



Wilton Park



Image: KatarzynaBialasiewicz

Report

Antimicrobial resistance: building national responses in middle and low income countries

Wednesday 29 June – Friday 1 July 2016 | WP1477



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A One Health approach to building antimicrobial resistance National Action Plans in middle and low income countries

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Context

The rapid increase in antimicrobial resistance (AMR) is a threat to global health and the global economy. The Review on Antimicrobial Resistance chaired by Jim O'Neill estimates that, by 2050, 10 million lives a year and 100 trillion USD of economic output are at risk from drug-resistant infections. Already today, 700,000 people die of drug-resistant infections every year. Political attention has been rising in some countries and at the international level. In May 2015, the World Health Assembly adopted a global action plan on antimicrobial resistance, which embraces a multi-sectoral One Health approach and outlines five objectives, including building awareness, strengthening surveillance, improving infection prevention, optimising antimicrobial use, and increasing investment in new pharmaceuticals and diagnostics. The goal is for WHO member countries to have National Action Plans (NAPs) in place by 2017.

This Wilton Park meeting brought together representatives from low and middle income countries (LMICs) who are leading the development and implementation of their NAPs, sharing their experiences so far and learning from one another. LMICs face the greatest burden of rising drug-resistant infections and particular challenges in addressing AMR. Consumption of antibiotics is predicted to increase in many LMICs, fuelled by poor sanitation, inadequate infection prevention and control practices, and weak health systems, which limit access to diagnosis and make non-prescription use of antimicrobials common. Moreover, data on both consumption and resistance patterns in LMICs are often sketchy or entirely lacking, especially in the agricultural sector. And financial and human resource constraints create difficulties in building capacities for surveillance and policy implementation.

Executive summary

- Antimicrobial resistance (AMR) has a multitude of social drivers. Hence, effective policy responses have to promote behaviour change among a wide variety of actors, including consumers, prescribers, suppliers, policymakers and regulators - both in the human and the animal health sectors. The AMR agenda and debate tends to focus on the consumption, use and dosage of antimicrobials. In addition, inadequate infection prevention and control is an important aspect of resistance building. The IPC and AMR agendas therefore have to be more closely aligned.
- Education is crucial for raising awareness but it does not necessarily change behaviour. Education could be complemented by strategies that are more akin to

public-relations campaigns, including communications that emphasise the human face of AMR. Efforts to change behaviour also need to take into account the specific interests and needs of target groups. Doctors' prescribing behaviour, for instance, could be influenced by increasing the availability of rapid diagnostics; farmers and agricultural businesses could be influenced by evidence on the effect of antimicrobials on livestock productivity and information about the availability and costs of alternatives.

- Governments have powerful tools at their disposal to affect behaviour change, including legislation and national campaigns. National legislation in a range of policy areas needs to be adjusted to take into account cross-cutting effects on AMR. National campaigns can help reduce consumption, but it can be difficult to sustain these effects unless messages are reinforced frequently.
- New technologies can be powerful drivers of behaviour change, and their potential to help address AMR has to be more fully explored. Yet, their power depends on whether they are socially accepted. For instance, if a doctor does not trust the result of a new diagnostic test prescribing behaviour is unlikely to change.
- AMR is still not among the political priorities for many governments. Yet effective National Action Plans (NAPs) require political support from a broad range of government departments beyond ministries of health. The support of finance ministries is crucial to secure budgets, and the collaboration of ministries of agriculture, environment, and trade is required for the implementation of the One Health approach. To broaden political support, messages about the impact of AMR need to address different institutional mandates and political priorities, by providing evidence for the impact of AMR not only on health but also on agricultural productivity, trade and the wider economy, for instance.
- In many countries, policy change on AMR has been facilitated by international initiatives such as the WHO Global Action Plan on Antimicrobial Resistance¹. In addition, policy change has been driven by the work of 'champions' at the national and local levels. Yet, in order to translate such stimuli into long-term policy and behaviour change, institutions have to be created and governance mechanisms established.
- Many low and middle income countries (LMICs) are developing NAPs in the absence of good baseline data on resistance and consumption. While capabilities to generate such data vary between countries, most face challenges regarding the quality and infrastructure of laboratories; data quality and management; the national representativeness of the data; and the harmonisation and standardisation of methods. The absence of good baseline data can have negative effects on the effectiveness of NAPs and their evaluation, and therefore also make it more difficult to mobilise continued investment and political support.

