

Study on Compliance to Restricted Antibiotic Policy at
Thumbay Hospital, Ajman, UAE

By

Juhi Jain

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2017-2019



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Juhi Jain student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at Thumbay Hospital, Ajman from 24th February to 20th May, 2019

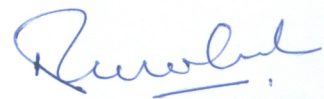
The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all his future endeavors.



Dr. P.R. Sodani
Pro – President
The IIHMR University, Jaipur



Dr. Neetu Purohit
Associate Professor
The IIHMR University, Jaipur



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COMPLEX

THUMBAY
Growth Through Innovation

May 20, 2019

To Whom It May Concern

This is to certify that Dr. Juhi Jain holder of Indian Passport Number K0189778 has undergone internship in our organization from 24th February 2019 till 20th May 2019, as a part of dissertation of her MBA in Hospital and Health Management program. She has completed the assigned project.

We wish all the best for her future endeavor.

For Thumbay University Hospital Complex, Ajman



THUMBAY MOIDEEN
President


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THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled A study on “A study on Compliance to Restricted Antibiotic Policy” submitted by Dr. Juhi Jain, Enrolment No 0580 under the supervision of Dr. Neetu Purohit for award of MBA in Hospital and Health/ Pharmaceutical / Rural Management in Health and Hospitals of the University carried out during the period from 24-02-19 to 20-05-19 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.


Signature

ACKNOWLEDGEMENTS:

Thanks to the almighty for the countless gift that you have offered me, and thanks to my family for their love and support.

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ABSTRACT

Background

As effective antibiotics are becoming a scarce resource, governmental regulation is needed to promote responsible use. Implementation of antibiotic stewardship and practice guidelines in health care facilities seems to be crucial to this effort. Empirical studies suggest, however, that guidelines have limited influence on health professionals' behaviour and practice. Barriers and facilitators to guideline implementation ability are much studied, but little attention has been given to health professionals' perceptions of normative acceptability of guidelines as a condition for compliance. The aim of the present study was first, to examine if the doctors, nurses and the pharmacists of the hospital were aware of the antibiotic stewardship program and were complying to the policy of Antibiotic Stewardship Program. Furthermore, the study also analysed the prescription practice of restricted antibiotics along with the completeness, and compliance of "Restricted Antibiotic Justification Form" by the physicians in Thumbay Hospital, Ajman.

Methods

The study was carried out based on FOCUS-PDCA. The awareness and adherence to antibiotic stewardship program was analysed systematically with the help of a questionnaire. The responses of the physicians, nurses and pharmacists were recorded and interpreted to assess the awareness of the clinical staff about the hospital Antibiotic Policy. In addition to this, the Justification Forms were audited to assess the completeness, and compliance towards the practice of Antibiotic Stewardship Program.

Results

The study that analysed 96 restricted antibiotic forms, showed that the trend of prescribing restricted antibiotics decreased exponentially from the month of January (48.2%) to March (23.6%). This was the outcome of the appointment of a new Infection Control Physician. The report also suggested that the overall awareness among the pharmacists was more (67.8%) followed by nurses (59.7%) and physicians (54.3%). This was the outcome of higher involvement of pharmacists in the infection control meetings (66%) as compared to nurses (13%) and physicians (8%).

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Organization Profile

Thumbay Hospital is a chain of academic hospitals based in the UAE, affiliated to Gulf Medical University (GMU), Ajman. Thumbay Hospitals are in Ajman, Dubai, Fujairah, Sharjah and in Hyderabad-India. The hospital chain is owned by Thumbay Group.

GMC Chain of Hospitals is one of the largest health care providers in the region. The group focuses on three pillars Education, Healthcare and Research

The first Thumbay Hospital, affiliated to GMU, was inaugurated in Ajman on 17 October 2002 by H.H.Sheikh Humaid Bin Rashid Al Nuaimi, as the first teaching hospital in the private sector in UAE.

Today, Thumbay Hospital is considered as one of the largest private healthcare providers in the region, catering to patients from over 175 nationalities and having staff from over 20 nationalities, speaking over 50 languages.

The hospital network has extended its services through its hospitals in Dubai, Sharjah and Fujairah in the UAE as well as in Hyderabad - India.

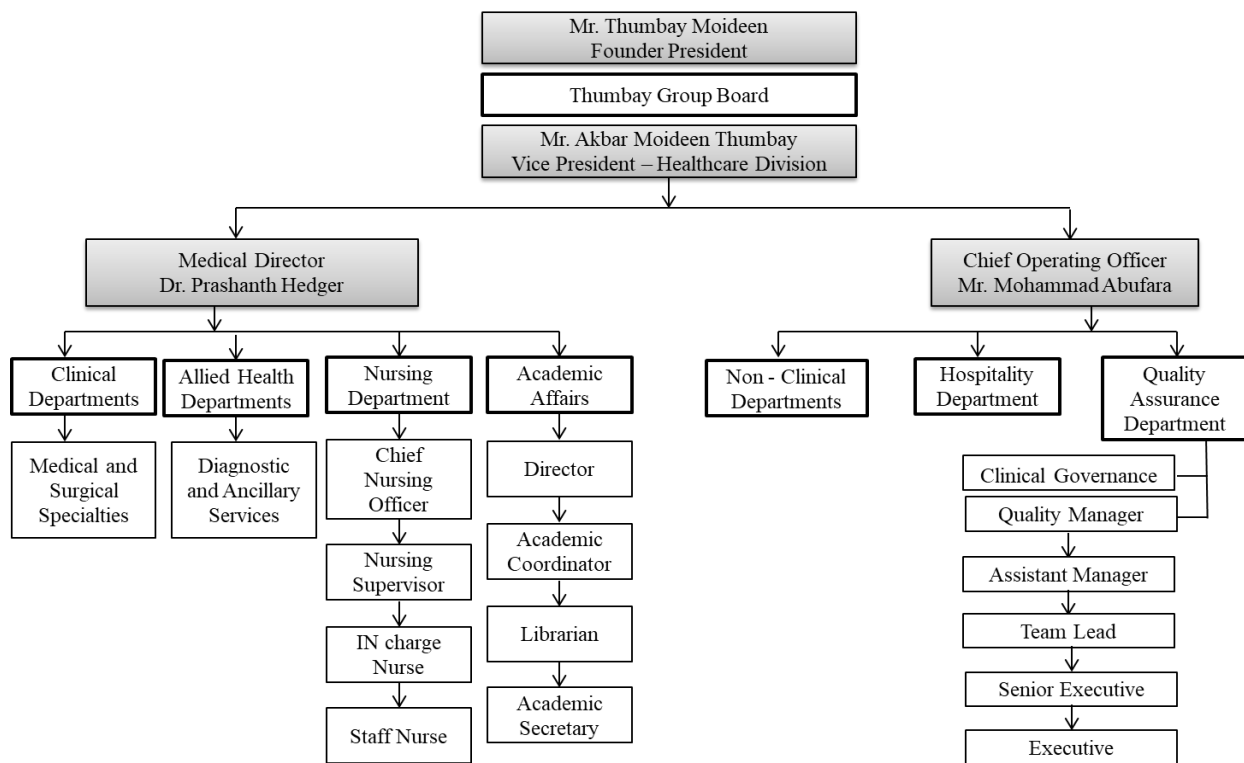
Vision: To be the leading network of academic hospitals in the Middle East

Mission: To provide patient Centred care of the highest quality in an academic set up

Core Values:

- ✓ Excellence
- ✓ Trust
- ✓ Client Cantered
- ✓ Ethics
- ✓ Continuous Learning
- ✓ Teamwork
- ✓ Integrity

Thumbay Hospital - Ajman is the first private and constituent teaching hospital of GMU with a capacity of 250 beds.



