Agenda-setting analysis for antimicrobial restriction policy in Islamic Republic of Iran

Mojtaba Mehtarpour[1,2], Zahra Najafi[3], Melinda A Taylor[4] and Ebrahim Jaafaripooyan[3]

[1]Social Determinants in Health Promotion Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Islamic Republic of Iran. [2]East Hormozgan School of Medical Sciences, Minab, Islamic Republic of Iran. [3]Department of Health Management, Policy and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Islamic Republic of Iran (Correspondence to Ebrahim Jaafaripooyan: jaafaripooyan@tums.ac.ir). [4]Freelance researcher on health projects.

Abstract

Background: Antimicrobial resistance is a serious threat to healthcare globally and antimicrobial stewardship is fundamental in combating it.

Aim: To analyse the agenda-setting process for the development of an antimicrobial restriction policy in Islamic Republic of Iran using Kingdon's Multiple Streams Framework.

Methods: We conducted key informant interviews with 21 experts who were involved in agenda-setting for an antimicrobial restriction policy in Islamic Republic of Iran and reviewed relevant documents relating to the development of the policy. We analysed the data using Kingdon's Multiple Streams Framework.

Results: In 2019, Islamic Republic of Iran officially announced its antimicrobial restriction policy. Although national surveillance data were limited, multiple proxy indicators showed excessive use of antimicrobials and an increase in antimicrobial resistance in Islamic Republic of Iran. Based on available data, stakeholders made a compelling case for urgent policy actions to minimize irrational prescription and use of antimicrobials in the country. To balance antimicrobial stewardship with clinical needs, the antimicrobial restriction policy mandates infectious disease specialists to conduct laboratory and clinical assessment of patients, after taking the first antimicrobial dose, prior to treatment continuation.

Conclusion: In addition to evidence, demonstrating the clinical, economic and public health benefits can help improve system responsiveness to antimicrobial stewardship policy and programme development.

Keywords: antimicrobial stewardship, antimicrobial resistance, health policy, health reform, Iran

Citation: Mehtarpour M, Najafi Z, Taylor MA, Jaafaripooyan E. Agenda-setting analysis for antimicrobial restriction policy in Islamic Republic of Iran. East Mediterr Health J. 2025;31(12):698–705. https://doi.org/10.26719/2025.31.12.698.

Received: 07/07/2025; Accepted: 22/09/2025

Introduction

The widespread use of antimicrobials has added nearly 2 decades to life expectancy by enabling advances in cancer therapy, organ transplant and surgery (*1*). However, inappropriate use of antimicrobials remains a major driver of antimicrobial resistance (AMR), which is now considered one of the most serious threats to health globally (*2*). In response, WHO has facilitated the development of a global action plan to combat AMR, which focuses on raising awareness, enhancing knowledge, emphasizing infection prevention and control (IPC), and promoting the judicious use of antimicrobials (*2,3*).

Antimicrobial stewardship (AMS) is a major global strategy to preserve the effectiveness of existing antimicrobials (*4*). The main goal of AMS is to optimise antimicrobial therapy—selecting the right drug, dose, route, and duration—to ensure efficacy while limiting resistance (*5*).

AMR in Islamic Republic of Iran is driven by complex sociocultural and behavioural factors, necessitating context-sensitive, evidence-informed policymaking (*6*). In recent years, AMR has emerged as a critical public health challenge in Islamic Republic of Iran, prompting various national-level responses and policy initiatives. The country has implemented a range of strategies to combat AMR, including establishment of the National Committee for Rational Drug Use, setting up hospital infection control committees, developing a surveillance system for nosocomial infections, drafting a national action plan, and launching multiple public education and awareness campaigns (*7,8*). The Ministry of Health and Medical Education (MOHME) introduced an antimicrobial restriction policy aimed at enhancing accountability and stewardship in outpatient and inpatient treatments (*9*).

Islamic Republic of Iran has reported high resistance rates among bacteria of international concern such as *Escherichia coli* [resistance to third-generation cephalosporins (41%) or fluoroquinolones (54%)] and *Klebsiella pneumoniae* [resistance to third-generation cephalosporins (48%) or carbapenems (54%)] (*10*). Antibiotic consumption increased dramatically from 33.6 defined daily doses (DDD) per 1000 inhabitants per day (DID) in 2000 to 60.6 DID in 2021 (*11*). Subgroup analyses have revealed a concerning increase in the consumption

of third-generation cephalosporins, which accounted for 43.7% of overall antibiotic use. Other notable increases in antibiotic consumption were observed in macrolides (58.6%), beta-lactamase inhibitor-penicillin combinations (56.8%) and fluoroquinolones (39.2%) (*12*). A study reported irrational antibiotic prescriptions in 42.7% of outpatient cases (*13*), while another study reported excessive antibiotic use among COVID-19 patients, even without confirmed bacterial co-infections (*14*). These indicate the urgent need for AMS initiatives in Iran.

