regionally diverse contexts.
- 🌐 Supporting LMICs in implementing AMR action plans through technical assistance, bilateral partnerships and contributions to the Multi-Partner Trust Fund on AMR.
- 🌐 Closely coordinating funding efforts with international donors to distribute resources more equitably and optimize and maximize the efficiency of global AMR initiatives.

The participants in the catalyst dialogue

- 👤 Numerous national experts from science, politics, business and civil society at the parliamentary evening "Antimicrobial resistance" of the Global Health Hub Germany in October 2024
- 👤 Numerous national experts from science, politics, ministries and civil society at the round table "Antimicrobial resistance" organized by the Global Health Hub Germany on the sidelines of the Berlin World Health Summit in October 2024
- 👤 Five international experts on antimicrobial resistance from the global community in individual interviews in November 2024:
 - Timothy Jinks PhD, Head Infectious Disease Interventions, Wellcome Trust
 - Anthony McDonnell, Policy Fellow, Center for Global Development (CGD)
 - Julian Nyamupachitu, Deputy Director, ReAct (Action on Antibiotic Resistance) Africa
 - Professor Sabiha Essack B. Pharm., M. Pharm., PhD, Senior Implementation Research Advisor, International Centre for Antimicrobial Resistance Solutions (ICARS)

How do catalyst dialogues work?

In catalyst dialogues, an overarching question is discussed in-person or virtual debates and one-on-one conversations. In accordance with the [Chatham House Rule](#), the content of the exchange is recorded without being consistently attributed to individual participants. Accordingly, no statements that are quoted directly or indirectly in this paper are named.

Why antimicrobial resistance (AMR) poses such a great risk

The threat posed by antimicrobial resistance (AMR) is growing worldwide and can only be controlled through coordinated action. Here are some reasons that illustrate the urgency of the issue:

The effectiveness of many antibiotics is declining rapidly because resistance is spreading faster than new drugs can be developed. Without a common strategy, there is a risk of returning to a time when even seemingly simple infections could be fatal.

*"AMR is the third leading cause of death in the world. More people die from AMR or AMR-associated infections than from HIV, AIDS or malaria combined."*³

Due to international mobility and trade, resistant germs spread quickly across national borders.

The cross-regional and inter-sectoral exchange of best practices and the promotion of innovations to provide tailored solutions for different regional requirements are not yet sufficiently established.

The currently prevailing intensive agriculture promotes antimicrobial resistance (AMR) through the excessive use of antimicrobial agents, including antibiotics, in animal husbandry to prevent diseases and promote growth. Resistant bacteria and antibiotic residues enter the environment via animal excrement and manure and can spread resistant genes in soil and water.

In addition, the international trade in animals and food promotes the global spread of resistant germs. This also poses a threat to human health worldwide, as the resistant bacteria can reach humans via environmental and food chains.

The implementation of AMR measures is costly, and many countries are facing financial bottlenecks. Political decision-makers are not yet sufficiently sensitized to mobilize financial resources and secure the necessary investments in the long term.

*"Recent estimates on the future burden of AMR showed that ensuring people across the world had good treatment for bacterial infections, and enough investment to generate a healthy pipeline of new drugs, could improve global GDP by \$960 billion a year in 2050, generate health benefits worth \$680 billion and reduce the cost of healthcare by \$97 billion. When compared to the cost of rolling out such an intervention, this offers a return on investment of 28:1."*⁴

Education among the population and in the health-care system is still insufficient to reduce the inappropriate use of antimicrobials. Public awareness of AMR needs to be raised to promote the responsible use of antimicrobials.

In summary, a national and international dialogue is now crucial to pool national and international forces, focus on the urgency of the issue and initiate measures that strengthen the resilience of health systems and all related sectors against AMR.

What should Germany do to combat AMR at the national level?

Implementation of the One Health approach as a basis

Human, animal, and environmental health are deeply interconnected. From the perspective of many stakeholders, a "One Health" approach that enhances cross-sectoral coordination between the ministries of health, agriculture, and the environment is crucial. However, alternative process-based approaches are also being discussed.

The dialogue rounds highlighted the importance of cross-sectoral integration, particularly in industrial animal husbandry, where a significant portion of antimicrobial agents are used. Germany must ensure that AMR measures are implemented comprehensively and systematically to effectively combat resistance.