Ensuring access to effective antimicrobials is a key element of AMR policy. Yet, access has to be reconciled with appropriate use and stewardship to ensure continued access to effective antimicrobials. This balancing act is particularly challenging in LMICs. Infection prevention and control measures are often inadequate, and weak health systems and poverty restrict access to diagnosis and prescribers. Many people therefore use antimicrobials without prescription. While access agendas can differ between high income countries (HICs) and

¹ http://www.wpro.who.int/entity/drug_resistance/resources/global_action_plan_eng.pdf

LMICs, the preservation of access to effective antimicrobials is a global commons issue. On key principles, therefore, political agendas have to be aligned to enable global collective action.

- Access and stewardship policies for new drugs need to be written into any new models of drug development that are created. To steward existing antimicrobials, we need to improve how they are used and dosed, including by increasing the availability of quality-assured diagnostics; optimising care to prevent infections; and maintaining a diversity of available antimicrobials. In animal health, stewardship has to address the economic rationales that drive the agricultural industry and veterinary practice. In both animal health and human health, stewardship governance has to complement responsibility with supervision and control.
- Many countries face the challenge of how to implement the multi-sectoral One Health approach. Difficulties at the political and technical levels can make collaboration between different social sectors and government departments challenging. Incentives for collaboration could be implemented at the levels of funding, interests and institutions. For instance, collaboration could be facilitated by demonstrating how existing political interests and programs are “AMR-sensitive” rather than focusing on the creation of new, “AMR specific” programmes.
- The sustainability of NAPs in LMICs is challenged by considerable dependence on donor funding, especially in light of sometimes divergent agendas between donors and recipient countries. Ultimately, however, the sustainability of NAPs depends on the extent to which new attitudes and practices on antimicrobial use can be embedded in society.

Behaviour change

1. AMR has a multitude of social drivers. Hence, effective policy responses have to promote behaviour change among a wide variety of actors, including consumers, prescribers, suppliers, policymakers and regulators - both in the human and the animal health sectors. The AMR agenda and debate tends to focus on the consumption, use and dosage of antimicrobials. In addition, inadequate infection prevention and control is an important aspect of resistance building. The AMR and infection control and prevention agendas therefore have to be more closely aligned.
2. Behaviour change often starts with awareness, but AMR is a complex issue and difficult to understand even for the well-educated. It is therefore not surprising that many misconceptions prevail about what AMR is, and its causes and consequences. Education is crucial for raising awareness, and the earlier this education starts the better. Some countries are therefore implementing campaigns directed specifically at children. Other target groups include medical students, doctors, and healthcare workers. Yet, education does not necessarily change behaviour. Strategies that are more akin to public-relations campaigns could complement education strategies. In this context, communications that emphasise the human face of AMR, relating it to the personal experience of individuals, can be very powerful. Furthermore, national campaigns in countries like France illustrate the importance of involving consumers in the design and implementation of campaigns.
3. Efforts to change behaviour also need to take into account the specific interests, needs and priorities of target groups. For instance, doctors often have to decide about antimicrobial treatment in the absence of a clear diagnosis. Diagnostic tests are frequently unavailable, especially in LMICs. And even when they are, it can take days to obtain the results – a problem that is exacerbated in LMICs where many patients find it difficult to return for follow-up appointments. While it is important that doctors are educated about AMR, their prescribing behaviour could be greatly affected by the

availability of rapid diagnostic tests.

