The Review Of
DIABETIC
STUDIES OPEN ACCESS

Managing Antibiotic-Resistant Infections: The Role Of Nurses In Prevention And Surveillance

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Abstract:
Antibiotic resistance has also become the biggest threat to global health, in which it resists five decades of medical care and advances in public health. Resistance is a result of the capabilities of microorganisms such as bacteria, viruses, and fungi to develop strategies that enable their survival even when exposed to antibiotics which normally would kill them. These infections are tougher to handle, and the resultant effects of such resistance are increased length of sickness, higher treatment costs, and an appreciable increase in mortality rates. Thus, nurses being primary caregivers in these situations are bound to participate actively in the infection management and prevention of the spread of antibiotic-resistant infections. It ranges from infection control to patient education, surveillance, and early detection of resistance patterns. The nurses are very much in the lead when it comes to the application of infection control protocols, hygiene, and education on the responsible use of antibiotics by the patients. They also play a very significant role in the early detection of the signs of infection for appropriate adoption of early interventions that prevent further spread. More so, in collaboration with multidisciplinary health teams, the nurses provide valuable insights into treatment and assist in the implementation of antibiotic stewardship programs to minimize the use of antibiotics. Despite their essential role in the current increase in antimicrobial resistance, it has always been the case for nurses to face challenges based on deficient resources, absence of periodic training, and even resistance to change in behavior practices among both patients and health professional environments. Considering this fact, continuous professional development, improvement in strategies related to infection control, and investment in more technology and tools become highly critical needs. Such strengthening of support to the nursing staff becomes very critical considering the current fight against antibiotic resistance in many parts of the world, implying thereby that health systems would be better positioned to handle and prevent life-threatening infections.

Introduction:
Resistant infections are among the major challenges facing public health today and have many significant implications for individual patients and health systems worldwide. Antimicrobial resistance usually occurs when microorganisms, including bacteria, viruses, fungi, and parasites, acquire ways of resisting antibiotics and other antimicrobial agents used in treating infection. This in turn makes curable infections harder to treat and results in longer illness, longer hospital stays, and higher mortality rates. Meanwhile, AMR is also considered one of the serious economic burdens for health care in light of its need for more expensive medicines, prolonged treatments, and intensive care of affected patients. (1-4) Overuse, misuse, and improper prescribing of antibiotics are among the major contributors to increased

AMR. These practices make the organisms resistant by exposure to suboptimal concentrations of antimicrobial agents both within health settings and out in the community. On top of this, incomplete courses by patients prevent the complete eradication of the pathogenic organisms and may result in resistant strains. Against such unyielding trends, multi-track actions have to be instituted such that the response to AMR-with emphasis on education, prevention, and surveillance-can be undertaken. This places nurses in a privileged position to take up the lead role in this struggle as they usually form the first contact in hospitals, clinics, and community health settings. (1,3,4)

The role and responsibility that nurses play in managing resistant infections to antibiotics are basic; these range from direct care with the patient to system-wide infection control efforts. On the very front line of infection control, nurses are often the first to recognize signs of resistance or conventional treatment failure (4). The nurse needs to monitor a patient's progress and symptoms of the resistant infections, thus timely intervention and treatment adjustment could be achieved. Further, infection control practices that nurses are at the core of entail proper hand hygiene, isolation protocols, and cleaning of the environment-all which minimize the spread of resistant pathogens within a healthcare facility. An important role foreseen in the antibiotic stewardship program by nurses will ensure use in a thoughtful and necessary manner only, so that risks associated with the development of resistance are minimized. (5)

Education forms another key feature in the nurse's role in fighting AMR. Nurses educate their patients and patient families regarding proper use of antibiotics, risks from misuse, and the importance of completing prescribed antibiotic courses (3). Their roles in education extend beyond the bedside of the patient because, on every occasion, nurses always provide training and education to other health professionals on the best practice for the prevention of infection and its control. Moreover, nurses also play a very important role in the advancement of vaccination to prevent those infections that would have otherwise required antibiotic treatment. (6)