Organogram of Thumbay Hospital, Ajman

“A study on Compliance to Restricted Antibiotic Policy at Thumbay Hospital”

1. INTRODUCTION:

Due to increasing concern and awareness of antibiotic resistance issues worldwide and frequent inappropriate use of antimicrobial agents in hospitals, these medicines have typically been the target of makes an attempt to limit and management their use. One common live is to adopt associate antibiotic formulary. At our hospital, the Drug associated medicine Committee has fostered an antibiotic policy. The policy includes associate antibiotic formulary with a listing of restricted antibiotics supported factors like progressively restricted access and management, their indications to be used, potential adverse effects and prices. The formulary and tips are updated sporadically by agreement between clinicians, microbiologists and pharmacists.

The delivery of antimicrobial agents on the restricted list was additional controlled by introducing a brand new restrictive form, that resulted in a very substantial reduction of overall prescribing and prices of controlled antimicrobial agents. during this context, we have a tendency to needed to assess the appropriateness of use of a number of these antimicrobial agents, designated for his or her high prescription volume or potential ecological impact, and that specific tips had been developed.

All the restricted antibiotics ar restricted in their use and convenience. Restricted antibiotics ought to solely be prescribed by trial and error for indications as suggested during this policy. For the other indication this could be mentioned with microbiologist/clinical health care provider and clearly documented within the medical notes, with the indication and “discussed with (name of microbiologist/clinical pharmacist) and date” documented. this enables the life scientist to examine any biology reports and monitor resistance issue fastidiously.

Where reportable sensitivities ar to a restricted antibiotic, then bring down the antibiotic and document within the medical notes and MD remark and fill the restricted antibiotic justification type.

Drug utilization analysis thus additionally provides necessary data regarding the potency of drug use so serving to to line priorities for the rational allocation of health care budgets. Analytical studies attempt to link knowledge on drug utilization to figures

on morbidity, outcome of treatment, and quality of care, with the last word goal to assess whether or not drug medical care is rational or not. Development of resistance to antibiotics could be a continuous method in nature. police investigation on routine basis is vital for coming up with novel and effective approaches for curb resistance to some extent. finding out drug utilization in numerous settings like company and government hospitals can facilitate refine the approaches in a very customised approach.

Antibiotics ought to be designated to hide the foremost seemingly pathogens in a very given scenario. Ideally, medicine proof of infection and antibiotic sensitivities ought to be taken under consideration. If these aren't accessible once antibiotic medical care should be started, the rules provided by the hospital could also be useful. however as they're solely tips, one should contemplate the individual presentation, the patient's age and synchronal pathologies yet as patient's history of antibiotic use and hypersensitivity reaction. Samples should be taken before beginning the antibiotics, however in serious infections, administration of antibiotics shouldn't be delayed while endeavor or watching for results of investigations. For serious infections, it ought to be ensured that patients truly receive a dose as before long as doable.

Antibiotics weren't issued if:

1. the shape was incomplete in any manner and not been signed by the treating MD
2. Acceptable sample is not sent for culture sensitivity
3. Recent culture diversity reports are showing no growth within the acceptable samples antibiotic indented
4. Antibiotic demand doesn't match as per the culture diversity report.

All the information details were collected retrospectively from inpatients medical files. every drug prescribed was recorded together with its frequency of administration, indications to be used, and length of medical care.

FOCUS PDCA could be a management methodology, developed within the tending trade, want to improve processes. Created by the Hospital Corporation of America (HCA), it's a scientific method improvement methodology. Through FOCUS-PDCA, a

information of however a method is presently activity to fulfill client wants and expectations is employed to set up and take a look at method changes. A basic understanding resulting in non-compliance to restricted antibiotics was created victimisation this study. To progress the event of the science of improvement, a bigger understanding of the employment of improvement ways, together with FOCUS-PDCA, is crucial to draw reliable conclusions regarding their effectiveness. this may be supported by the event of systematic and rigorous standards for the applying and news of PDCAs.

Based on the understanding of the problem leading to non-compliance of the Restricted Antibiotic Policy, a questionnaire-based study was conducted.

1.1 Table: List of restricted antibiotics

Restricted Antibiotics
Amikacin
Amphotericin B
Ceftazidime
Linezolid
Meropenem
Piperacillin + Tazobactam
Nalidixic Acid
Tobramycin

2. PROBLEM STATEMENT:

Poor adherence in implementing restricted antibiotic policy guidelines among the patients by physician in Thumbay Hospital, Ajman.

3. RESEARCH QUESTION:

What are the problems leading to non-compliance of the prescriptions to the restricted antibiotic policy in Thumbay Hospital, Ajman?

4. RATIONALE:

Antimicrobial stewardship is a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms. Misuse and overuse of antimicrobials is one of the world's most pressing public health problems. Infectious organisms adapt to the antimicrobials designed to kill them, making the drugs ineffective. People infected with antimicrobial-resistant organisms are more likely to have longer, more expensive hospital stays, and may be more likely to die as a result of an infection. This page contains antimicrobial stewardship resources and education for both healthcare professionals and consumers.

5. REVIEW OF LITERATURE:

Antimicrobial stewardship is a coordinated program which promotes the acceptable use of antimicrobials (including antibiotics), improves patient outcomes, reduces antibacterial resistance, and reduces the unfold of infections caused by multidrug-resistant organisms. (CDC)

An ICARE survey of hospitals collaborating within the Centers for malady management and Prevention's Project found that among all the hospitals that were reported by their antibiotic formulary, ninety-one of those hospitals used completely different antimicrobial management strategy. Studies indicated that their antimicrobial methods usually coated their prices and provided vital value savings through reduction in drug prices and providing money incentives to bottom-line-wary directors. With improved quantification of economic prices of antimicrobial use, programs incontestable conjointly a discount in antimicrobial resistance that was ready to highlight the value savings through rejection of resistance. (Bergstorm, 2004)

A study on impact of Associate in Nursingtibiotic restriction policy on the antibiotic resistance patterns of gram-negative micro-organisms in an medical aid Unit in Ellas showed that on implementation of antibiotic restriction policy will considerably cut back antimicrobial consumption and antimicrobial resistance rates. It showed that overall consumption of restricted antibiotics was reduced by ninety two.5% and 55.4% severally. status to Cipro of 3 predominant infection inflicting gram-negative bacilli was considerably increased . cephalosporin showed Associate in Nursing increased status just for Aeruginosa. Similar rates of infection episodes were recorded within the

2 periods and no variations were determined either in overall mortality of unit ecology as expressed by the sort of micro-organisms concerned in colonisation and/or infection. (ntagiopoulos, 2007)

