



European Medical Students' Association

Association Européenne des Étudiants en Médecine

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Antimicrobial Resistance

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The European Medical Students' Association (EMSA) represents medical students across Europe. We envision a healthy and solidary Europe in which medical students actively promote health. EMSA empowers medical students to advocate health in all policies, excellence in medical research, interprofessional healthcare education and the protection of human rights across Europe.

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Problem statement.

According to the World Health Organisation (WHO), Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness and death (WHO, 2021). As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective and infections become increasingly more difficult or impossible to treat. The rise of untreatable diseases, the increasing lack of quality antibiotics and the global spreading of this drug-resistance contribute to the emergency of this issue, having been considered one of the top 10 global public health threats facing humanity (WHO, 2021). This issue impacts the global economy with longer hospital stays, increased funding need for research and increased expense of costly second and third-line medicines .

Additionally, the COVID-19 pandemic has not only caused widespread illness and death, but it has also had significant impacts on AMR. As doctors treat secondary bacterial infections that can occur in COVID-19 patients, the use of antibiotics has increased, leading to the development of resistances (Adebisi, 2021). Moreover, the pandemic has disrupted healthcare services globally, including the management of infectious diseases. Routine testing and monitoring of AMR have been delayed or cancelled, which can lead to the spread of resistant infections. The impact of COVID-19 on AMR highlights the importance of continued efforts to reduce the unnecessary use of antibiotics and to improve access to healthcare services worldwide (WHO, 2022).

Furthermore, the issue of AMR is closely intertwined with the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015. Goal 2, which aims to end hunger and improve food security by 2030, should be achieved while reducing the use of antibiotics in agriculture and promoting sustainable agricultural practices. Moreover, Goal 3, which seeks to ensure good health and well-being for all, necessarily includes improving health systems' ability to provide effective treatment for infectious diseases, leading to increased morbidity, mortality, and healthcare costs. Similarly, Goal 12, which advocates for responsible consumption and production, can be achieved by reducing the overuse and misuse of antibiotics in human and animal health and promoting the responsible use of antibiotics. Thus, addressing AMR requires an integrated approach that considers its link with the SDGs (SDG Knowledge Hub, 2021; WHO, 2021).

Recent studies have revealed significant knowledge gaps among future healthcare professionals, particularly in managing high-incidence infections, underscoring the urgent need for more rigorous antibiotic stewardship training (Nogueira-Uzal, 2020). Therefore, to address the growing threat of AMR, it is essential to raise awareness among medical students on the potential public pressure and demand to prescribe antibiotics and equip them with the necessary tools to overcome it.

Our view. Aim

The European Medical Students' Association (EMSA) considers AMR to be a pressing concern for the global community due to its indisputable impact on the health of society, its economic burden and its future threat on prevention and treatment of microbial infections. The misuse and overuse of antimicrobials in healthcare accelerate the natural rate of resistance development of microbes, while the development of more effective antimicrobials stagnates in the present. The gradual combination of these factors limit the treatment options available against antimicrobial-resistant-infections (Morrison and Zembower, 2022). Bearing in mind that these therapeutic drugs still remain as one of the cornerstones of medical treatment, this issue is leading to turning simple, treatable microbial infections that could have been tackled with a prescription of an antimicrobial into complicated cases that force prescription of reserve drugs with more serious adverse effects.

In the light of this situation, as future medical doctors, who will be challenged with AMR on a regular basis in our clinical life, we believe that limiting the further progression of AMR remains as an utmost priority and a global effort needs to be taken before the medical society is depleted of their powerful therapeutic drugs.

To achieve our long-term goal of complete eradication of AMR, the most important tool of the medical community is to raise awareness of the issue among both the medical society and the general population, as the lack of awareness was found to be one of the major driving factors of AMR at present. By achieving this, it is possible to limit further progression of AMR while more competent and robust drugs are being developed against already resistant-pathogens.

As EMSA, we contribute to this goal by organising informative campaigns at all our Faculty Member Organisations (FMOs) across Europe during the World Antimicrobial Awareness Week each year. We aim to raise awareness and educate our members, who are the future medical healthcare professionals, healthcare members in our university hospitals and the general public on the misuse of antimicrobial drugs.