Although many countries have implemented AMS strategies, most literature focuses on terminology, definitions and the development and implementation of interventions (*5*,*15*,*16*), as well as their economic and clinical implications (*5*,*17*–*19*). Little has been reported about how AMS policies were formulated, especially in low- and middle-income countries (LMICs).

Agenda setting is a crucial step in policymaking, which involves the prioritization of specific issues from a broader set of potential concerns for inclusion in the policy (*20*). Given the limited number of agenda-setting studies in LMICs, this study analysed the agenda-setting process for antimicrobial restriction policy in Islamic Republic of Iran using Kingdon's Multiple Streams Framework (MSF). The aim was to provide insights that would help strengthen the scale-up of AMS policies in Islamic Republic of Iran and promote rational antimicrobial use nationally and possibly in other LMICs.

Conceptual framework

This study used MSF to analyse how antimicrobial restriction policy in Islamic Republic of Iran was included in the policy agenda. MSF is widely used to analyse how issues gain political attention (*21*). When the MSF streams converge simultaneously, "windows of opportunity" are created, allowing the issues to be included in the policy agenda (*22*). MSF is particularly relevant to LMICs, where complexities in governance and resource constraints affect health policymaking (*23*).

The problem stream indicators highlight the magnitude and importance of an issue, the political stream reflects the political dynamics such as changes in public opinion, elections, government, advocacy campaigns, and social movements. The policy stream consists of potential solutions proposed by experts, policymakers, bureaucrats, and interest groups. These streams generally operate independently until they converge during a window of opportunity.

Methods

Data collection

In this qualitative study, we conducted in-depth interviews with AMR experts who were involved in the development of the antimicrobial restriction policy in Islamic Republic of Iran, using a semi-structured questionnaire and the consolidated criteria for reporting qualitative research (COREQ) guidelines and based on the MSF components (*24*). The participants were selected using purposive and snowball sampling method. Relevant policy documents, including meeting minutes and draft policy papers, were reviewed to identify and validate key stakeholders involved in the policy formulation. This approach ensured diversity in institutional affiliation, job role and policy influence.

All interviews were conducted in-person, one-on-one. The interviews continued until data saturation was achieved with 21 key informants (Table 1). Each interview lasted 45–60 minutes. With consent of the participants, the interviews were audio-recorded and transcribed verbatim, and the transcribed copies were anonymized to maintain confidentiality. The mean age of participants was 43.3 years (SD = 8.7).

Data management and analysis

Thematic analysis of the data was guided by Kingdon's framework (*25*). The data were coded and categorised by 2 researchers independently, using MAXQDA 11 to ensure inter-coder reliability. Using thematic mapping, emerging themes were mapped to the problem, policy and politics streams. These were then triangulated and validated using the policy documents and the national antimicrobial restriction strategy reports.

Data analysis was conducted concurrently with data collection. Initial codes were assigned after familiarization and preliminary review of the interviews. Duplicate codes were removed and the remaining codes were categorised according to Kingdon's framework (problem, policy and politics streams—windows of opportunity). Transcribed copies of the interviews were sent to the respondents via email for validation,

Table 1 Characteristics of the study participants

Characteristic	N (%)
Gender	
Male	11 (52.4)
Female	10 (47.6)
Institution	
Food and Drug Administration	6 (28.6)
Iranian Society of Infection Disease and Tropical Medicine	4 (19.0)
Deputy of Health (Coordinating Center for Antimicrobial Resistance)	4 (19.0)
Deputy of Curative Affairs	4 (19.0)
Health Insurance Organization	2 (9.5)
Iranian Society of Microbiology	1 (4.8)

allowing them to confirm the coherence, integrity and comprehensiveness of the content. The initial coding process was inductive, allowing themes to emerge freely from the data. Subsequently, these themes were deductively mapped with Kingdon's streams (problem, policy and politics) based on conceptual alignment. Two researchers independently assigned themes to the streams and discussed any discrepancies until consensus was reached. This combination of inductive and deductive logic enhanced the theoretical rigour of the analysis.