4. New technologies can be powerful drivers of behaviour change, and their potential to help address AMR has to be more fully explored. For instance, new technologies could help in the collection and sharing of data, and make evidence and treatment guidelines more widely available. They could also be employed more in campaigns to raise awareness about AMR, especially among young people. Yet, the power of new technologies depends on whether they are socially accepted. For instance, if a doctor does not trust the result of a new diagnostic test, prescribing behaviour is unlikely to change.
5. On the animal health side, the needs and interests of farmers and agricultural businesses need to be addressed in order to reduce antimicrobial consumption. Farmers and agricultural companies need to prioritise the profitability of their business. Their use of antibiotics, especially for growth promotion and disease prevention, is therefore likely to be shaped by evidence on the effect on livestock productivity and information about the availability and costs of alternatives. Some data on this exists, and examples of how producers have reduced antibiotics in Europe could be communicated more widely. Yet, more evidence is required on how lower antimicrobial consumption would impact productivity and animal welfare in LMICs, where hygiene and production practices tend to be less developed.
6. There is a real need for more research on this and also for better use of existing data. Large-scale interventions to reduce the use of antimicrobials in the agricultural sector face some specific challenges compared to the human health sector. First, the agricultural sector is more heterogenous and less organised than the human health sector, which can make centralised, top-down approaches more difficult to implement. Secondly, behaviour change is intrinsically linked to economic rationales and tied into global systems of production. This juxtaposes the positive long-term effects of reduced resistance with the immediate negative effects on commerce and livelihoods. It can also create conflicts of interest at the government level between ministries of health, on the one hand, and ministries of agriculture and trade, on the other.

Political support to tackle AMR and build NAPs

7. Governments, and policymakers more generally, are another important target group for behaviour change. AMR is not yet a political priority for many governments, including in several countries currently preparing NAPs². Yet, political attention is growing and factors that have driven policy change include: evidence on the impact of AMR on both health and the economy; international pressure; the creation of links between AMR and already existing political priorities; the rise of AMR 'champions' at the local, national and international levels; and the institutionalization of AMR policies.
8. Evidence on the rise of AMR and the mortality associated with it has been important in mobilising political attention, notably among ministries of health. Yet, wider political support is needed. Finance ministries have to be on board to secure budgets for the implementation of AMR-related activities. Furthermore, the multi-sectoral, One Health approach to AMR requires the involvement of ministries of agriculture, environment, and commerce and trade, for instance. Policy change in these departments is unlikely to be triggered by data on the impact of AMR on health. Rather, messages have to be crafted that appeal to their specific institutional mandates and political priorities.
9. Often, such evidence concerns the economic impact of AMR. The UK government's appointment of an economist, Jim O'Neill, to lead a review of the impact of AMR on the global economy followed this rationale³. To attract wider political support for and,

² See Annex for a few case studies of countries/regions of NAPs in progress.

³ AMR Review: <http://amr-review.org/home>;

Final report: http://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf

therefore, investment in the fight against AMR, more evidence on the economic impact of AMR needs to be produced. Yet, generating good quality and nationally representative data can be difficult in LMICs, as will be discussed in more detail below. This is a considerable problem for the development and implementation of NAPs in many respects, including because it can make it difficult to mobilise and maintain political support.

10. Yet, the number of LMICs governments currently working on NAPs is itself a manifestation that political change is happening. In many countries, the development of NAPs was initiated in response to the WHO Global Action Plan on Antimicrobial Resistance. By providing a blueprint and a deadline for the development of national action plans on AMR, the WHO initiative created international pressure for action at the national level. Further global-level initiatives, such as the high-level meeting on AMR in September at the UN General Assembly, and discussions on AMR at the G7, G20, and G77 are important to maintain international pressure for national policy change.
11. In addition, policy change is often linked to the efforts of national 'champions'. Sometimes, AMR champions have emerged from within the government. At other times, they have emerged from non-governmental groups, such as the Global Antibiotic Resistance Partnership (GARP)⁴, civil society groups and universities, for instance. Furthermore, AMR champions can also be found at the local and community levels, among doctors and healthcare workers, for instance. The roles and positions of AMR champions, and where they can have the greatest influence, varies across countries. In many LMICs, it may be particularly important to build AMR champions among nurses, community workers and pharmacists as they are more accessible than doctors.
12. In order to translate the stimulus provided by international pressure and individual champions into long-term behaviour change, institutions have to be created and governance mechanisms established. NAPs can themselves become such institutional drivers of behaviour change because they lay out government commitments and can therefore be used to hold governments to account. In some countries, such as the UK, AMR has been included in the national risk register, which ensures that the issue remains a government priority.
13. Institutionalisation can also be promoted by linking AMR to issues that already have the attention of key stakeholders, within and outside the government. In Kenya, government commitment to combatting AMR increased considerably when the issue was included in the National Infection Prevention and Control Strategic Plan (2014-2018). In the Philippines, AMR received the President's attention when it was linked to tuberculosis – a critical issue given the country's high burden of the disease. At the international level, donor support for AMR could be strengthened by linking it to current focus areas, such as the implementation of the International Health Regulations, surveillance, and water and sanitation, for instance.
14. Governments have powerful tools at their disposal to promote behaviour change, including through legislation and national campaigns. Legislation in a range of policy areas, such as agriculture, environment, health, and trade needs to be adjusted to take cross-cutting effects on AMR into account.
15. National campaigns can help raise awareness and reduce consumption, as experiences in Belgium and France show. Yet, these examples also highlight that it can be difficult to sustain those successes over time unless campaigns are repeated and messages reinforced frequently. Civil society can play an important role here. In France's national campaign, patient and consumer groups have been involved in the design and implementation of national AMR campaigns. In Ghana, traditional leaders - Queen Mothers - are included in AMR campaigns because of their role as guardians of

