Research Article

Nurses Combatting Frontline Antimicrobial Resistance

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Introduction

Antimicrobial Resistance (AMR) stands as a paramount public health concern, with antibiotic-resistant bacteria being associated with over 35,000 deaths in the EU/EEA, according to estimates by the European Commission. The World Health Organization (WHO) declared AMR among the top 10 global public health threats in 2019, and by July 2022, the European Commission and Member States designated AMR as one of the top three priority health threats.

This report unveils insights gathered during the EFN General Assembly in October 2023, specifically in the Tour de Table agenda item, where National Nurses' Associations (NNAs) provided input on current and planned initiatives regarding the AMR One Health approach. This information-sharing initiative aims to unveil ongoing best practices and concerns at the national level. Employing standard content analysis approaches, the synthesized data informs national and EU policy development on best practices and the indispensable role of nurses in addressing AMR.

The collected data indicates the fundamental role of nurses in combating AMR across all countries, often undervalued. Notably, the scarcity of nurse prescribers persists, with an anticipated need for more in the future, as emphasized by insights from Norway. This underscores the urgency to invest in education to equip nurses with specialized skills and practical experience, particularly for responding to the growing demand for Infection Control Nurses (ICN).

Additionally, the collected data provides a comprehensive overview of policies implemented in some member states to safeguard nurses exposed to antibiotics, revealing a lack of specific policies in many countries. The analysis of examples presented by EFN Members underscores the critical contribution of nurses to AMR strategies and roadmaps, emphasizing the necessity for "fit for purpose" policies at all levels.

Recognizing the crucial role of nurses in combating AMR, it is imperative to fully empower them through traditional and advanced roles, such as link nurses, stewardship, infection prevention and control nurses, and nurse prescribers. Given their close relationship with patients, coupled with their roles in infection control and hygiene, nurses emerge as vital members of multidisciplinary teams, making them exceptionally suited actors in the battle against AMR. Active involvement of nurses in initiatives promoting prudent antimicrobial prescribing and management could significantly enhance the impact of these actions on improving health outcomes.

Background

Antimicrobial resistance (AMR) poses a significant global challenge, with the World Health Organization (WHO) highlighting alarming levels worldwide. The professional and political implications of AMR demand the active involvement of frontline nurses to translate policy into practice. The European Commission estimates that antibiotic-resistant bacteria have caused 33,000 deaths in the European Union, resulting in approximately €1.5

billion yearly in healthcare costs and productivity losses. Recent data underscore a concerning trend in the increasing number of patients infected by resistant bacteria across the EU, with projections indicating a potential 10 million deaths annually worldwide by 2050 if decisive action is not taken.

Recognizing AMR as a paramount concern, the European Commission and EU Member States designated it as one of the top three priority health threats in July 2022. The latest data reveals alarming trends, including a rise in healthcare-associated infections and the potential for significant global economic losses.

On 13 June 2023, the Council adopted the Recommendation on intensifying EU actions against AMR using a One Health approach. The objectives encompass strengthening national action plans, enhancing surveillance and monitoring, reinforcing infection prevention and control, promoting antimicrobial stewardship, setting targets, raising awareness, fostering research, and fostering global cooperation.

Frontline nurses, due to their close relationship with citizens and patients, are pivotal actors in combatting AMR. Effective strategies demand 'fit for purpose' health policies and national AMR Action Plans that resonate with the voices of nurses.

AMR extends beyond human health, requiring a multifaceted One Health approach that involves collaboration across sectors and disciplines. Nurses, with their role in prescribing and as advanced practice nurses, possess a proven track record in positively impacting AMR reduction. Their holistic approach to people-centred care allows for comprehensive reviews of complex co-morbidities, streamlining polypharmacy, and implementing best practices for AMR.

Implementing a One Health approach that includes nurses is crucial for creating a sustainable environment focused on optimizing both human health and ecosystems. With 3 million nurses in the EU and 6 million in Europe, the European Federation of Nurses Associations (EFN) advocates for the engagement of frontline nurses in developing impactful health policies to address AMR. Given that nurses constitute up to 80% of healthcare services, EU health policies must reflect their expertise and pragmatic approach in tackling AMR.

