مجلة دي بونو
للدراسات الانسانية والاجتماعية والقانونية

العدد صفر/ January - 2025

The Strategy of Iraq to Combat antibiotic drugs

Najmah Ali Sharad[1], Hala R. Mohammed[2], Juman Oday Sabri[3], Nadia Mahmoud Tawfiq Jebril[4]*, Elham Kadhum Madhloom[5], Aseel H. Al-Sabary[6], Rana Aqeel Ibrahim[7]

ABSTRACT

Combating antibiotic drugs in Iraq is a major health challenge, and the country faces many risks and obstacles in this area, while at the same time seeking to develop effective strategies to address this problem. Therefore, in this article, the risks associated with antibiotic resistance in Iraq, inappropriate use, and lack of awareness were addressed. Suggested strategies to combat antibiotic drugs in Iraq were presented. Antibiotic resistance represents a long-term threat to public health in Iraq and the region, so it is necessary to have a coordinated response between the

[1]Department of Pathology and Forensic medicine, Hammurabi Medical College, University of Babylon, Iraq.

[2]Department of Pharmacology & Toxicology, College of Pharmacy, University of Babylon, Babylon, Iraq

[3]Department of Microbiology, Hammurabi Medical College, University of Babylon, Iraq.

[4]Department of Biology, College of Science for women, University of Babylon, Babylon, Iraq.
*Corresponding author's e-mail address: nadia.tawfiq@uobabylon.edu.iq

[5] Department of Biology, College of Science for women, University of Babylon, Babylon, Iraq.

[6] Department of Biology, College of Sciences, Al-Mustaqbal University, 51001, Babylon, Iraq.

[7] Department of Microbiology, Hammurabi Medical College, University of Babylon, Iraq.

government, health institutions, and society to address it effectively.
Keywords: Antibiotic drugs, awareness, combat, strategy.

الملخص

إن مكافحة مقاومة المضادات الحيوية في العراق تشكل تحدياً صحياً كبيراً، وتواجه البلاد العديد من المخاطر والعقبات في هذا المجال، وفي الوقت نفسه تسعى هذة الدول إلى وضع استراتيجيات فعالة لمعالجة هذه المشكلة. لذلك، تناولت هذه المقالة المخاطر المرتبطة بمقاومة المضادات الحيوية في العراق والاستخدام غير السليم ونقص الوعي. كما تم تقديم استراتيجيات مقترحة لمكافحة مقاومة المضادات الحيوية في العراق. تمثل مقاومة المضادات الحيوية تهديداً طويل الأمد للصحة العامة في العراق والمنطقة، لذا من الضروري أن يكون هناك استجابة منسقة بين الحكومة والمؤسسات الصحية والمجتمع لمعالجتها بشكل فعال.
الكلمات المفتاحية: المضادات الحيوية، التوعية، المكافحة، الاستراتيجية.

INTRODUCTION

Antimicrobial resistance risk factors in developing countries are intricate, influenced by healthcare professionals' practices, patient behaviors, and population supply chains of antimicrobials. Factors contributing to antibiotic misuse include inappropriate prescribing, inadequate patient education, limited diagnostic facilities, unauthorized antimicrobial sales, inadequate drug regulatory mechanisms, and non-human use in animal production (Bunduki, et al, 2024: 158)

Intervention efforts in developing countries should focus on the specific root causes of their issues, as these factors may differ from those in developed countries.

This symposium explores health behaviors and healthcare practices causing antimicrobial resistance in developing countries, discusses disease prevention and treatment alternatives, and the environmental threat of antibiotic overuse (Tesema & Birhanu, 2024: 19)

Antibiotics, natural, synthetic, or semi-synthetic substances used to treat and prevent infections, are an essential part of modern medicine. However, antibiotic resistance and a lack of new therapeutic agents threaten their extinction. The number of treatment failure cases in patients with infections caused by multiple, broad-spectrum, drug-resistant bacteria is increasing (Clardy, et al, 2009: 437-441), which has led to failure to treat a disease, leading to deaths.