⁴ <http://www.cddep.org/garp/home>

the community. There is a real demand for more information on the design and effectiveness of AMR campaigns and experiences with different types of campaigns in different contexts. Currently, limited data and information has been published, and compiling such data could be very useful to facilitate learning across countries.

Surveillance and evaluation

16. Many LMICs are developing NAPs in the absence of good baseline data on resistance and consumption. Surveillance data, where it exists, is often not representative at the national level. Capabilities to generate such data vary significantly between countries, and they tend to be lower in animal health than human health. Among the greatest challenges for better surveillance data are: the quality and infrastructure of laboratories; data quality and management; national representativeness; and the standardisation of data and surveillance methods.
17. The lack of good quality, nationally representative and standardised data is problematic in several respects. Incomplete knowledge of the extent and patterns of resistance and consumption in the country makes it more difficult to design appropriate and effective NAPs. Difficulties with the standardisation of data and methods creates problems with comparison over time and, therefore, with policy evaluation. In the absence of comprehensive baseline data, and insufficient laboratory capabilities and surveillance infrastructure to produce such data, it is not clear what outcome measure could be used and how evidence for progress could be produced.
18. A comprehensive evaluation could provide feedback on the effectiveness and efficiency of NAPs and their impact on the most vulnerable groups in society. Moreover, it could also help make the case for continued political support and investment in the fight against AMR. There is demand for a standardised approach to AMR policy evaluations - perhaps even at the international level - to facilitate learning over time and across countries. Yet, difficulties to generate good-quality, nationally representative and standardised data can impede learning, policy improvement, and the mobilisation of political support.

Access and stewardship of antimicrobials

19. Ensuring access to effective antimicrobials is a key element of AMR policy. Yet, access has to be reconciled with appropriate use and stewardship in order to ensure continued access to effective antimicrobials. This balancing act is particularly challenging in LMICs where infectious diseases are still major killers. Moreover, in LMICs it is often difficult to determine when the use of antimicrobials is appropriate because weak health systems and poverty restrict access to diagnosis and prescribers. At the same time, low levels of hygiene and sanitation infrastructure and less developed public health systems often make it necessary to use antimicrobials as prevention.
20. The access agenda, therefore, tends to differ between Higher Income Countries (HIC), on the one hand, and many LMICs, on the other – although different positions exist also within these groups. Effective policies on access and stewardship need to be context-specific, and will therefore vary between countries. At the same time, the preservation of access to effective antimicrobials is a global commons issue and can only be addressed in a coordinated manner. Political agendas on access and stewardship therefore have to be aligned on key principles in order to enable global collective action.
21. Mechanisms have to be developed at the global and the national levels of governance to steward both new and existing antimicrobials, including combination regimes. For new compounds, access and stewardship policies need to be written into any new model of drug development that is created. In order to steward existing antimicrobials, improvements are needed on how they are used and dosed, including by increasing the availability of quality-assured diagnostics; optimising care to prevent infections; and maintaining a diversity of available antimicrobials. A key problem in many LMICs is how

to limit the use of antimicrobials without prescription. One approach here could be to widen the range of prescribers to include not only doctors but also nurses and healthcare workers who tend to be more accessible.

