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Antimicrobial Stewardship Program Implementation among Nurses in Hospitals: A Review

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ABSTRACT

Antimicrobial resistance prevention and the treatment of infectious diseases are now significantly more difficult as a result of the recent slowdown in the discovery of new antimicrobial medications. Increased morbidity, mortality, and healthcare costs are possible as a result of the rising rates of AMR, which present a substantial challenge to the treatment of infectious diseases. In response to this, the researchers investigate the relationship of antimicrobial stewardship program implementation against AMR. By utilizing a correlational analysis, the researchers want to calculate a sample correlation coefficient between the LGU Hospitals in Laguna and the evaluation of how well the antimicrobial stewardship Program is being implemented among nurses. Considering that various hospitals may have varying mandates, laws, and restrictions. The sample correlation coefficient, abbreviated r, measures the direction and intensity of the linear link between the two variables and, as specified, runs between -1 and +1. A positive correlation means that higher levels of one variable are related to higher levels of the other, whereas a negative correlation means the opposite (i.e., higher levels of one variable are associated with lower levels of the other). The direction of the link is indicated by the sign of the correlation coefficient. The correlation coefficient's size reveals the degree of the link. For instance, $r = 0.9$ indicates a strong, positive link between two variables, but $r = -0.2$ indicates a weak, negative association. If the correlation is close to zero, there is likely no linear relationship between the two continuous variables. The calculation of a correlation coefficient does not reveal a non-linear link between two continuous variables, which is a crucial point to remember. The researchers can estimate future behaviors about antibiotic resistance and the stewardship program using the relationship factors.

Keywords: Implementation, Nurses, Antimicrobial Stewardship

Introduction

Developing antimicrobial drugs nowadays are slowing down while the resistance to these types of drugs is continuously increasing. When bacteria adapt in a way that lessens or eliminates the effectiveness of medications, chemicals, or other agents intended to treat or prevent an infection, this phenomenon is known as antibiotic resistance. As a result, the patient (host) receiving the medication suffers injury and the germs continue to grow and reproduce. There has been a great deal of worry that the "antibiotic era" may be coming to an end due to two factors: first, the rate of drug development has significantly decreased, and second, microbes (viruses, bacteria, fungi, and protozoa) are getting very creative in coming up with ways to get around the inhibiting and killing effects of medications (antibiotics) aimed at them. More than 85% of infection-related deaths globally are caused by measles, malaria, acute respiratory infections, diarrheal illnesses, and tuberculosis (Alekshun & Levy, 2007). Many studies have shown that the usage of antibiotics and the development of resistance are related. Antimicrobial resistance (AMR) in specific bacteria was identified in a project by the European Surveillance of Antimicrobial Consumption (ESAC) in 2001, and a direct correlation between resistance and antimicrobial use in European nations was discovered (Goosens et al., 2005). The improper prescription and administration of antibiotic therapy is thought to be associated with the overuse of antibiotics (Ventola, 2015). Almost 30% of orally administered antibiotic prescriptions were unnecessary, according to a new U.S. study that examined data from prescriptions given between 2010 and 2011 (Fleming-Dutra et al., 2016). Furthermore, according to the World Health Organization, antibiotics can be lawfully purchased without a prescription online in five countries and over the counter in 19 other European nations. This review describes the why, what, who, how and where of antimicrobial stewardship by Doron, S. and Davidson, L.E. (2011). To improve the patient outcomes, the antimicrobial stewardship program in the hospital and other healthcare settings are important to optimize the use of antimicrobials and prevent the development of resistance. The antimicrobial stewardship program aims to provide caution on the use of antimicrobials; prevent or slow down the emergence of antimicrobial resistance; optimize the selection, dosing, and duration of antimicrobial therapy in individual patients; reduce adverse drug events, including secondary infections; and reduce morbidity, mortality, length of hospitalization, and healthcare related costs. Combating antimicrobial resistance is a public health challenge among healthcare providers, the effort of some public health agencies is also much needed in preventing, reducing, and controlling the emergence of antimicrobial resistant organisms. Stewardship also improves patient care and reduce unwanted consequences of antimicrobial overuse or misuse, including lowered efficacy.