Recommendations

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EMSA calls on the World Health Organisation (WHO) to:

- Support basic research and studies to develop new treatments, diagnostic tools, vaccines and other interventions;
- Develop guidelines that aid in regulating the production of pharmaceuticals;
- Involve organisations with the purpose of prohibiting the dumping of antimicrobial waste into the environment, thus limiting the spread of antimicrobial-resistant bacteria.

EMSA calls on European Union/European Member States to:

- Promote international collaborations to share knowledge and resources to find comprehensive solutions and to address the situation in a wider perspective;
- Support research and development of new technologies about AMR to find alternative treatments for bacterial infections to improve patient outcomes and to promote health;
- Develop antimicrobial stewardship programs to inform people about AMR to prevent the development of antibiotic-resistant infections;
- Support countries in developing national action plans suitable for regional requirements with specific timelines and targets for reducing antibiotic use and resistance and monitor their actions regularly.

EMSA calls on the Pharmaceutical Industry to:

- Respect and follow the WHO guidelines on the research, development and regulation of the production of antimicrobials and other pharmaceuticals;
- Research and develop new quality antibiotics that align with WHO's priority pathogens list;
- Elaborate an antimicrobial discharge plan in order to minimise its environmental impact;
- Ensure that research conducted on the subject abides by ethical regulations and reasonable pricing that enables equitable access to antibiotics.

EMSA calls on the AMR Stakeholder Network to:

- Sustain the development of effective and low-cost tools for the diagnosis of infectious diseases and antimicrobial susceptibility testing for use in human and animal health at points of care and dispensing;
- Establish ways in which the increased access to antimicrobial medicines is accompanied by measures to protect the continued efficacy of such medicines;
- Promote vaccination as a method of reducing infections in food animals;
- Support training and education on infection-prevention measures as a mandatory requirement in professional development, accreditation and registration.

EMSA calls on the European Food Safety Authority (EFSA) and other relevant organisations focused on agriculture and livestock sectors to:

- Provide evidence-based education to livestock producers and farmers on the appropriate use of antimicrobials for preventing and treating infections in farm animals and crops;
- Create systems for collecting and monitoring data and conducting surveillance in the agriculture and livestock industries in order to regulate the use of antimicrobials and combat resistance.

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EMSA calls on European institutes and healthcare agencies, European Centre for Disease Prevention and Control (ECDC) and the European Society of Clinical Microbiology and Infectious Diseases to:

- Develop clinical guidelines and treatment protocols for antibiotic use, following qualified standards in microbiological analyses, diagnosis, application, hygiene and ethics;
- Develop and promote European-wide hygiene protocols and guidelines to prevent nosocomial infections and spreading of drug resistance, including recommendations on screening for MDRs;
- Ensure adequate surveillance systems and reports regarding antibiotic-resistant infections and MDR strains and their spread throughout the EU.

EMSA calls on the National Governments, Ministries of Health and other relevant ministries to:

- Provide public service announcements and trainings to increase public awareness and knowledge about AMR, including appropriate use of antibiotics, and healthcare- and hygiene-associated practices;
- Develop and implement policies to promote health through proper nutrition and to reduce unnecessary antibiotic use and prescribing, cooperating with other ministries;
- Provide training for healthcare professionals about the importance of appropriate antibiotic use and the consequences of misuse to alter the prescribing behaviours of physicians and increase awareness that treatment with antibiotics is not the most effective way in the long term to prevent diseases;
- Monitor and regulate the environment and environmentally related activities or products in companies or factories of your country to limit and control the exposure of antimicrobial-resistant pathogens to the environment.

EMSA calls on medical faculties, medical students, and EMSA members to:

- Develop comprehensive curricula that train future healthcare professionals on adequate use and prescription of antibiotics (effective substance, dosage and duration);
- Train future healthcare professionals on patient consultation to ensure high compliance with the prescribed antibiotic therapy;
- Train future healthcare professionals on clinical hygiene (PPE, Isolated Patients, etc.) theoretically, as well as practically in supervised simulations;
- Collaborate with other faculties, such as Agriculture, Veterinary Medicine and Pharmacy to encourage One Health initiatives and promote collaboration between the topics of human health, animal health and the environmental sector.

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