

Joint Action Antimicrobial Resistance and Healthcare-Associated Infections

# MS9.3

Mapping practices of evidence-informed policymaking in EU countries

Case study: Antibiotic prescribing guidelines

WP9 | Prioritizing and implementing research and innovation for public health needs

Leader acronym | INSERM, FHI

Author(s) I Christine Årdal, Marie-Cécile Ploy, Yohann Lacotte (alphabetically ordered)

> Reviewer(s) | Sadika Bernard, Olivier Barraud Dissemination level | Public



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# **Table of Contents**

List of abbreviations	3
Summary	4
Introduction and objectives	5
WorkPackage (WP) "Research & Innovation" objectives.	5
The complicated translation of evidence into policies.	5
The EU-JAMRAI setting out to understand how countries use evidence to set guidelines	5
Methodology	6
Results	7
How European countries set up their antibiotic prescribing guidelines?	7
Conclusions	9
The challenges with relying solely on expert opinions.	9
Many tools are already available to improve practices	9
Acknowledgements	10
References	10
Appendix	11
Example of evidence-informed hospital prescribing guidelines.	11

# List of abbreviations

AMR: AntiMicrobial Resistance

HCAI: HealthCare Associated Infection

MS: Member States

WP: WorkPackage

### Summary

Every year over € 1 billion is invested in research related to antimicrobial resistance (AMR), including research for new technologies, improved stewardship and surveillance, and better understanding of select microbes. These investments are made not only in the pursuit of discovery and scientific knowledge but also to inform decision-making. Yet, translating scientific evidence into effective health policies is not an easy task.

To gain understanding on how European countries use scientific evidence to set their antibiotic guidelines and propose recommendations to improve the translation of evidence into policies, the EU-JAMRAI set out to interview human and animal policymakers in 10 European countries.

Nine of 10 European countries have antibiotic prescribing guidelines for human health. All nine countries use experts to establish and update the guidelines. Several interviewees were uncertain about how the experts used research evidence to update the guidelines. Three countries specifically mentioned that systematic reviews of evidence formed the basis for guideline updates. Nine of 10 countries also have species-specific, disease-specific antibiotic prescribing guidelines for veterinary health, also established and updated through expert opinion.

These results highlight that in Europe expert opinion is still the basis for antibiotic prescribing guidelines. However, research has revealed limitations with processes that rely solely on expert opinion. Experts may use non-systematic methods when they review research, potentially based upon bias.

### Introduction and objectives

WorkPackage (WP) "Research & Innovation" objectives.

The main objective of the WP "Research & Innovation" is to contribute to a coordinated European response against AMR by assisting MS in devising policies to prioritize, stimulate and utilize research and innovation related to AMR and HCAI.

This deliverable focuses on the third specific objective of the WP "Research and Innovation" whose overreaching goal is to ensure that scientific evidence on AMR inform policies.

The complicated translation of evidence into policies.

Every year over  $\notin$  1 billion is invested in research related to antimicrobial resistance (AMR), including research for new technologies, improved stewardship and surveillance, and better understanding of select microbes.<sup>1</sup> These investments are made not only in the pursuit of discovery and scientific knowledge but also to inform decision-making. Coupled with significant investments in surveilling resistant pathogens of importance, this creates a dynamic pool of evidence to draw upon to inform policies and practices.

Yet, translating scientific evidence into effective health policies is not an easy task. Policy-makers and scientists speak different languages. Scientists are not trained to do politics and policymakers are not trained to judge the quality of scientific evidence. The result is an often inefficient process to translate evidence into policies.

The EU-JAMRAI setting out to understand how countries use evidence to set guidelines.

To gain understanding on how European countries use scientific evidence to set their antibiotic guidelines and propose recommendations to improve the translation of evidence into policies, the EU-JAMRAI set out to interview human and animal policymakers in several European countries.

# Methodology

As a part of the EU Joint Action on AMR and Healthcare-Associated Infections (EU-JAMRAI), we wanted to better understand how countries utilize evidence to inform their policies and practices. We chose the **concrete case of antibiotic prescribing guidelines**, both for human and veterinary health. We performed **in-depth interviews** with **human health policymakers** in ten European countries: Belgium, Denmark, France, Germany, Luxembourg, the Netherlands, Norway, Romania, Spain, and Sweden. We also interviewed **policymakers from Ministries of Agriculture** in all countries except Romania. This qualitative data gives insights into how countries are utilizing evidence to inform antibiotic prescribing practices.



Figure 1: Countries interviewed

### Results

#### How European countries set up their antibiotic prescribing guidelines?

Nine of 10 European countries have antibiotic prescribing guidelines for human health. Five of the nine countries have two separate prescribing guidelines, one for community health and one for hospital care. All nine countries use experts to establish and update the guidelines. This may be through infectious disease societies, academic institutions, or dedicated foundations. Several interviewees were uncertain about how the experts used research evidence to update the guidelines. Three countries specifically mentioned that systematic reviews of evidence formed the basis for guideline updates. All countries report human resistance data to the European Antimicrobial Resistance Surveillance Network (EARS-Net). Interviewees mentioned that antibiotic guidelines often comprise only those antibiotics available in country. However, one country has rejected this approach. Instead, it has included the most scientifically, clinically appropriate antibiotic, regardless of its national availability. In this way, the guidelines may also be used as a national list of essential antibiotics. Other treatment options are always included in the guidelines when the recommended antibiotic is not available on a long-term basis.

