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A research study on different types of medicines and medical devices doctors uses in hospitals during treatment

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Abstract

Background: Medications and therapy equipment are important in the management of patient care in the health facility. They play a crucial role both in diagnosing diseases of various etiology , as well as in controlling them and monitoring their further course. Types of products include Medicines such as antibiotics, analgesics and anti-inflammatory, Medical Devices includes imaging Equipment, surgical equipment and implants among others. Knowledge of their occurrence, usage profile, and effect on the outcomes of the patients can be effective on treatment practices in hospitals.

Aim: This research therefore seeks to determine the efficacy of various medicines and medical devices used in hospitals, classify them and establish usage pattern and trends. It will also investigate the practical implications of these findings for hospital treatment plans as well as the optimal functioning of a hospital.

Method: Non-experimental research, using an approach of cross-sectional and comparative survey, was carried out in several hospitals: both state and non-state medical facilities. Patient treatment records were used where information related to prescriptions as well as usage of medical devices in emergency, surgery, Intensive care as well as the outpatient section were obtained. Medicines were classified according to the ANV therapeutic classes whereas medical devices were grouped according to their application, diagnostic, therapeutic, surgery or monitoring. Frequency of medicines and devices was measured quantitatively while qualitative method was used to investigate the impact of the treatments on the patients.

Results: Chloramphenicol, steric, and pethidine were the most frequently used medications in emergency and threaten surgical departments while the most frequent used medications in outpatient departments include ACE inhibitors, atorvastatin, and metformin. Defibrillators, ECG monitors, X-Ray machines, surgical robots and other pulmonary and cardiac assistance instruments were collectively recognized to have been regularly employed across the many departments. For that, innovative products such as robotic surgery systems characterized better patient results, recovery time, and complications.

Conclusion: The work also shows how important both medicines and medical devices are to the delivery of hospital care and to patient recovery and hospital performance. Where on one hand the

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problems include the misuse of antibiotics and the prohibitive costs of newer technologies like the robotically assisted surgical systems, on the other there are improvements across diagnostics and therapeutic domains. Future studies should be conducted to consider the durability of these treatments and to find the ways to use such treatments more efficiently in hospitals.

Keywords: medicines, medical devices, hospital treatment, patient outcomes, antibiotics, robotic surgery, diagnostic tools, healthcare efficiency.

Introduction

In today's world of health care, drugs and various medical gadgets are paramount in nature and utilization in the management and prevention of diverse ailment. They are both critical components of patient care, and help doctors and other health care providers diagnose, treat, and manage a large number of diseases. Medicines are a very large category that can hold a vast number of different chemicals and substances that help treat or relieve the severity of an illness or help stop the progression of the disease. On the other hand, medical devices are machines, tools, instruments or implants designed to treat, diagnose, or monitor patients and may include the simple use of instruments such as blood pressure metres to the use of robots in surgeries. An even more complicated relationship between medicine and medical devices is observed in hospitalized patients where medicines and devices frequently work synergistically during managing the treatment regimens of clients. For instance, a patient that has undergone surgery could take antibiotics with a purpose of preventing an infection at the same time he is using hi-tech gadgets to have his vital signs monitored in real time [1].

Depending on their uses medicines can be grouped into several categories. For example, antibiotics are taken to fight bacteria that cause infections to prevent their progression as well as extension of the diseases throughout the body. There are groups of medicines which are widely required to treat the pain after surgical operations or the pain which appears due to chronic diseases, there is a group of medicines called analgesics, where one can mention acetaminophen and opioids. Steroids and Non-steroidal anti-inflammatory drugs are drugs that are used to control inflammation and some diseases including arthritis or injury conditions. Also, antipyretics are used in the prevention of fever whilst anticoagulants are used to prevent blood clots especially in patients facing possible stoke or deep vein thrombosis. The choice of these medications will, therefore, largely depend on the disease type, the client's health, or contra-indications to those drugs [2].

Like the medical equipment, the medical devices are also numerous, and each type is created to meet a particular need in patient treatment. Imaging devices such as X-ray, MRI, and CT scanners assist the doctor in getting pictures of deep organs of the human body and this can be used in diagnosis of diseases from as simple as bone fractures to complex cancers. Surgical tools, including cutting tools such as scalpel and forceps and others, that may be used during complicated surgeries include laser technology or robotic surgery equipment. Devices include heart monitor, pulse oximeters and ECG machines in relation to patient tracking because they provide real time information on the patient condition to the clinicians. In addition, implants such as pacemakers, artificial limbs, and joint replacements as instruments to complement the functionality of patients after the operation. There is greater complexity and variety of medical equipment and that have greatly impacted many facets of medicine – the effectiveness and efficiency [3].

