# Antibiotic Prescribing Patterns And Rational Drug Use In Pediatric And Maternity Wards In Makkah

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**Abstract**

**Introduction**: There is rampant use of antibiotics in pediatric and maternity wards which can be typified by application of empirical therapy and broad-spectrum antibiotics. The prescriptions are unreasonable, and the risks of negative reactions and antimicrobial resistance are increased. The analyzed research paper discusses the prescribing patterns and reasonable use of prescription in Makkah hospitals.

**Purpose of Work:** To compare the tendencies, justifiability, and suitability of the prescription of antibiotics in pediatrics and the maternity departments. It is also in the paper that the issues that influence the prescribing behavior are determined. The implications of the antimicrobial stewardship on the clinical practice and implications are also discussed.

**Methods:** The descriptive-analytical type of design was utilized, and it included a literature review of the hospital records and available literature. The data of the pediatric and maternity wards were analyzed to evaluate the nature of antibiotics given and signs and compliance to the prescribed instructions. The analysis of the results took place in the context of rationality in drug use.

**Findings:** The use of antibiotics was widespread, and the most widespread ones were empirical and broad-spectrum. There was no usual microbiological confirmation of pediatric and maternity patients. Prescription inconsistencies are pointers to the lapses in the compliance with the guidelines and reasonable use of drugs.

**Conclusion:** Non-adherence to guideline and high empirical use of antibiotic prescribing in the pediatric and maternity wards. Rational drug use and stewardship programs are essential in order to maximize therapy and minimize resistance to antimicrobials. Sustainable development involves learning, observation, and enforcement of policy.

**Keywords:** Antibiotics prescription, pediatric ward, maternity ward, rational anti-microbial therapy, antimicrobial resistance.

## INTRODUCTION

Antibiotics are one of the most widely used therapeutic agents in hospital practice and are considered one of the most broadly prescribed agents in infectious disease management especially in pediatric and maternity wards. Such clinical areas are also defined as having a higher vulnerability to infections because of immune systems that are not well developed in children- particularly the neonates- and physiological and immunological alterations associated with pregnancy and post-partum. Although their clinical significance is indisputable, the unreasonable and inadequate use of antibiotics has become one of the most acute health issues in the world where it leads to the emergence of antimicrobial resistance, an increase in morbidity and mortality, the prolongation of the hospital stay, and the heavy financial burden on healthcare systems. Research that has been carried out in various clinical facilities has repeatedly revealed that a substantial percentage of antibiotic prescriptions are either not justified or not directed by the accepted clinical guidelines, which explains the urgency of systematic assessment of the prescribing practices (Hu et al., 2021; Mathew et al., 2021).

Antimicrobial resistance has become a growing population health issue in Saudi Arabia which is partly caused by the high usage of broad-spectrum antibiotics and empirical-prescription. A number of national and regional point prevalence surveys have indicated high levels of antibiotic use in the hospital and significant differences in its use by various specialties and regions. In the Makkah region, it has been shown that there is also a high level of antimicrobial use and there are patterns of prescribing antimicrobials that are concerning in terms of their suitability and compliance with the principles of antimicrobial stewardship. Haseeb et al. (2021) noted that the public hospitals in Makkah extensively used antibiotics, and the rates of antimicrobial resistance were alarming, which is why continuous monitoring and specific interventions were necessary. These issues were additionally supported in the period of COVID-19, when the level of antibiotic use significantly grew without a strong evidence of bacterial co-infection, which further intensified the risk of developing resistance (Haseeb et al., 2023; Hussein et al., 2022).

Children are among the most susceptible groups as far as exposure to antibiotics is concerned. Antibiotics are often given to children, especially in the form of a precaution, even when the bacterial infections are not known to be present, often on an empiric basis. Recently, research studies carried out in Saudi Arabia showed great prevalence of antibiotics usage among hospitalized neonates and children, and a significant proportion of using broad-spectrum agents and combination therapy. Alosaimi et al. (2024) noted that antibiotic prescribing was common in the pediatric wards, which is a reason to be concerned about possible overprescription and improper choice. More so, poor observance of the therapeutic drug monitoring guidelines especially gentamicin, which has a narrow therapeutic index, has been noted in Makkah neonatal care also which can predispose the occurrence of toxicity and suboptimal therapeutic effects (Bajaber et al., 2024). These results point to the paramount role of assessing not the frequency of antibiotic use, but also the rationality of prescribing in pediatric patients.