Despite such critical contributions to the fight against AMR, nurses also face numerous challenges in playing these roles effectively. Resource limitations regarding inadequate staffing, infection control supplies, and facilities, apart from limited access to state-of-the-art diagnostic facilities, negatively impact quality service delivery(2). Adding to this, many nurses face the problem of educating patients who may not understand the impact of abusing antibiotics or who may be resistant to behavioral changes. Not having continuous and updated training regarding the changing nature of AMR and new strategies for infection control further aggravates these problems. Sometimes, organizational or cultural barriers stand in the way of proper infection control measures or proper use of antibiotic stewardship programs in healthcare settings. (7)

This paper discusses the key role nurses play in the prevention and surveillance of antibiotic-resistant infections and outlines the major challenges they face in this important area. Consequently, the paper therefore stresses the importance of supporting nursing professionals with the resources, training, and organizational support they need in this fight against AMR (6). This paper also goes further to debate possible strategies that can be put into place for the betterment of contribution parameters for nursing in this respect and ensure a coordinated and effective response to the threat of antibiotic resistance. It will also take into consideration the call for further research and innovation to underpin nursing contributions to AMR management and prevention, bearing in mind that this is a pressing issue and requires collaboration across all disciplines in health. (7-9)

Problem Statement:

The increasing menace of antimicrobial resistance is one of the most acute health challenges confronting the modern world. Infections that were hitherto managed with antibiotics are causing increasingly more prolonged morbidity, complications, and a rising toll of mortalities. This makes the therapy of common infections extremely difficult and complicates the management of many chronic diseases, including diabetes mellitus, cancer, and cardiovascular diseases. Because of their weakened immunity, the treatment for cancer patients or those suffering from diabetes needs to be quite cautious for any secondary infections, and options for the same are pretty limited. As a result, this rise in the number of resistant pathogens contributes to the burden of chronic diseases and increases the complexity of caring for patients. (10)

The use of antibiotics is very common in hospitals and clinics because of which the incidence of resistant organisms is also very high. The use of antibiotics is prescribed somewhat frequently in the

hospital and clinic setting, and because of this, the environment is quite favorable for the dissemination of resistant pathogens. The incidence of nosocomial infections, because of this, has become alarmingly high. These infections usually then resist most treatment options, leading to extended hospitalization times and increased costs, as well as increased morality rates. The World Health Organization has identified one of the top ten global health threats of AMR and urged immediate, consistent actions to contain resistance spread and guard against the effectiveness of existing antibiotics. (11)

Because of this, nurses stand at the forefront of clinical practice and have an important role in the prevention and management of antibiotic-resistant infections. Nurses are often in direct contact with the patient and form an essential part of daily care delivery in hospitals, outpatient clinics, and community health settings. Their contribution to the infection control practices-from hand hygiene to sterile environment and isolation-is of paramount importance in containing the spread of these resistant pathogens. Besides this, nurses are invariably engaged in educating their patients and their families about responsible use of antibiotics and the risks associated with misuse and incomplete treatments. (6,12)

Despite the important role they play in handling these antibiotic-resistant infections, nurses still have a host of challenges. For example, resource constraints in terms of inadequate staffing levels, unavailability of infection control supplies, and advanced diagnostic tools make them unable to fight the growing burden of AMR. Besides, no continuous training for nurses is provided as far as evolution in resistance patterns and new strategies concerning infection prevention are concerned. This knowledge gap needs to be filled so that they can apply evidence-based practice more appropriately. This is compounded by organizational barriers and a lack of proper infection control policies in some health settings. (13)