A study in a very tertiary care hospital on the compliance of policy towards antibiotic usage all over that usage of instructed medicine reduced the value additionally as resistance within the patients. Compliance to policy's mentioned medicine helped with specifications of all treatments mentioned and a ensure treatment to final diagnosing. (P. et al, 2000)

Patients UN agency square measure unnecessarily exposed to antibiotics square measure placed in danger for serious adverse events with no clinical profit. The misuse of antibiotics has conjointly contributed to the growing issues of antibiotic resistance, that has become one among the foremost serious and growing threats to public health. not like alternative medications, the potential for unfold of resistant organisms means the misuse of antibiotics will adversely impact the health of patients UN agency aren't even exposed to them. The Centres for malady management and hindrance estimates that quite 2 million folks square measure infected with antibiotic-resistant organisms, leading to just about twenty three,000 deaths annually. (CDC)

In the time of accelerating resistance and scarcity of latest drug development there's a growing would like for methods to reinforce rational use of antibiotics in German and Austrian hospitals. Associate in Nursing evidence-based guideline on recommendations for implementation of antibiotic billet (ABS) programmes was developed by the German Society for Infectious Diseases in association with the subsequent societies, associations and institutions: German Society of Hospital Pharmacists, German Society for Hygiene and biological science, Ehrlich Society for therapy, The Austrian Association of Hospital Pharmacists, Austrian Society for Infectious Diseases and medicine, Austrian Society for Antimicrobial chemotherapy, robert koch Institute. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4889644/>)

Another study stated that, the majority of antibiotic prescribing occurs in outpatient care settings highlighting the need for antibiotic stewardship in the community. Given their expertise on medication management, pharmacists are essential to any antibiotic stewardship effort. As the regulations for antibiotic stewardship in outpatient settings continue to evolve and optimal stewardship strategies are defined, pharmacists must be leaders in the implementation of these programs. (Journal of American Pharmacists association, 2019)

According to Olans, purpose is to educate clinicians on appropriate antibiotic use and to implement evidence-based standards of practice in order to improve patient safety and quality of patient care. Literature related to antibiotic resistance shows that there is a lack of knowledge about multi-drug resistant bacteria and specific infection prevention measures regarding the nursing role. Many nurses do not directly see their impact in ASPs, due to being omitted from formal ASP guidelines (Olans, 2015)

132 patient cases from two New Hampshire nursing homes in which the patients reviewed had a urinary tract infection and were prescribed an antibiotic. Of the 132 cases, 41% were prescribed an antibiotic without meeting the appropriate criteria (based on McGeer criteria), and 56% were given the wrong antibiotic initially. As a result, the rate of *Clostridium difficile* development increased (Dosa et al., 2011).

6. OBJECTIVES:

- i. To analyze the compliance of restricted antibiotic forms and prescription to antibiotic policy of Thumbay hospital, Ajman.
- ii. To identify and analyze the gaps in the restricted antibiotic policy of the hospital and providing suggestions for the same

7. METHODOLOGY:

9.1 Use of Justified Antibiotics

Study design: A quantitative, non-interventional study

Study setting: Thumbay Hospital, Ajman

Duration of study: 3 months

Study Approach: A FOCUS-PDCA study was carried out which included Finding out the problem, Organising a team, Clarifying the current process flow, Understanding the root cause using Fishbone analysis and Selecting the desired outcome by designing a proposed process flow.

Sample Size: 96

Sampling technique: Purposive Sampling

Inclusion Criteria: Prescriptions of patients admitted in wards, ICU, NICU and LDR.

Exclusion criteria: Prescriptions of OPD patients.

Analysis of Data: MS Excel was used to analyse the data

Considered Parameters:

- Diagnosis: Final Diagnosis of the patient and procedure done, if any.
- Antibiotics: Dose, Frequency, Route, Total duration of days.
- Antibiotics prescribed on Discharge
- Restricted antibiotic justification form

Data Collection Process

Data were collected and tabulated in MS Excel in a manner guided by the Infection Control Team. Eligibility was decided independently, in a standardised manner and disagreements were resolved by consensus.

Data items

A theoretical framework was constructed by compartmentalising the key features of the FOCUS-PDCA method into observable variables for evaluation.

9.2 Questionnaire study to assess the awareness of Antibiotic Stewardship Policy

Study design: Questionnaire study

Study setting: Thumbay Hospital, Ajman

Duration of study: 3 months

Study Approach: A detailed questionnaire containing 20 questions was made. A total of 56 respondents completed the questionnaire. The questionnaire had asked on the data

on antibiotic prescribing and included buckets on committees, formularies, policies, antibiotic availability and policies addressing empirical therapy and prophylaxis.