"The challenges in implementing the [One Health] approach are related to the fact that it involves multiple stakeholders and multiple parts of governments. So the difficulties are in terms of the ownership that comes with these plans and then in coordinating how these things might work together."

Establishing a governance body brings control

A cross-sectoral governance body to coordinate and monitor a national AMR strategy would enable Germany to better implement and monitor measures. The experts emphasized that there is no lack of action plans worldwide or local knowledge of necessary measures, but rather a lack of consistent implementation. A central body in Germany could structure activities, clearly define responsibilities and regularly review the effectiveness of measures, which is an important basis for the success of the national AMR strategy.

"In many countries [including Germany], the national action plans have been led by the Ministry of Health, while animals, the environment and agriculture are only included as subsequent issues. So there is actually no coordination at the national level to say: what are we going to do together?"

But this also applies at the global level, where a comparable body could be extremely helpful in the context of the WHO.

Promoting the responsible use of antibiotics in agriculture is essential

The use of antimicrobials in agriculture represents a significant risk factor for the emergence of resistance.

Experts emphasized the need for targeted education and training in this area to reduce excessive use. The link between factory farming and AMR highlights that the government can play an important role in educating and promoting responsible use. This could both reduce use and motivate other countries to introduce similar measures.

"It is a challenge to involve farmers in this process. [...] Their focus is on their livelihood."

Targeted communication strategies for the public are urgently needed

AMR awareness is crucial to reduce the use of antimicrobials both in the public and in specific industries. This requires clear and targeted communication to inform the general public and stakeholders in human and veterinary medicine about the risks of AMR.

Germany must create AMR awareness and generate the urgently needed willingness to act in order to contribute to a culture of responsible use of antimicrobials, including antibiotics.

"We see that the concept of AMR is something that is becoming more widely known in the public [...], but we do not see that raising awareness necessarily leads to changes in behavior or actions or attitudes in any significant sense."

Focus on infection prevention is a key element

Infection prevention is one of the most effective measures against AMR, as it reduces the need for antibiotics from the outset. The experts emphasized the importance of basic hygiene measures and improved infrastructure in the outpatient, inpatient and nursing sectors. By promoting preventive hygiene measures and in particular vaccination programs, Germany can significantly reduce the burden of AMR-related infections on the health-care system.

Sustainable antibiotic stewardship is an essential lever

A sustainable system for monitoring and reducing antibiotic prescriptions at the point of care is crucial to limit antibiotic use to what is necessary. Antibiotic stewardship programs can ensure that antibiotics are only prescribed when needed and in the right dose with the right duration of use.

The experts pointed out that the availability of simple diagnostic measures and the role of pharmacists as advisors in the use of antibiotics are crucial to improving treatment adherence and reducing incorrect prescriptions.

Professional training is an essential factor

The training and further education of specialists in AMR-sensitive practices is necessary to ensure the implementation of AMR measures in the long term.

"It's about how we break down the technical terms related to antimicrobial resistance (AMR) so that they can be understood by normal people."

The experts emphasized that increased awareness and knowledge about AMR in human and veterinary medicine as well as in the environmental sector are required to create sustainable change.

National research and funding support has so far only addressed partial aspects

By promoting national research and funding programs, Germany can not only strengthen its own independence, but also contribute internationally to the development of sustainable solutions.

"In fact, Germany plays a pioneering role in this area at the international level. [...]"

But I don't see that Germany is really driving forward cooperation in this, a holistic sense."

Promoting research into new antibiotics

Research into new antibiotics and alternative treatment approaches is crucial to developing long-term solutions to AMR. At the same time, the discussions highlighted that prioritization is often lacking at present and the hope for new developments often overshadows the need for simple measures.

It was also discussed that a targeted selection of the antibiotics that are really needed and the combination of older antibiotics could be strategically useful in order to slow down the development of resistance.

"[Rewarding] the development and delivery of a new antimicrobial agent that is not tied to sales volume is a very important pull incentive mechanism⁵."

What should Germany do to combat AMR at the international level?

Taking on a leadership role in international forums

Germany should expand its leadership role in the EU, G7, G20 and international bodies such as the WHO and UN to promote a coordinated, global AMR strategy. This is generally expected of a country of this size and economic power.