Methods

Facilitating the exchange of knowledge, experiences, and developments among the European Federation of Nurses Associations (EFN) membership is a highly valued function of its bi-annual General Assembly meetings. The EFN Tour de Table serves as a key policy support mechanism to realize this objective. During each General Assembly, the Tour de Table provides EFN Members with the platform to share information and best practices related to specific topics of EFN and nurses' concern, intended to be prioritized on the EU political agenda. Members also discuss key national issues and developments. This exchange aims to communicate evidence to the European Commission, with the goal of upscaling best practices throughout the EU and Europe.

During the October 2023 EFN General Assembly in Madrid, Members were specifically invited to provide information on several crucial aspects related to the Antimicrobial Resistance (AMR) One Health approach. This included sharing best practices led by nurses, elucidating the role of Infection Control Nurses (ICN) in the AMR One Health Approach, detailing the development and implementation of Stewardship programs in their respective countries, providing insights into the number of nurse prescribers and the challenges they face, and offering an overview of policies in place for protecting nurses from overexposure to antibiotics.

The data collected through this process assumes significance as it will play a pivotal role in EFN's advocacy efforts with EU institutions, particularly the European Commission and the European Parliament. These insights will be crucial when these institutions delve into the development of the pact for skills. The more comprehensive our understanding of the national situations in each country, the more effectively we can lobby EU institutions to shape fit-for-purpose solutions and initiatives.

Results

AMR One Health Approach best practices led by nurses

In Denmark, nurses, positioned as the primary healthcare professionals closest to patients, assume a pivotal role in combatting Antimicrobial Resistance (AMR) through a preventive approach, recognized as one of the most effective solutions. Notable examples of the significant contribution of nurses include the formulation of clinical guidelines for systematic oral hygiene and their indispensable role in preventing urinary tract infections. Numerous instances underscore the direct impact of nurses' interventions on infection rates, reinforcing the critical nature of their involvement in AMR mitigation. An overarching trend in Denmark reveals a heightened emphasis on the Fundamentals of Care, reflected in the increased presence of specialist nurses specializing in infection hygiene. This trend reflects a broader acknowledgment of the crucial role nurses play in infection prevention and control. The evolving landscape underscores the necessity of recognizing and further supporting the specialized expertise of nurses as they continue to contribute significantly to the multifaceted challenge of AMR.

Ireland published the Ireland's second One Health National Action Plan on AMR 2021-2025 which outlines over 150 actions to tackle the threat of AMR. Among the best practices and actions led by nurses, there is the development of an Infection Prevention & Control Link Practitioner Programme Framework – Community Health & Social Care Settings 2021/2022 to identify and manage infection prevention and control (IPC) risk and promote good antimicrobial stewardship (AMS).

In Spain, a new institution has been created to support nurses, physicians, and pharmacists focusing on One Health. Moreover, the Spanish Council is actively lobbying the government on One Health.

Infection Control Nurses role in the AMR One Health Approach and the development of Stewardship programmes developments and implementation in your country

In Germany, nurses play a key role in AMR, through the infection control roles. In this country, there is a differentiated occupational

health and safety and risk assessment system that regulates the AMR hazard area. Moreover, nursing is engaged in the measures within the framework of public duties and care services, but there are no nursing-specific programmes.

In Norway, ICN play a vital role in infection control. However, according to a survey carried out in 2023, in the near future there will be the need to recruit new ICN. To make it happens, it will be necessary to invest more in education instituting a bachelor's degree in nursing and a further education where the specialist skills and practical experience become taken care of, and which must be able to be expanded to one full master's degree in order to respond to the growing demand for ICN.

In the UK, the RCN is active on antimicrobial stewardship and continues to use UK developed AMS competency framework (Courtenay et al) developed by nurses, which is also used for content of the RCN Infection Prevention & Control education programme.

How many nurse prescribers are there in your country, what obstacles exist to nurse prescribing, and is what they prescribe monitored?

In Poland, although 40% of nurses can become nurse prescribers, a considerable portion opts not to pursue this avenue.