Sample Size: 56

Sampling technique: Purposive Sampling

Inclusion Criteria: All the clinical staff

Exclusion criteria: All the non-clinical staff

Analysis of Data: MS Excel was used to analyse the data

8. RESULTS:

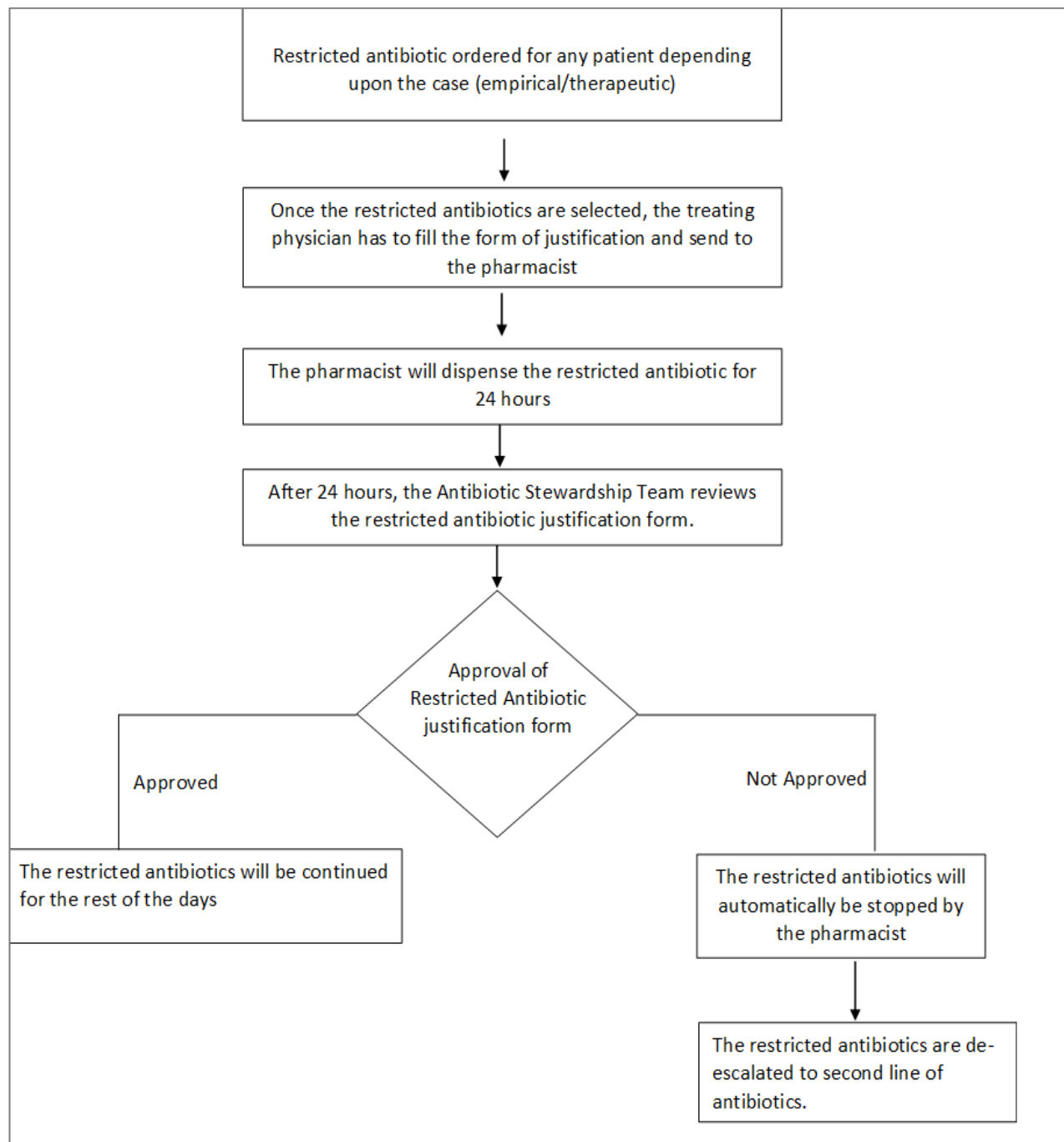


Figure 10.1. Proposed Process Flow for Restricted Antibiotic Stewardship in the hospital

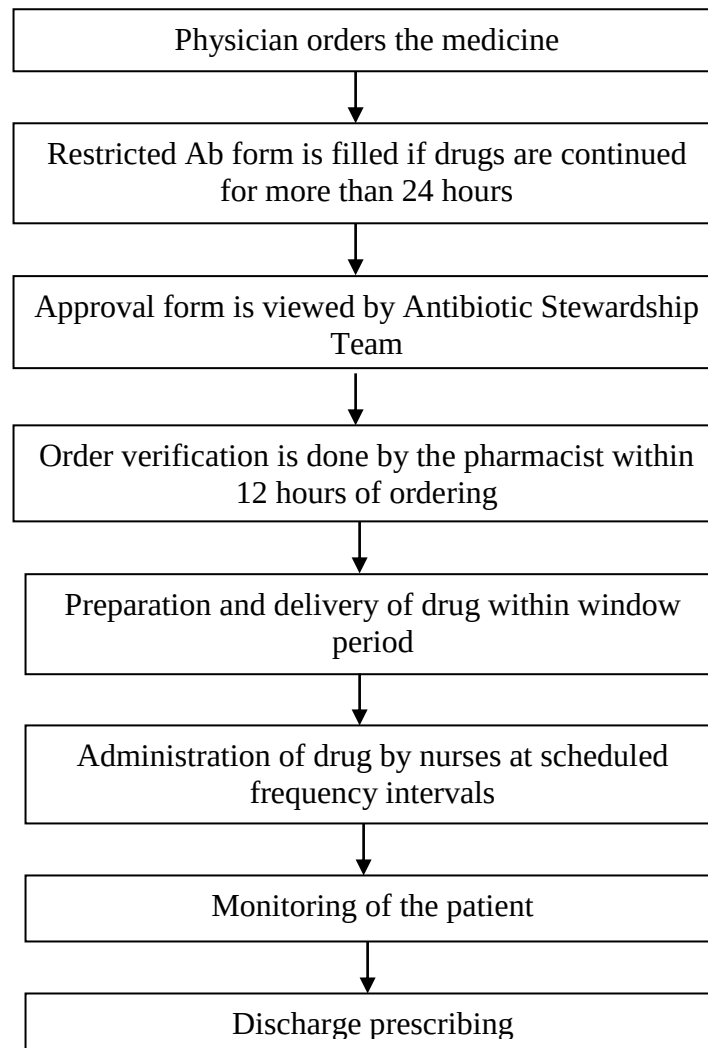


Figure 10.2. Current Process being followed in the hospital for Restricted Antibiotic Stewardship

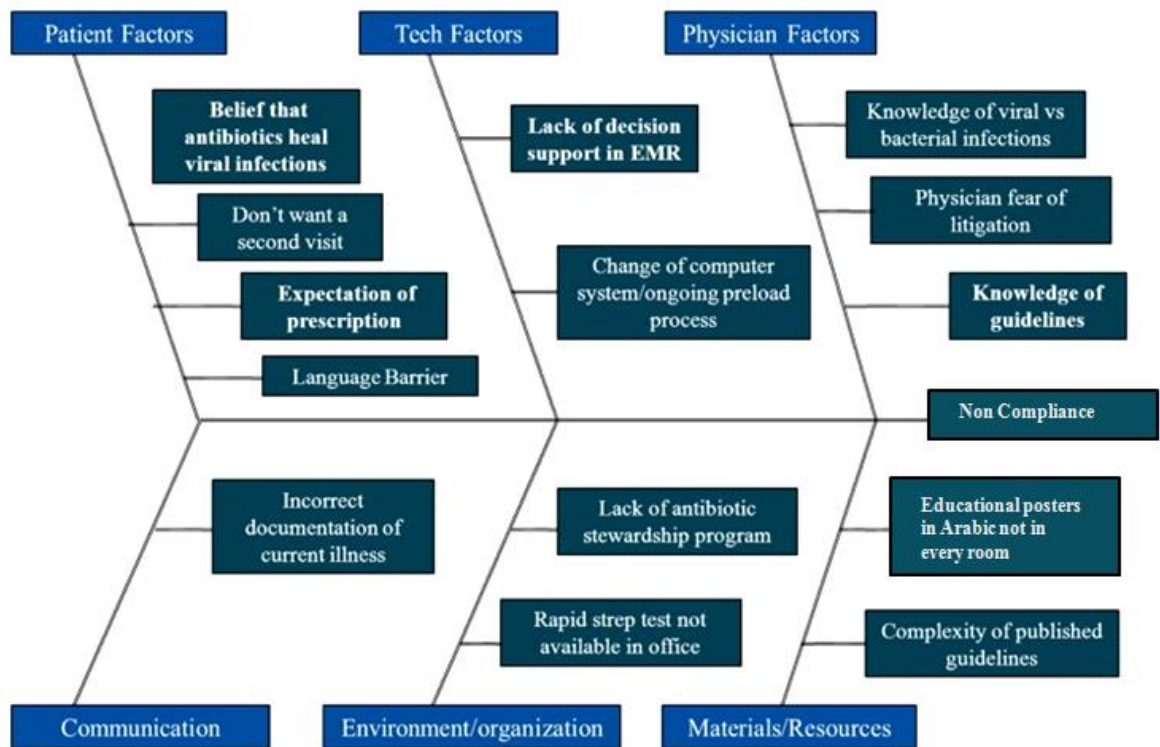


Figure 10.3. Fishbone Analysis stating the root cause of non-compliance to Restricted Antibiotic Stewardship