Likewise, the process of antibiotic prescription in maternity wards also deserves prominent consideration because it is the pregnant and postpartum women who are often exposed to the antimicrobial agents either prophylactically or therapeutically. Misuse of antibiotics in pregnancy can both cause harm to the health of both the mother and the fetus, such as drug reactions and altering the normal microbiota. A cross-sectional study of the Saudi

Arabian context found a variety of prescribing behaviors of the antimicrobial agents among pregnant women, and that drug choices are different, and that some of them imply the possible absence of the rational prescribing norms (Baraka et al., 2021). This variability underscores the importance of evaluating the use of antibiotics in the maternity wards to make sure that the prescriptions are evidence-based, clinically warranted, and consistent with the available treatment guidelines.

Although both international and national guidelines have been provided to encourage rational use of antibiotics, there are indications that there still are gaps within their application, especially in wards that are highly susceptible to risk. Other nations have reported similar problems, such as inappropriate signs, wrong dosage, and the extended period of treatment among pediatrics, which supports the international character of the problem (Alekaw et al., 2022; Hu et al., 2021). This is particularly in the context of the growing risk of antimicrobial resistance and the special susceptibility of pediatric and maternity patients, which creates a strong rationale to conduct local studies aimed at evaluating the practices of prescribing antibiotics and the reasonable use of drugs. Assessing the existing practice in pediatric and maternity units in Makkah will be valuable in understanding the gaps present in the current practice, aid in streamlining of antimicrobial stewardship programs, and will also help in enhancing patient safety and the quality of healthcare in the area.

**Aim of the Work**

This research will attempt to compare the trend of antibiotic prescriptions and to determine the rational use of antibiotics in Makkah hospitals in pediatric and maternity wards.

Specific Objectives:

- To determine the most frequently used antibiotics in pediatric and maternity wards.
- To evaluate the reasonableness of antibiotic prescriptions in relation to the indication, choice, dose, route, and duration.
- To assess compliance with local and international antibiotic prescription guidelines.
- To define tendencies of the widespread use of broad-spectrum antibiotics and possible misuse.
- To offer evidence-based guidelines to enhance the rational use of antibiotics to facilitate antimicrobial stewardship programs.

## METHODOLOGY

The research approach that the study has is descriptive-analytical that focuses on examining the patterns of antibiotic prescription and the rational applications of antimicrobial agents among children and mothers in the Makkah hospitals. The methodological approach is regarded to be suitable because it enables the thorough analysis of current prescribing practices, trends in antibiotic use and compliance to the principles of rational drug use in high-risk hospitals. The descriptive component is devoted to the description of the present trends in the prescribing of antibiotics, such as the type of antibiotics used, indication, route of administration, and course of the treatment, whereas the analytical one evaluates the suitability of the given practice in terms of the available clinical principles, principles of antimicrobial stewardship, and available literature-supported evidence.

The literature review is based on secondary data (mainly peer-reviewed journal articles, point prevalence surveys, observational and cross-sectional research, and hospital-based studies which are not older than five years old (2020-2024). The choice of these sources was made to have recent and relevant evidence that represents contemporary issues in the use of antimicrobials, antimicrobial resistance, and rational prescribing of drugs in pediatric and maternity care. Specific focus was made on the research done in Saudi Arabia and the

Makkah territory to reflect the local situation of antibiotic use, as well as the selected foreign research that offers some comparative information regarding the practice of antibiotic prescription among pediatric and maternity patients.

A systematic literature review plan was used to find the studies of potential interest to the topic of antibiotic prescribing behavior, rational drug utilization, and antimicrobial stewardship on pediatric and maternity wards. Some of the dominant themes identified during the literature research included prevalence of antibiotic use, empirical versus targeted therapy, use of broad-spectrum antibiotics, compliance with treatment protocols, and the practice of monitoring in vulnerable patient groups. The descriptive analysis entailed summarization and categorization of prescribing patterns as reported in the literature, and the analytical part came into play in order to compare the results across studies to see the similarities, differences, inappropriate practice, and the trends with regard to the use of antibiotics.