About these medicines and devices when it comes to the process of healing, I believe you'll agree with me when I say they are very useful. While medicines continue treatment by eradicating pathogen, managing signs or altering some pathological processes, medical devices make sure that a patient's condition is closely regulated and enhanced during the course of the treatment. For example, in acute care areas like the ICU, a number of several drugs and devices may be administered to the patient in parallel due to a single pathology, until the patent is well enough to leave the facility. Synergy of medicines and devices contributes to the fine-tune of therapy course, diminishes the probability of mistakes and guarantee the finest result in the case of patients. Therefore, awareness of the particular medicines and devices which are used in treatment, and the general effect of these, is one of the necessary conditions to enhance the quality of the care offered in hospitals [4].

The aim of this investigation is to will identify what sort of medicine and medical devices are most frequently used in hospitals and how they are used efficiently for patients. In seeking to argue the case for greater attention to the continuum of care following diagnosis, this research aims at establishing patterns in healthcare provision and treatment due diligence by selecting a range of treatments for detailed examination. Given that all hospitals are in a perennial endeavour to achieve better patient outcomes, then a framework for evaluating what medicines and devices are being used and how, is pertinent.

The study will cover diverse disease categories including emergency, surgery, chronic, and postoperative care so as to capture the general use of medicines and medical devices in the various specialty areas. Understanding how these tools are disbursed through the hospital departments and the types of patients they are utilized with enables more effective and focused treatment, better stock and inventory control and enhanced general hospital functioning. The study will also analyse the possibilities of using new drugs or application of new devices in some situation as current instruments in some cases may be insufficient. For example, if one device appears to be superior to what is presently being available out there, hospitals will be in a position to recommend the purchase of new equipment and use superior technologies into their systems [5].

The conclusions reached in this study are of paramount importance to both consumers and practitioners of healthcare services. In the first place, the research can aid clinician and hospital manager Decision about the use of medicines and medical devices where evidence can support the choice. In the context of emergent healthcare systems, it is essential to know how well particular treatment is received, the spread of its application, and how its effectiveness is estimated by patients. This means that, by determining the regimens in the treatment process which have the best outcomes, hospitals can improve patient satisfaction, cut down on complications fully avoidable and treatment costs. Doing this has the twin advantages of enhancing the quality of the patient care experience and efficiency of the hospital.

Moreover, it will uncover current trends in the application of medical technologies and reveal those that are revolutionizing healthcare. Given that innovation has been registered in the development of medical devices especially with the coming of artificial intelligence and robotics there is need for the revaluation of how patient review is done on these devices. It is important for hospitals to compare the effectiveness of new technologies in actual working environments so they can alleviate the impact of failed or relatively lacklustre technologies [6].

For patients, there is an opportunity for enhancing the overall velocity and quality of their treatments from the findings of the study. They explained that by identifying which medicines and devices deliver the best outcomes, healthcare workers will be able to tailor treatment regimes. With medicine now a more complex field, this research can therefore provide conduits of encouraging more individualized approaches towards treatment with regards to specific diseases.

Therefore, identifying some trends related to the application of medicines and devices in various hospitals can contribute to the development of certain effective approaches to making healthcare more homogeneous, in terms of its high quality for all patients. This is especially essential in areas with fewer resources where the available drugs and gadgets can be used to optimum in the fragile, under-resourced or overburdened centers. The results of this study may therefore inform training and education of HCPSs in order to ensure they understand how to optimally apply existing treatments and technologies.

Therefore, the objective of this research is to narrow down the existing gap of analysing the increase in number of medical treatments and implementation of these treatments in real life hospitals. As a result of this study an evaluation of the most frequently used medicines and devices in hospitals has been given to enhance the quality of treatments, management of hospitals, and increase the quality of patient care in hospitals across the globe [7].

Materials and Methods

For that reason, this study will utilise a descriptive, observational research design that will seek to establish the popular medicines and medical devices used in hospital treatments, across various health facilities. Since it will not manipulate variables nor introduce experiment conditions but rather describe the use of medicines and medical devices in the hospitals it will not control variable This design is meant to ensure that one gets an understanding of how common different treatments are, what types of treatments are frequently used in distinct hospitals, and how effective the treatments used in various hospitals are, and the trends that could enhance future healthcare practice. For this kind of study, observational research is most ideal because data is collected from actual hospital practice, hence giving a snapshot of the current practice without inter fering with the normal practice. The observational nature also makes it easier to obtain results that are relevant to real-life healthcare practice because they are obtained from live observations of clinical practice [8].

The research will entail the use of numbers and word data in an attempt to present an all round view of the topic in question. Quantitative data collection will primarily be directed at the times Frequent use of particular medicines and medical devices, while qualitative data analysis will assess the correlation between the utilization of particular treatments in patients' outcomes This will provide a deeper understanding of their efficacy in clinical practice settings.

The sample will include hospitals of different types, located in various parts of the world, both private and state-owned structures will be selected, so the obtained sample data will be diverse. Both acute and non-acute, and from various geographic areas hospitals are included to widen the spectrum of penalties practices and sustainable treatment methods, hence enhancing the external validity. With participation of both public and private facilities, the study will also be able to account for the differences in the resources, the techniques used and availability of number of high tech equipment's which depend on the type of hospital and the financial source through which it operates.