Contrastingly, in Finland, the nurse prescriber service, established in 2010, has seen diverse developments across the country over the past decade. Notably, nurse prescribers in Finland, adhering to Current Care Guidelines outlined in the medical prescribing act, are authorized to prescribe specific antibiotics for patients with infectious diseases. The success of nurse prescribing in Finland is facilitated by an electronic prescription system, particularly effective in units where prescriber roles are distinctly defined, differentiating them from other nursing roles.

Estonia boasts a significant number of nurse prescribers, many of whom have undergone Advanced Practice Nurse (APN) education. Additionally, efforts are underway in Estonia to ensure that individuals who have received APN training possess the right to prescribe.

In Sweden, nurses play a pivotal role in addressing Antimicrobial Resistance (AMR), primarily through their limited prescribing authority. The "Strama" initiative delineates essential measures for mitigating the development and spread of antibiotic resistance in healthcare. Pertaining to nurses' prescribing, the Strama Study underscores the importance of monitoring key factors, as outlined in point 4: "Local prescribing and resistance data should be analyzed and fed back." This emphasizes the need for healthcare providers to possess tools linking prescribed antibiotics to diagnoses, both in hospital and primary care settings. Furthermore, monitoring and reporting antibiotic prescribing in relation to diagnoses and antibiotic resistance to managers and prescribers is deemed crucial.

Does your country have a policy to protect nurses from over exposure to antibiotics?

Norway focuses a lot on this issue and AMR is a key priority in the political agenda of this country. It has a Strategy (2015-2020) and an Action Plan (2016-2022) on AMR, which provides measures for protecting healthcare professionals and nurses. Moreover, in Norway there is an Action Plan on Infection prevention (2019-2023).

In Ireland, does not exist a system of determining status of staff working regularly with high potent antibiotics, but only individual policies from hospitals and the guidelines available on the Health Protection Surveillance Centre (HPSC).

In Czech Republic, there is the Government Regulation No. 361/2007 Coll., which outlines and establish the necessary conditions for the health protection and well-being in the workplace.

Discussion

The European Federation of Nurses Associations (EFN) welcomes the publication of the Commission's proposal for a Council Recommendation on stepping up EU actions to combat antimicrobial resistance (AMR) in a One Health approach. AMR is far from being only a human health problem. In fact, it is a challenge that binds together multiple sectors, disciplines, and communities at varying levels of society. A One Health approach to combatting AMR brings together public health, veterinary and environmental sectors. AMR One Health Approach is vital for frontline nurses' activities. Developing and implementing solutions in the One Health approach is a complex endeavor, as it requires a high level of cooperation, communication and coordination across disciplines and care pathways. However, nurses have a proven track record of positively impacting on reducing AMR as part of their role in medicinal product prescribing coupled with their expertise as advanced practice nurses (APN). Nurses' holistic approach to patient centered care provides opportunities to review complex co-morbidities particularly in older patients and streamlining polypharmacy including managing non-beneficial or potentially harmful multiple medicines including leading the implementation of best practice regarding AMR. Education about healthcare-associated infections and how to prevent HCAI is an important part of avoiding unnecessary antibiotic treatment. The EFN recognizes that complacency, poor prescribing practice, and the overprescribing of antibiotics are major factors in the emergence and challenges of AMR and patient safety. Nurses' leadership and informed clinical decisions are central to ensuring safe and appropriate prescribing throughout the prescribing cycle. In addition, nurses are recognized for their expertise in supporting patients with medication compliance, monitoring prescription decisions, reducing prescribing errors and engaging in medication reconciliation actions. Furthermore, cross-sectoral education and cooperation between nurses, pharmacists, doctors, veterinarians, dentists, and other healthcare professionals, in line with the One Health approach, is particularly important in the context of antimicrobial resistance.