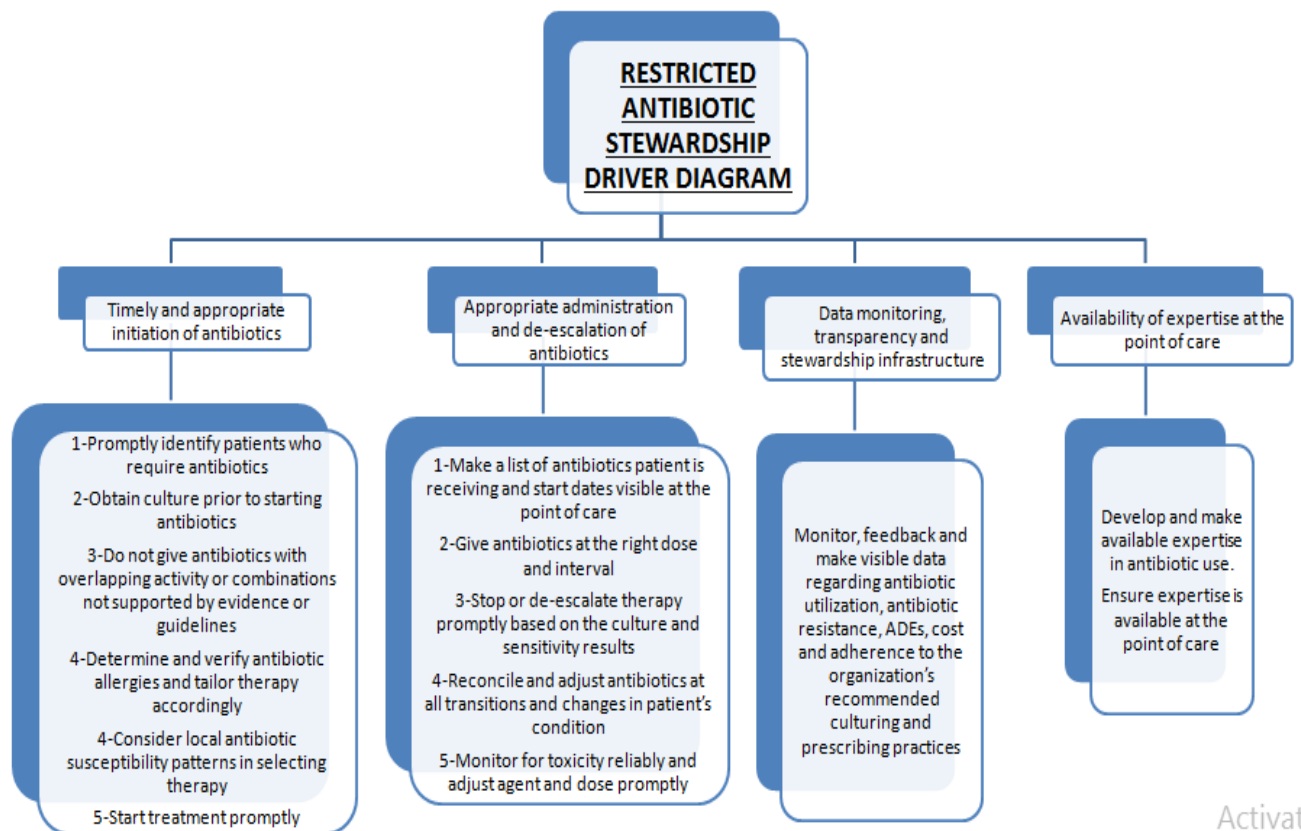


Figure 10.4. Restricted Antibiotic Stewardship Driver Diagram

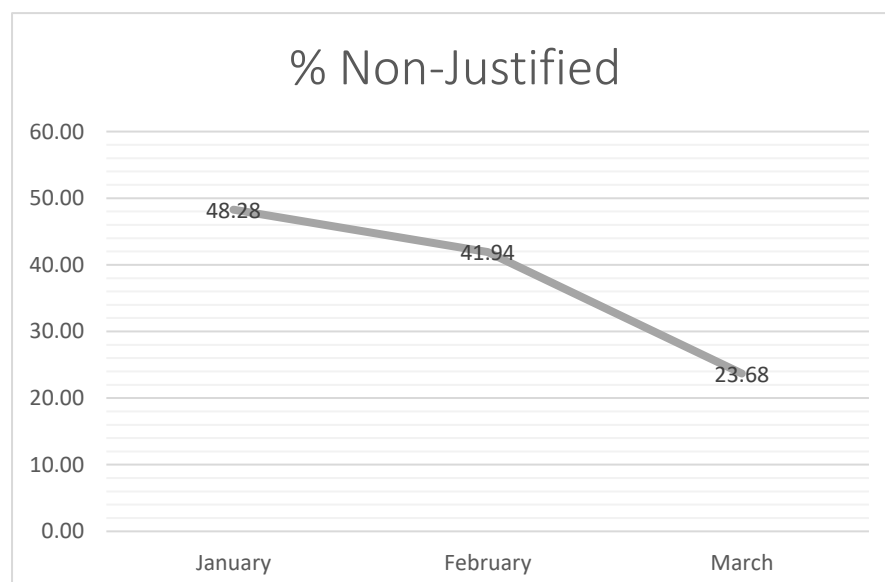


Figure 10.5. Restricted Antibiotic Form Non-Justification Percentage

The graph 10.5. shows the compliance of restricted antibiotic justification forms by the physicians from January to March. All the forms (38 in January, 31 in February, 27 in March) were audited by the Antibiotic Stewardship Team and were segregated as justified and non-justified, taking into consideration the requirement to prescribe Restricted antibiotics based on the diagnosis of the patient.

Many policies recommended first and second choices for empirical therapy and prophylaxis, including advice on dose, duration, oral switch, use of the laboratory for diagnosis and resistance patterns. There was less guidance on severity assessment and side effects, which are crucial areas for improving the quality of antibiotic prescribing. For surgical prophylaxis there was an emphasis on timing of antibiotic administration and the importance of single-dose prophylaxis for most operations because of the dangers of antibiotic resistance. Based on these factors, it was found that as per the Antibiotic Stewardship Team and Restricted Antibiotic Policy, 48% “Restricted Antibiotic Justification Forms” were found to be unjustified in the month of January. An exponential decrease was noted in the month of March (23%) followed by the appointment of a new infection control physician in the hospital.

The questionnaire was detailed and included questions related to awareness of the clinical staff of the hospital about Restricted Antibiotic Policy. The total number of respondents who answered the questionnaire was 56. Out of 56, 32 were physicians, 16 were nurses and 8 were pharmacists working with Thumbay Hospital, Ajman. All these respondents were working in the ICU’s, LDR’s and IPD wards. The clinical staff was first asked about their involvement in the Infection Control Meetings (Figure 8.5.) as well as their interaction with the Restricted Antibiotic Stewardship Team about the changes/updates in the policy. The survey suggested that there was a lack of communication and interaction between the clinical staff and the Antibiotic Stewardship Team. The clinical staff was not made aware of the changes and updates on the policy, if any. The pharmacists, however, were called for the meetings on a regular basis.