Ethics considerations

The study was approved by the Ethical Committee of TUMS as part of a PhD thesis (code IR.TUMS.REC.1397.173). Written informed consent was obtained from the participants after explaining the purpose of the study to them. They were informed of their right to withdraw from the research at any time.

Results

Three key streams emerged from the analysis (Table 2).

Problem stream

Antimicrobial overuse indicators

Although national surveillance data were limited, multiple proxy indicators showed excessive antimicrobial use in Islamic Republic of Iran. The Food and Drug Administration annual report on antimicrobial sales, alongside prescription rates from studies and the National Committee on Rational Drug Use, revealed concerning prescription patterns, which attracted the attention of health system decision-makers. One informant noted:

> *"Nationwide, about 48% of our prescriptions include antibiotics; this means that 48% of patients who visit a doctor receive antibiotics. This practice is irrational and excessively high, particularly in the context of infectious and epidemiologic diseases in Iran."*

President Rouhani criticised the irrational use of antibiotics during the 14th Shahid Raja'i National Festival in 2016:

> *"Why is so much antibiotic consumed in our country? Simple diseases are treated with antibiotics. Our self-treatment often involves antibiotics, any visit to the pharmacist results in the dispensing of antibiotics, and doctors try their best to fill prescriptions with antibiotics."*

Increased antimicrobial resistance

Initial findings from the 2014 national AMR surveillance, and studies from medical universities and hospital-based research centres provided strong evidence of increasing AMR prevalence. Subsequent reports consistently confirmed the high levels of resistant organisms, contributing to increased mortality in Islamic Republic of Iran. Some of the Ministry of Health senior officials were also practicing clinicians; they understood the AMR challenges, and this contributed to better informed decision-making. One participant said:

> *"These reports over the years have emphasized the significance of addressing AMR and the irrational use of antimicrobials."*

International attention to the antimicrobial resistance problem

Increasing international attention through scientific literature, conference presentations and recommendations influenced the antimicrobial restriction policy priorities in Islamic Republic of Iran. One participant noted:

> *"Perhaps our professors didn't emphasise AMR, nosocomial infections and rational prescriptions as much before, but the new generation is increasingly concerned. At international conferences and in scientific texts, managers and experts engage effectively, drawing deserved attention to the problem. WHO has urged developing countries to rationalise antimicrobial use."*

Framing antimicrobial overuse as a costly phenomenon

Participants highlighted the dual health and economic impact of AMR. This concern is reflected in the title of the pre-authorization guidelines for selected antibiotics at the inpatient departments, which is titled "Instruction for rational prescription of costly antibiotics". In addition,

Table 2 Streams and drivers of antimicrobial resistance

Theme	Sub-theme
Problem stream	• Antimicrobial overuse indicators
	• Increased antimicrobial resistance
	• International attention to the problem
	• Framing antimicrobial overuse as a costly phenomenon
Policy stream	• Policy entrepreneurs
	• Preparing the first draft of the policy
	• Pilot implementation of the antimicrobial restriction policy within inpatient sectors
	• Considering implementation requirements
Political stream	• International calls for the policy
	• Sanctions and depletion of health sector resources
	• Managerial changes

the guidelines on controlling the use of outpatient antibiotics highlights the escalating financial burden of antimicrobial medications as a major rationale for introducing antimicrobial stewardship measures. One participant said:

> *"Among the list of the 20 most expensive drugs in the country, 4 are antibiotics. I have reported this to other managers in the Food and Drug Administration and the Deputy of Curative Affairs."*

Policy stream

Policy advocates

Certain administrators within the Food and Drug Administration and members of the Infectious Disease Society played pivotal roles in advocating for the policy agenda-setting. The Society, particularly, with the support of its chief executive officer, supported lobbying and networking for this purpose. One respondent said:

> *"The infectious disease specialists had serious concerns about this issue. One of the doctors and her colleagues were instrumental in raising these concerns and engaging in consultations and persistent advocacy with various departments in the ministry."*

Preparing the first draft of the policy

The Infectious Disease Society developed 2 key programmes to: (1) limit the prescription of 130 antimicrobials by general practitioners in the outpatient departments and (2) require pre-authorization for the prescription of 8 antimicrobials at inpatient departments. The list of restricted antimicrobials was subsequently shared with provincial experts at medical universities across the country. Their feedback was incorporated into the draft policy, leading to improvements in the applicability and acceptability of the list. However, implementation was stalled due to insufficient prioritisation by health ministry executives.