22. A particularly difficult challenge is how to balance access and stewardship for antimicrobials of last resort. In animal health, they could be banned as growth promoters and prescribed for treatment only in cases where nothing else has worked. In human health, their use could be restricted by allowing only specialist doctors to prescribe them. Yet, this could create difficulties in LMICs, where many people do not have access to specialists – or, indeed, any doctor. Such an approach would therefore require the identification of specialists among other groups, such as healthcare workers, for instance.
23. In animal health, stewardship faces the additional challenge of how to address the economic rationales driving the agricultural industry and often also veterinary practice. Here, the decision of what constitutes appropriate use is complicated by the need of farmers and agricultural companies to maintain a productive livestock and, in the case of veterinarians, a profitable surgery. Checks and balances, such as the separation of the prescribing and dispensing roles as they exist in the human health sector, do not usually exist in animal health. Guidelines for responsible use of antimicrobials in agriculture have been developed for different animal species which could be more widely adopted⁵.
24. Veterinarians have a key responsibility for antimicrobial stewardship because they are guardians not only of animal health but also of public health. In addition, stewardship in animal health is the responsibility of the farmers as primary guardians of their animals, and to ensure the release of food-safe animals into the food system. To overcome problems of implementing sound stewardship in animal health, economic needs have to be separated from prescription so as to reduce conflicts of interests. In both animal health and human health, governance mechanisms for antimicrobial stewardship have to complement responsibility with supervision and control.

Implementing NAPs

25. There has been little experience with the implementation of NAPs in LMICs because most LMICs are still at the stage of policy development or have only recently moved into implementation. Yet, some challenges are already becoming apparent, including: how to apply the multi-sectoral approach of One Health in practice? How to generate and sustain political support? How to evaluate the effectiveness of NAPs? And how to generate and maintain funding?
26. It is widely recognised that a “whole of society”, multi-sectoral approach is required to address AMR. Yet, frameworks for how to translate the One Health approach from language into practice are scarce. A key challenge here is how to overcome problems of collaboration between different social sectors and government departments. Difficulties emerge at both the political and the technical levels. At the political level, different interests, institutional mandates, but also prestige and territoriality can impede collaboration. At the technical level, differences in language, methods and terminology can create obstacles.
27. Within governments, problems of collaboration emerge for instance between the health and agricultural sectors. The use of antimicrobials in agriculture is tied to strong economic interests, and there has been some debate about the extent to which AMR in humans is driven by pathogens in animals. Yet, there is growing recognition that AMR is the result of a highly complex system of interconnected factors, and that we do not

⁵ <http://www.ruma.org.uk/> ; <http://www.epruma.eu/>

understand how exactly individual factors contribute to AMR. Moreover, it is also becoming apparent that the rapid increase of AMR requires urgent action, even in the face of uncertainty.

28. In addition to political problems arising from divergent interests and scientific uncertainty, there are administrative and organisational hurdles to overcome in multi-sectoral collaboration. Different institutional mandates create different work practices and routines. Funding streams are usually tied to individual ministries and departments, and funding for collaborative and coordination work can be difficult to come by. Also, it can be difficult to establish clarity about leadership in multi-sectoral collaboration while maintaining clear lines of accountability.
29. There are several ways to overcome problems of multi-sectoral collaboration. Education can help foster understanding of how different social groups and sectors perceive the problem. Incentives - at the levels of funding, interests and institutions, for instance - can help implement collaboration. NAPs could benefit from budgets that include collaborative work and the time and effort required for coordinating it. At the level of interests, collaborative work on AMR could be linked to the individual priorities of different organisations. Framing existing priorities as “AMR-sensitive”, rather than focusing on new, “AMR-specific” programs, could make it easier for organisations to integrate AMR into their portfolio and, therefore, improve multi-sectoral collaboration. Multi-sectoral collaboration can also be helped by pressure from high-level government officials. Political commitment from heads of state or heads of government can place a new issue on the political agenda, demand input from individual ministries, and help overcome stand-offs between different agencies. To secure multi-sectoral collaboration in the long-run, it is important that incentives are institutionalised in the form of governance mechanisms, cross-sectoral committees, agreements, and long-term funding streams, for example.

