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The best laid plans?: international governance perspectives in AMR national action plans in Europe

Daniel E. Carelli¹, Elisavet T. Mitsouli², Josefin B. Ogne³, Jon Pierre ¹

¹ Department of Political Science, University of Gothenburg, Gothenburg, Sweden

² Ministry of Health, Republic of Greece

³ School of Public Administration, University of Gothenburg, Gothenburg, Sweden

Correspondence: Jon Pierre, Department of Political Science, University of Gothenburg, Sprängkullsgatan 19, 41123 Gothenburg, Sweden, Tel: +46 31 7861000, e-mail: jon.pierre@pol.gu.se

Background: There is a broad consensus in the European public health community that international collaboration and coordination are key in the fight against antimicrobial resistance (AMR). Yet, while experts typically testify the importance of cross-national learning and a coordinated effort to reduce the spread of multi-resistant bacteria, there are mixed views about how that is best realized in practice, particularly on the dichotomy between horizontal and vertical activities. **Methods:** National action plans (NAP) from all EU member states were systematically overviewed by two independent researchers. We followed a fixed procedure for locating a broad and comparable content on the international dimensions, and letting these vary on scales. **Results:** We find that countries adhere to four different strategies for international coordination, varying between ‘high’ and ‘low’ on values of vertical and horizontal activities. Most countries spend none or very little space to discuss international activities, while some countries use their NAPs to outline their aspiration for taking leading roles in the international struggle. Moreover, in line with previous research, we find that many countries directly mimic the Global Action Plan, but also that a large share of countries describe independent arrangements in their international strategies. **Conclusions:** European countries recognize AMR and its inherent international governance challenge differently in their NAPs, which may have implications for coordinated action to address the issue.

Introduction

Antimicrobial resistance (AMR) is not only a serious threat to global public, animal and environmental health, but also a highly complex governance issue.¹ Due to the use of antibiotics in human medicine and in livestock production, and the transmission of resistant pathogens between those groups and the environment, much of the current AMR work draws on the ‘One Health’ (henceforth OH) approach, aligning human health, agricultural use of antibiotics and measures to protect the environment from antibiotics.² In order to address AMR efficiently, it is necessary to engage a wide variety of public institutions, stakeholders and professionals. Thus, the OH approach poses a significant coordination challenge to be added to the complexities of cross-national coordination in the AMR field.

The impact of AMR on domestic public health is partly driven by the behavior of actors in other countries,^{3,4} which calls for both domestic and international coordinated action against AMR. To this end, the most basic governance strategy in the AMR field is to identify the key challenges, stakeholders and relevant policy sectors in a national action plan (NAP).^{5,6} While NAPs vary extensively in style and substance in Europe—some directly mimicking while some are highly independent of the Global Action Plan (GAP)^{7,8}—and the extent to which they are successfully implemented,⁹ we know very little about how they address the international dimensions of AMR. Current scholarship has shown how countries vary in their overall policy design, implementation tools, and monitoring and evaluation mechanisms^{10,11}; and the extent to which NAPs manage to integrate and implement the OH perspective.¹² While these frameworks offer a wealth of insights for policy-makers, they are still limited in explaining how countries define their policies in a comparative perspective.

The European Public Health Alliance¹³ reports large variation among the northern, southern, western and central-eastern parts of Europe in how well they implement AMR policies, more specifically on the inclusion of financial estimates, the integration of implementation and evaluation mechanism, and the identification of clear and measurable goals. Therefore, we are interested in the degree to which the NAPs emulate the GAP in terms of structure and items. In addition, particularly low- and middle-income countries in Europe show tendencies of mimicking the GAP in their NAPs while high-income countries typically set their own higher targets and comprehensive strategies independently of global standards.^{7,14} Given such regional variation, it begs the question whether strategies for international coordination follow a similar pattern.