Pilot implementation of the antimicrobials restriction policy at inpatient departments

Infectious disease specialists introduced antimicrobial pre-authorization at inpatient wards and educated health systems managers, using available evidence, about its effectiveness in improving clinical outcomes and reducing costs. One respondent explained:

> *"We piloted the programme in a ward at Imam Khomeini Hospital, where certain antimicrobials—such as carbapenems—could be prescribed freely for 72 hours, after which only infectious disease specialists could authorize continuation. This saved 40 million toman and significantly reduced antimicrobial consumption and costs. Following these results, the programme was expanded to other hospitals and presented to the Deputy of Curative Affairs."*

Implementation requirements

To balance stewardship with clinical needs, the policy mandates infectious disease specialists to conduct laboratory and clinical assessment for patients who complete their first dose of antimicrobials before allowing them to continue treatment. Challenges with implementation were addressed through linkages to insurance reimbursement to enforce compliance, and integration of the stewardship programme with hospital accreditation standards by the Deputy of Curative Affairs. To enhance feasibility, potential shortages of infectious disease specialists were also considered. When consultation with a specialist was not possible, a trusted internal medicine physician could authorise the required form as necessary. One respondent noted:

> *"To prevent the programme from being just paper-based, it was tied to insurance reimbursements and added to hospital accreditation standards—this way hospitals had a reason to take it seriously."*

Political stream

International calls for the policy

The national action plan was developed in alignment with the global action plan to combat AMR, and it was unveiled at an international summit by the Minister of Health and the Regional Director of the WHO Regional Office for the Eastern Mediterranean. In accordance with the fourth strategic goal, Islamic Republic of Iran committed to rationalising the use of antimicrobials. One respondent noted:

> *"Antimicrobial use in our country has been high since the establishment of the National Prescription Review Committee 22 years ago. But since the announcement of AMR as a theme for World Health Day in 2011 and the formulation of the national action plan, rational prescription programmes have been pursued with greater seriousness."*

International sanctions and depletion of health sector resources

Despite resource constraints due to the international sanctions, the antimicrobial restriction policy gained traction due to its cost-saving potential. The economic pressure paradoxically facilitated acceptance of antimicrobial stewardship measures as part of broader resource optimisation efforts. One respondent explained:

> *"I think when the sanctions were imposed, officials began to consider not only antibiotics but also all other medications and medical equipment. We were constrained by the sanctions and this caused many difficulties in securing resources, marking a period of financial abstention."*

Leadership changes

Concurrent with the broader health system reforms, structural reorganisation within the Deputy of Curative Affairs and the Food and Drug Administration created new opportunities for antimicrobial stewardship policies. Leadership transitions led to cost containment priorities and paved the way to overcome previous implementation barriers, and this enabled policy advocates to advance previously stalled initiatives. One respondent described:

> *"We developed the outpatient antibiotic programme 2 years ago. A manager in the deputy's office mentioned that the programme was sitting on his desk drawer due to a lack of necessary infrastructure. Fortunately,*

he left, and after consulting with the universities, the programme was revived and announced."

Opening the window of opportunity for agenda-setting

Available data on AMR and antimicrobial use provided evidence for urgent action to address the persistent problem of irrational prescriptions of antimicrobials. Advocacy by the Infectious Diseases Society and Food and Drug Administration, combined with international pressure, leadership changes and economic constraints, created a compelling case for reform. Policy advocates demonstrated the clinical and economic value of antimicrobial stewardship, which enabled its adoption by the Deputy of Curative Affairs. The stakeholder consultations involving the Food and Drug Administration, the Deputy of Curative Affairs, the Infectious Diseases Society, the Clinical Pharmacists Association, the Medical Council, and insurers provided an excellent platform for refining the policy framework. Ultimately, in 2019, the policy was officially announced under the titles: "Controlling the Use of Outpatient Antibiotics" and "Instruction for Rational Prescription of Costly Antibiotics".

Discussion

This study examined the development of antimicrobial restriction policy in Islamic Republic of Iran using Kingdon's MSF. The Infectious Diseases Society has traditionally played an active role in advancing and implementing antimicrobial stewardship interventions (*5,16*) in Islamic Republic of Iran. It played a key role in placing this policy on the health agenda. Despite limited available data on antimicrobial use, proxy indicators—such as sales and prescription rates—effectively highlighted the issue of antimicrobial overuse. In settings lacking precise information, policy advocates can use such surrogate measures to capture the attention of policymakers and drive action. Strengthening surveillance of antimicrobial use and resistance can generate robust evidence for advocacy and guide evidence-based policymaking.