These are some of the challenges that need to be overcome to enhance nursing intervention against AMR. Adequate resources, training, and professional development, coupled with the implementation of effective infection control measures, would afford nurses the relevant role in the prevention and conducting of surveillance on antibiotic-resistant infections. In addition, health organizations should be oriented toward teamwork: multidisciplinary teams should be established in order to develop strategies for infection prevention and ensure appropriate use of antibiotics. Overcoming these barriers will enable nurses to contribute fully to the fight against AMR worldwide and help reduce its impacts on patient outcomes. (14)

The Role of Nurses in Prevention and Surveillance:

In the fight against antibiotic-resistant infections, nurses have very important roles, given their position at the frontline of patient care. They contribute to several essential strategies that not only prevent the spread of antibiotic resistance but also ensure appropriate surveillance measures for monitoring its emergence. Key roles assumed by nurses in prevention and subsequent surveillance of antibiotic-resistant infections are discussed below:

1. **Infection Control Policies:** This includes following proper hand hygiene practices, using personal protective equipment, and ensuring appropriate sterilization of medical equipment after every use on a patient. These are simple but very important infection control measures that help in decreasing the spread of resistant bacteria in hospitals and clinics. They also monitor other health personnel to ensure that these protocols are followed and promote a culture of cleanliness. The risk of infection must be constantly evaluated. Hand hygiene is one of the most potent methods for preventing the transmission of pathogenic organisms. Nurses set the best example in the frequent washing of hands and the use of liquid hand sanitizers in areas of high contact. This role becomes even more critical in settings where patients are vulnerable, such as ICUs, oncology wards, and dialysis units, due to the heightened likelihood of infection and resistance. (15)
2. **Patient Education:** Another area in which nurses have a central role is patient education. They should make sure that the patients understand the importance of finishing the antibiotic course, even if their symptoms have disappeared. Incomplete courses of antibiotics are among the major causes of antibiotic resistance, where the bacteria adapt to survive the partial treatment. The nurses also educate the patients about the dangers of the misuse of leftover antibiotics for self-medication and the hazardous effects of the abuse or misuse of antibiotics, such as taking antibiotics for viral infections where they are ineffective. Nurses also teach patients about prevention, including good hygiene practice, frequent hand washing, and proper wound care. Such educational interventions

are especially important in outpatient clinic settings and long-term care facilities, where patients might be more independent in their activities, to prevent both the development of resistance and the spread of resistant pathogens. (16)

3. **Early Detection and Surveillance:** Nurses are usually the first health professionals to recognize signs of an emerging infection, one that might even be resistant to treatment. Their role in detecting minute changes in a patient's condition, such as fever, changes in vital signs, or changes in the appearance of wounds, is vital for appropriate and timely intervention. By providing routine assessment data, such as cultures from the patients' wounds, urine, or respiratory secretions, nurses contribute to the early identification of pathogens and can play a role in monitoring trends in antibiotic resistance in healthcare institutions. Many are vigilant in their surveillance, able to recognize early signs of antibiotic resistance outbreaks, and report to infection control teams. Such teams can take measures to stop further spread. Surveillance activities for the nurse also include monitoring patterns of antibiotic use in their unit and identifying any misuse that may contribute to the development of resistance. This will enable early intervention with appropriate action and modification of the treatment protocol, considering resistance patterns. (17)
4. **Collaboration with Multidisciplinary Teams:** The nurses do not work in isolation; they work as part of a multidisciplinary healthcare team. Collaboration with physicians, microbiologists, infection control specialists, and pharmacists is one of the major management strategies for dealing with antibiotic-resistant infections. Sharing the patient's observations, such as vital signs and laboratory results, allows the nurse to help ensure that the care plan is adjusted to meet the needs of the patients with resistant infections. They also attend meetings and briefings related to antibiotic resistance, where they can give insight from first-hand experience about patient responses to treatment. This type of collaboration will enhance the development of tailored treatment strategies and ensure that the antibiotic therapy is based on the most recent and accurate data about the specific pathogens affecting patients. Besides, nurses participate in the observation and assessment of the performance of antibiotic stewardship programs within their facilities, which ensures antibiotics are used wisely and responsibly. (18)
5. **Antibiotic Stewardship:** Nurses play a critical role in antibiotic stewardship programs that aim to optimize the use of antibiotics to avoid unnecessary use and reduce the development of resistance. These programs depend on the nurse to put into practice the guidelines that will ensure the correct utilization of antibiotics, such as taking orders for antibiotics only when clinically indicated, in proper doses, and for the appropriate duration. Nurses can help to promote appropriate antibiotic therapy in patients by assisting health care teams in the review of prescribing practices and by recommending changes that are warranted by patient progress. These programs strongly depend on the input of the nurses in assessment of antibiotic use in patient populations and identification of areas for improvement. When nurses participate actively in this process, overprescription is reduced, as is inappropriate exposure to antibiotics—a major driver of resistance. (19)