Theoretical Framework

From the review of several research studies, this study is anchored on the basis of three (3) theories for the purpose of developing and proving each theory.

Impact of Intervention Design Framework

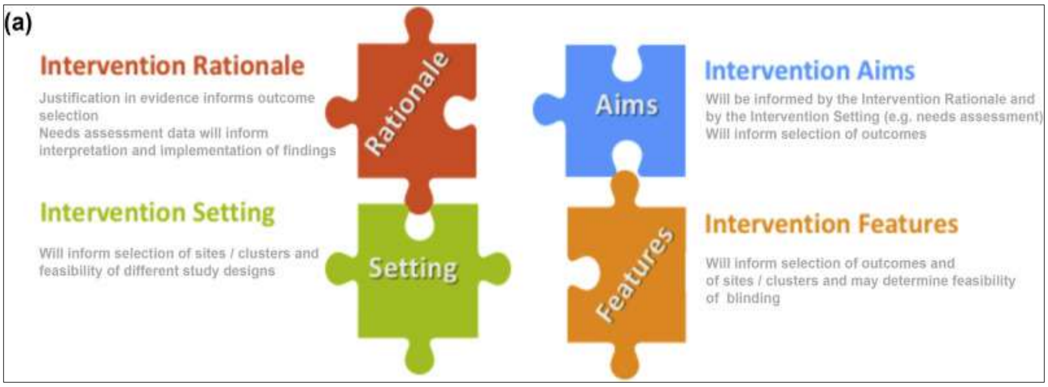

Fig. 1(A) Interacting considerations relating to the intervention to be evaluated and their impact on study design.

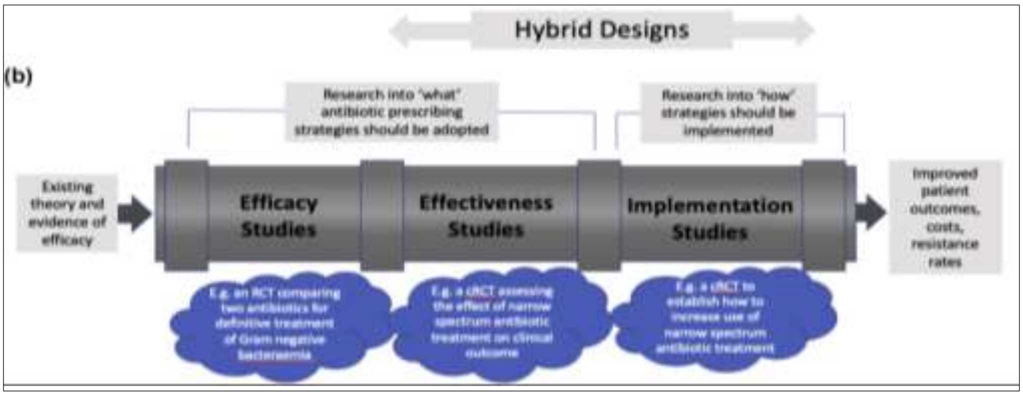

Fig. 1(B) An evaluation pipeline for antimicrobial stewardship intervention. Adapted from (Curran et al., 2012)