The findings underscore major barriers to prioritising antimicrobial resistance policies in Islamic Republic of Iran, including fragmented governance, weak enforcement and limited stakeholder engagement. These challenges are common in many LMICs where policy implementation is constrained by structural and financial limitations (*26*). Similar barriers have been reported in India and South Africa, where weak surveillance and competing health priorities limited progress (*27,28*). A major obstacle to advancing antimicrobial restriction policies is insufficient evidence to inform policymakers (*29*). In Thailand, antimicrobial restriction was once a marginal issue within pharmaceutical policies, hindered by weak coordination, limited surveillance and low public awareness. The establishment of comprehensive monitoring systems helped generate evidence on the scale and impact of AMR, drawing strong attention to the need for relevant policy. This culminated in the development of the 2016 National Action Plan on Antimicrobial Resistance, guided by a high-level steering committee chaired by the Deputy Prime Minister. Thailand's experience illustrates how evidence-informed policymaking, strong political commitment and multisectoral coordination can drive effective national response to AMR (*30,31*).

Islamic Republic of Iran could draw on best practices from the Eastern Mediterranean Region. For instance, in Lebanon, a physician-led post-prescription review and feedback AMS programme at a tertiary hospital reduced days of therapy per 1000 patient-days from 11.46 to 8.64 (*32*). More broadly, a systematic review of the Middle Eastern countries and territories, including Jordan, Lebanon, Qatar, Saudi Arabia, United Arab Emirates, and the State of Palestine, found that AMS practices, such as prospective audit-and-feedback, pre-authorisation, restriction policies, and provider education were associated with improved prescription behaviour and more rational antimicrobial use (*33*).

Until date, public engagement in Islamic Republic of Iran has been largely passive, with the media missing opportunities for meaningful discourse on antimicrobial overuse. Leveraging social media could transform the public from passive consumers into active advocates for antimicrobial stewardship policies. To capitalize on this potential, decision-makers should integrate public engagement into stewardship initiatives, through social media campaigns, community education and stakeholder dialogues, thereby empowering citizens as informed advocates for responsible antimicrobial use.

Well-designed studies are essential to evaluate these interventions, as significant reductions in antibiotic use can improve patient satisfaction by lowering costs and minimising long-term disability (*19*). In the short- and medium-term, patients' expectations may be negatively impacted by antibiotic stewardship efforts (*34,35*). Emphasizing the positive outcomes of stewardship interventions through effective communication and active patient engagement is essential to foster public support and maintain trust during implementation.

Study limitations

Participants in this research may have been influenced by social desirability bias, which we sought to mitigate through data triangulation. We acknowledge the limitation of Kingdon's theory regarding the assumed rationality and independence of the 3 streams (*23,36*). Our analysis focused solely on the agenda-setting phase; therefore, examining other policy stages could provide a more comprehensive understanding. Another limitation is potential elite bias, because the sample primarily included key informants from official institutions. While appropriate for studying national-level agenda-setting, this may have excluded perspectives from general practitioners, pharmacists, patients, or civil

society. Future research should consider a broader range of stakeholders to capture these bottom-up viewpoints.

Conclusion

Findings from this study show that evidence alone may not be sufficient to place health issues on the policy agenda in developing countries. Policy advocates, including staff of the Infectious Diseases Society, leveraged the economic challenges, such as sanctions, to advance antimicrobial stewardship policies in Islamic Republic of Iran, which may otherwise have been overlooked. Persistent antimicrobial overuse became a focal issue when there was a need to optimise resource use due to the prevailing financial constraints. By piloting antimicrobial restriction initiatives and demonstrating their tangible benefits, the policy advocates effectively demonstrated how to use evidence on the impact of economic challenges to advocate for health system reforms that would improve efficiency, quality and implementation of antimicrobial stewardship programmes.

Acknowledgments

The authors would like to thank those who contributed to this research project. Our special thanks to the University of Southampton where Melinda works as a senior research fellow.

Funding: None.

Competing interests: None declared.