Thematic synthesis was applied to categorically examine common themes and patterns within all the chosen studies. The themes were irrational use of antibiotics, over-prescription, non-adherence to guidelines, limited diagnostic support, and how the antimicrobial stewardship activities affected prescribing behavior. Such a thematic focus allowed combining pediatric and maternity evidence and allowed forming a better picture of some typical challenges and context-related issues associated with the rational use of antibiotics in hospitals.

Descriptive and observational research designs reported in the reviewed studies are also used in the methodology to enhance the credibility and rigor of the analysis. Such a solution offers a panoramic view of the current practices in antibiotic prescribing and points at the key gaps in the rational use of drugs by combining the results of various study designs. Ethics was considered by citing all sources of information as well as following the academic principles of integrity. On balance, this methodology offers an excellent model of analyzing the trends in antibiotic prescriptions in pediatric and maternity units in Makkah and contributes to the evidence-based discussion and conclusion that could help to increase the level of rational antibiotic use and antimicrobial stewardship.

**General Trends of Antibiotic Prescription in Pediatric and Maternity Wards.**

The general trends in the prescribing of antibiotics in the pediatric and maternity units show that there is a persistent use of antimicrobials due to the clinical predisposition of the targeted populations and the currently existing practices in prescribing antibiotics. Hospital records in Makkah region show that a significant percentage of patients admitted to hospitals are prescribed antibiotics, which are frequently related to the ordinary nature of clinical management procedures and are not necessarily based on evidence-based decision-making. The prevalence survey of regional points in the public hospitals of Makkah showed that the usage of antibiotics was common in all wards, and pediatric units and maternity units were the most frequent users of antimicrobial agents (Haseeb et al., 2021). Similar to the national data, that found that the prevalence of antibiotic resistance is significantly high among neonates and children in Saudi hospitals, it is often started as an empirically-based practice when the child is admitted or shortly after admission in the absence of known bacterial infections (Alosaimi et al., 2024). These patterns of prescribing indicate that there is a risk of managing precautionary therapy based on fear of clinical deterioration, diagnostic uncertainty, and the perceived severity of infections in these vulnerable populations.

Pediatric wards and especially the neonatal intensive care units have the tendency of initiating antibiotics at an early stage and maintaining them at variable lengths, adding to the length of exposure. Similar patterns are observed in studies held in other environments, with the number of antibiotics being in the list of most frequently prescribed classes of

drugs among children in the hospital, often with a combination of several agents or broad-spectrum treatment (Hu et al., 2021; Mathew et al., 2021). Empirical prescribing and a lack of compliance with standardized treatment patterns are common patterns in pediatric antibiotic prescribing, which is further supported by the international evidence of Iran, Ethiopia, and other low- and middle-income settings (Dashti et al., 2017; Alekaw et al., 2022). These results converge to show that the prescribing practices that are seen in Makkah are not unique cases but are part of a wider international problem.

The trend in the prescription of antibiotics in the maternity wards is also dominated by high utilization, which is usually associated with prophylaxis in the course of labor, cesarean delivery and postoperative period, as well as penicillin therapy of suspected infections. The cross-sectional study, which was performed in Saudi Arabia, has shown that there are various antimicrobial prescribing practices in pregnant women, and there are significant differences in the choice and indication, indicating the lack of agreement in applying the principles of the rational prescribing approach (Baraka et al., 2021). Taken together with the results in Makkah hospitals, these trends indicate the regularity of antibiotic use in the maternity area which is not always grounded on definite clinical signs. Altogether, the evidence suggests that antibiotic prescribing in pediatric and maternity wards is marked by a high prevalence rate, a high-frequency rate of using empirical methods, and an inconsistent practice, which need to be systematically evaluated and reinforced in terms of rational drug use and antimicrobial stewardship programs.