Firstly, this study tries to develop and prove the theory of designing antimicrobial stewardship evaluations (Schweitzer et al., 2020). This guidance does not cover in detail how antimicrobial stewardship interventions are created. However, the method used to conduct a scientific evaluation of an intervention depends on how that intervention was created, which in turn may be influenced by a number of interrelated factors (Fig. 1A). The intervention's justification should outline its theoretical underpinnings and supporting data. The efficacy-effectiveness-implementation spectrum that motivated the study question should be explicitly described (Curran et al., 2012), as these factors will impact how outcomes are chosen and prioritized (Fig. 1B). To assess external validity and reduce selection bias, a thorough description of the intervention environment is needed. Stewardship initiatives are frequently complicated, and each component of the intervention needs to be described in detail. The same is true for how the impact of the intervention will be assessed; this will affect the definition and choice of outcomes, the choice of clusters/sites, and the viability of blinding. The intervention goals, which will determine whether these will determine effectiveness and safety or how implementation results change antimicrobial use, as well as what data are needed to support the translation of study findings into practice, will be influenced by the rationale and setting. These factors will determine the most suitable study design (e.g., experimental or quasi-experimental), the specific design features, and whether the research sets out to determine superiority or non-inferiority of the intervention measured by its primary outcome(s) against standard practice and the detectable effect sizes/non-inferiority margins.

TACTA Framework

Hospital AMS interventions are by their very nature complex, frequently needing a number of different healthcare personnel to alter a number of different behaviors at various stages of the care pathway. When duties and responsibilities are not defined, inaction might result. If it is clearly stated what behavior(s) should be performed, who is responsible for doing it, when, where, how often, and with whom it should be conducted, effective AMS interventions are more likely to be interpretable, reproducible, and executed. This method of describing behavior is known as the TACTA framework: Target (patient group, e.g. elective surgery patients) (patient group, e.g. elective surgery patients), Action (start or stop antibiotics) (start or stop antibiotics), Context (particular hospital ward, e.g. surgical ward) (specific hospital ward, e.g. surgical ward), Actors and Timing (when to begin or end, such as 24 hours following surgery) (healthcare professionals responsible for the action, e.g. the surgeon who performed the operation)(Ayers et al., 2014).Poor behavior specification makes it difficult to evaluate results, replicate interventions and studies, and synthesize the available data in research and practice (impeding replication, scaling up and implementation of effective AMS interventions into clinical settings). It is more practical to execute solutions when problems and recommendations are precisely specified using TACTA because it makes it clearer what is needed and increases confidence that it has been completed.

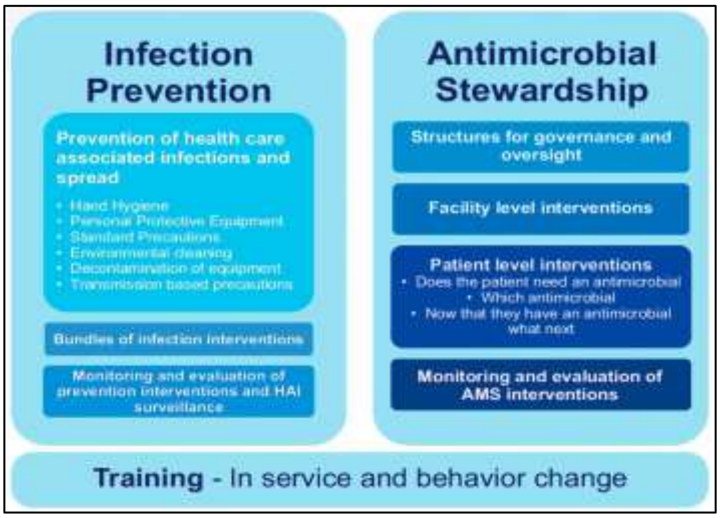

Fig. 2 – TACTA Framework

Normalization Process Theory

The study of implementation difficulties in complicated contexts can be aided by the application of theoretical frameworks from the social sciences. Normalization Process Theory, for example (NPT)(May et al., 2007) has been widely utilized to assess implementation procedures, assist in the understanding of barriers and facilitators in health care research(May et al., 2018).The fundamental ideas of NPT are related to the characteristics of the intervention (ability to function and be incorporated into practice) and the contribution that practitioners make through processes including coherence, cognitive engagement, collaborative action, and reflexive monitoring(May et al., 2018).The NPT also recognizes the importance of the practice context, which includes "organizational setting, complicated intra- and inter-professional contacts, and many conflicting tasks operationalised under pressure."(May et al., 2014).