Methods

To examine the variation in strategies for international coordination, we conducted a document analysis of the most recent NAP for each country. We coded the documents along seven variables with a three-point ordinal scale for each item. The value ‘none’ means that there is no mention of the item in question; ‘some’ indicates that the item was mentioned once or twice; while ‘extensively’ means that the item was mentioned several times and discussed in some detail. All NAPs were coded by two, occasionally three, members of the research team in order to ensure a high inter-coder reliability. Also, an earlier version of the paper was presented at a regional WHO conference on AMR NAPs where essentially all EU member states were represented. Finally, in a couple of cases, we corresponded with national AMR experts to ensure that we understood their respective NAPs correctly.

The results describe recent developments in international AMR policy in Europe, particularly how countries formalize such goals in their main steering strategy. We followed a clear structure when coding the data, although in an interpretivist rather than computer generated fashion. This methodology has recently been employed in a global assessment of NAPs, where data extraction followed a 'line-by-line content analysis [...] coding was iterative, with constant re-assessment of coded data to cross-check for inter-rater reliability.¹⁵ We accessed all NAPs from the WHO's library of NAPs.¹⁶

The items included in the analysis followed an analytical framework on the dichotomy of horizontal and vertical coordination, based on previous research.¹⁷ Fundamentally, these two dimensions refer to strategies for establishing and sustaining networked versus hierarchical forms of international governance. Horizontal activity refers to alignments or coordination with other EU member states, while vertical activity denotes a country's alignment or connection with supranational actors in the AMR field like the WHO. Aligning the two dimensions yields four distinct analytical groups of countries (figure 1).

Isolationists very rarely mention global institutions, EU institutions or EU member states. The overall perspective on the AMR issue could be described as introvert. Thus, the NAP serves mainly to describe the AMR problem; outline domestic measures that should be taken to address that problem; assign agency; and occasionally present a budget stating which departments or ministries that should carry which costs. The isolationists' NAPs are often structured strictly in accordance with the seven objectives outlined in the GAP. The common measures mentioned include surveillance and education. To the extent that international institutions are mentioned, it is usually in the context of international surveillance networks or as potential funders of AMR-related tasks. An important role of the NAP for isolationists is to increase domestic knowledge and awareness of the AMR problem.

Hubs, by contrast, pick up ideas and cues from the global level, for instance the WHO, and define their role as an intermediary or communicator of those ideas to EU member states, either all of them or strategically selected member states. Hubs sometimes portray themselves as brokers or liaisons between the global and EU level. They also tend to present strategic NAPs, specifying which particular countries they either collaborate with presently or seek collaboration with. Budgets or costing are rarely mentioned. These countries' NAPs rarely conform to the GAP framework. Indeed, some of the AMR-strategic documents they produce are not defined as NAPs but are information posted on the government's website or even communicated as a letter to the Parliament.

Europeanists share the urge for increased international collaboration, but emphasize the importance of collaboration among EU member states rather than the role of global institutions. They may or may not also mention the role of EU institutions. The *Globalists*, finally, discuss extensively the role of the WHO and other global or transnational institutions but do not mention EU member states or the need for European coordination. They also tend to emphasize the

global nature of AMR problem and the need for international collaboration.

Results

We report our results in table 1. The international governance perspective is more or less absent in some countries' NAPs. This is particularly the case for Bulgaria, Estonia, Hungary, Romania, Lithuania and Slovakia. Typically, when discussing international collaboration, it is framed within the One Health (OH) approach, i.e. recognizing the interrelation of human, animal and environmental health also in the international coordination challenge, with the exception of Poland. However, an overwhelming majority of NAPs maintain that international collaboration ought to increase. Such topics are extensively discussed in the NAPs of Austria, Belgium, Denmark, Germany, Ireland, Italy, Netherlands, Poland, Portugal and Sweden. However, only Germany, the Netherlands and Sweden provide explicit paragraphs on their role in the international platform, where all of them seek to take leading positions.

While most of the NAPs are structured according to recommendations in the GAP, Bulgaria, Estonia, Hungary, France, Cyprus, Slovenia and Austria chose to follow an independent structure. It should be stressed that NAPs from Estonia and Hungary are policy briefs following visits from the ECDC and are likely prone to adapt to the GAP features. Moreover, while most countries' NAPs are consistent with the GAP, we also find that some countries correspond with both GAPs as well as having several independent features in their NAP.