**Broad-Spectrum Antibiotics and Implications to Antimicrobial resistance.**

Broad-spectrum antibiotic use in pediatric and maternity wards is one of the most important issues concerning rational drug use and antimicrobial stewardship especially in hospital practice where empirical prescribing is prevalent. Hospital evidence on the Makkah region has proven that it is heavily dependent on broad-spectrum agents (carbapenems, and piperacillin-tazobactam) with the majority of use as a first-line choice without microbiological verification (Haseeb et al., 2021). Although their prescribing methods could be medically reasonable in the case of severe infection or a high risk of developing sepsis, their application on a routine basis in pediatrics and maternity wards provokes significant concerns about the relevance of treatment and the future and potential impact on antimicrobial resistance. A pattern of starting some sort of broad-spectrum antibiotics is indicative of defensive medicine, as a result of diagnostic uncertainty, the lack of access to fast microbiological data, and anxiety about the negative effects of the vulnerability group.

A number of studies in Saudi Arabia have put forward the direct relationship between high use of broad-spectrum antibiotics and development of resistant bacteria strains. Alsaleh (2021) reported that there was a tendency to prescribe carbapenems and piperacillin-tazobactam widely and at times inappropriately in a hospital setting, which indicated the violation of the recommended stewardship habits. These results align with national point prevalence surveys carried out at the time of the outbreak of the COVID-19 pandemic and after it, which found an increased use of broad-spectrum antibiotics and a subsequent rise in the rates of antimicrobial resistance in Saudi hospitals (Haseeb et al., 2023; Hussein et al., 2022). The effects of such practices are particularly alarming in pediatric and maternity wards because the frequent and prolonged use of potent antibiotics might cause the disruption of normal microbiota, promote secondary infections and the selection of multidrug-resistant organisms.

These issues are also backed up by international evidence, with several studies presented in diverse healthcare settings indicating similar tendencies of broad-spectrum antibiotic over-use among pediatric groups, which are most often not accompanied by any form of de-escalation when culture-results are obtained (Hu et al., 2021; Alekaw et al., 2022). The

similarity in national and international results is an indication that the problem is systemic, but not site-specific. Unjustified use of broad-spectrum antibiotics to prevent or in suspected infection in the maternity ward can also be a source of extra health care dangers to the mother and neonatal care, and its application contributes to the overall issue of antimicrobial resistance (Baraka et al., 2021). Together, the above results highlight that there is an urgent need to refine antibiotic selection, advance targeted therapy, and enhance antimicrobial stewardship interventions to curb increasing antimicrobial resistance cases in pediatric and maternity wards in Makkah.

**Smartness and Suitability of Antibiotic Prescription in Pediatric Patients.**

The rationality and correctness of the prescription of antibiotics in children is a key aspect of quality healthcare, as children are physiologically susceptible, and the effects of improper antimicrobial exposure can be long-term. Hospital-based evidence suggests that the percentage of antibiotic prescriptions commenced in pediatric wards in Saudi Arabia is high, being mostly initiated empirically and without adequate diagnostic verification or compliance with accepted clinical practice. A national point prevalence survey of hospitalized neonates and children showed that the use of antibiotics due to suspected infection was common with minimal reporting of microbiological testing to aid in the making of therapeutic decisions (Alosaimi et al., 2024). The ethics of this usage of antibiotics includes the unreasonableness of administering antibiotics in an empirical manner since patients might be unnecessarily exposed, the selection of drugs might be incorrect, and treatment in the pediatric era could be overly prolonged.

The excessive prescribing of antibiotics in children has been a common occurrence in local and international literature. A study carried in Makkah has indicated lapses in the application of therapeutic drug monitoring prescriptions to gentamicin in pediatric healthcare, and thus, it is suggested that there may be dangers associated with the appropriate dosage of the medication and medication security (Bajaber et al., 2024). Such results are of particular interest in pediatrics, where the mistake in dose may lead to severe side effects since the renal and hepatologic functions are not yet fully developed. Several issues of the same nature have been documented abroad, with reports pointing at improper antibiotic selection, improper dosage schedule, and prolonged treatment as some of the frequent problems in pediatric wards (Hu et al., 2021; Alekaw et al., 2022). These abnormalities of the principles of rational prescribing do not only undermine patient safety but also enhance antimicrobial resistance.