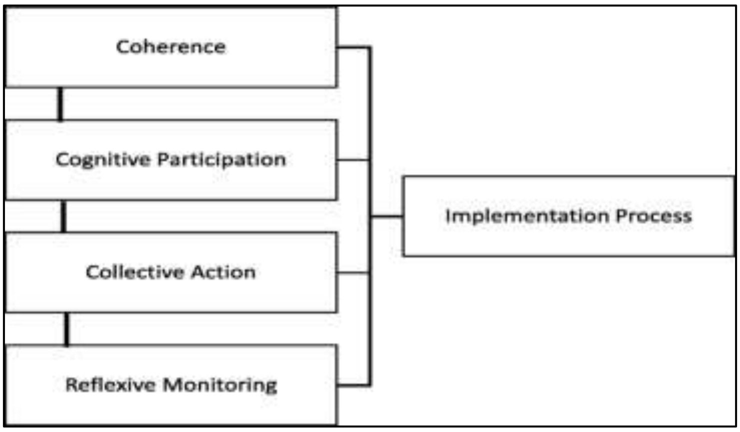

Fig.3 – Normalization Process Theory Framework

Results and Discussion

The researchers will use the Correlational Analysis defined as bivariate analysis that measures the strength of association between two variables and the direction of the relationship. In correlation analysis, the researcher's intent to estimate a sample correlation coefficient between the LGU Hospitals in Laguna and the assessment in implementation of the antimicrobial stewardship Program among nurses. The researcher aims to assess the relationship of the implementation program of the different local government hospitals in Laguna and how the nurses take action in the implementation of the AMS program. Since different hospitals may have different directives, rules, and regulations. As defined, the sample correlation coefficient, denoted r, ranges between -1and +1 and quantifies the direction and strength of the linear association between the two variables. The correlation between two variables can be positive (i.e., higher levels of one variable are associated with higher levels of the other) or negative (i.e., higher levels of one variable are associated with lower levels of the other). The sign of the correlation coefficient indicates the direction of the association. The magnitude of the correlation coefficient indicates the strength of the association. For example, a correlation of r = 0.9 suggests a strong, positive association between two variables, whereas a correlation of r = -0.2 suggest a weak, negative association. A correlation close to zero suggests no linear association between two continuous variables. It is important to note that there may be a non-linear association between two continuous variables, but computation of a correlation coefficient does not detect this. Therefore, it is always important to evaluate the data carefully before computing a correlation coefficient. Graphical displays are particularly useful to explore associations between variables. The correlations research study are useful because if the researchers can find out what relationship variables have, the researcher can make predictions about future behavior. Knowing what the future holds is very important in the social sciences like government and healthcare.

Review of Related Literature

Although people have used antibiotics to cure ailments for millennia, they were unaware that bacteria were to blame until around a century ago. Several of the earliest civilizations used various molds and plant extracts to cure diseases; the ancient Egyptians, for instance, applied moldy bread to infected wounds (The History of Antibiotics, n.d.). But up until the 20th century, bacterial diseases that we now take for granted, including pneumonia and diarrhea, were the leading cause of mortality for people in the industrialized world. Scientists didn't start to see antibacterial compounds in action until the late 19th century. German doctor Paul Ehrlich discovered that some bacterial cells were colored by specific chemical dyes but not others. He came to the conclusion that it must be able to develop compounds that may kill specific germs selectively without hurting other cells in accordance with this idea. He discovered in 1909 that a substance known as arsphenamine might effectively treat syphilis. Although Ehrlich himself referred to his discovery as "chemotherapy"—the employment of a chemical to cure a disease—it was the first modern antibiotic (Paul Ehrlich, 2017). Almost 30 years later, the Ukrainian-American scientist and microbiologist Selman Waksman, who discovered over 20 antibiotics throughout his lifetime, used the term "antibiotics" for the first time (Kingston, 2004).