Nurses play a complex and critical role in the prevention and surveillance of antibiotic-resistant infections. Their role extends beyond direct patient care to include infection control, patient education, early detection, collaboration with interdisciplinary teams, and participation in antibiotic stewardship. Despite such barriers as constraints in resources and the lack of continuing education in some settings, nurses remain at the forefront in the fight against antibiotic resistance by promoting appropriate antibiotic use and protecting public health. Active participation by nurses in surveillance and education contributes not only to lessening the spread of resistance but also to shaping the future of healthcare practices that focus on sustainability and safety in antibiotic use. It's a continuous process of support, training, and provision of resources that will help empower nurses in the fight against the spread of antibiotic-resistant infections. (20,21)

Challenges Faced by Nurses in Managing Antibiotic-Resistant Infections:

Even though nurses are crucial in the campaign against antibiotic-resistant infections, they have to go through several challenges that might compromise their competency in handling the infections. These are some of the main hindrances:

1. **Resource Constraints:** This, arguably, is the greatest challenge that nurses face both in developed and developing countries, though mostly in low-resource health settings. This encompasses resource constraints and scarcity of medical supplies, diagnostic tools, and infection-control equipment like gloves, masks, and sanitizers. The lack of this paraphernalia makes the application of proper infection-control techniques difficult: frequent hand hygiene and sterilization of medical equipment are considered two central practices to eradicate infections resistant to antibiotics. (22)

The shortage of nurses can further lead to an increasing workload of individual nurses, thus disabling them from attending to the patients effectively and monitoring them. Lack of access to supplies and equipment, where resources are limited, can severely constrain the ability of providers in responding to and preventing outbreaks of resistant infections; hence it upsurges the burden of the nursing professionals. (23)

2. **Lack of Continuing Education:** The rapid changes in health care and continuous evolution in the medical field make the knowledge and education of nurses outdated very fast. Continuing education related to updated infection control protocols, new antibiotic resistance patterns, and guidelines that keep on evolving related to antibiotic stewardship is usually inadequate. Since the resistance patterns are constantly changing, it is paramount that training for nurses be ongoing to keep them abreast with the best and most suitable evidence-based practices. Lacking such knowledge, the nurses could well never become capable of properly preventing the spread of resistant infections or ensuring appropriate use of antibiotics within the healthcare setting. This is of particular concern in areas where nurses must make informed decisions about patient care based on limited guidance regarding the most current research. (24)
3. **Cultural and Behavioral Barriers:** These have more often than not presented a challenge to nurses in terms of altering long-held cultural or behavioral-based attitudes toward infection control practices. (25)