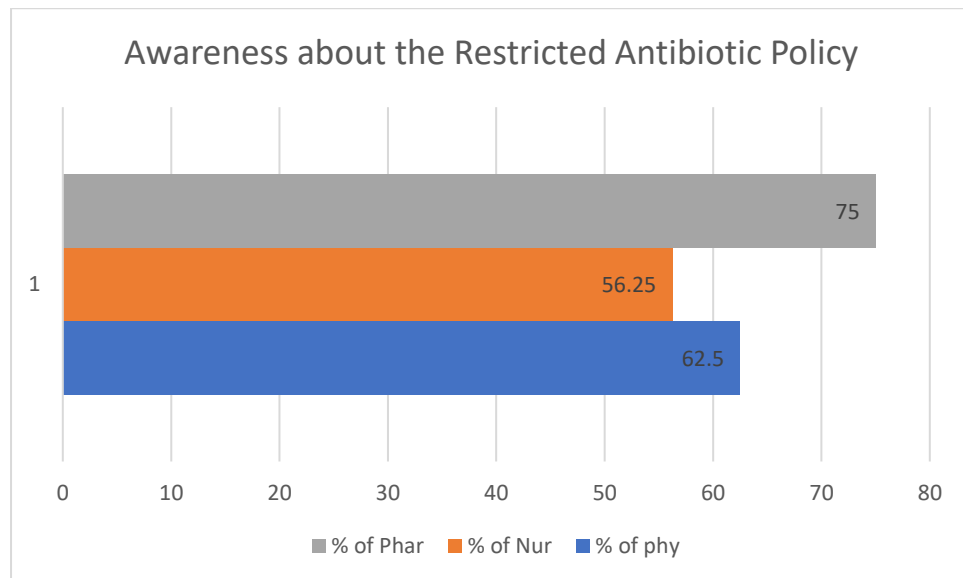


Figure 10.6. Awareness about the Restricted Antibiotic Policy Percentage

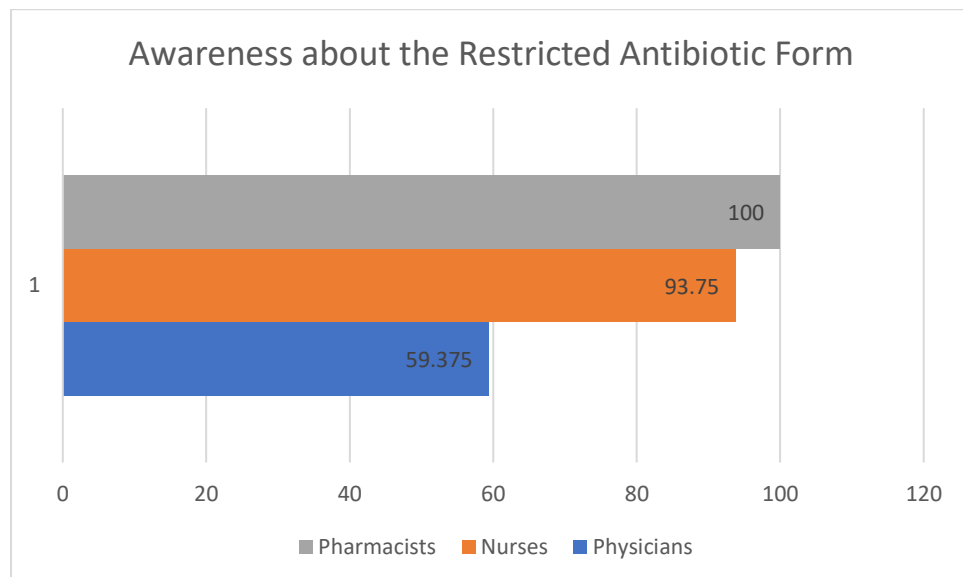


Figure 10.7. Awareness about filling the Restricted Antibiotic Justification Form Percentage

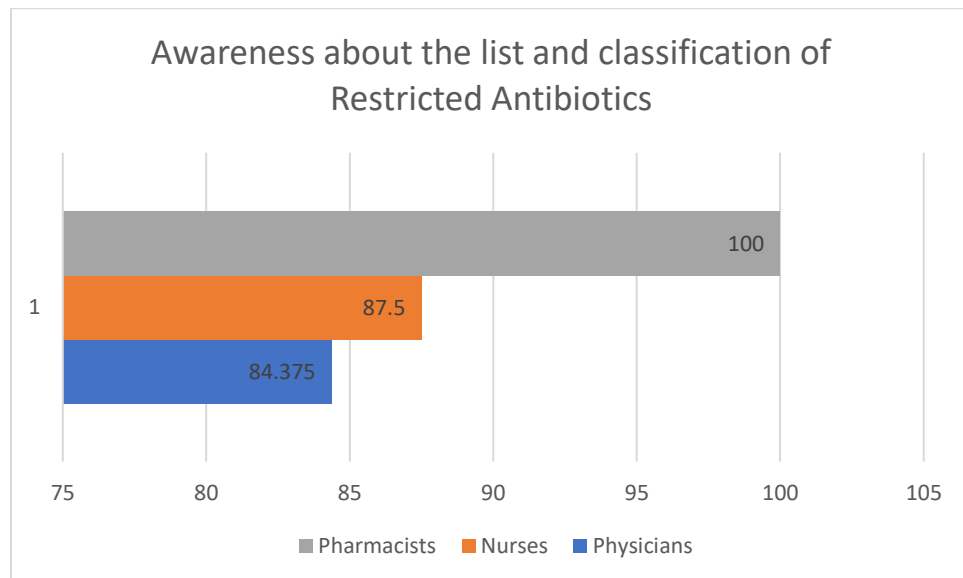


Figure 10.8. Awareness among the clinical staff about the classification and list of Restricted Antibiotics

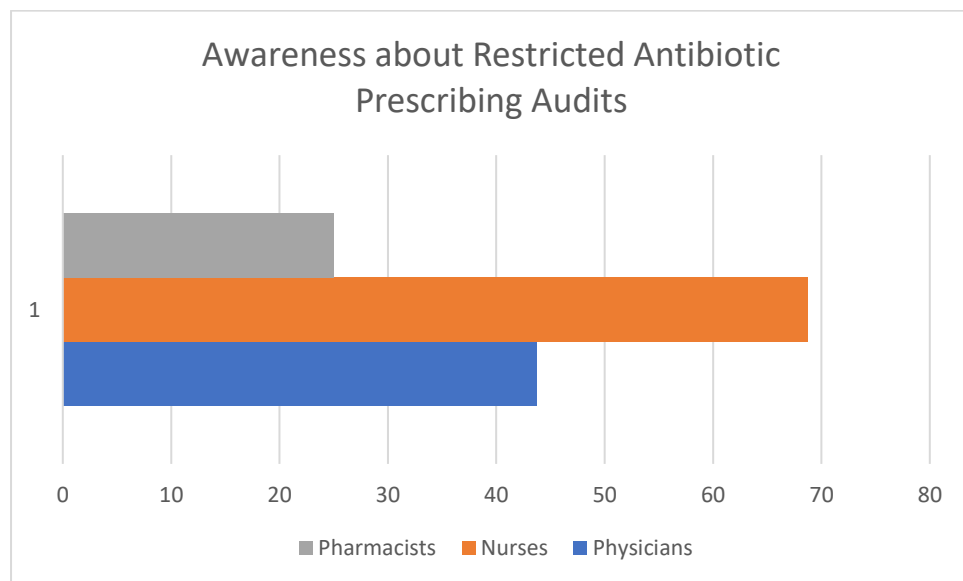


Figure 10.9. Awareness about the Restricted Antibiotic prescribing audits taking place in the hospital