Penicillin was accidentally discovered by Alexander Fleming, who appears to have been a little disorganized in his work. In 1928, after returning from a vacation in Suffolk, he discovered that a culture plate of Staphylococcus bacterium had become contaminated by the fungus Penicillium notatum. Everywhere the fungus developed on the plate, there were areas free of germs. Fleming separated the mold and raised it in sterile culture. He discovered that P. notatum was less toxic than the disinfectants in use at the time and proved to be exceedingly effective even at very low concentrations, inhibiting Staphylococcus growth even when diluted 800 times (Britannica, T. Editors of Encyclopaedia, 2023). According to Mailer & Mason (2001), collaborations with British pharmaceutical companies enabled the mass manufacture of penicillin, following early studies in the treatment of human wounds. Several survivors of a fire in Boston, Massachusetts, where almost 500 people perished, got skin grafts that are susceptible to Staphylococcus infection. Because penicillin was such an effective treatment, the US government started funding its widespread manufacture. Penicillin was widely utilized to treat infections in soldiers by the time of D-Day in 1944, both in the field and in hospitals across Europe. Penicillin was known as "the wonder drug" and had saved many lives by the conclusion of World War II.

The mass production method was developed by Oxford scientists, and for their work in establishing the first mass-produced antibiotic, Howard Florey and Ernst Chain received the 1945 Nobel Prize in Medicine with Alexander Fleming (Howard Walter Florey and Ernst Boris Chain, 2017). Only a short time after penicillin was discovered did the first indication of antibiotic resistance become clear. Abraham and Chain said in 1940 that an E. By generating penicillinase, the E. coli strain was able to render penicillin inactive (Abraham & Chain, 1988). When four Staphylococcus aureus strains were discovered to be resistant to the effects of penicillin in hospitalized patients in 1942, the spread of penicillin resistance was previously known (Rammelkamp, 1942). In the following few years, the percentage of infections brought on by S. As it quickly grew, aureus spread from hospitals to neighborhoods. More than 80% of community- and hospital-acquired strains of S. aureus were present by the late 1960s. Aureus were resistant to penicillin (Lowy, 2003). After the development of second-generation, semisynthetic methicillin in the 1960s, the fast spread of penicillin resistance momentarily came to an end. Yet methicillin-resistant germs rapidly appeared, and it wasn't until 1981 that this resistance mechanism was uncovered (Hartman & Tomasz, 1981). These isolates carried a modified PBP called PBP-2a that displayed a decreased affinity for penicillin and conferred penicillin resistance. MecA, a gene found on the S, encodes PBP-2a. The mobile genomic island staphylococcal cassette chromosome mec contains the aureus chromosome (SCCmec). Methicillin resistance spread rapidly in the United States during a period of about 20 years, reaching 29 percent of S. affected by S. aureus (Zaffiri et al., 2013).

Antibiotic-resistant pneumococcus cases had tripled in South Africa by 1999 compared to 1979, with a 14.4% prevalence rate (Koornhof et al., 1992). Beta lactamase-producing gonococci were first discovered in England and the United States in 1976. Following the first introduction of penicillin to treat gonorrhea, gonococcus resistance spread quickly (Unemo & Shafer, 2014). Ten years later, the prevalence of gonococcal penicillin-resistant strains peaked, especially in Asia (Lind, 1997). The emergence of mutations that altered the penicillin target PBP2 and expressed drug efflux pump systems led to the chromosomally mediated resistance of these strains, which also affected a large outbreak of resistant non-beta-lactamase-producing gonococcus in Durham City, North Carolina (U.S.), in 1983 (Faruki et al., 1985). Combined, these incidents caused most of the world to forbid the use of penicillin as the first-line treatment for gonococcus (Patel et al., 2011). The Enterobacteriaceae family, which includes multiple strains that are inherently aminopenicillin-resistant, particularly among E. coli types, is another bacterial family with high rates of penicillin resistance (Bouza & Cercenado, 2002). In the period between 1950 and 2001, around two-thirds of E. In the United States, E. coli that caused infections in humans were ampicillin-resistant, and the incidence of aminopenicillin resistance is constantly rising (Bergman et al., 2009).