It can also be resisted by the patients themselves, who may resist adopting some of these hygiene habits, such as frequent hand washing, or from health providers who might show reluctance to adhere to new guidelines on the use of antibiotics. For example, there are those patients who insist on their antibiotics for conditions where they are not really necessary, and there are those health caregivers who continue to prescribe them without adhering to all of the protocols of stewardship. Overcoming these cultural and behavioral barriers requires consistent clear communication and education on the part of the nurses to convince both the patients and colleagues about the importance of following recommended practices. Often, this places the nurse in an advocacy role not only for the patient but for the health care team, a task which can be very trying in and of itself amidst an environment where patients may become resistant to advice given and other healthcare providers may not be as fully appreciative of this important role antibiotic stewardship plays. (25)

4. **Time Constraints:** The work environment is very pressurizing for the nurses, particularly in big hospitals and clinics, where multitasking looks to be the rule for most of the time. Little time is left for educating patients regarding the signs of antibiotic resistance and infection control measures implementation; thus, it becomes very difficult for them to manage their workload with their duties. (26)

This may also mean that less attention is paid to early detection of resistant infections or education of the patients about the importance of taking home all prescriptions of antibiotic regimens. It is thus expected that in such a time-pressured environment, the nurse may not get ample opportunity to ensure that infection control protocols are consistently followed by both staff and patients as a means of avoiding lapses in critical practices that prevent the spread of resistant infections. All this places time pressure on nurses to deliver the required level of care needed in the prevention and management of antibiotic-resistant infections. (26)

5. **Emotional and Psychological Stress:** The stress of dealing with antibiotic-resistant infections may lead to emotional and psychological stress for nurses. This weight of responsibility is added to knowledge that resistant infections are difficult to treat and lead to poor patient outcomes, causing burnout. Feelings of helplessness that may be created in nurses when dealing with infections resistant to available antibiotics can also be very emotionally stressful. (27)

Besides, the nurses are often torn between the care for the patients and administrative duties, which, added to the emotional burden of dealing with critically ill patients, especially those with infections not responding to treatments, may have a serious impact on their general wellbeing. Support systems and

resources, in most instances, for mental health are underutilized, and the emotional toll from having to deal with antibiotic resistance adds to reported stress and fatigue among many nurses in their job roles. (28)

6. **Healthcare System Support Limited:** The healthcare system support may sometimes be very limited in some settings to address the issue of antibiotic resistance. Although nurses play a very critical role in infection prevention, their protection from health care institutions may be partial in certain areas where poor staffing levels, lack of investment in infection control programs, and limited access to required diagnostic technologies are identified. With a weak institutional framework in addressing antibiotic resistance, the nurse may be challenged in properly performing her functions with the lack of instruments, support systems, and resources to address the growing problem. (29)

So, whereas nurses play important roles in the prevention and management of infections, they are bound by many barriers that limit their practice of fully executing their roles. This can only be addressed by better resource allocation, continuous education, and a more supportive healthcare environment. Reforms in this aspect would better place nurses to make contributions toward battling against antibiotic resistance—a very crucial avenue to improved patient outcomes and public health protection.

Solutions to Overcome the Challenges in Managing Antibiotic-Resistant Infections:

The burden of antibiotic resistance is one of the highest in health care today. Even while nurses hold key positions in managing such infections, they are confronted by challenges in their attempt to seek optimal care for the patient. Thankfully, several solutions can be enacted that can turn these nurse issues into better performance relative to infection management. The following strategies outline key interventions necessary for assisting the nurse in the effective management of such infections.

1. Improved Taining and Education

Education plays an important role in the struggle against antibiotic resistance. Nurses should be acquainted with modern infection control practices and novel resistance patterns. Guideline documents for the prudent use of antibiotics that are continually updated should be periodically reviewed. Professional development in ensuring that nurses are equipped with the necessary knowledge and competencies to avert and manage antibiotic-resistant infections should be accorded the highest priorities by health care institutions. These include regular workshops, online courses, and access to the latest research and best evidence-based practices. This would involve institutions working hand in hand with universities, professional nursing organizations, and public health agencies to facilitate the nurses undergoing specialized training. Clinical placements and rotation in infection control and antibiotic stewardship programs would also ultimately afford nurses with real-life experiences that enhance competence. Finally, education programs should be oriented toward teaching the patient so that the nurses feel able and willing to teach the patients about proper antibiotic use and infection prevention. (30)