Nine of 10 countries also have species-specific, disease-specific antibiotic prescribing guidelines for veterinary health, also established and updated through expert opinion. Experts may include veterinarians, farmers, academics, feed industry, and pharmaceutical industry. Whereas there may be perceived conflicts of interest in regards to several of these experts, the guidelines are generally based upon the guidance from the European Medicines Agency as well as national resistance patterns. Several interviewees pointed out that there is limited relevant research available, necessitating a focus on local experiences rather than evidence. However, systematic approaches are used in regards to specific challenges. One country commissioned an academic review of the evidence when colistin resistance appeared in swine populations. Informed by this review, interventions were introduced.

Generally, human and veterinary prescribing guidelines are infrequently updated, perhaps every five years. For human guidelines, this may make it difficult to include

new antibiotics. However, there are few new antibiotics, which are often approved with limited clinical evidence.

# Conclusions

#### The challenges with relying solely on expert opinions.

These results highlight that in Europe expert opinion is still the basis for antibiotic prescribing guidelines. However, research has revealed limitations with processes that rely solely on expert opinion.<sup>2</sup> Experts may use non-systematic methods when they review research, potentially based upon bias to certain academic fields, journals, and research designs. Performing a systematic review has several advantages over other approaches to gathering evidence, including reducing the risk of bias, ensuring a comprehensive search strategy, and transparent reporting of processes to allow for critical appraisal.<sup>2</sup>

Of course, a systematic review can only be as good as the evidence summarized. In areas with little research available, like veterinary antibiotic prescribing, a systematic review may not help to inform policymaking. Also in situations like creating antibiotic prescribing guidelines, the amount of literature available may be overwhelming and impede the timely achievement of a finished result. Therefore, how evidence is utilized should be carefully weighed in order to provide the greatest impact with the resources available.

#### Many tools are already available to improve practices.

There are many resources available to assist in evidence-informed policymaking and practices. SUPPORT Tools for evidence-informed health policymaking provide useful tools that may be tailored to individual needs.<sup>3</sup> The Evidence-Informed Policy Network (EVIPNet), established by the World Health Organization, assists countries to systematically use data and research evidence in health policymaking to strengthen health systems.<sup>4</sup>

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### References

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3. Oxman AD, Lavis JN, Lewin S, Fretheim A. SUPPORT tools for evidence-informed health policymaking (STP): Norwegian Knowledge Centre for the Health Services; 2010.

4. World Health Organization. Evidence-Informed Policy Network. 2021. https://www.who.int/evidence/en/ (accessed February 10 2021).

<sup>2.</sup> Oxman AD, Lavis JN, Fretheim A. Use of evidence in WHO recommendations. *The Lancet* 2007; **369**(9576): 1883-9.

#### Example of evidence-informed hospital prescribing guidelines.

In Norway, the government has committed that the content of all guidelines shall be based on a systematic assessment of the current evidence. An evidence-informed approach means that all research, clinical experiences, and user experiences are systematically assessed against potential desired and undesirable consequences. Yet, when updating antibiotic hospital prescribing guidelines a pragmatic approach must be taken. The guidelines contain numerous recommendations, and it would not be practically possible within a reasonable time and budget to gather all research for every antibiotic/infection combination. Therefore, priorities had to be set in order to identify acceptable compromises.

As a starting point, it was decided that the Norwegian guidelines could be based upon the recommendations of high quality international guidelines, selected based upon the following criteria:

- Relevance: The guidelines must be relevant. Specifically, this means that the patient population, resistance conditions and available (registered) antibiotics correspond to Norwegian conditions.
- Evidence-based: Are the sources of the guideline recommendations comprehensive, of sufficient quality, and relevant? Is there a transparent methodology and process?
- Authorship: Are there recognized professional authorities, with sufficient insight into the problem and an overview of the subject area? Is there sufficient breadth in the composition? Do they represent the whole country or possibly multiple countries?

For each chapter, the team of experts reviewed the guidelines from other countries and used a standardized instrument to evaluate the quality and completeness of each recommendation. The team assessed the overall evidence base and transfer value to Norwegian conditions and prepared proposals for recommendations. When the literature did not provide clear answers, an assessment of Norwegian resistance conditions, Norwegian therapy tradition and expert assessments (the professional network) determined the recommendation. The rationale for every recommendation in the guidelines is clearly stated, including evidence base and assessment. Each recommendation is classified as strong or weak. A strong recommendation is suitable for most patients or one with a strong evidence base. Whereas a weak recommendation is given when different choices may be correct, depending on the patient and situation. The recommendations also balance considerations for the individual patient against the risk of increasing antibiotic resistance.





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