Fleming prophesied that the widespread use of antibiotics would usher in a "period of abuse" at the beginning of 1945; this prediction ultimately came to pass (Ventola, 2015). Soon after the general population became aware of penicillin's amazing properties, the antibiotic began to be abused. This led to selective pressure that led to the creation of penicillin-resistant strains, which over the course of a few years spread to many nations. Each new generation of antibiotics was discovered rapidly after the previous one. Many studies have shown that the usage of antibiotics and the development of resistance are related. Antimicrobial resistance (AMR) in specific bacteria was identified in a project by the European Surveillance of Antimicrobial Consumption (ESAC) in 2001, and a direct correlation between resistance and antimicrobial use in European nations was discovered. For S. pneumoniae, this was especially clear, for which higher rates of antibiotic resistance have been discovered in southern and eastern European nations like France, Spain, Portugal, and Slovenia where antibiotics are used more frequently than in northern Europe (Goosens et al., 2005). The improper prescription and administration of antibiotic therapy is thought to be associated with the overuse of antibiotics (Ventola, 2015). Almost 30% of orally administered antibiotic prescriptions were unnecessary, according to a new U.S. study that examined data from prescriptions given between 2010 and 2011 (Fleming-Dutra et al., 2016). Furthermore, according to the World Health Organization, antibiotics can be lawfully purchased without a prescription online in five countries and over the counter in 19 other European nations. Consequently, cheap access to antibiotics is probably to blame for the current issue of antibiotic resistance by encouraging overuse of these medications.

The widespread use of antibiotics in agriculture, mostly as growth promoters and to keep livestock from getting sick, is another factor that is thought to contribute to antibiotic resistance. From 63,000 to over 240,000 tons of antibiotics used annually worldwide, agriculture accounts for the majority of antibiotic usage (Landers et al., 2022). The widespread use of antibiotics contributed to the creation of resistant strains that could easily cross the food chain from animals to people. According to a 2013 WHO research, eating of diseased chicken in many regions of the world is likely connected to levels of Campylobacter resistance to a number of antibiotics (Lemire et al., 2013). Antibiotic misuse may potentially harm the microbiota in the environment. In addition to being used directly as plant preservatives, antibiotics can indirectly enter the environment when they are excreted by animals given antibiotics. This would allow for the exposure of opportunistic or non-pathogenic environmental species to antibiotics, which would serve as a gene pool for resistance (Bergman et al., 2009). According to the first significant WHO report on AMR, adequate worldwide data on AMR are lacking. To establish the connection between antibiotic usage and resistance in various countries and to develop intervention strategies that target AMR globally, global data collection is required to monitor AMR. Yet, there are issues with the techniques utilized for data collection on a worldwide scale. It is obvious that the resistance data gathered from various countries only gives us a snapshot of a very dynamic scenario because AMR is continually changing. Improved AMR monitoring methods need to be developed that take into consideration persons who have been exposed to antibiotics, the size of the human population, and the impact of various drug classes on various bacteria (Turnidge, 2014).

New generations of penicillin were introduced into clinical use at the same time as the emergence of resistance. Since the discovery of penicillin, more than 150 antibiotics have been discovered, and resistance has developed to the majority of them. Additionally, increased morbidity and death have been linked to the recent emergence of multi/pan-drug resistant bacteria (Tanwar et al., 2014). Overall, the inability of antibiotics to treat "superbug" illnesses has led to the persistence and global spread of multi-resistant organisms. This poses a major threat to public health on a global scale (Bergman et al., 2009). When bacteria adapt in a way that lessens or eliminates the effectiveness of medications, chemicals, or other agents intended to treat or prevent an infection, this phenomenon is known as antibiotic resistance. As a result, the patient (host) receiving the medication suffers injury and the germs continue to grow and reproduce. There has been a great deal of worry that the "antibiotic era" may be coming to an end due to two factors: first, the rate of drug development has significantly decreased, and second, microbes (viruses, bacteria, fungi, and protozoa) are getting very creative in coming up with ways to get around the inhibiting and killing effects of medications (antibiotics) aimed at them. More than 85% of infection-related deaths globally are caused by measles, malaria, acute respiratory infections, diarrheal illnesses, and tuberculosis (Alekshun & Levy, 2007).