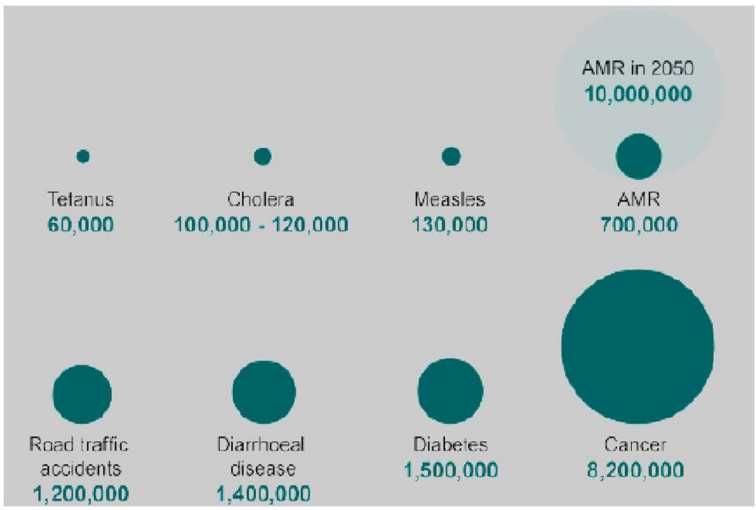

Figure 1. Deaths attributed to antimicrobial resistance each year compared to other leading causes of death due to antimicrobial resistance were found to be the fourth leading cause of death after tetanus, cholera and measles.

مجلة دي بونو
للدراسات الانسانية والاجتماعية والقانونية

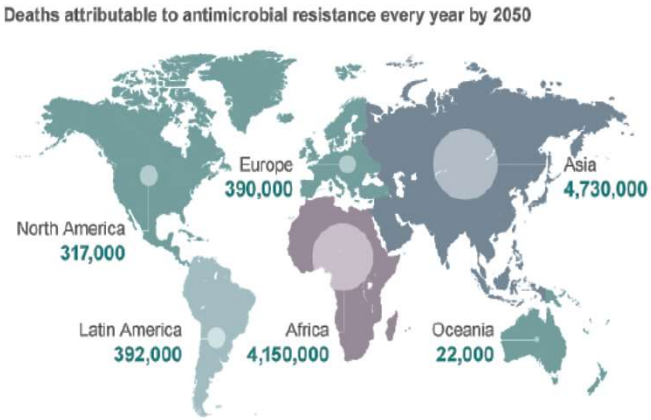

Figure 2. Countries where deaths are attributed to antimicrobial resistance each year found that a developing country in Asia and Africa ranks first compared to other continents and countries.

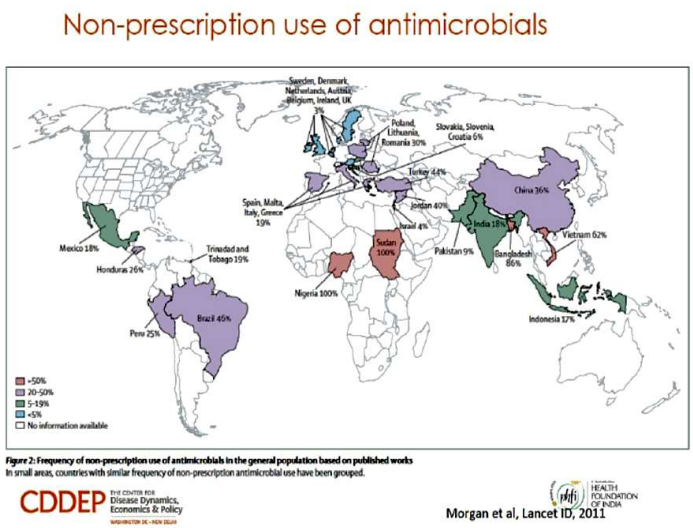

Figure 3. The cause of deaths due to antimicrobial resistance each year is attributed to taking antibiotics according to the doctor's diagnosis and treatment prescription.

https://debono.tcia-iq.com
info@debono.tcia-iq.com 009647800888123

مجلة دي بونو
للدراسات الانسانية والاجتماعية والقانونية

العدد صفر / January - 2025

WHY IRAQ BUY ANTIBIOTICS RANDOMLY

Antibiotic use in Iraq health facilities is a challenge, with two common approaches: experience-based and guideline-based. Experience-based decision-making is used when doctors don't know the disease etiology and wait for microbiological tests. Over half of patients switch antibiotics after positive tests, making treatment selection difficult even after diagnosis.

In developing countries, antimicrobials can be purchased without a prescription and often dispensed by untrained individuals on the street (Moran, et al, 2021: 6659-6664)

Healthcare professionals, including physicians, must adhere to evidence-based practices, such as antimicrobial prescribing, to ensure effective disease treatment and prevention.