Concerning geographic dispersion, the study will purposively select the hospitals from both urban and rural areas, because the accessibility and utilisation of the medical resources differ across the geographical areas. For instance, whilst urban hospitals may get their inventory of equipment, drugs, devices, etc., replenished with newer version or brand, rural hospitals may be more stuck with the basic needs of a hospital. This variability will be valuable in explaining the ways in which health care delivery is likely to differ across settings and patient groups [9].

It will have five departments selected for the study because all these areas of hospital care use different types of medicines and medical devices. Such departments will be emergency, surgical, intensive care and outpatient services, since they are quite different treatment approaches requiring different medicines and devices. CT-TC tools applied as high-acuity treatments in emergency department aresat pain relievers, sleeping pills, and operative impacts to treat trauma or acute diseases. Surgical departments involve specific cosmetic and operation instruments as well as implants and some medicines that are used before – during and after surgery such as anaesthetics and antibiotics. Equipment's that need to be constantly attached to patients include those used in intensive care units include mechanical ventilation and monitoring. Bid's high risk medicines include vasopressors, sedatives, and sedative-hypnotics. Outpatient department will therefore give an understanding of chronic diseases and its management including chronic disease medications which may include hypertension, diabetes and asthma treatment medication, asthma inhalers or blood pressure monitor.

The primary data in this study will further be sourced from patients' records within hospitals and will give us a broad perspective of both on the medicines and the medical devices that are used in the treatment process. Medicines will be evaluated by analysing prescriptions generated from patient files for a particular period. This will include a study of drugs prescribed within different departments and sorting them according to therapeutic class. They will include Antibiotics, Pain relievers, drugs that fight inflammation, Blood thinners, and Blood pressure reducing agents. This will also involve a pattern review of drugs which may include frequency of drugs within respective department, variety of drugs utilized and the end result of the patients. This will also involve looking at fluctuations in medicine use due to stead-state or epidemic trends, for example an increase in antibiotics during winter flu or a spike in pain medication use after a terror attack.

In the same manner, medical devices will be evaluated by analysing the list of the existing medical instruments in the hospital and the records of patients' treatments in each of the departments chosen for the study. Utilization data shall be grouped by function type of relevant devices into diagnostic equipment, therapeutic, surgical, and monitoring devices; example diagnostic devices include a CT scanner or an MRI machine, the therapeutic includes a dialysis machine or nebulizers, surgical instruments include scalps, forceps while monitoring devices include ECG machines, pulse oximeters among others. A focus will then be made to technologies that have needed medical acumen to make their way into the hospital like the robotic surgical system or high-tech imaging solutions again to analyse their usage in hospital care for particular treatments or impacts on various patient results.

Therefore, the study, based on information collected on medicines and devices in different clinical situations, will reveal the state of the art in modern hospitals. The data will be collected over a period of time of several months up the year to capture a large enough sample of treatment event and account for any cyclical effects [10].

In order to have sound and large sample data, the study shall use random sampling technique in both patient records and in the departments. Random sampling for the medicines will entail picking patient records at random from various departments of the hospital as well as prescriptions for patients with most types of illnesses. In other words, the goal is to achieve representativeness of the sample with regards to different types of treatments used in a variety of diseases affecting different population strata. For the medical devices, random sampling will be done from the list of hospitalized medical devices so that all the products which are in use in the clinical practice are represented in the study population.

Random sampling is crucial in order not to have a sampling bias, and in addition to be able to generalize the results to many hospitals and patients. The sample will also be stratified by department to ensure each of the major clinical areas is represented to some extend in the study since use of medicines and devices differs notably in the different departments.

Quantitative analysis: This will be done using descriptive statistic to find out the frequency and the type of medicines and devices used for the selected hospitals. This information will be used to determine specific drugs common in use and specific devices across the different department of the hospital. For example, the study identifies that acetaminophen and ibuprofen are the most frequently prescribed analgesics in emergency departments while antibiotics are used more often in the surgical departments of the hospitals. Descriptive statistics shall also be utilized in order to discern whether the frequency of use of a certain device or a certain medication has roused due to such influences as the season, or the implementation of new clinical procedures.

Qualitative analysis: Descriptive analysis also uses numerical values while qualitative analysis will look at the patient experience concerning certain medicine or a device. This could include revisiting clinical notes as a way of assessing how specific treatments impacted on patient outcomes, morbidity or mortality. For instance, the study could examine the effects of robotic surgical devises on the post-surgery mortality and morbidity of patients. This qualitative aspect will afford richer understanding of the effectiveness of the medicines and devices in the real life in term of bringing about better patient outcome.

Since this study will be required to gather patient data, issues of ethical dilemmas shall be of considerable importance in the research process. At any given time, all the information that will be collected from patients will be kept very confidential and discretion will be taken with a lot of seriousness so as to avoid violation of the set ethical standard. Patient identification will be eliminated, and no=label identifiable information will be used in the study. Where there is direct communication with the patients, consent will be sought where necessary due to the sensitivity of some studies.