In addition, the institutional and systemic determinants of rationality of antibiotic use in pediatric patients include a lack of such specific guidelines in pediatrics, differences in the experience of the prescribers, and the poor incorporation of antimicrobial stewardship programs. Research in tertiary care hospitals has proved that antibiotics are the most prescribed pharmaceutical group in the pediatric ward, a combination therapy and broad-spectrum agents are often administered even in uncomplicated cases (Mathew et al., 2021; Dashti et al., 2017). It is possible that when such results are taken into account in conjunction with the results of Makkah hospitals, one can conclude that irrational prescribing is not a one-time event but a consistent trend in various clinical environments. Enhancing compliance with the guidelines, the level of diagnostic support, and fostering the continuous learning of the relevance and rationality of antibiotic prescriptions in children can thus have a beneficial impact on the rationality and appropriateness of antibiotic therapy in children.

**Practices in Antibiotic Prescription in the Maternity Wards.**

The necessity to prevent and treat maternal infections in the course of pregnancy, labor, and the postpartum period influences the antibiotic prescription practices on the maternity wards, but it is based on evidence that the practice is largely subject to significant variability

and deviation of principles of rational drug use in some instances. The use of antibiotics among pregnant and postpartum women in Saudi Arabia hospitals is usually a method of treatment and preventive actions especially in cesarean sections, extended labor, and suspected infections. A cross-sectional study of antimicrobial prescription in Saudi Arabian pregnant mothers showed that women differed significantly in their choice and duration of antibiotic treatment, as well as their signs and symptoms, which demonstrated the lack of consistency in following evidence-based treatment (Baraka et al., 2021). This inconsistency casts doubt on the rationale of administering antibiotics in the maternity department, considering the fact that there are risks involved with the exposure of the unborn baby to antimicrobials, such as poor maternal outcomes and impact on the neonatal health. Hospital-based research in the Makkah area has shown a high usage of antibiotics in the inpatient wards, including maternity units, which is a wider trend of precautionary prescription (Haseeb et al., 2021).

International comparison helps to conclude that the issues which the maternity wards in Makkah face are rather in line with the global trends. Research studies done in various medical facilities have cited common use of antibiotics as prophylaxis and as a suspected infection during maternity care, with no standardized process and frequent audit processes. These trends, coupled with the results of pediatric and neonatal research, are one reason to pursue a combined approach to antimicrobial stewardship, which will focus on both therapeutic and preventive administration of antibiotics in maternity wards. Enhancement of the prescription processes on guideline-based prescribing, refining documentation of indications, and frequent review of antibiotic therapy are important measures that could help to improve the rational use of drugs and reduce the risks of incorrect antibiotic prescriptions in the maternity wards.

**COVID-19 Pandemic and the Effect of its Impact on the Use of Antibiotics.**

Antibiotic prescribing behavior in hospital units, such as in pediatric and maternity ward, has been significantly affected by the COVID-19 pandemic, due to the increase in clinical uncertainty and the fear of secondary bacterial infections combined with lack of concrete treatment guidelines at the beginning of the pandemic. Hospital data of Saudi Arabia proved that the use of antibiotics increased significantly during the COVID-19 period, although a growing body of evidence showed that the prevalence of bacterial co-infections in COVID-19 patients was comparatively low. A comparative analysis of pre-pandemic and pre-pandemic levels of antibiotic use revealed significant changes in antibiotic consumption in hospital wards, which indicated the transition to precautionary and empirical prescriptions (Hussein et al., 2022). The use of national point prevalence surveys further supported these trends, showing that there was the extensive use of antibiotics in the nation and the growing antimicrobial resistance in the course of the pandemic (Haseeb et al., 2023).

The pandemic had especially significant effect in pediatric and maternity wards because clinicians had even more problems differentiating between viral and bacterial conditions in the vulnerable populations. The similarity in clinical manifestations, low access to quick diagnostic instruments, and the fear of adverse effects were also factors that led to the increased use of broad-spectrum antibiotics. A study in Makkah region and Saudi Arabia at large showed that there was continued high rate of antibiotic use during the COVID-19 pandemic, which was not often backed by microbiological evidence, and that this raised questions on the rationality of the prescribing practice in the settings (Haseeb et al., 2021; Haseeb et al., 2023). Antibiotics remained largely used as both prophylactic and therapeutic agents in maternity hospitals with no evidence of a change in prescribing behavior based on emergent stewardship guidelines in the pandemic.