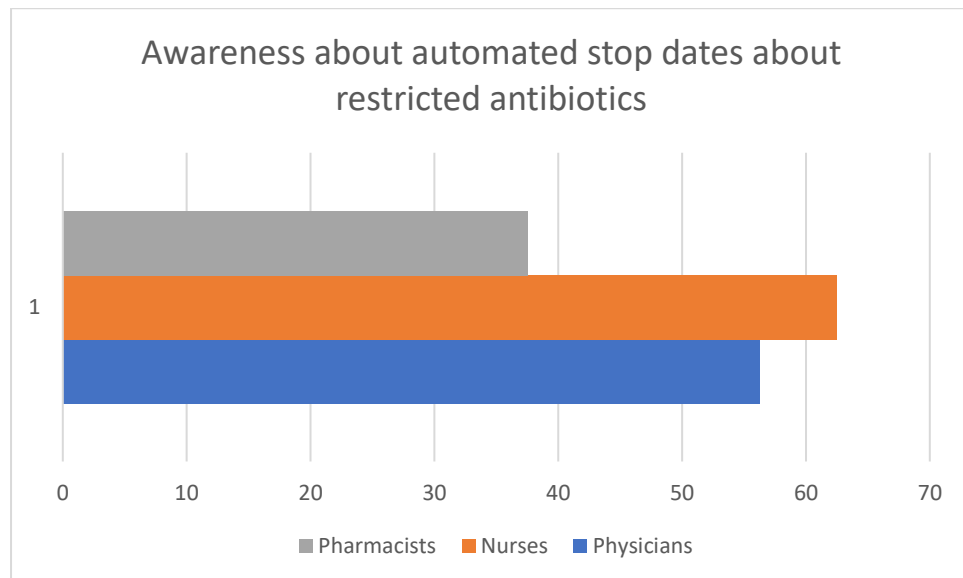


Figure 10.10. Awareness about the automatic stop dates for Restricted Antibiotic among Physicians

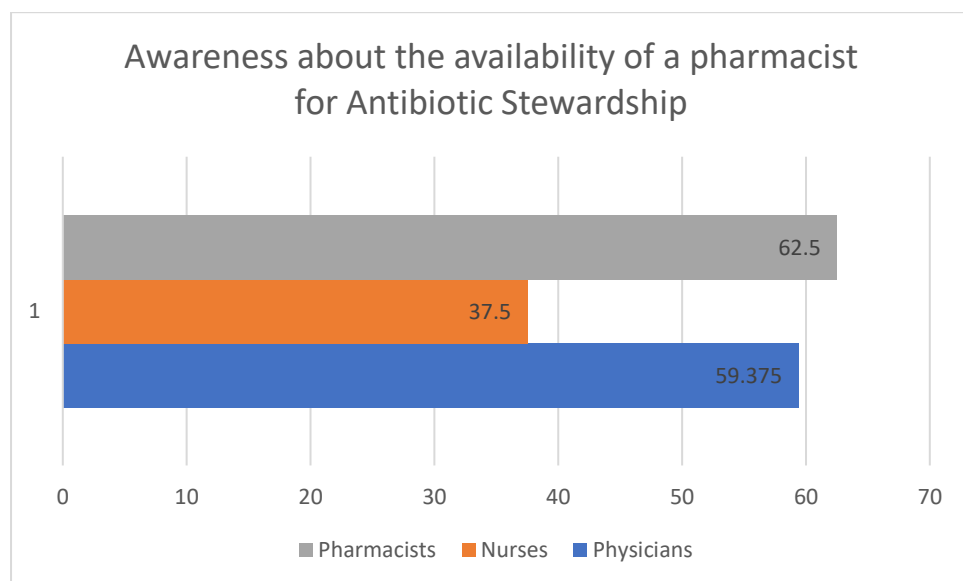


Figure 10.11. Awareness about the availability of a full-time pharmacist responsible for antibiotic stewardship

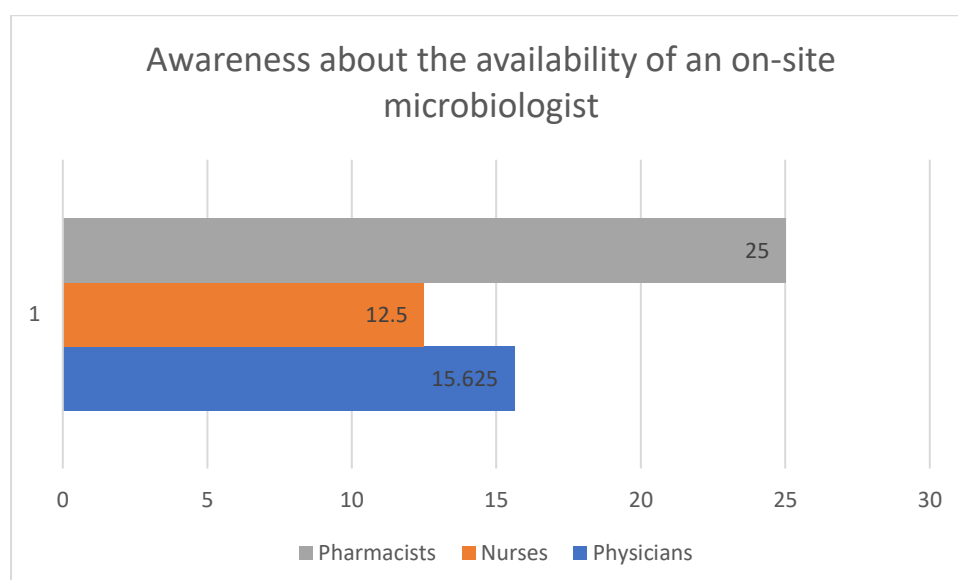


Figure 10.12. Awareness among clinical staff about the availability of an on-site microbiologists

As shown the nursing staff involved in the Restricted Antibiotic administration was not well-versed with the information about the Antibiotic Policy of the hospital. Only 12.5% of the nursing staff has an idea about the availability of an on-site microbiologist while only 37.5% of the total knew that there is a dedicated pharmacist of Restricted Antibiotic Stewardship. It was observed that majority of the nurses were aware about the Restricted Antibiotic prescribing audits (68.75%) taking place in the hospital. Also, 93.5% and 87.5% nurses knew about the filling of restricted antibiotic justification form as well as the classification of restricted antibiotics respectively.

As shown there was a lack of communication and interaction between the other clinical staff and the Antibiotic Stewardship Team. The physicians and nurses were not made aware of the changes and updates on the policy, if any. The doctors and nurses were more aware about the Restricted Antibiotics Prescription Audits taking place in their hospital and about the automatic stop dates of the antibiotics depending on the audit of the prescription. The reason being their direct involvement with prescribing as well as administering the Restricted Antibiotics. Only 15.6% of physicians knew about the availability of an on-site microbiologist because they were not informed about the same by the Infection control team. Majority of the physicians were well-versed with the classification of restricted antibiotics (84.3%) which is very important to assure

proper prescribing of antibiotics for patient safety. It was seen that only 59% of the physicians knew about the Restricted Antibiotic Justification Form, which is not a good sign for the hospital as all the doctors involved with prescribing of restricted antibiotics should know about the procedure to be followed before prescribing so that proper tracking and monitoring of the stewardship program can take place resulting in decreased antibiotic resistance and better patient outcomes. Also, by questioning the physicians and nurses further, during one-on-one interaction, it was found that the staff faced a lot of difficulty in reaching the infection control physician when required, due to his/her unavailability.