2. Investment in Resources

Any infection control program dealing with antibiotic-resistant infections is severely afflicted by resource inadequacies. Proper infection control urgently requires not only adequate budgetary allocation for the infection control program but also complete diagnostic facilities and other consumables that complement the program at any healthcare facility. This includes providing all consumables for infection control, like gloves, masks, sanitizers, and disinfectants, and assured availability/access to rapid diagnostic technologies which can rapidly identify resistant pathogens. This scarcity further enhances the workload of the nurses, which again results in poor patient care in that they may fail to monitor closely for any signs of infection and take necessary infection control measures. (31)

For that, healthcare institutions need to invest more in their nursing workforce and, at the same time, take care of their current workforces through role delegation and task prioritization. Infection control specialists and data analysts will also be on hand to divide administrative concerns with the supporting staff so that the nurses' burden would be lessened to attend to direct patient care. Infrastructure development in the form of enhanced cleaning, HAI surveillance systems, and programs involving proper use of antimicrobials would likewise make the environment of both patients and health workers

safer. These investments are critical in outbreak prevention and support the containment of antibiotic-resistant infections. (32)

3. Technology Use

Technology has evolved as an indispensable component of developing health practices and infection control. Advanced technologies, such as systems for EHR and other diagnostic capabilities with rapid turnaround, would significantly improve the role of surveillance and patient care. The EHRs would be capable of integrating accumulation and analysis of patient data, tracking resistance patterns, supporting nurses for best practices in antibiotic use, and promoting early detection of resistant infections (33). Rapid diagnostic technologies, including PCR, can currently identify the pathogens and their resistance profiles in a matter of hours. This will reduce the time to administration of appropriate therapy. It allows healthcare providers to make more informed decisions about treatment plans faster, thereby improving patient outcomes while reducing further spread of resistant organisms.

AI and Machine Learning are promising new technologies that hold great potential for improving infection control practices. For the prediction of antibiotic resistance trends and outbreaks, artificial intelligence systems analyze large volumes of clinical and microbiological data. These are predictive analytics tools that directly inform infection control strategies, such as targeted antibiotic use or enhanced isolation precautions. Lastly, AI will be used to enhance hospital workflow and free up nursing burdens to further facilitate efficiency in the management of infections. (34)

4. Enhanced Collaboration

Indeed, various sets of health professionals, including nurses, physicians, microbiologists, and pharmacists, have to be involved in managing antibiotic resistance. Nurses must work with them to monitor resistance patterns, diagnose, and treat infection based on individual needs. The multidisciplinary approach contributes different experiences and expertise and is believed to be vital to the success of an antibiotic stewardship program. The nurses should, therefore, contribute to multidisciplinary rounds by being active and providing relevant useful insights from their assessments and experiences. This way, the infection control measures of the patient, antibiotic management, and the like are holistically met in all aspects of the care provided. These health professionals can then compile a comprehensive care plan, which is more effective in the prevention and management of antibiotic-resistant infections. This collaboration requires a culture of open communication and respect among all healthcare professions. In using this approach, nurses can voice their concerns and advocate for evidence-based practices as the physicians and pharmacists ensure support for nursing when advocating for proper utilization of antibiotics. Shared decision-making and responsibilities regarding patient outcomes are also components of successful infection management. (35)