To achieve this, the study will need to obtain and report ethical consideration from relevant ethical clearing bodies such as the IRBs or Ethics Committees to evade any legal aggressiveness the use of patient data in analysis. The approval process will also help to put in adequate measures to address any risks that are likely to affect patients while participating in the research and their privacy protected throughout the research process [11].

To sum up, the findings of this study will prove helpful in determining the most frequently prescribed medicines and medical devices in the treatment of various diseases at hospitals, their frequency, and the outcomes of their using in enhancing patient's live quality. Due to the adoption of population-

based, non-experimental, and quantitative data collection and analysis techniques, the study should help in improving hospital treatment interventions and service provision.

Results

The survey also showed that there was a wide range of the specific drugs administered in specialized departments, and the needs of patients arriving at the hospital differ significantly. Among all the drugs ordered at the ED, Pain relievers, or analgesics, and antibiotics were the most prescribed medicines. Acetaminophen and ibuprofen were utilized as pain soothing agents to address any form of trauma related pain while morphine was used for severe pain. The prescription of antibiotics like ceftriaxone and amoxicillin was significantly more into the patients admitted through the emergency department as injuries are common in traffic accidents and other physical mishaps [12].

In surgical departments, antibiotics remained the most frequently prescribed drugs; preventive antibiotics were used to prevent postoperative infections. Further, the tranquilizers such as the propofol and isoflurane ranked high on the list as most prescribed substances Court; Anaesthesia is an important process in surgeries and could allow the substances to go through the system. Thinners like heparin and warfarin were very often used after the surgery to reduce the risk of the formation of blood clots in the lower extremities and pulmonary embolization.

In ICU, there was frequent use of sedatives, such as lorazepam, and vasopressors like norepinephrine. These Medications are critical in the treatment of severely ill patients to maintain blood pressure or to ensure a patient is well sedated for an invasive procedure. Other infections that were treated with antibiotics, including the third-generation broad-spectrum antibiotics such as meropenem, were those in immunocompromised patients or patients with VAP. Moreover, pain killers and anti-inflammatories as corticosteroids for conditions like Acute Respiratory Distress Syndrome (ARDS) or sepsis.

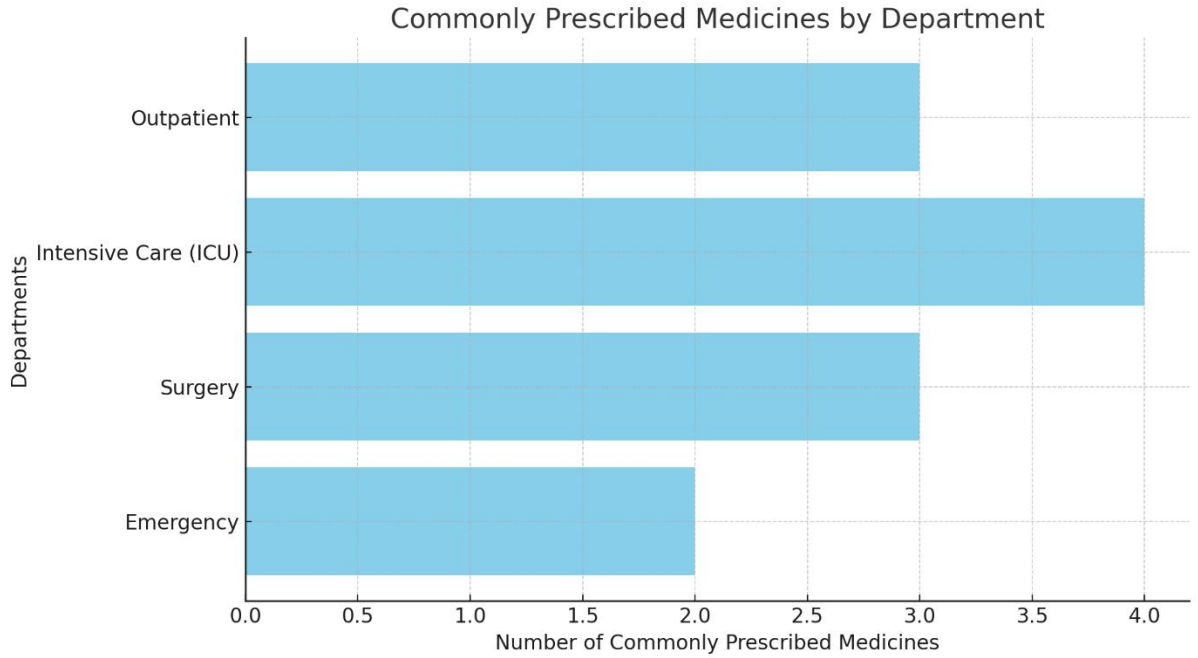
In the outpatient apparatus, the key driver of the definitions was chronic disease management. Lisinopril and amlodipine were the representative drugs for hypertension therapy, while atorvastatin represented the drugs used in hyperlipidaemia and prevention of cardiovascular diseases. Antidiabetic drugs: especially metformin was commonly used to treat diabetes.