Most countries, with the exceptions of Romania and France, discuss the role of the WHO. Similarly, the French NAP only makes few references to the EU, also in contrast to most other countries, although France outlines its international AMR strategy in a separate document. References to other countries are rare; only Slovenia, Malta, Austria, Ireland, Denmark and the Netherlands mention other countries in their NAPs.

Thus, there is a noticeable emphasis on international coordination in these countries' NAPs. For example, the Swedish NAP states that the country 'will contribute to other countries' efforts to reduce the development of resistance and to prevent the spread of resistance'; to 'actively pursue the antibiotic resistance issue within the EU and collaborate with other EU member states, the EU commission, and EU agencies' and to 'drive relevant negotiations concerning new regulatory frameworks, recommendations and guidelines related to AMR and environmental impact within the EU. Sweden will also urge the EU to pursue issues relevant to AMR on a global level'; and will 'continue to build alliances with other countries in order to pursue AMR matters on a high political level in order to promote overarching matters in a OH perspective.' Similarly, the Netherlands describes itself as having 'a leading international position when it comes to combating AMR [...] we are looking at how we can best use our expertise to support other countries in tackling this problem.' And Germany presents itself, along with the UK, Sweden, the

	Vertical network activity		
	Low	High	
Horizontal network activity	Low	Isolationists	Globalists
	High	Europeanists	Hubs

The framework is published in the Proceedings (p. 22) from the 2021 conference "Sub-Regional workshop on Antimicrobial Resistance: National Action Plan Development and Implementation" organized by WHO Europe

Figure 1 Analytical framework

Table 1 International dimensions in national action plans

	Increase collaboration			Taking leading role			Discussing international collaboration			Structure of NAP		
	Not mentioned	Discussed somewhat	Discussed extensively	No	Somewhat	Yes	Not mentioned	Primarily human sector	Both sectors	Independent	Some GAP recommendations	Consistent with GAP
Austria			X	X					X	X		
Belgium			X		X				X			X
Bulgaria	X			X			X			X		
Croatia		X		X					X			X
Cyprus		X		X					X	X		
Czech Rep.		X		X					X			X
Denmark			X		X				X			X
Estonia	X			X			X			X		
Finland		X		X					X			X
France		X			X				X	X		
Germany			X			X			X			X
Greece		X			X				X		X	
Hungary	X			X			X			X		
Ireland			X	X					X			X
Italy			X		X				X			X
Latvia			X		X				X			X
Lithuania		X		X			X				X	
Luxembourg		X		X					X		X	
Malta		X		X					X			X
Netherlands			X			X			X			X
Poland			X	X				X				X
Portugal			X	X				X				X
Romania	X			X			X				X	
Slovakia	X			X					X		X	
Slovenia		X		X					X	X		
Spain		X		X					X		X	
Sweden			X			X			X			X

	Reference to the EU			Reference to the WHO			Reference to individual countries		
	None	Some	Extensive	None	Some	Extensive	None	Some	Extensive
Austria			X					X	
Belgium			X					X	
Bulgaria		X			X			X	
Croatia			X					X	
Cyprus		X			X			X	
Czech Rep.		X			X			X	
Denmark			X					X	X
Estonia			X					X	
Finland		X			X			X	
France		X			X			X	
Germany			X					X	
Greece		X			X			X	
Hungary			X					X	
Ireland			X					X	X
Italy			X					X	
Latvia			X					X	
Lithuania		X			X			X	
Luxembourg		X			X			X	
Malta			X		X				X
Netherlands			X					X	X
Poland			X					X	
Portugal		X						X	
Romania		X		X				X	
Slovakia			X		X			X	
Slovenia			X		X			X	X
Spain			X		X			X	
Sweden			X					X	

Netherlands and Canada, as 'a lead country' in the global action against AMR.

In sum, based on this coding, we find that France (but see above), Bulgaria, Romania, Estonia, Hungary, Lithuania and Cyprus share

characteristics as 'isolationists'; Slovenia, Austria, and Croatia as 'globalists'; Finland, Greece, Ireland and Latvia as 'Europeanists'; and Luxembourg, Spain, Malta, Denmark, Italy, Germany, Sweden and the Netherlands as 'Hubs'.