Conclusion

Sustaining action on AMR

Institutionalised incentives for collaboration on AMR are important because they can help safeguard the AMR agenda against changes in political priorities, as a result of changes in government or international climate, for instance. Crucially, sustained political action on AMR is linked to sustainable funding. In most LMICs, the implementation of NAPs would be extremely difficult without funding from donor agencies. It is therefore important to understand the priorities of donors and recipient countries with regard to the design and implementation of NAPs.

As mentioned above, differences sometimes exist between HICs and LMICs with regard to the access agenda. Furthermore, donor agencies tend to emphasise interventions that strengthen surveillance and laboratory infrastructure, and prioritise the human health sector over activities in the agricultural sector. Many LMICs are keen to ensure that AMR is built into broader agendas, such as health systems strengthening and universal access, and require particular assistance for surveillance and interventions in the agricultural sector. In order to ensure the sustainability of NAP implementation, donors and recipient countries need to work towards greater alignment of their agendas.

Ultimately, sustainable action on AMR requires a change in the attitudes, behaviour and culture of antimicrobial use on the part of many social groups beyond the government, including patients, doctors, healthcare workers, farmers, veterinarians and the agricultural industry. Governments can drive such change, and national campaigns and legislation are powerful tools at their disposal. At the same time, civil society has to keep up pressure on governments to maintain political momentum and ensure that commitments, including those made in NAPs, are followed through.

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Wilton Park | July 2016

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Annex

Some case-studies on NAPs: progress and challenges

Philippines

A 3-year NAP is approved by the Inter-Agency Committee on AMR in 2015

Entry points for increased government attention to AMR:

- Evidence on rising Multi-drug resistant-TB (Philippines is a TB priority country)
- WHO Global Action Plan on AMR

Challenges

- Awareness
- Collaboration between the human health and agricultural sectors
- Implementing infection prevention and control standards
- Involving the private sector (60% of healthcare provision is private)
- Limited data on animal health
- How to communicate with farmers

Kenya

Coordinated work on AMR begun with the Global Antibiotic Resistance Partnership in 2009

Turning point for government ownership: Inclusion of AMR into the new National Infection Prevention and Control Strategic Plan in 2014

Establishment of National AMR program, AMR focal point and the National Antimicrobial Stewardship Advisory Committee in 2015

Challenges

- Awareness
- High-level political support
- Devolved system of governance in the country
- Insufficient laboratory infrastructure
- Interrupted supply of reagents

Thailand

National AMR surveillance programme begins in 1998

Entry point for increased government attention: WHO Global Action Plan on AMR

Establishment of multi-sectoral AMR Coordination and Integration committee in 2015

Challenges

- Coordination
- Divergent interests between human health and animal health sectors
- Evidence to support decision making

- Political support
- Strategic direction

Smaller countries in Asia and the Pacific

AMR activities started only very recently

Working on 1-2 year NAPs to ensure achievable goals

Entry points for increased government attention:

- WHO Global Action Plan on AMR
- World Antibiotic Awareness Week

Challenges

- Awareness
- Misuse of antimicrobials and antibiotics in particular
- Inadequate infection prevention and control measures in hospitals
- Low quality of surveillance data
- No laboratory and use data for the animal sector

Lessons from the WHO in their surveillance strategy on HIV drug resistance

Predicted impact of HIVDR (2016-2030):

- 5,514 mio. USD due to HIVDR (6.2% increase)
- 684,000 AIDS deaths (12% increase)
- 419,000 new infections (8.1% increase)

Significant implications for HIV programme sustainability!

- WHO HIVDR surveillance
- Early Warning Indicators (EWI)
- Pre-treatment HIVDR (PDR)
- Acquired HIVDR (ADR)
- HIVDR in infants

Challenges

- Actionable surveillance results
- Coordination (standardised methods)
- Funding (although surveillance can be very cost-effective)
- Importance of appropriate messaging (contained resistance levels perceived as reassuring)
- Limited country ownership
- Reduction in survey implementation

Lessons

- Standardised methods to assess trends over time/across countries
- Nationally representative data to inform national policies
- Clear questions for surveillance
- Good quality surveillance data (epi and lab)
- Simple and rapid survey implementation