Patients' accidental or intentional misses of doses, leading to subtherapeutic drug concentrations, increase the risk of developing antimicrobial resistance.

Antimicrobials are used in non-human settings for disease prevention, treatment, and growth promotion in animal husbandry, including prophylaxis in high-risk animals (Okaiyeto, et al, 2024).

Antimicrobial agents are used in plant agriculture, particularly in disease prevention sprays, and in industrial processes, posing health risks to humans and animals by promoting the development of resistant bacteria.

Limited laboratory antimicrobial susceptibility testing and inadequate surveillance are hindering the development of effective policies against emerging resistance trends in clinical practice.

Antimicrobial susceptibility testing is often unavailable in laboratories due to capacity issues. Community-based surveillance

data can help manage infections with specific susceptible antimicrobials, but resistance rates can vary across regions (Murthannagari, et al, 2024: 79-85)

ANTIMICROBIAL RESISTANCE CONTROL STRATEGIES

Global pharmaceutical companies view the search for new antimicrobials as low-profit and believe resistance will eventually develop (Okaiyeto, et al, 2024).

Improving hygiene and sanitation can reduce the spread of resistant microorganisms, which are facilitated by overcrowding and poor sanitation, through person-to-person contact, contaminated water, food, or vectors.

Improving hospital infection prevention and control can reduce the spread of acquired resistance bacteria like Staphylococcus aureus, while vaccinations can reduce disease severity, protect against pathogen elimination, and raise disease thresholds.

THE ROLE OF GOVERNMENT REGULATORY AGENCIES TO COMBAT ANTIBIOTIC DRUGS

Governments worldwide are implementing antimicrobial resistance action plans, but lack of quality regulatory agencies in developing countries, particularly Africa, hinders progress.

In 2014, the US and UK released strategies to combat antimicrobial resistance, with the US launching the National Strategy and the UK implementing the UK Five-Year Strategy. In 2012, 16 national and provincial hospitals in Vietnam partnered with the Oxford University Clinical Research Unit and Linköping University in the Vietnam Resistance project to develop the country's capacity to deal with Antimicrobial Resistance (AMR).

The project included establishing a national reference lab and surveillance network, piloting a Clinically Oriented Antimicrobial Resistance surveillance Network (ACORN), and providing hospitals with data for clinical decision-making. Hospitals were also provided with data on their performance relative to other hospitals to motivate quality improvement (Wertheim, et al, 2013)

The lack of knowledge about proper antibiotic use in the community remains a significant challenge in preventing AMR. The ineffectiveness of AMR health promotion campaigns in Vietnam can be attributed to limited information accessibility, cultural and linguistic barriers, varying health literacy levels, inadequate resources, persistent antibiotic misuse, a lack of sustainable strategies, inadequate monitoring and evaluation, and the complexity of the AMR message. Patients' knowledge and behavior persist due to affordable access to pharmaceutical care via self-medication practices and pharmacists' profit from selling antibiotics and health supplements. The perceived mutual benefit of these practices reinforces the need for community or primary care programs aligned with hospital programs (Belkina, et al, 2014; Gebretekle, et al, 2018; Jamhour, et al, 2017).

On the other hand, human resource constraints hinder the enactment of AMS programs, particularly in the national management agency and hospitals. This leads to inconsistent coordination and supervision in facilitating NAPCA activities and limited implementation of AMS programs. Training on AMR to doctors, pharmacists, and other healthcare professionals is crucial in combating AMR. Many hospitals in Vietnam have provided training on AMR and antibiotic management in combination. Policies that enable ongoing supervision are critical for improving appropriate antibiotic use. A clinical pharmacist plays a vital role in AMS teams. The increasing number of pharmacy graduates presents opportunities for reinforcing AMS in both hospital and

community settings. However, specific training regarding appropriate dispensing and AMR is still lacking for many graduates. This could create competitive pressure for sales, potentially driving excess antibiotic use in the private sector (Broom, et al, 2016; Thakolkaran, et al, 2017; Blanchette, et al, 2018) [11], [12.[13] ,[

IRAQI STRATEGY TO COMBAT ANTIBIOTIC DRUGS

Iraq should adopt the approach of developed countries to reduce the use of antibiotics to minimize their impact on the ecosystem as a whole (humans, animals, plants and the environment)