Analyse de la définition des enjeux prioritaires pour élaborer une politique de restriction des antimicrobiens en République islamique d'Iran

Résumé

Contexte : La résistance aux antimicrobiens (RAM) constitue une grave menace pour les soins de santé à l'échelle mondiale. Une bonne gestion des antimicrobiens est essentielle pour y faire face.

Objectif : Analyser le processus de définition des enjeux prioritaires pour l'élaboration d'une politique de restriction des antimicrobiens en République islamique d'Iran à l'aide du modèle des flux multiples de Kingdon.

Méthodes : Nous avons mené des entretiens informateurs clés auprès de 21 experts qui ont participé à la mise en place d'un programme visant à élaborer une politique de restriction des antimicrobiens en République islamique d'Iran. Nous avons également examiné les documents pertinents relatifs au développement de cette politique. Les données ont été analysées au moyen du modèle des flux multiples de Kingdon.

Résultats : En 2019, la République islamique d'Iran a officiellement annoncé sa politique de restriction des antimicrobiens. Bien que les données de surveillance nationales soient limitées, plusieurs indicateurs indirects ont montré une utilisation excessive des antimicrobiens ainsi qu'une augmentation de la RAM. Sur la base des données disponibles, les parties prenantes ont présenté des arguments convaincants en faveur de la mise en place de mesures politiques urgentes visant à limiter la prescription et l'utilisation irrationnelles des antimicrobiens dans le pays. Afin de concilier la bonne gestion des antimicrobiens avec les besoins cliniques, ces mesures imposent aux spécialistes des maladies infectieuses de réaliser une évaluation clinique et biologique des patients, après l'administration de la première dose d'antimicrobien, avant de poursuivre le traitement.

Conclusion : Outre les données probantes, la mise en évidence des avantages cliniques, économiques et de santé publique peut contribuer à améliorer la réceptivité des systèmes à l'égard de l'élaboration des politiques et des programmes de gestion des antimicrobiens.

وضع برنامج عمل لسياسة تقييد استخدام مضادات الميكروبات في جمهورية إيران الإسلامية

مجتبى مهتاربور، زهرة نجفي، ميليندا تايلور، إبراهيم جعفري بويان

الخلاصة

الخلفية: تُمثِّل مقاومة مضادات الميكروبات تهديدًا خطيرًا للرعاية الصحية على الصعيد العالمي، والإشراف على مضادات الميكروبات عامل أساسي في مكافحتها.

الأهداف: تحليل عملية وضع برنامج عمل لإعداد سياسة تقييد استخدام مضادات الميكروبات في جمهورية إيران الإسلامية باستخدام إطار عمل كينغدون للتيارات المتعددة.

طرق البحث: أجرينا مقابلات مع 21 خبيرًا شاركوا في وضع برنامج العمل لسياسة تقييد استخدام مضادات الميكروبات في جمهورية إيران الإسلامية، بوصف هؤلاء الخبراء مصادر المعلومات الرئيسية، واستعرضنا الوثائق ذات الصلة المتعلقة بإعداد السياسة. ثم حللنا البيانات بإطار كينغدون للتيارات المتعددة

النتائج: في عام 2019، أعلنت جمهورية إيران الإسلامية رسميًّا عن سياستها لتقييد استخدام مضادات الميكروبات. وعلى الرغم من محدودية بيانات الترصد الوطنية، فإن عدة مؤشرات غير مباشرة أظهرت الإفراط في استخدام مضادات الميكروبات وزيادة في مقاومة مضادات الميكروبات في جمهورية إيران الإسلامية. واستنادًا إلى البيانات المتاحة، ساق أصحاب المصلحة حُججًا مقنعة لاتخاذ إجراءات عاجلة تقوم على السياسات، للتقليل إلى أدنى حد ممكن من وصف مضادات الميكروبات واستعمالها على نحو غير رشيد في البلد. وللموازنة بين الإشراف على مضادات الميكروبات والاحتياجات السريرية، تلزم سياسة تقييد استخدام مضادات الميكروبات اختصاصي الأمراض المعدية بإجراء تقييم مختبري وسريري للمريض بعد تناوله الجرعة الأولى من مضادات الميكروبات، قبل استمرار العلاج.

الاستنتاجات: إضافةً إلى البيِّنات، فإن إظهار الفوائد السريرية والاقتصادية وفوائد الصحة العامة يمكن أن يساعد على تحسين تجاوب النظام مع سياسة الإشراف على مضادات الميكروبات ووضع برنامج العمل.