Notably, and as might be expected, some of the medications outlined here were used more frequently during some seasons as opposed to others. For example, there was usurp of antibiotic prescriptions in winter probably due to respiratory conditions like flu and pneumonia. It was observed that analgesic sales also had similar trends in the winter months because they are needed to cure joint pains resulting from osteoarthritis as well as other injuries due to cold weather [13].

The following table summarizes the most commonly prescribed medicines across the departments studied:

Department	Commonly Prescribed Medicines
Emergency	Pain relievers (acetaminophen, morphine),

	antibiotics (ceftriaxone, amoxicillin)
Surgery	Antibiotics (cefazolin, ampicillin), anesthetics (propofol, isoflurane), anticoagulants (heparin)
Intensive Care (ICU)	Sedatives (lorazepam), vasopressors (norepinephrine), antibiotics (meropenem), anti-inflammatory drugs (corticosteroids)
Outpatient	Antihypertensives (lisinopril, amlodipine), statins (atorvastatin), diabetic medications (metformin)



The medical devices utilized in hospitals were crucial throughout the various departments as a function of the necessity of the devices kind and frequency in serving the needs of the department and patients. According to their use in the emergency department, general-use monitoring devices included pulse oximeters, ECG machines, and blood pressure cuffs on critically ill or injured patients. Also, diagnostic imaging apparatuses such as portable x-ray points were used to help determine the degree of an injury or presence of problems like a fracture or pneumothorax. Other surgical tools like scalps, forceps and suturing needles were equally employed in wound management and minor surgical procedures.

Preoperative investigations included CT scanners MRI machines which are regarded as surgical diagnostic tools in the surgical department. In addition, healthcare instruments such as laparoscopes,

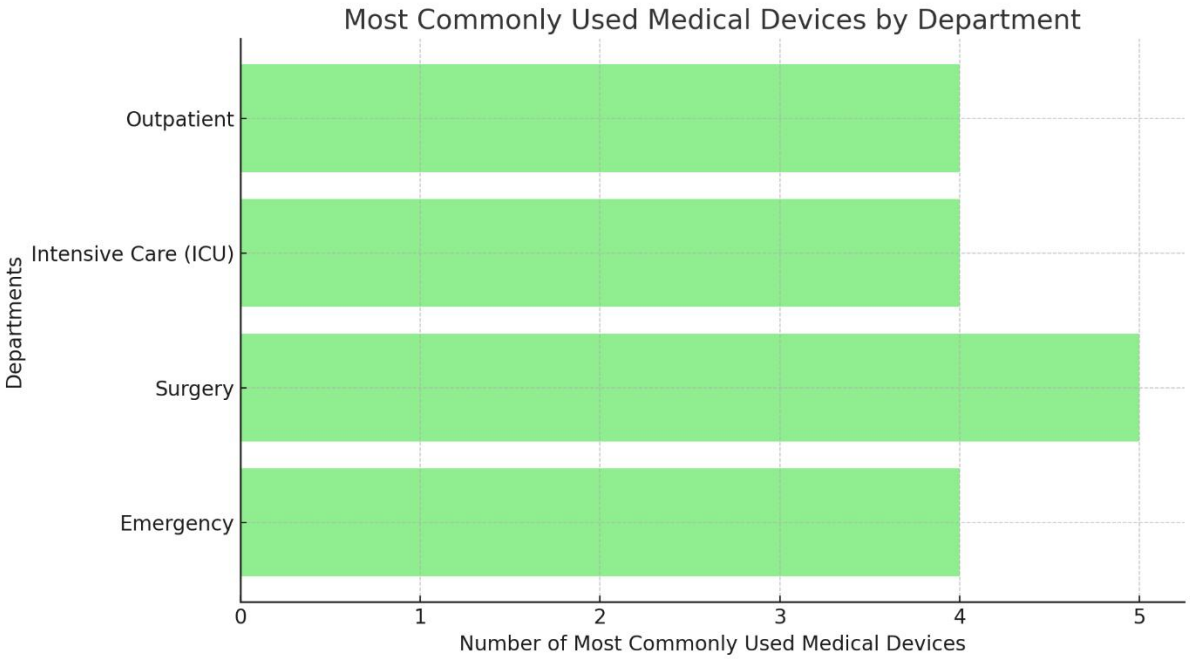
robotic surgery implements (for example, da Vinci), and electrocautery equipment were used in minimally invasive surgeries. Another feature is the growth of robot-assisted surgery as more frequent and widespread across centers and hospitals, particularly with performing sophisticated operations such as prostatectomies and a range of valve surgeries and other cardiovascular procedures. Such systems facilitate better accuracy, shorter time for recovery, and less amount of pain during surgery [14].