1. Enhance monitoring access to data on antibiotic resistance, sales, use, healthcare infections, and antibiotic release into the environment to increase knowledge.
2. Continue strong preventive measures Take effective measures to prevent infection and transmission of infection and minimize the proliferation of multi-resistant bacteria and the release of antibiotics and antimicrobial substances into the environment are significant issues.
3. Responsible use of antibiotics use and manage antibiotics and antimicrobial agents in a responsible and environmentally friendly manner.
4. Knowledge of infectious diseases, new antibiotics, treatment options, diagnostic methods, and vaccines are being developed to prevent and manage bacterial infections and antibiotic resistance.
5. Increased societal awareness of antibiotic resistance and countermeasures is crucial to prevent infection spread and the risk of resistance development due to antibiotic use.

مجلة دي بونو
للدراسات الانسانية والاجتماعية والقانونية

January - 2025 / العدد صفر

REFERENCES

1. Belkina, T., Al Waraf, A., Hussein Eltom, E., Tadjieva, N., Kubena, A., & Vlcek, J. (2014). Antibiotic use and knowledge in the community of Yemen, Saudi Arabia, and Uzbekistan. Journal of Infection in Developing Countries, 8(4), 424–429.
2. Blanchette, L., Gauthier, T., Heil, E., et al. (2018). The essential role of pharmacists in antibiotic stewardship in outpatient care: An official position statement of the Society of Infectious Diseases Pharmacists. Journal of the American Pharmacists Association (JAPhA), 58(5), 481–484.
3. Broom, A., Plage, S., Broom, J., Kirby, E., & Adams, J. (2016). A qualitative study of hospital pharmacists and antibiotic governance: Negotiating interprofessional responsibilities, expertise, and resource constraints. BMC Health Services Research, 16(1), 43.
4. Bunduki, G. K., Masoamphambe, E., Fox, T., Musaya, J., Musicha, P., & Feasey, N. (2024). Prevalence, risk factors, and antimicrobial resistance of endemic healthcare-associated infections in Africa: A systematic review and meta-analysis. BMC Infectious Diseases, 24(1), 158.
5. Clardy, J., Fischbach, M. A., & Currie, C. R. (2009). The natural history of antibiotics. Current Biology, 19(11), R437–R441.
6. Gebretekle, G. B., Haile Mariam, D., Abebe, W., et al. (2018). Opportunities and barriers to implementing antibiotic stewardship in low- and middle-income countries: Lessons from a mixed-methods study in a tertiary care hospital in Ethiopia. PLOS ONE, 13(12), e0208447.
7. Jamhour, A., El Kheir, A., Salameh, P., Hanna, P. A., & Mansour, H. (2017). Antibiotic knowledge and self-medication practices in a developing country: A cross-sectional study. American Journal of Infection Control, 45(4), 384–388.
8. Murthannagari, V. R., Thumpati, V. P., & GNK, G. (2024). Combatting antibiotic resistance: Regulatory exclusivities for new antibiotic development in the United States and Europe. Infectious Diseases & Immunity, 4(2), 79–85.

9. Okaiyeto, S. A., Sutar, P. P., Chen, C., Ni, J. B., Wang, J., Mujumdar, A. S., ... & Xiao, H. W. (2024). Antibiotic-resistant bacteria in food systems: Current status, resistance mechanisms, and mitigation strategies. Agriculture Communications, 100027.
10. Omran, S. T., Mohammed-Jawad, N. K., & Fareed, N. Y. (2021). Population knowledge about rational use of antibiotics and antibiotic resistance in Basrah, Iraq. Research Journal of Pharmacy and Technology, 14(12), 6659–6664.
11. Tesema, M. Y., & Birhanu, A. G. (2024). One health initiative to mitigate the challenge of antimicrobial resistance in the perspectives of developing countries. Bulletin of the National Research Centre, 48(1), 19.
12. Thakolkaran, N., Shetty, A. V., D'Souza, N. D. R., & Shetty, A. K. (2017). Antibiotic prescribing knowledge, attitudes, and practice among physicians in teaching hospitals in South India. Journal of Family Medicine and Primary Care, 6(3), 526–532.
13. Wertheim, H., Chandna, A., Phu, V., et al. (2013). Providing impetus, tools, and guidance to strengthen national capacity for antimicrobial stewardship in Viet Nam. PLOS Medicine, 10, e1001429.

https://debono.tcia-iq.com
info@debono.tcia-iq.com 009647800888123