5. Strengthening Infection Control Programs

Comprehensive infection control programs provide a framework for implementing activities that help in combating antibiotic resistance. It is crucial for such programs to undertake regular screening for resistant pathogens, strict adherence to infection prevention and control practices, and audits to monitor compliance. Nurses are at the heart of such programs and their implementation, ensuring they function as they should. All healthcare institutions should provide appropriate equipment and knowledge for nurses to put infection control practices into place, such as isolation precautions, appropriate hand hygiene practices, cleaning-disinfection of patient-care areas. Continuous monitoring of infection rates and compliance will ensure that areas needing improvement are identified and updates in infection control practices take place accordingly. The infection control teams, of which nurses are part, need leadership and authority to lead such programs. These may also be multidisciplinary teams that review policies, train on infection control principles, and advise staff on the management of difficult cases related to antibiotic resistance. This way, healthcare institutions will provide continued support for infection control efforts and lighten some of the burdens on individual nurses. (36)

6. Engaging Patients and Their Families

Conversely, nurses should educate their patients and the patient's family members on antibiotic resistance and adherence to prescribed treatment courses. The management of an infection requires a very important element: the education of a patient regarding the risks of inappropriate use of antibiotics, such as, for example, taking antibiotics when the infection is viral in nature, or not completing a course of treatment. This, in turn, will also reduce the demand for irrational prescriptions of antibiotics on the part of the patients by properly educating them regarding the judicious use of antibiotics, which in turn will reduce the development of resistant strains of organisms. Also, engaging a patient in discussion

regarding his treatment plan will bring about better compliance since all his doubts are clarified and he is made an active partner in care. (37)

7. Support for Policy Changes

Therefore, nurses should be advocating at the policy level to take action against the resistance of antibiotics. This will include lobbying for increased funding on research in antibiotic resistance, support for national and international policies that outline improvements in antibiotic stewardship, promotion of the integration of infection control measures in healthcare regulation. (7)

Because of their role as a direct caregiver, nurses are uniquely situated to influence policy based on personal observation and experience. By supporting health care system changes, nurses have the ability to facilitate the health care system's better response to the issue of antibiotic resistance, which will improve patient outcomes and extend to the community at large. (38)

8. Work Environment that Cares

Finally, there is the need to create a work-friendly environment that helps nurses find strategies to cope with the psychological and emotional impact brought about by the management of antibiotic-resistant infections. Medical institutions should provide mental health support through services like counseling and stress management programs that would support nurses cope with their jobs' psychological demands. A cooperation-based work environment focused on professional development and emotional welfare will prove to be quite a deal in itself for keeping skilled nursing staff on board and ensure the delivery of quality patient care. (39,40)

While the many challenges multiply, so do the solutions that mitigate them. Health institutions have the capacity to arm nurses with education, resources, technologies, and collaboration that better prepare them in the fight against antibiotic resistance, thereby improving patient outcomes. Nurses combining clinical practice, patient education, policy advocacy, and support will continue to be on the leading edge of battling this global health threat. (4,29,41)

Conclusion:

Put differently, nurses play a vital role in combating drug-resistant infections and continue to be at the forefront regarding infection prevention and surveillance. They educate patients and distribute necessary information among multidisciplinary health teams. Such valuable contributions have enabled containment of the spread of resistance and effective patient care that may otherwise not be feasible. Resources are a constraint, training is lacking, and behavioral barriers exist, including non-compliance by patients or other providers to infection control. Such challenges have to be urgently addressed if the effectiveness of nurses against antibiotic resistance is to be further enhanced. This will be further enhanced through investment in continuous education and training, adequate resources, and integrating advanced technologies including rapid diagnostic tools and electronic health records. Improved knowledge, superior tools, and support will translate to an expanded role for nurses in managing antibiotic resistance and lead to better patient outcomes with an improved public health response. All these constitute factors that, in the face of an expanding global crisis of resistance to antibiotics, much greater support for nurses is not only a means of enhancing effectiveness but also protecting public health. Nurses will continue to form the vanguard through strategic and coordinated action so that health care systems can keep pace with evolving threats posed by resistant pathogens. Therefore, support, resources, and education for nurses are paramount in providing an enabling environment in the fight against antibiotic resistance, since nurses form a critical mass both clinically and in the advocacy of policies.

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