References

1. Shallcross LJ, Davies DSC. Antibiotic overuse: a key driver of antimicrobial resistance. Br J Gen Pract. 2014;64:604–605. https://doi.org/10.3399/bjgp14X682561.
2. World Health Organization. Ten threats to global health in 2019. Geneva: World Health Organization, 2019. https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019.
3. World Health Organization. Global action plan on antimicrobial resistance. Geneva: World Health Organization, 2015. http://apps.who.int/iris/handle/10665/193736.
4. Huttner B, Harbarth S, Nathwani D, (ESGAP) obotESGfAP. Success stories of implementation of antimicrobial stewardship: a narrative review. Clin Microbiol Infect. 2014;20(10):954-962. https://doi.org/10.1111/1469-0691.12803.
5. Tamma PD, Cosgrove SE. Antimicrobial stewardship. Infect Dis Clin North Am. 2011;25(1):245-260. https://doi.org/10.1016/j.idc.2010.11.011.
6. Mehtarpour M, Najafi Z, Jaafaripooyan E. Sociocultural determinants of antimicrobial resistance in Iran: a qualitative study. BMC Public Health 2025;25:2425. https://doi.org/10.1186/s12889-025-23361-4.
7. Zahedi A, Kafil HS, Ahangarzade M, Rahbar M, Asgharzadeh M. The antimicrobial resistance situation in Iran: the national initiative and R&D to face AMR. AMR Contr. 2018;1:20–23.
8. Nashwan AJ, Barakat M, Niaz F, Tariq S, Ahmed SK, Tariq Sr S. Antimicrobial resistance: stewardship and one health in the Eastern Mediterranean region. Cureus 2024;16(4). doi: 10.7759/cureus.58478.
9. Deputy of Curative Affairs, Ministry of Health and Medical Education. Instruction for rational prescription of high-cost antimicrobials. Tehran: Ministry of Health and Medical Education, 2018. https://goums.ac.ir/files/deputy_treat/par_dar_fobce/files/%D8%A2%D9%86%D8%AA%D9%8A_%D8%A8%D9%8A%D9%88%D8%AA%D9%8A%DA%A9.pdf.
10. World Health Organization. Antimicrobial resistance: global report on surveillance. Geneva: World Health Organization, 2014. https://www.who.int/publications/i/item/9789241564748.
11. World Health Organization. Antibacterial consumption: Total consumption of antibiotics expressed as DDD per 1000 inhabitants per day. Geneva: World Health Organization, 2024. https://www.who.int/data/gho/data/indicators/indicator-details/GHO/antibacterial-consumption--total-consumption-of-antibacterials-expressed-as-ddd-per-1000-inhabitants-per-day.
12. Abbasian H, Hajimolaali M, Yektadoost A, Zartab S. Antibiotic utilization in Iran 2000–2016: Pattern analysis and benchmarking with the organization for economic co-operation and development Countries. J Res Pharm Pract. 2019;8(3):162-167. 10.4103/jrpp.JRPP_19_42.
13. Hashemi S, Nasrollah A, Rajabi M. Irrational antibiotic prescribing: a local issue or global concern? EXCLI J. 2013;12:384-395. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4659337/.
14. Salehi M, Khalili H, Seifi A, Davoudi H, Darazam IA, Jahangard-Rafsanjani Z, et al. Antibiotic use during the first 6 months of COVID-19 pandemic in Iran: A large-scale multi-centre study. J Clin Pharm Ther. 2022;47(12):2140-2151. doi: https://doi.org/10.1111/jcpt.13761.
15. Dyar O, Huttner B, Schouten J, Pulcini C. What is antimicrobial stewardship? Clin Microbiol Infect. 2017;23(11):793-798. https://doi.org/10.1016/j.cmi.2017.08.026.
16. Owens RC, Shorr AF, Deschambeault AL. Antimicrobial stewardship: shepherding precious resources. Am J Health-Syst Pharm. 2009;66(12_Supplement_4):S15-S22. https://doi.org/10.2146/090087c.
17. File TM, Srinivasan A, Bartlett JG. Antimicrobial stewardship: importance for patient and public health. Clin Infect Dis. 2014;59(suppl_3): S93-S6. https://doi.org/10.1093/cid/ciu543.

18. Standiford HC, Chan S, Tripoli M, Weekes E, Forrest GN. Antimicrobial stewardship at a large tertiary care academic medical center: cost analysis before, during, and after a 7-year program. Infect Control Hosp Epidemiol. 2012;33(4):338-345. https://doi.org/10.1086/664909.