Nurses have significant experience in stewardship interventions at all levels of care which is indispensable to fight the spread of AMR. There is a need to elaborate the core elements of 2 European antibiotic stewardship programmes in order to translate them into practical and achievable policies at national and healthcare

delivery level. However, nursing workforce shortages and heavy workloads across the health sector challenge stewardship capacity building with workforce pressure influencing prescribing practices. Antimicrobial resistance (AMR), particularly antibiotic resistance, still stays one of the greatest global health threats affecting the health of people across the world. Although AMR reached the highest levels of political attention of leaders at G7 and G20, there is still a need for concerted action and implementation of plans. Therefore, the EFN calls on the European Institutions and Member States to ensure that frontline nurses' perspectives are taken into account in the following key areas:

• Decisive political action is needed to ensure the prudent use of antibiotics and to improve infection prevention and control. The member states are encouraged to introduce National action plans targeting AMR with nurses included in decision making.

• The European Union needs a common approach to antibiotic stewardship programmes, that will be adapted to healthcare delivery settings, taking into account the local context with emphasis on nurse prescribing.

• Each healthcare facility should be encouraged to establish and provide necessary funding, resources, and training for AMR stewardship programmes including antimicrobial surveillance.

• Improved awareness of One Health approach across healthcare professionals and public health, veterinary and environmental sectors must be promoted. The access to clean water and sanitation are baselines of effective hygiene and prevention of infection diseases.

• Prevention of overuse of antibiotics in agriculture and environmental contamination leading to antimicrobial resistance must be a priority.

• Nursing education and training curricula must be equipped with up to date and reliable information on the One Health approach, interprofessional cooperation and responsible prescribing practices, so that nurses have the appropriate knowledge and skills focusing on infection prevention and prudent use of antimicrobials.

• Nurses and nursing students should be supported in developing skills in how to prevent infections, how to treat infections and how to manage patient expectations regarding antibiotic prescribing.

• To support continued progress, it is vital that nurses have adequate time with patients to assess whether antibiotics are necessary. Nurses have the competence to prevent infections by providing safe, efficient high-quality care.

• The public should be informed about the correct use of antibiotics, their effectiveness, and the societal impact of misuse, as well as prevention of infections through increased hygiene.

• Training for nurses regarding patient education about the correct use of antimicrobials should be encouraged at a national and healthcare delivery level.

Regular multidisciplinary meetings should be held in order to access and monitor AMR and to develop coordinated approach to the problem, focusing on adequate antimicrobial prescribing practices and patient education on infection prevention and appropriate use of antibiotics.

Conclusion

Antimicrobial resistance (AMR), recognized as one of the top ten global public health challenges, stands as a significant professional and political concern prominently featured on both the EU and global health agendas. Recent data underscores the escalating number of patients infected by resistant bacteria across the EU, with projections indicating a potential 10 million annual deaths worldwide by 2050 if decisive action is not undertaken.

Addressing this imminent threat necessitates a collaborative global approach across sectors, making it a paramount public health priority. AMR mitigation involves multifaceted strategies, including public and professional education. Nurses, being the frontline healthcare professionals in close proximity to patients, hold a pivotal role, particularly in two key areas: informing and motivating the public, and preventing and managing infections. The European Federation of Nurses Associations (EFN) strongly asserts that nurses, given their position in the healthcare sector, must spearhead efforts in reducing antimicrobial resistance and implementing antibiotic stewardship programs.

Effective AMR policies must be 'fit for purpose,' and national Action Plans on AMR should accurately reflect the perspectives of nurses. European initiatives combating AMR must systematically incorporate frontline viewpoints, notably from the three million nurses across the EU. Increased nurse involvement in initiatives promoting prudent antimicrobial prescribing and management holds the potential to significantly enhance the impact of these actions on improving health outcomes.

The voice of nurses is instrumental in driving positive change, ensuring the inclusion of health in all policies to address EU, European, and global challenges. Nurses are key players in shaping and delivering effective and efficient EU policies that positively impact EU citizens. Despite challenges faced by healthcare systems across Europe, especially in these challenging times, the EFN and its Members remain unwaveringly committed to upholding the priority of EFN EU policy agenda items on both national and EU political agendas. Continuous lobbying efforts directed towards national governments and EU institutions aim to amplify the nurses' voice, ensuring its recognition and consideration in key health developments.

Acknowledgment

Conflict of Interest

No conflict of interest.

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