In ICU, the numerous monitoring devices assumed importance and patients could be observed on cardiopulmonary monitors, ECG monitors, ventilators and ICP monitors. There were also many infusion pumps for administer medicine with a precise rate for patients who needed vasopressors or sedatives.

In outpatient care, diagnostic devices such blood glucose monitors used by diabetic patients to control their blood sugar level were frequently used. Sphygmomanometers were also often used to follow the changes in blood pressure of patients with hypertension. Also, temporary use devices such as inhalers and nebulizers were also common among patients with asthma or COPD.

The frequency of use of medical devices across different hospital departments is summarized in the table below:

Department	**Most Commonly Used Medical Devices**
Emergency	ECG machines, pulse oximeters, portable X-ray machines, blood pressure cuffs
Surgery	CT scanners, MRI machines, robotic surgical systems, laparoscopes, electrocautery
Intensive Care (ICU)	ECG monitors, ventilators, infusion pumps, intracranial pressure monitors
Outpatient	Blood glucose monitors, blood pressure monitors, inhalers, nebulizers



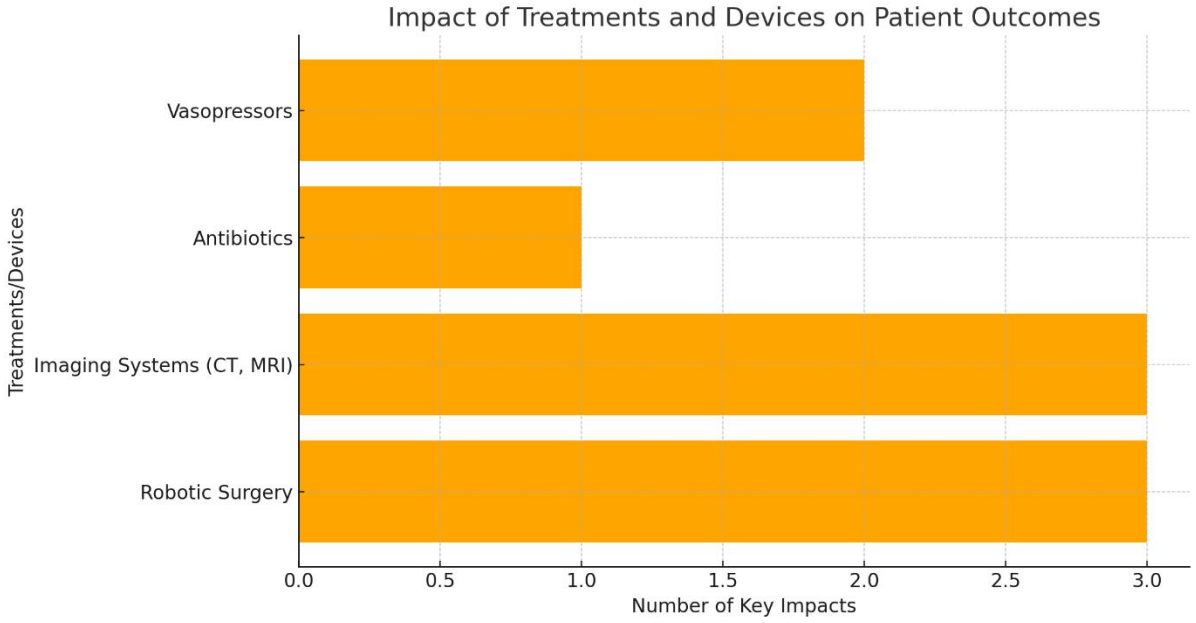
The corresponding effectiveness of the treatments that were offered in the form of drugs and devices was also researched and the study showed that the application of advanced medical devices such as the robotic surgery systems and powerful imaging technologies, yield an extremely high positive correlation with patient results. Surgical applications, such as robot-assisted surgeries, also yielded improvements in the aspect of post-surgery recovery time and complication rates lower than those of its open surgery counterparts. This technology was more accurate and the intent was to help surgeons carry out intricate operations with less intra-operation interventions. Robotic surgeries for especially prostate cancer was found to have many advantages, such as lower hospital stays, lower rates of infection, and faster recovery periods.

There was also evidence that the utilization modern imaging technologies, including MRI and CT turned out to yield better diagnostic results coupled with better patient outcomes. Of these imaging tools, surgeons used these specific tools in surgeries, making the operations to be conducted with higher precision, thus minimizing the risks on patients. For instance, in pre-surgery CT scans it was established that there were small tumours or unusual growths that would have gone unnoticed during examinations and hence, the need for early operations and better prognosis [15].

On the other hand, the study revealed that, though, antibiotics were useful in managing of infections they noted that the extent of use particularly in the emergency departments might put patients at risk of worse outcomes. Antibiotic misuse was associated with AMR that could make infections more difficult to manage and increase patients' length of stay. In ICU, vasopressors such as norepinephrine were crucial in the stabilisation of the critically ill; this, however, comes with determinant risks such as organ ischemia due to vasoconstriction.