"Multilateral institutions are the best way to work across the entire spectrum of issues, but above all to strengthen cooperation and coordination between countries."

The discussion rounds pointed out that global exchange and learning from countries such as the USA is particularly important. For example, the Scandinavian countries and the Netherlands can help improve the efficiency of measures worldwide, but also in Germany itself.

By taking a stronger leadership role, Germany could support the integration of AMR into global health and environmental strategies and promote knowledge exchange.

Support for international AMR monitoring programs is required

International AMR monitoring programs are crucial to measure global progress against resistance and to derive appropriate measures.

The experts emphasized that LMICs in particular need support in data collection and analysis, as a lack of information hinders policy-making. Many countries have good action plans, but these are not economically secure and need help. Germany could make a significant contribution and play a key role here by promoting a global AMR monitoring platform.

"Only a very small proportion, 10 to 14% of these national action plans are not only well funded but have also been incorporated into the country's financial system."

Use best practice sharing and adaptation to local needs as an opportunity

The flexibility of measures and the exchange of best practices are crucial to successfully combat AMR in different regional contexts. The experts emphasized that a stronger mutual learning culture is necessary to integrate the progress of other countries into one's own measures.

"The role of mobilizing an AMR agenda that is co-designed and co-owned by LMIC countries is important."

Germany could create a platform for best practice sharing together with multilateral institutions and thus intensify the international exchange of knowledge to promote regional adaptation.

Expand support for AMR containment in LMICs

Many of the LMICs need support to implement their national AMR strategies. The discussion rounds emphasized the need for context-specific measures that prioritize local needs and ensure basic standards such as hygiene and access to antibiotics. Germany can help strengthen the implementation of these strategies through development cooperation and technical support.

Promote efficient financing strategies together

Close coordination of financing efforts with international donors is crucial to use resources efficiently and maximize global AMR initiatives. The experts pointed out that this would avoid duplication of effort and distribute resources more fairly to increase the effectiveness of measures. Through coordinated financing, Germany, together with the international donor community, could ensure that LMICs are strengthened in the global fight against AMR.

"The biggest obstacle and the biggest difficulties we see concern the financing of the national action plans. The plans themselves [have to be] calculated and a budget has to be developed. Then the financing is secured in order to make the plan really implementable."

In this context, the Multi-Partner Trust Fund (MPTF) needs more sustainable and long-term sources of funding, as AMR is a long-term and complex problem that requires constant resources. Long-term commitments and cooperation with other partners could provide this stability.

Understand the promotion of basic hygiene standards as the core element

The establishment of qualitative, basic hygiene standards is necessary worldwide to contain the emergence and spread of resistant pathogens.

The experts pointed out that measures such as water and sanitation often have the fastest and most lasting effect, and existing resources should also be used.

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"We should be able to use what already exists in countries [experience and structures to combat other diseases] and apply it to AMR as well."

How do German activities at the international level also create benefits in Germany?

Increased international commitment by Germany against antimicrobial resistance (AMR) can also create significant benefits locally. By taking a leading role in global forums and exchanging best practices, Germany would be able to adapt innovative solutions and effective AMR strategies more quickly. This would enable successes in other countries (e.g., the Scandinavian countries) to be integrated directly into the German health landscape, which would improve the efficiency and effectiveness of national AMR measures.

"I am certainly not the first to point out that implementation is stalling – both in the LMICs – and here in Germany. If we want to act credibly abroad, we must consistently implement our own action plan. As already mentioned, there are many weak points in implementation. We can learn a lot from other countries that work well across sectors. We should definitely continue to improve within the framework of the One Health concept."

Supporting international surveillance programs creates a more comprehensive data basis, from which Germany also benefits by enabling more targeted measures to be developed based on real data.

At the same time, promoting hygiene standards in other countries reduces the emergence and spread of resistant pathogens not only there but also globally, which reduces the risk of such pathogens spreading to Germany.

Through cooperative financing and supporting local AMR implementation worldwide, Germany, together with the international donor community, would help to use existing resources more specifically, which would also relieve the burden on national programs and increase their efficiency.

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5. A pull incentive mechanism is an incentive system that rewards suppliers when they successfully bring a desired result or product to market. Instead of directly financing development, success, such as the launch of a product, is rewarded.

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