Discussion

Our analysis suggests that the EU member states' NAPs vary significantly in terms of how they define the need for international coordination and their own role in that process. This is not surprising, given the myriad of institutional factors that influences both the antibiotic consumption and the incidence of AMR. While states typically need to adopt the recommendations from the GAP, they also need to prioritize measures and formulate them to fit the regulatory arrangements. This suggests that countries that do not correspond closely with the GAP can do so either because the country does not believe it has the capacity to deliver on all the GAP's items, or it can reflect autonomous thinking in designing the NAP. In addition, the NAP also serves to define the nature of the problem in the country in question, hence cross-national variation in NAP design should be expected. Also, the fact that some countries abstain from raising an international dimension to this is troubling for future global coordination.

The implications of this variation are multifold. Our results suggest that some countries prefer horizontal networking solutions in the EU over being influenced by the WHO. The combination of these two features, as found among the 'Hubs', is that some countries prefer using several channels for participating or driving international policy development. It is also evident that most states would like to see an increase of international coordination. The roles of the WHO and the EU are therefore quite differentiated. The 'Isolationists' have little international outreach other than the adoption of GAP recommendations, while the 'Europeanists' aim for creating informal or 'soft' governance mechanisms under the umbrella of EU institutions.

In addition, the strong optimism of international collaboration found among the 'Hubs' and 'Europeanists', as well as the desire to take leading roles in driving the AMR field, bodes well for future cross-national collaboration to mitigate AMR. Some countries have clear ambitions to lead the international fight against AMR, which calls for questions of power, both in the practical creation and maintenance of networks, in the participation of international bodies such as the WHO and the EU, and in substantive action that emerges from those institutions. On the bright side, the drivers of international action are indeed strong among several countries, and their leadership is crucial for achieving any transnational action. As demonstrated earlier, the current (and prospective) leaders over AMR in Europe appears to be the countries with the lowest levels of resistance; a pattern that may entail significant positive externalities. For instance, evidence on what has been successful in their countries can guide countries that are lagging behind. Similarly, in their leadership they might disregard contextual specificities in other countries and recommend policies and institutions that have been successful elsewhere. However, being at different 'stages' in the struggle over AMR and having diverse institutional points of departure will call for different policy across contexts. The emulation and mimicking of policy to improve institutions can prove itself as a complex enterprise.

By contrast, little emphasis on the international aspects would suggest that countries see less obligation to participate or drive international projects that occur on a regular basis. Government allocation of funds to support expert agencies or institutes and their representation internationally is also likely to risk being underfinanced as a side-effect to this. NAPs do remain central governance instruments to encapsulate the full arsenal of means and strategies to be adopted, and if international coordination is more or less absent it is reasonable to assume that politicians will not be overly enthusiastic of investment.

We should also note that although extremely useful in its coordinative function, NAPs are not the only steering instruments for governments. They can use alternative forms such as tax instruments, targeted government appropriations or agency instructions to govern the work against AMR. They can also assume a leading role in EU institutions without explicitly stating that in the NAP.

That being said, we believe that NAPs have an important role to play given its coordinative function. AMR, in analogy to several other issues such as climate change or international terrorism, is characteristically complex or 'wicked'.¹⁸ The process of formulating and regularly updating NAPs serves a key function to mobilize institutions and stakeholders in the AMR work. Additionally, politicians, citizens and the media can easily use the NAP to inform themselves about the complexities of AMR from a governance perspective, which is essential for pushing AMR higher on the political agenda.

NAPs provide a useful window into understanding responses to AMR in a comparative perspective. Throughout the lifetime of NAPs, most member states have now updated versions and continue to do so. Therefore, we see potential for future research to examine the substantial development of AMR policy over time. This could yield even more underlying dynamics of power and policy emulation. Further, future research should investigate the role, and consequences thereof, of supranational institutions in pushing states to raise the international dimension of AMR. Lastly, future research should study and evaluate the precise measures countries are taking to address the international challenge in AMR. It is one thing to state that internationalization is needed, and another one to actually implement it.

Supplementary data

Supplementary data are available at *EURPUB* online.

