



## PHYSICIAN-NURSES AND PHARMACIST COLLABORATION IN ANTIBIOTICS STEWARDSHIP; STRATEGIC REVIEW

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### Abstract:

Antibiotic resistance is a global health threat. In 2001, the World Health Organization (WHO) released a global strategic plan with the aim of controlling antibiotic resistance. During the subsequent year, a workshop found significant obstacles to the execution of the plan, such as inadequate health infrastructures, limited availability of reliable data, and a deficiency in the adoption of antibiotic stewardship (ABS) programs in medical curricula. In this article, we will examine the collaboration between physicians, nurses, and pharmacists in the field of antibiotic stewardship. Effective preservation of antibiotic efficacy necessitates the future prioritization of interprofessional and multidisciplinary collaboration among doctors, pharmacists, and nursing staff. This collaboration is crucial for adequately preparing healthcare professionals to address global healthcare challenges.

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**Introduction:**

Antimicrobials occupy a distinct role in patients' treatment due to their potential for both positive effects and negative consequences. While they offer advantages, their usage also carries the risk of promoting drug resistance and facilitating its transmission to others and the environment. The global increase in antibiotic resistance has led to the implementation and incorporation of antimicrobial stewardship programs (ASPs) in several hospitals throughout the world [1]. All acute-care hospitals in the United States are mandated by the Centers for Medicare & Medicaid Services of the Department of Health and Human Services, along with other regulatory bodies, to create and execute an Antimicrobial Stewardship Program (ASP). These programs have the objective of optimizing the utilization of antimicrobials through a structured approach that guarantees their optimal usage [2]. A prospective audit and feedback system enhances the prudent utilization of antibiotics and is strongly advised as a fundamental element of any stewardship program. Our hospitals have been using the handshake antimicrobial stewardship approach for more than forty years. This method stands out from others since it does not require prior authorization and involves infectious diseases (ID) experts conducting prospective audits and providing in-person feedback to the prescribers. In addition, the infectious disease (ID) specialists who offered consultations also granted pharmacists the authority to provide some medications or cease distribution entirely. The method is particularly intended for instances when the ID consultation involves modifying or discontinuing antibiotic therapy. However, ID specialists also welcome further consultations for other patients with suspected or proven infection [3]. Physicians, nonetheless, managed to comply with their previous therapeutic choices.

Recently, a significant modification has been made to the deployment of ASP. This involves integrating the ASP service with patients' electronic medical record (EMR). This adjustment entails a heightened level of shared patient accountability, wherein the prescriber and infectious disease physician must come to an agreement over the patient's treatment plan. This agreement is then documented in the patient's electronic medical record (EMR), so establishing it as the definitive plan and prohibiting the distribution of unauthorized antibiotics. As a result, the pharmacy provided antimicrobials to the wards depending on usage, and nurses did not need to seek authorization to give therapy without identification approval [4]. While these modifications are obligatory, their effectiveness ultimately relies on the stakeholders'

response, particularly that of the physicians and nurses [5]. Prior studies have found many variables that influence the effectiveness of a program. These factors encompass various specialized cultures, such as the individualistic values of surgeons compared to the collective values of medical teams, the dynamics between infectious disease physicians and prescribers, the extent to which the Antimicrobial Stewardship Program (ASP) is customized to local requirements, and the prescribers' familiarity with ASP practices [6]. In addition to these insights, it is crucial to reveal the psychological reasons that underpin stakeholders' reactions. Our focus was specifically on the underlying perceptions and values that drive these behaviors. Considering the connections between perceptions, beliefs, attitudes, and actions, particularly in the workplace, comprehending these elements is crucial for successfully implementing ASPs [7].

**Review:**

Antimicrobial resistance (AMR) is an intricate and diverse international health issue that leads to millions of deaths annually, since it undermines the effectiveness of antibiotics against bacterial infections [1,2]. Based on the statistical models from the "Antimicrobial Resistance Collaborators," it was projected that bacterial antimicrobial resistance (AMR) was responsible for 4.95 million fatalities in 2019 [3].

The indiscriminate utilization of antimicrobials, both in medical facilities and within the general population, has greatly contributed to the worsening of the burden of antimicrobial resistance [4]. Moreover, the insufficiency of public knowledge regarding the hazards linked to antimicrobial resistance (AMR) and the absence of all-encompassing antimicrobial stewardship (AMS) initiatives in community environments contribute to the dissemination of AMR [5].

Community venues, such as outpatient clinics and community pharmacies, have a vital role in prescribing and distributing antibiotics [6]. The utilization of antibiotics in community settings is frequently hindered by activities such as self-administration of medicine, improper self-diagnosis, and inadequate supervision by healthcare professionals [7]. Around 80% of antibiotic prescriptions are issued and distributed in community settings, making them the primary location for such medications [6]. Research has indicated that a notable part of these prescriptions are unsuitable in terms of the selection, amount, length, or range of antibiotics [5,7]. Not only does this give rise to worries regarding the safety of

patients, but it also adds to the growing prevalence of antimicrobial resistance (AMR) in the population.