19. Rahbarimanesh A, Mojtahedi SY, Sadeghi P, Ghodsi M, Kianfar S, Khedmat L, et al. Antimicrobial stewardship program (ASP): an effective implementing technique for the therapy efficiency of meropenem and vancomycin antibiotics in Iranian pediatric patients. Ann Clin Microbiol Antimicrob. 2019;18(1):6. https://doi.org/10.1186/s12941-019-0305-1

20. Buse K, Mays N, Walt G. Making health policy. United Kingdom: McGraw-Hill Education, 2012. https://ci.nii.ac.jp/ncid/BA7691411X?l=en.

21. Béland D, Howlett M. The role and impact of the multiple-streams approach in comparative policy analysis. J Compar Policy Anal: Res Practice 2016;18(3):221-227. https://doi.org/10.1080/13876988.2016.1174410

22. Kingdon JW, Stano E. Agendas, alternatives, and public policies. Boston: Little Brown, 1984. https://questanbridge.com/wp-content/uploads/2024/11/Agendas-Alternatives-and-Public-Policies.pdf.

23. Sabatier PA, Weible C. Theories of the policy process. Boulder: Westview Press, 2014. https://www.google.com.eg/books/edition/Theories_of_the_Policy_Process/XGEPEAAAQBAJ?hl=en&gbpv=1&printsec=frontcover.

24. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Inter J Qual Health Care 2007;19(6):349-357. doi: 10.1093/intqhc/mzm042.

25. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. Nurs Health Sci. 2013;15(3):398-405. https://doi.org/10.1111/nhs.12048.

26. Dar OA, Hasan R, Schlundt J, Harbarth S, Caleo G, Dar FK, et al. Exploring the evidence base for national and regional policy interventions to combat resistance. Lancet 2016;387(10015):285-295. doi: 10.1016/S0140-6736(15)00520-6.

27. Chokshi A, Sifri Z, Cennimo D, Horng H. Global contributors to antibiotic resistance. J Glob Infect Dis. 2019;11(1):36-42. doi: 10.4103/0974-777X.265390.

28. Mendelson M, Matsoso MP. The World Health Organization Global Action Plan for antimicrobial resistance. S Afr Med J. 2015;105(5):325. doi: 10.7196/samj.9644.

29. Dar OA, Hasan R, Schlundt J, Harbarth S, Caleo G, Dar FK, et al. Exploring the evidence base for national and regional policy interventions to combat resistance. Lancet 2016;387(10015):285-295. doi: 10.1016/S0140-6736(15)00520-6.

30. Pumart P, Phodha T, Thamlikitkul V, Riewpaiboon A, Prakongsai P, Limwattananon S. Health and economic impacts of antimicrobial resistance in Thailand. J Health Serv Res Policy 2012;6(3):352-360. https://kb.hsri.or.th/dspace/handle/11228/3699.

31. Tangcharoensathien V, Sattayawutthipong W, Kanjanapimai S, Kanpravidth W, Brown R, Sommanustweechai A. Antimicrobial resistance: from global agenda to national strategic plan, Thailand. Bull World Health Organization 2017;95(8):599. doi: 10.2471/BLT.16.179648.

32. Shallal A, Lahoud C, Merhej D, Youssef S, Verkler J, Kaljee L, et al. The impact of a post-prescription review and feedback antimicrobial stewardship program in Lebanon. Antibiotics 2022;11(5):642. doi: 10.3390/antibiotics11050642.

33. Ababneh MA, Nasser SA, Rababa'h AM. A systematic review of antimicrobial stewardship program implementation in Middle Eastern countries. Inter J Infec Dis. 2021;105:746-752. doi: 10.1016/j.ijid.2021.03.035.

34. Sami R, Salehi K, Sadegh R, Solgi H, Atashi V. Barriers to rational antibiotic prescription in Iran: a descriptive qualitative study. Antimicrob Resist Infect Control. 2022;11(1):109 https://doi.org/10.1186/s13756-022-01151-6.

35. Boiko O, Gulliford MC, Burgess C. Revisiting patient expectations and experiences of antibiotics in an era of antimicrobial resistance: Qualitative study. Health Expect. 2020;23(5):1250-1258. https://doi.org/10.1111/hex.13102.

36. Zahariadis N. Ambiguity and choice in European public policy. J Europ Public Policy 2008;15(4):514-530. https://doi.org/10.1080/13501760801996717.