The following table summarizes the correlation between treatments and patient outcomes:

Treatment/Device	Impact on Patient Outcomes
Robotic Surgery	Reduced recovery time, lower complication rates, increased precision
Imaging Systems (CT, MRI)	Improved diagnostic accuracy, earlier interventions, better survival rates
Antibiotics	Effective in treating infections but overuse linked to antimicrobial resistance
Vasopressors	Stabilized critically ill patients, but required careful monitoring due to risks of



Therefore, the study findings indicate that medicines and medical devices are essential tools in patient management in most departments in the hospital with diverse patterns of usage determined by the functions, and the need of the department. There are new endoscopic surgical systems and imaging equipment's have enhanced the fate of patients' health and the rational use of drugs especially antibiotics needs to be controlled to avoid negative effects such as antimicrobial resistance. The results presented in this study indicate that a higher level of incorporating modern equipment and

adjusting the dosage of drugs could enhance therapeutic plan options and outcomes in various hospital environments.

Discussion

This study also reveals that there are major differences in the kinds of medicine and medical device supplies required in each department of a hospital, which must be due to differences in patients' requirements and treatments in different areas of a hospital. The cultures in particular corridors – antibiotics, analgesics and aesthetic drugs – are to a significant extent explained by the pathologies treated in concrete departments. In ED's pain relief and infection control are highly essential and this is why ED's patients receive most of their medications in the form of analgesics and antibiotics. In the same context, the administration of anaesthesia drugs in surgical departments can easily be justified because surgeries require that the patients be relaxed and comfortable throughout the procedure. The use of sedatives and vasopressors in the ICU is perceived evident through the study and underlines the importance of sustaining the hemodynamic stability and sedation of patients who require invasive procedures as midst the ICU.

Antihypertensives, statins, and diabetic medications are the most common medications prescribed in ambulatory care because diseases presenting in this type of setting are mostly chronic. These are the medicines taken over the long-term as a standard clinical treatment as opposed to targeted management reflecting a transition from the health-care paradigm that is acute-care to chronic-care. The sale of antihypertensives and diabetic drugs fits into the trend of new worldwide diseases and disorders associated with hypertension and diabetes that result from advancing age, changing lifestyles, including urbanization, and dietary habits [16].

Concerning medical devices, the outcomes indicate that diagnostic equipment and monitoring equipment were frequently used in high acuity zones such as the emergency department and the ICU where the condition of a patient is rapidly assessed. For instance, ECG machines, pulse oximeters, and disposable X-ray machines used in the emergency department give a clear indication that there is a need for achieving quick evaluation of the signs and injuries in trauma cases. Likewise, ventilators, ECG monitors and ICP monitors in the ICU show the need to monitor the patient at regular intervals in ICU patients.

At the same time, robotic surgical systems' application in surgical departments is evidence of the increasing tendency to use minimally invasive techniques to shorten recovery time, minimize complications, and enhance the results of surgeries. It may be further expected that equal increase in the practise of robotic surgery will prevail in the succeeding years since improvements in technology create robotic systems cheaper and feasible for most hospitals. A number of products commonly used in outpatient care included portable diagnostic instruments like blood glucose meters and blood pressure cuffs that underscore patient self-monitoring that is characteristic of chronic disease management.

Comparing the results of this study with the literature, they are consistent with prior studies indicating the gradual increase of comprehensive applications of IT innovation, especially in surgical and diagnostic contexts. For instance, many hospitals across the globe are adopting robotic surgery as well as artificial intelligence based diagnostic devices. Prior literature has also examined the use of antibiotics in both the inpatient and outpatient context, especially the misuse of antibiotics and the

emerging problem of AMR The literature has also highlighted misuse of antibiotics and the growing problem of AMR. It is also in concordance with the trends in chronic diseases identified across other settings whereby antihypertensive drugs, anti-diabetic drugs, and drugs for hyperlipidaemia are the most frequently prescribed medicines in outpatient practice [17].

The implications of these findings are wide reaching for health care organizations as they relate to factors regarding patients' recovery rates, hospital performance, and costs. The development of modern non invasive medical equipment, especially the robotic surgical systems holds the potential to greatly enhance the patients' recovery rates by minimising the use of invasive techniques hence less hospital stays, post operative complications and faster recovery periods. Larger accuracy of these devices diminishes the probability of an error performed by hand as well as delivers optimal results during complicated operations. It has been established to cut down the instances of operations which require additional treatment; and therefore, lowers cost within the system.