AMS programs are holistic initiatives designed to maximize the effectiveness of antibiotics through the implementation of a multidisciplinary strategy including policymakers, healthcare professionals, researchers, infection control practitioners, and the general public. These programs prioritize patient safety, enhance clinical outcomes, and reduce the occurrence and transmission of antimicrobial resistance (AMR) by emphasizing evidence-based methods. Additionally, they aim to maximize the therapeutic effectiveness of antibiotics. These tasks encompass evaluating the usage of antimicrobial drugs, instructing healthcare personnel and giving them feedback on their performance, analyzing the use of antimicrobials, and monitoring trends of resistance [8].

Although AMS programs have typically been established in hospital settings, it is crucial to extend the implementation of these programs to community settings. Community settings provide a platform to advocate for appropriate antibiotic utilization and educate patients about antimicrobial resistance (AMR). Implementing AMS (Antimicrobial Stewardship) programs in community settings can effectively tackle the issues related to improper antibiotic usage and contribute to the control of Antimicrobial Resistance (AMR) [9].

Community pharmacists have a vital role in the healthcare system, especially when it comes to Antimicrobial Stewardship (AMS) in community settings [10]. Pharmacists frequently serve as the initial contact for patients seeking medicine and can offer useful advice about the proper utilization of antibiotics. Nevertheless, research has indicated that community pharmacists exhibit discrepancies in their implementation of AMS practices, such as deficiencies in knowledge, insufficient counseling, and irregular adherence to recommendations [11]. Gaining insight into the present methodologies employed by community pharmacists about Antimicrobial Stewardship (AMS) is essential for identifying areas that require enhancement and devising focused interventions to bolster their contribution in advocating safe antibiotic usage [11].

In addition, community pharmacists are in a favorable position to make substantial contributions to the implementation of AMS operations in community settings. They have the

ability to actively participate in educating patients, advocating for the judicious use of antibiotics, and offering suitable guidance on prescription adherence and any negative consequences [11]. In addition, community pharmacists have the ability to work together with other healthcare professionals, including physicians and nurses, in order to guarantee a comprehensive and diverse approach to the implementation of AMS programs [12]. The US Centers for Disease Control (CDC) delineated the fundamental components of a prosperous AMS program in the outpatient environment. The measures encompassed in this commitment involve prioritizing patient safety and enhancing the appropriate use of antibiotics. This includes the implementation of policies and practices, monitoring antibiotic prescriptions, providing feedback to clinicians, and educating physicians and patients about appropriate antibiotic prescribing practices [12].

Antibiotic resistance has become a worldwide health problem due to the serious health consequences associated with bacterial infections and the limited effectiveness of new treatments [13]. Antimicrobial stewardship efforts have been highly effective in reducing the prevalence of antibiotic abuse since their inception [13]. However, there is a lack of research examining the role of community pharmacists in antimicrobial stewardship in the study area. Therefore, it is crucial to thoroughly examine the present patterns and factors that determine the successful execution of antimicrobial stewardship initiatives in community pharmacy. This is essential for maximizing the contribution of community pharmacists as antimicrobial stewards [13].

The involvement of antimicrobial stewards in the processes of modifying and enhancing antibiotic usage can be seen as advantageous (for example, by implementing a more organized approach and promoting shared responsibility) or as an invasive procedure that hinders physicians' autonomy and authority. The assessments of any intervention, including antimicrobial stewardship, rely, to some extent, on how the new system is introduced to stakeholders like as nurses and physicians, as well as their individual motivations [14]. Therefore, in order to achieve desired results, antimicrobial stewardship treatments should take into consideration psycho-social aspects.

Antimicrobial stewardship has consistently resulted in a long-term decrease in the utilization of antimicrobial agents, [15] and has been implemented in our institutions for several decades.

Unquestionably, a higher level of recognition of the advantages of the integrated ASP was correlated with a higher level of overall contentment with it. Consistent with the overall understanding of implementing changes and innovations, effectively communicating the advantages of the system was a crucial element in its introduction. It is important to consider the expected worries about the system, particularly regarding its difficulty and lack of effectiveness, when introducing the change. This will help address these issues and ensure a smooth implementation process [15].

### Conclusion:

Nurses and physicians who prioritize conformity and have a natural inclination to follow norms and expectations generally reported higher levels of satisfaction with the new system compared to those who do not possess these predispositions. This indicates that the adoption of the new system was credited to the appropriate authority inside the medical facility. This aligns with other studies indicating that those who prioritize conformity are more likely to endorse management's endeavors for organizational transformation. Nevertheless, those who prioritize conformity frequently oppose these change attempts due to their intrinsic inclination towards maintaining the existing state of affairs. In this study, it seems that the desire to support the institutional action was more influential than the reluctance to disrupt the existing state of affairs. The prediction of perceptions about the new system as being uncomplicated subsequently predicted satisfaction with the new system. Emphasizing the engagement of stakeholders in the implementation of the new system may enhance the support and acceptance of the new system by staff members.

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