The issue under consideration is the long-term effects of the further use of antibiotics in the context of the COVID-19 pandemic, which are of particular concern related to antimicrobial resistance. The unreasonable and sometimes unsuitable medication of antibiotics at this time could lead to shortening the development and proliferation of resistant organisms that will compromise the effects of the already available antimicrobial agents. The issue is of particular concern to pediatric and maternity units, where a patient might end up with repeated or prolonged exposure to antibiotics. The results in Saudi Arabia are consistent with the global experience, supporting the idea that robust antimicrobial stewardship initiatives are required that would not allow unreasonable antibiotic consumption even in the case of an epidemic. To counter the long-term effects of the COVID-19 pandemic on the trends of antibiotic utilization and resistance, it is necessary to strengthen the surveillance, enhance the compliance with the guidelines, and encourage the implementation of evidence-based prescribing.

**Comparison and International Evidence and Implications to Practice.**

An analysis of antibiotic prescription patterns on pediatric and maternity wards in Makkah based on the evidence of international standards indicates a high level of similarity between issues faced and causes behind unreasonable use of antibiotics. Research in various healthcare environments, such as Iran, Ethiopia, Nigeria, Kenya, and India, has also mentioned high levels of prescribing antibiotics in the pediatric ward, the most common of which was based on the empirical therapy, the frequent use of broad-spectrum agents, and the lack of compliance with standardized treatment guidelines (Dashti et al., 2017; Alekaw et al., 2022; Joseph et al., 2015; Mathew et al., 2021; Momanyi, 20 These results are quite similar to those found in Saudi Arabia and the Makkah region, where both point prevalence surveys and hospital-based studies have reported widespread antibiotic use in the pediatric and maternity context, lacking microbiological validation or systematic review of treatment (Haseeb et al., 2021; Alosaimi et al., 2024).

Although the world might vary in terms of healthcare infrastructure, availability of resources, the evidence convergence point to inappropriate antibiotic prescribing as a worldwide problem instead of a context-based occurrence. Research comparing the preferences of the use of drugs within neonatal and pediatric cohorts has identified such regular issues as polypharmacy, the long course of treatment, and the disruption of adherence to the recommended dosage schedule, which have also been noted in Saudi hospitals (Hu et al., 2021; Bajaber et al., 2024). Maternity wards and other studies internationally and regionally show similar practice where antibiotics are used routinely due to prophylaxis and suspected infections that are variably selected and variably used in duration, which reflect gaps in guideline implementation and lack of stewardship (Baraka et al., 2021).

Some of the implications of the findings to clinical practice cannot be underestimated as these findings highlight the necessity of enhanced antimicrobial stewardship initiatives in both pediatric and maternity wards. The evidence of the effectiveness of interventions is based on the International evidence of the effectiveness of standardized treatment guidelines, frequent prescription audits, monitoring of therapeutic drugs, and multidisciplinary collaboration between physicians and pharmacists with infection control teams. When applied to Makkah hospitals, the combination of these evidence-based strategies may assist in the minimization of unnecessary exposure to antibiotics, the encouragement of specific therapy, and the curbing the increasing problem of antimicrobial resistance. Moreover, the constant training of medical workers and better access to diagnostic equipment are needed to help make rational decisions. The convergence of local and international best practices is a feasible solution to patient safety, optimization of

antibiotics, and improvement of healthcare in general, both in the pediatric and maternity units.