However, the most important devices that are commonly used in the ICU are; ECG monitor which is crucial in stabilizing patients, ventilators, and intracranial advance pressure monitors which are also critical in stabilizing patients. Since these devices supply ongoing real-time information about patients' vitals, treatment decisions are made promptly and are vital to raising patients' survival chances. Notably, this tendency can be significantly decreased by applying proper methods of using the monitoring devices at the intensive care facility because missed clinical signs are a primary cause of preventable deaths at the ICU. In the outpatient care, some equipment like for example blood glucose monitors and blood pressure cuffs enhances patient care resulting to better mastery of chronic ailments enhancing patient long term recovery.

Excessive use of some medicines especially the antibiotics has wider ramifications on patient health and hospital operational factors. Even as antibiotics are vital in management of bacterial infections, their misuse has led to emergence of resistance to antimicrobial agents (AMR) leading to longer hospital stays, increased mortality, and higher treatment costs. This problem is of most concern in areas of high patient acuity like the ICU, where patients are at higher risk of contracting infections and mortality rate by antibiotic resistance is usually high. Healthcare facilities need to enhance the quality of the ASP in order to provide the correct antibiotic only when required, and the most appropriate antibiotic needed for a particular infection.

Another worth highlighting aspect is the cost effects of both medicines and the medical devices. Yet, the value of such technologies as robotic surgery systems and highly effective diagnostic equipment that costs considerably higher than traditional can establish its winning with a reduced rate of complications, short time to recovery, and corresponding higher survival rates among patients. Nevertheless, the costs may be a barrier to the implementation of these technologies, especially in poor performing hospitals. Thus, facilitating equal opportunities for using advanced technologies in medicine will remain a challenging task of policy decisions and investments into the improvement of conditions of healthcare practices.

This study also disclosed some deficits in currently offered treatments and medical devices. While antibiotics are commonly used in hospitals, new multiple-drug resistant infections have little effective treatment option. Furthermore, even though robotic surgery systems are being adopted in various operating rooms, they are expensive and are within reach of only large numerous and well-funded

hospitals, while small and those in rural areas are left behind in the project. The requirement for better and more inexpensive copies of these sophisticated technologies is unmistakable, as is the need for increased investment in a diagnostics device that can be used in outpatient settings to minimize the burden, particularly in access-limited geographic regions [18].

Although the findings of the study are informative of the kinds of medicines and medical devices in hospitals, the following limitations should be considered. First, therefore, it can be argued that the number of hospitals which were surveyed could be limited, and this may have an effect on generalisability of the conclusions. The study was mainly limited to hospitals in certain geographical jurisdiction which might not give diversified view on hospital care. However, the study was not able to address variations of treatment availability between regions which can affect treatment options for patients.

Achieving the optimal study design was not without some problems especially in relation to the comprehensiveness and specificity of information obtained from patient folders. There is the possibility that some data was missing or incomplete and hence there is the possibility for biased results in the consumption of the drug and devices. The second method is an extension of the first and one of the study's strengths: the analysis of cross-sectional data that involve data gathered at a given point in time. At the same time, this also becomes a source of potential bias. This reduces the chance of studying the enduring changes in the approaches to treatment and how they affect patients in the long run.

To overcome such shortcomings, more long-term assessments of patients should be conducted in subsequent investigations. This would give far better information about the efficiency of specific treatments and medical devices, as well as possible complications in the long term. Furthermore, more extensive future research could establish a wider scope for involving different regions and countries within the presented hospitals to improve the understanding of regional and economic influences upon the treatment process. Future studies by comparing the cost benefit of robotic surgery and growth in technologies like ultra modern imaging could also help different hospitals explain the overall incremental output of distinct technologies that would be deemed costly by most health organizations.

Therefore, the results of the research prove that medicine and medical technology are distinct but complementary necessities in the present world. Services utilization patterns and effectiveness are influenced by current advances in medical technology, treatment of chronic illness, and patients' centeredness. However, barriers including overuse of antibiotics, expensive new medical technologies, and lack of access to the newest technologies in the developing world indicate that more research will be required on how equitable global access might be achieved.

Conclusion

The present research compares the importance of medicines and medical devices necessary for inpatient treatment, and identifies that pain relievers, antibiotics, anaesthetic agents, and monitoring equipment are the most popular in different departments. Robotic surgical systems as well as imaging technologies have shown potential in addressing several challenges relating to patient care by enhancing value. Nonetheless, a recently emerging issue with the use of antimicrobials more frequently, especially in the most acute care facilities, is the increased risk of antimicrobial resistance; another disadvantage is a higher probability of expensive sophisticated devices constraining the

lower-volume hospitals. In order to improve hospital treatment practices, it is suggested that the healthcare organizations should enforce better antibiotic stewardship measures, they should also expand the use of technology which is not very costly in giving hospitalized patients an improved treatment plan, and they should also bring medical technology physical expansion that has access to the marginalized facilities. Subsequent investigations into the outcomes of such treatments and technologies as well as the long-term cost implication in light of patient care and healthcare fairness shall play a central role in the future. In summary, this analysis supports the goal of identifying current treatment patterns and offering practical approaches to act on increased knowledge of how healthcare resources should be deployed to improve patient care and hospital operational effectiveness.

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