Gene transfer is a common cause of antimicrobial resistance, which means that certain organisms in a population are resistant to a particular antibiotic while others are not (André et al., 2019). This mutation could have been produced or spontaneous. Many antibiotic resistance genes are transferred easily because they are found on transmissible plasmids, which are tiny DNA molecules that may reproduce independently of the chromosomal DNA found inside a cell. Antibiotic exposure naturally favors the survival of microorganisms that have the genes for resistance (Del Rosso et al., 2016). This suggests that an antibiotic resistance gene may be able to spread throughout a bacterial ecology. Over the past thirty years, the antibiotic resistance issue has become more and more prevalent. Antibiotic resistance is brought on by overprescribing by physicians, indiscriminate usage on farm animals, and public abuse, such as sharing antibiotics. Although people have used antibiotics to cure ailments for millennia, they were unaware that bacteria were to blame until around a century ago. Several of the earliest civilizations used various molds and plant extracts to cure diseases; the ancient Egyptians, for instance, applied moldy bread to infected wounds (The History of Antibiotics, n.d.). But up until the 20th century, bacterial diseases that we now take for granted, including pneumonia and diarrhea, were the leading cause of mortality for people in the industrialized world.

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In 2020, World Health Organization emphasized that antimicrobial compounds could be obtained from plants, animals, microorganisms and advanced synthetic materials and their function is to inhibit or destroy the growth of other microbes. S.C. Khoo, et. al (2022), discussed that the considerable rise on the consumption of antimicrobial-based material, leading to many problems to the society and environment. Antimicrobial drug resistance has exacerbated disease control concerns, posing a serious threat to public health. This call for the urgent need to mitigate the AMR caused by contaminations of antimicrobial drug unintentionally release into environment. Clearly, efforts to keep the environment free of antimicrobial resistance are unattainable, but they can be minimized by multidisciplinary collaboration between regulatory agencies, pharmaceutical companies, and academics. M. Danielis et. al (2022), cited the first objective of the WHO Global Action Plan on Antimicrobial Resistance, which was adopted in 2015, prioritizes AMR claiming that the key approach to address the lack of expertise in antimicrobial misuse is to ensure that healthcare workers are educated and trained to develop the necessary competencies. This can be achieved through the standardization of educational sources for AMR based on global evidence and best practices.

Antimicrobial Stewardship in Community Hospitals

According to Buckel, W.R., et. al. (2018), Antibiotic Stewardship Programs are needed in all health care facilities, regardless of size and location. Community hospitals that have fewer resources may have different priorities and require different strategies when defining antibiotic stewardship program components and implementing interventions. By following the Centers for Disease Control and Prevention Core Elements and using the strategies suggested, healthcare personnel should be able to design, develop, participate in, or improve antibiotic stewardship programs within community hospitals. The study made by G. Betito, et. al. (2021) about implementation of multidisciplinary antimicrobial stewardship program in a Philippine Tertiary care hospital positively influenced antibiotic prescribing practices. While antimicrobial resistance (AMR) is a public health threat of worldwide concern, Southeast Asia has been considered a hotspot for the emergence and subsequent spread of AMR, as a result of a combination of driving factors, such as recent economic growth, high burden of infectious disease, and overuse and misuse of antimicrobials in human healthcare. The Philippines has established a national AMR surveillance system, reporting high rates of drug-resistant pathogens, with rates of extended-spectrum beta-lactamase (ESBL) – producing Enterobacterales and methicillin-resistant Staphylococcus aureus (MRSA) at around 50% in addition to continually rising carbapenem-resistance. In response, the Philippine National Action Plan defined a set of key strategies to tackle the challenge of AMR, one of which is to promote rational use of antimicrobials in human and animal health. To optimize the use of antimicrobials in hospitals, efforts are directed at harmonizing antimicrobial stewardship (AMS) programs nationally through training, guideline development, and design of hospital policies. Furthermore, the Department of Health has included the establishment of AMS teams and implementation of AMS strategies in hospitals as part of their accreditation requirements.