The failure to deliver information about the changes or updates in the policy as well as lack of any kind of educational programs by the Infection Control Team to the all the stakeholders, like physicians and nurses, resulted in increase in non-compliance of Restricted antibiotic Justification forms to the Antibiotic policy of the hospital

9. DISCUSSION:

Drug utilization studies though appear apparently simple yet are equally tedious to carry on as they deal with compilation of vast data at times. In a limited resource setting, where the budget on healthcare is limited and fixed for a certain financial year; a pharmaco-economic analysis proves to be an effective tool in optimizing healthcare needs of patients without compromising quality. Such studies conducted everywhere the globe specific a typical concern concerning the intensive indiscriminate use of restricted antibiotics resulting in antibiotic resistance globally. Therefore, drug utilization studies area unit necessary as they invariably bridge the gap between public health, rational pharmacotherapy, pharmaco-vigilance and pharmaco-economics. The indiscriminate use of restricted antibiotics is far stressed in numerous studies. The studies coping with prescription audits area unit invariably kind a set of the antimicrobial office programme that's designed to beat the matter of antibiotic resistance. Antimicrobial resistance considerably raises already-rising health care prices and ultimately will increase patient morbidity and mortality. Clinical pointers, or policies, area unit outlined as 'systematically developed statements to help professional and patient selections concerning acceptable health

take care of specific clinical circumstances. they're at the cornerstone of efforts to boost antibiotic use by academic suggests that. they're not, however supported by all practitioners and it's been aforesaid that the profession is stricken by guideline overload. rising appropriateness of medical care at the time of initial empirical prescribing could be a troublesome challenge related to several structure constraints and work force necessities. wherever on the market, computer-assisted prescribing could facilitate to guide physicians, however over common fraction of such recommendations might not be followed by prescribers. Our results make sure the tendency of physicians to dictate unduly broad-spectrum medical care by trial and error. Certainly, there area unit thousands of national and international clinical pointers on the market and therefore the burden for clinicians to deliver timely evidence-based care is wide. It urged that apparent relationships between infection management interventions and better infection rates were unreasonable AND an example of reactive apply. Also, different factors, like wider cultural determinants, that we tend to didn't live, area unit necessary to think about once determinant antibiotic consumption. There area unit 5 teams of determinants of the variations within the use of antimicrobial agents as well as microorganism characteristics, physicians' antibiotic prescribing practices, antibiotic demand/patient characteristics, cultural/socioeconomic factors and therefore the healthcare/legal surroundings. Moreover, it's additionally necessary to think about the broader impact of antibiotic consumption on trends of antimicrobial resistance, mortality, morbidity and different patient-related outcomes.

The aim of this study was to research the structure, style and content of antibiotic policies at intervals Thumbay hospital in Ajman and to explore relationships between key office factors and antibiotic prescription information. Our findings offer a helpful baseline of hospital antibiotic policies and apply. The upstream stakeholders for Antibiotic Stewardship were patients, administration and pharmacy; point of change stakeholders were the physicians, infectious disease specialist, pathology department and the IT department; whereas the downstream stakeholders include the other units throughout the hospital and the Infection Control Department. The driving factors for the Restricted Antibiotic Stewardship Program were

- Timely and appropriate initiation of antibiotics
- Appropriate administration and de-escalation of antibiotics
- Data monitoring, transparency and stewardship infrastructure

- Availability of expertise at the point of care

Based on these factors, it was found that as per the Antibiotic Stewardship Team and Restricted Antibiotic Policy, 48% “Restricted Antibiotic Justification Forms” were found to be unjustified in the month of January. An exponential decrease was noted in the following months (41% in February; 23% in March), after the training and education of the clinical staff on the prudent use and prescribing of Restricted antibiotics.

Our questionnaire was detailed and included questions related to awareness of the clinical staff of the hospital about Restricted Antibiotic Policy. The questionnaire study suggested that among all the clinical staff, the awareness among the pharmacists about the Antibiotic Stewardship was more as compared to others. Of all the pharmacists who were a part of the questionnaire survey, 75% were aware about the Antibiotic Policy, whereas awareness among the nurses and physicians about the Antibiotic Policy was 56% and 62% respectively. When it comes to filling of “Restricted Antibiotic Justification Form”, availability of pharmacist and microbiologist as well as the list and classification of restricted antibiotics, awareness among the pharmacists was much more as compared to the doctors and nurses. This was a result of their continuous involvement in Infection Control meetings and regular educational intervention about the antibiotic policy of the hospital. It was found out that the doctors and nurses dealing with prescribing of Restricted Antibiotics were more aware about the Restricted Antibiotics Prescription Audits taking place in their hospital and also about the automatic stop dates of the antibiotics depending on the audit of the prescription. The questionnaire survey suggested that there was a lack of communication and interaction between the clinical staff and the Antibiotic Stewardship Team. The clinical staff was not made aware of the changes and updates on the policy, if any.

10. **LIMITATIONS:**

Limitation of this study is that the seasonal variations in occurrence of specific diseases were not considered. The data for the whole year was not included due to the large volume of the data; as this data is still being analysed for a further study. In these months the concurrent microbiological data should have been studied to assess the need for use of the antimicrobials and differentiate them from indiscriminate use. The patient outcomes on the whole should also be assessed along with restriction of antibiotics. To overcome such limitations, this study is a part of a larger ongoing study which is considering the change in microbial resistance patterns with such change in

antimicrobial prescribing practices and the related morbidity and mortality outcomes in patients due to implementation of such restrictions. Another limitation of the study is that a clear utilization of important drugs could not be commented on; which is the real need of the hour.

11. CONCLUSION:

Even after the introduction of the restrictive antibiotic justification kind within the hospital, our retrospective analysis showed that thirty seventh of the prescriptions were still undue, particularly just in case of prescriptions issued while not status testing. the big numbers of inappropriate prescriptions show the necessity to accentuate the management of restricted antibiotic use. alternative favourable factors comparable to the implementation of drug formularies hospitals and also the involvement of clinical pharmacists so as to make sure rational antibiotic medical care might improve the standard of patient care and radically cut back the value of medical care. of these factors are particularly necessary attributable to high antibiotic resistance rates.

12. RECOMMENDATIONS:

- Implementation of anti-infection request structure for limited anti-microbials and follow-up by chemists can be related with a checked decrease in anti-infection utilization and with acceptably fitting utilization of a portion of the medications under confined use. Generous abuse may continue for some different medications that might be hard to control just through limited access and controlled conveyance.
- Auditing anti-microbial use and strengthening practice rules with the help of direct guiding accordingly gives off an impression of being justified.
- Surveillance projects might be centered around high-chance zones, for example, escalated care units.
- Specific classes of medications, particularly those that are effectively and to a great extent utilized experimentally, for example, fluoroquinolones, may likewise be at especially high danger of abuse, and could be focused in charge programs.
- A mix of both prohibitive and instructive measures seems, by all accounts, to be important to improve generally anti-microbial utilization in medical clinics. This multifaceted methodology ought to include drug specialists, clinical microbiologists and irresistible maladies specialists.

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