**Issues and Ethical Concerns**

The problems related to the antibiotic prescription in pediatric and maternity wards are not limited to clinical practice but require some important ethical issues. The unacceptable or unreasonable use of the antibiotics is not only dangerous to the health of a particular patient but also to the overall health outcomes of the population as a whole, which is why the ethical duty of medical practitioners is to ensure that the short-term therapeutic gains of the indicated treatment outweigh the long-term outcomes. Children are especially susceptible to adverse drug reactions and other complications as a result of unnecessary exposure or excess exposure to antibiotics, especially in pediatric wards, because of their immunological sensitivity and physiological vulnerability. Clinicians also need to be keen in weighing the risks and benefits of empirical therapy with an emphasis to ensure that prescribing decisions do not jeopardize patient safety and at the same time reduce the possible harm to the patient. The ethical dilemmas can be explained by the fact that uncertainty is the situation when decisions are made, and such situations may occur when there are no clear diagnostic findings or when it is required to avoid infection in conflict with the necessity to avoid unnecessary medication.

Ethical dilemmas faced in maternity wards are also more or less the same and especially when it comes to prophylaxis or routine antibiotic administration during pregnancy, labor and after childbirth. The blind or non-directional use of antibiotics may have an impact on maternal and neonatal health, and some of the risks posed by these approaches include a disruption in microbiome formation in infants as well as unnecessary exposure to drugs by the mother. The clinicians therefore have a dual role of preserving both the immediate maternal and neonatal health and minding the long term effects of their prescriptive practices affecting the emergence of antimicrobial resistance in the hospital and the community at large.

In addition to the case of individual patients, ethical issues are also associated with transparency, accountability, and stewardship in medical facilities. The inability to record the signs, track the treatment, or follow the standardized practices deteriorates not only the patient safety but also the professional accountability as it makes the assessment of the clinical results ineffective and the chance of the constant quality improvement insignificant. Moreover, the social welfare problem of unreasonable use of antibiotics is even larger, which highlights the moral responsibility of all people to preserve the use of antimicrobial agents in the future. These challenges demand clinical alertness and more importantly a systemic strategy that incorporates training and education, institutional controls and effective stewardship platforms. Through the creation of a responsible prescribing and ethical culture, the healthcare establishments can make sure that antibiotics are prescribed in a sensible manner, risks are reduced, and the health status of an individual and the population is safeguarded.

## CONCLUSION

Summing up, the practice of prescribing antibiotics in the children and maternity departments is a complicated combination of clinical judgment, patient susceptibility, institutional policies, and the general well-being of the population. The general trends suggest that antibiotics are widely prescribed throughout in these wards and it is often empirically based and often broad spectrum. Although the implementation of such practices is usually aimed at preventing complications and addressing possible infections among high-risk groups, it reveals the problems of balancing the direct therapeutic

requirements with the long-term safety and the reasonable use of drugs. The adverse outcomes of improper use of antibiotics (including toxicity, disturbance of natural microbiota, and predisposition to resistant infections) are highly likely to occur in the case of pediatric patients, especially, newborns, and young children. Equally, the use of empirical or prophylactic antibiotics in maternity wards, without evidence-based guidelines, may be harmful to maternal and neonatal health, and thus they recommend their careful individual prescribing.

The sensitivity to external influences, including the COVID-19 pandemic, further proves the susceptibility of the antibiotic prescribing systems to uncertainty times, when precautionary use becomes more prevalent, and, in most cases, lacks a solid diagnostic rationale. The patterns do not only jeopardize the rationality of care but also add to the hastening of antimicrobial resistance that poses a major risk to the health of the population. Global benchmarks suggest that these issues are not peculiar to any particular environment and it is possible to suggest that irrational use of antibiotics is a global problem that needs to be addressed through concerted action.

To address these issues, a complicated strategy is necessary which involves the incorporation of evidence-based clinical guidelines, therapeutic monitoring, education and institutional stewardship programs. The main focus is on the ethical aspects, since the prescribers should weigh the short-term good of the individual patients, with the long-term duty to safeguard the health of the population as well as maintain the effective use of antibiotics. Finally, rational, targeted, and transparent antibiotic prescribing should be encouraged in the patient pediatric and maternity wards to enhance patient outcomes, reduce unnecessary risks, and reduce the potential risk of antimicrobial resistance. An institutionalized pledge to methodical observance of the guidelines, ongoing professional growth and observation of the prescribing patterns give us a chance to have a sustainable and ethical use of antibiotics that can guarantee immediate clinical usefulness as well as the long-term advantage of the population.

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