Role of Nurses in Antimicrobial Stewardship Program

In 2019, the Center for Disease Control and Prevention updated the Core Elements of Hospital Antimicrobial Stewardship Program guidelines. As part of the updated, a greater emphasis is placed on the role of nurses in improving antibiotic stewardship. M. Catanzaro (2019) currently discussed on his study on antibiotic stewardship for nursing that there is minimal research that has looked at nurses’ attitudes/beliefs towards antimicrobial stewardship. Potential reasons could include lack of education about stewardship, poor communication among providers, hospital/unit culture, concern for additional work and perception of it being not part of their scope of practice. The study conducted by Merrill, K., et. al (2019), showed that many nurses are not aware of Antimicrobial Stewardship, or do not understand their role in contributing to Antimicrobial Stewardship endeavors. Infection preventionist education should focus on increasing staff nurse awareness and demonstrating how nurses can make specific antimicrobial stewardship interventions. E. Monsees, B. Lee, J. Goldman (2020) enumerate some recommendations from Center for Disease Control and Prevention and the American Nurses Association identify staff nurses as critical players in the antibiotic stewardship movement, though their role is not established nor well defined. (1) Nurses are the largest cadre in healthcare, with significant influence on care, and should play a key role in assuring that antibiotic stewardship processes are integrated into practice. (2) Nurses are uniquely positioned to deploy stewardship strategies across the health care continuum and serve as a central hub for care integration which directly influence antimicrobial prescribing. Four nursing activities have previously been identified as crucial to improving use and optimization; (1) clarifying antibiotic indication and assuring the desired antibiotic duration is administered, (2) discontinuing the antibiotic at the desired end of therapy, (3) obtaining specimens for microbiology testing, and (4) identifying opportunities to convert from intravenous (IV) to oral (PO) therapy where appropriate.

In United States, Knobloch MJ, et. al. (2021), studied about Nurse Practitioners as antibiotic stewards. Appropriate prescribing of antibiotics is necessary for addressing antibiotic resistance. Antibiotic prescribing that is not concordant with guidelines can result in overprescribing and can impact patient safety by increasing the risk for Clostridioides difficile infection (CDI) and bacterial resistance. In the United States, nurse practitioners can prescribe medications, including antibiotics, with varying degrees of independence based on individual states' nurse practitioners' practice authority.

Conclusion

The misuse and excessive use of antimicrobial medicines, such as antibiotics, antivirals, antifungals, and antiparasitic medications, resulting in antimicrobial resistance (AMR), an increasing hazard to public health on a global scale. Increased morbidity, mortality, and healthcare costs are possible as a result of the rising rates of AMR, which present a substantial challenge to the treatment of infectious diseases. To combat AMR, the researchers utilized antimicrobial stewardship. Antimicrobial stewardship works to encourage the proper application of antibiotics in order to prevent the emergence of resistance, lower the likelihood of unfavorable side effects, and improve patient outcomes. The program uses a multidisciplinary approach that includes methods for choosing, administering, and managing the course of antibiotic therapy. An antimicrobial stewardship program's (ASP) objectives include enhancing patient outcomes, lowering healthcare expenses, and limiting the development and spread of antibiotic resistance. The researchers aim to estimate a sample correlation coefficient between the LGU Hospitals in Laguna and the assessment in implementation of the antimicrobial stewardship Program among nurses by using a correlational analysis. Using the relationship variables, the researchers can draw up forecasts on future behaviors concerning antimicrobial resistance and the stewardship program.

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Conflict of interest

No potential competing interest was reported by the authors.

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