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Data availability

All National Action Plans were retrieved from the WHO's National Action Plan online library. The coding of the National Action Plans presented in the article is free to use with cited source.

Key points

- National action plans are useful indicators of domestic and international governance strategies against AMR.
- The EU member states display large variation in their international activities.
- The European struggle against AMR is characterized by several countries primarily addressing domestic challenges and only few countries discussing international coordination issues.

References

- 1 Rochford C, Sridhar D, Woods W, et al. Global governance of antimicrobial resistance. *Lancet* 2018;381:1976–8.
- 2 Murray CJL, Ikuta KS, Sharara F, et al. Global burden of bacterial antimicrobial resistance in 2013: a systematic analysis. *Lancet* 2022;399:629–55.
- 3 Harring N, Krockow EM. The social dilemmas of climate change and antibiotic resistance: an analytic comparison and discussion of policy implications. *Hum Soc Sci Commun* 2021;8:1–9.
- 4 Jagers S, Harring N, Löfgren A, et al. On the preconditions for large-scale collective action. *Ambio* 2020;49:1282–96.
- 5 Castro-Sánchez E, Iwami M, Ahmad R, et al. Articulating citizen participation in national anti-microbial resistance plans: a comparison of European countries. *Eur. J. Pub. Health* 2018;28:928–34.

- 6 Heuvel LV, Caini S, Dücker MLA, Paget J. Assessment of the inclusion of vaccination as an intervention to reduce antimicrobial resistance in AMR national action plans: a global review. *Global Health* 2022;18:85.
- 7 Rubin O, Munkholm L. Isomorphic dynamics in national action plans on antimicrobial resistance. *Public Admin Dev* 2022;42:142–53.
- 8 World Health Organization. *Global Action Plan on Antimicrobial Resistance*. Geneva: World Health Organization, 2015.
- 9 Ogyu A, Chan O, Littmann J, et al. National action to combat AMR: a one-health approach to assess policy priorities in action plans. *BMJ Glob. Health* 2020;5:1–10.
- 10 Anderson M, Schulze K, Cassini A, et al. A governance framework for development and assessment of national action plans on antimicrobial resistance. *Lancet Infect Dis* 2019;19:371–84.
- 11 Patel J, Harant A, Fernandes G, et al. Measuring the global response to antimicrobial resistance, 2020–21: a systematic governance analysis of 114 countries. *Lancet Infect Dis* 2023. [https://doi.org/10.1016/S1473-3099\(22\)00796-4](https://doi.org/10.1016/S1473-3099(22)00796-4).
- 12 Munkholm L, Rubin O, Bækkeskov E, Humboldt-Dachroeden S. Attention to the Tripartite's One Health measures in national action plans on antimicrobial resistance. *J Pub. Health Policy* 2021;42:236–48.
- 13 European Public Health Alliance. *Translating Political Commitments Into Action: The Development and Implementation of National Action Plans on Antimicrobial Resistance in Europe*. Brussels: European Health Alliance, 2018.
- 14 Munkholm L, Rubin O. The global governance of antimicrobial resistance: a cross-country study of alignment between the global action plan and national action plans. *Global Health* 2020;16:1–11.
- 15 Charani E, Mendelson SJC, Pallet C, et al. An analysis of existing national action plans for antimicrobial resistance—gaps and opportunities in strategies optimizing antibiotic use in human populations. *Lancet Glob Health* 2023;11:e466–74.
- 16 Library of National Action Plans. Available at: <https://www.who.int/teams/surveillance-prevention-control-AMR/national-action-plan-monitoring-evaluation/library-of-national-action-plans> (21 April 2023, date last retrieved).
- 17 Carelli D, Pierre J. When the cat is away: how institutional autonomy, low salience, and issue complexity shape administrative action. *Pub Admin* 2022:1–15. <http://doi.org/10.1111/padm.12912>.
- 18 Littman J, Viens AM, Silva DS. The super-wicked problem of antimicrobial resistance. In: Jamrozik E and Selgelid M, editors. *Ethics and Drug Resistance: Collective Responsibility for Global Public Health*. New York: Springer: Public Health Ethics Analysis, 2020; 421–43.