ORIGINAL RESEARCH

19. Antimicrobial resistance awareness and antibiotic prescribing behavior among healthcare workers

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https://www.youtube.com/watch?v=hJIcIJ1w8oM&list=PLhqNq3xJClbafO0Y5bvBcgMmXpgzJxd44&index=5&t=6122s

Background: Antimicrobial resistance (AMR) is on the rise worldwide and presents a significant threat in Iraq, where ongoing conflict and fragile health systems contribute to elevated levels of multi-drug-resistant (MDR) organisms. It is increasingly recognized as a public health challenge in Iraq, largely due to the prevalent misuse and over-prescription of antibiotics. Research indicates that numerous physicians in public hospitals often prescribe antibiotics based on empirical evidence while community pharmacists commonly dispense antibiotics without prescriptions, which exacerbates self-medication and misuse. Although national AMR control plans are in place, their implementation is still limited. Surveillance initiatives have uncovered high levels of multidrug-resistant bacteria, including Escherichia coli, Klebsiella pneumoniae, and Staphylococcus aureus, in both adult and pediatric populations. It is essential to raise awareness about AMR in Iraq. This necessitates coordinated efforts across healthcare, agriculture, and environmental sectors consistent with the One Health approach to encourage responsible antibiotic usage, enhance surveillance, and enforce regulatory measures.

Objective: The current study conducted to evaluate healthcare workers' (HCWs) awareness, practices, and institutional barriers to AMR control in a sample of Baghdad hospitals.

Methods: A cross-sectional survey from July to September 2025 was designed. About 196 HCWs across five hospitals in Baghdad City were involved to assess perceptions of AMR, infection control practices, and stewardship awareness.

Results: The largest proportion of participants were from Baghdad Medical City (64.3%), followed by Al-Yarmouk Teaching Hospital (16.8%), Al-Kindy Teaching Hospital (10.7%), Madain Hospital (7.7%), and Zafaraniyah General Hospital (0.5%). Most respondents were residents (39.8%) or pharmacists (35.7%); 86.2% considered AMR a major problem. Gram-negative (43.2%) and Gram-positive (42.1%) were almost equal. The most frequently reported Gram-positive bacteria were Staphylococcus aureus (12.6%) and Methicillin-resistant Staphylococcus aureus (MRSA) (6.6%). Other reported organisms included Vancomycin-resistant Enterococcus (2.2%) and Streptococcus (1.1%). For Gram-negative organisms, the most problematic species were Pseudomonas aeruginosa (14.2%), Acinetobacter baumannii (6.0%), Klebsiella pneumoniae (5.5%), and Escherichia coli (2.2%). Just over half (53.1%) of HCWs reported that their hospitals had infection control policies, while (36.2%) stated no such policies existed, and (10.7%) were unaware. Training on infection prevention and control was infrequent: the majority (62.8%) reported no training at all, while only (21.4%) received training every 6 months, (8.7%) every 3 months, and (7.1%) monthly. Awareness of stewardship programs was limited (45.4%). The internal medicine ward (12.8%), surgery wards (9.7%), and intensive care unit (9.4%) were significantly associated with MDR infections. The resuscitation care unit (7.7%), burn wards (2.0%), and respiratory wards (2.0%) were also reported, while other wards such as pediatrics, hematology, and infection control unit had fewer mentions.

Conclusion: Despite widespread recognition of AMR, Iraqi hospitals face critical gaps in training, stewardship, and policy implementation. Nearly two-thirds of HCWs had never received infection prevention training. Pathogens such as Pseudomonas aeruginosa and Staphylococcus aureus were equally detected and were the most common. Multi drug-resistant infections were concentrated in internal medicine, surgery, and intensive care units, with Gram-negative organisms predominating. Urgent, system-wide interventions are needed to strengthen infection control and curb the growing burden of multi drug resistance.

Table 1. Infection Control Policies, Training, Actions Against MDR Organisms, and Awareness of Antimicrobial Stewardship

Variable	Category	Frequency	Percent
Does the hospital have infection control policies?	I don't know	21	10.7%
	No	71	36.2%
	Yes	104	53.1%
How often do you have training on infection prevention and control?	Every 3 months	17	8.7%
	Every 6 months	42	21.4%
	Every month	14	7.1%
	No training at all	123	62.8%
Which actions do you take when you have a case of multi-drug resistant (MDR) organism in your ward?	Inform the doctor	132	67.3%
	Inform the infection control nurse	18	9.2%
	Inform the microbiologist	19	9.7%
	Inform the senior nurse	11	5.6%
	Nothing	16	8.2%
Are you aware of antimicrobial stewardship policy at the hospital?	No	107	54.6%
	Yes	89	45.4%

ISSN 2076-6327

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