

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

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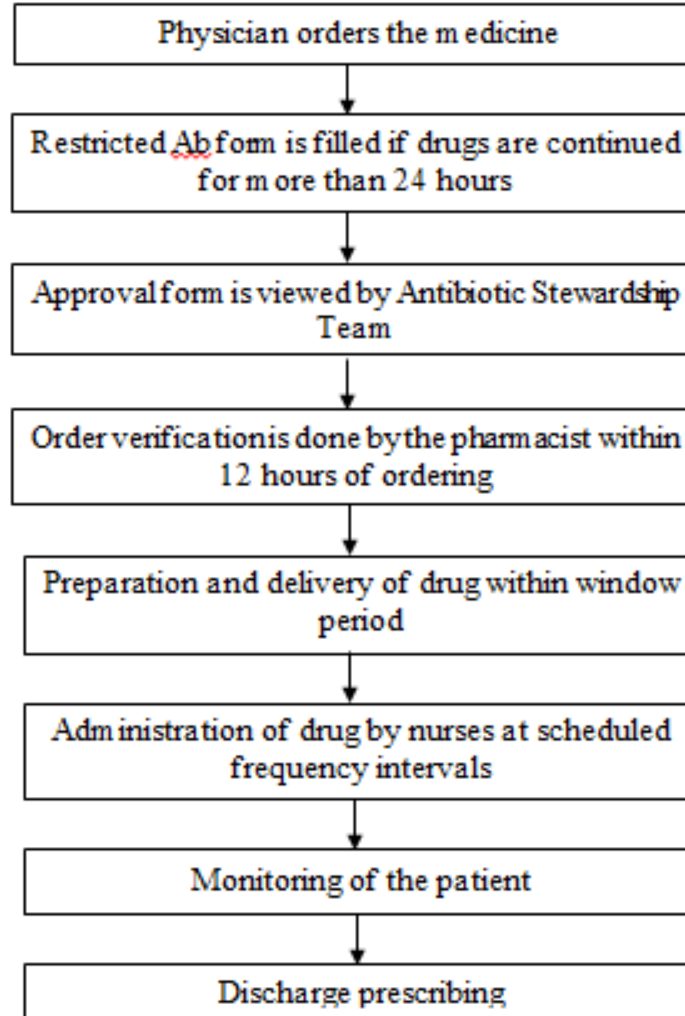
Introduction



- ▶ Restricted antimicrobial stewardship is a coordinated program that promotes the appropriate use of restricted antibiotics, improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms.
- ▶ At Thumbay hospital, the Drug and Therapeutics Committee has fostered an antibiotic policy. The policy includes an antibiotic formulary with a list of restricted antibiotics based on factors like increasing restricted access and control, their indications for use, potential adverse effects and costs.
- ▶ An adherence to fill the “Restricted Antibiotic Justification Form” while prescribing the Restricted Antibiotics to any of the potential receivers, is checked by the Infection Control Physician to promote just/prudent use of antibiotics in compliance with the list and indications of the Antibiotic policy designed by the hospital.

Introduction- Process Flow

The stakeholders involved in the Restricted Antibiotic Stewardship Program followed this process flow



Rationale

- ▶ A basic understanding leading to non-compliance to restricted antibiotics was made using FOCUS-PDCA.
- ▶ Our findings provide a useful baseline of hospital antibiotic policies and practice. The proposed as well as the current process flow were studied with the infection control team. The root cause was understood by assessing the Restricted Antibiotic Forms filled by the physicians from the month of January, 2019 to March, 2019.
- ▶ Based on the assessment of these forms (whether they were justified/non-justified), a questionnaire study was conducted. The questionnaire requested data on antibiotic prescribing and included sections on committees, formularies, policies, antibiotic availability and policies addressing empirical therapy and prophylaxis. The questionnaire was to be completed by an appropriate professional (infectious disease physician, doctors, nurses and pharmacist).
- ▶ Key indicators of antibiotic 'stewardship' were short listed by the Steering Group and, after discussion, the listing was reduced to certain factors. These were: the hospital had an antibiotic committee, a written antibiotic policy a written antibiotic formulary, a formulary which included a restricted antibiotic list, a drugs and therapeutics committee (DTC) and a strategic management goal of improving prescribing.

Research Question and Objectives

► Research Question:

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

► Research Objectives:

To analyze the compliance of restricted antibiotic forms (justified/non-justified) and prescription to antibiotic policy of Thumbay hospital, Ajman.

To assess the knowledge and awareness of antibiotic stewardship program of the physicians, nurses and pharmacists of Thumbay Hospital, Ajman

Study Methodology

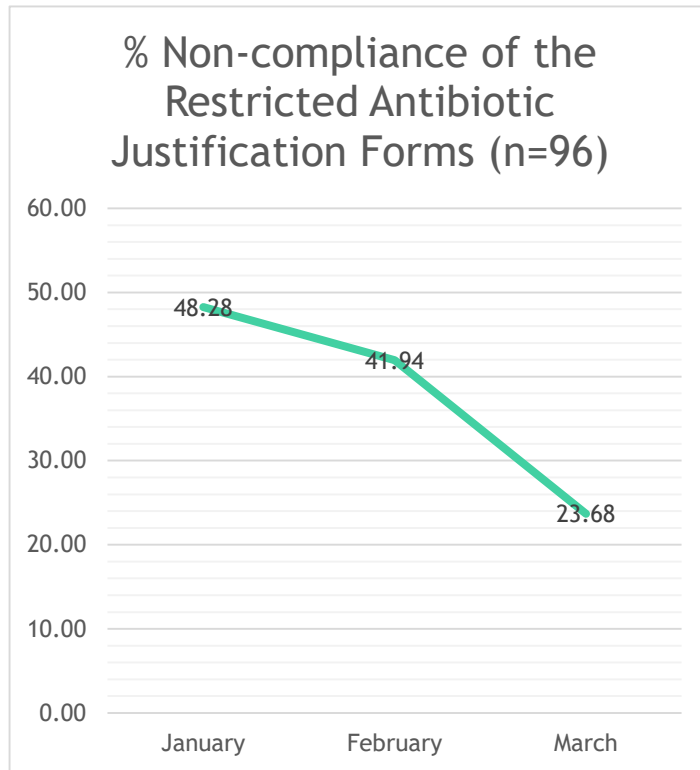
- ▶ **Study design:** Descriptive Study
- ▶ **Duration of study:** 3 months
- ▶ **Study Approach:** FOCUS-PDCA
- ▶ **Study Tool:** Questionnaire (A detailed questionnaire containing 8 questions was made. A total of 56 respondents completed the questionnaire. The respondents included all the physicians, nurses and pharmacists involved with the prescribing and dispensing of Restricted Antibiotics in the hospital)
- ▶ **Inclusion Criteria:** Prescriptions of patients admitted in wards, ICU, NICU and LDR.
- ▶ **Analysis of Data:** MS Excel was used to analyse the data

Study Methodology

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 (Non-justified forms took into consideration all the forms in which the Restricted Antibiotics were not indicated based on the diagnosis of the patient, but were prescribed by the physicians)

Study Findings

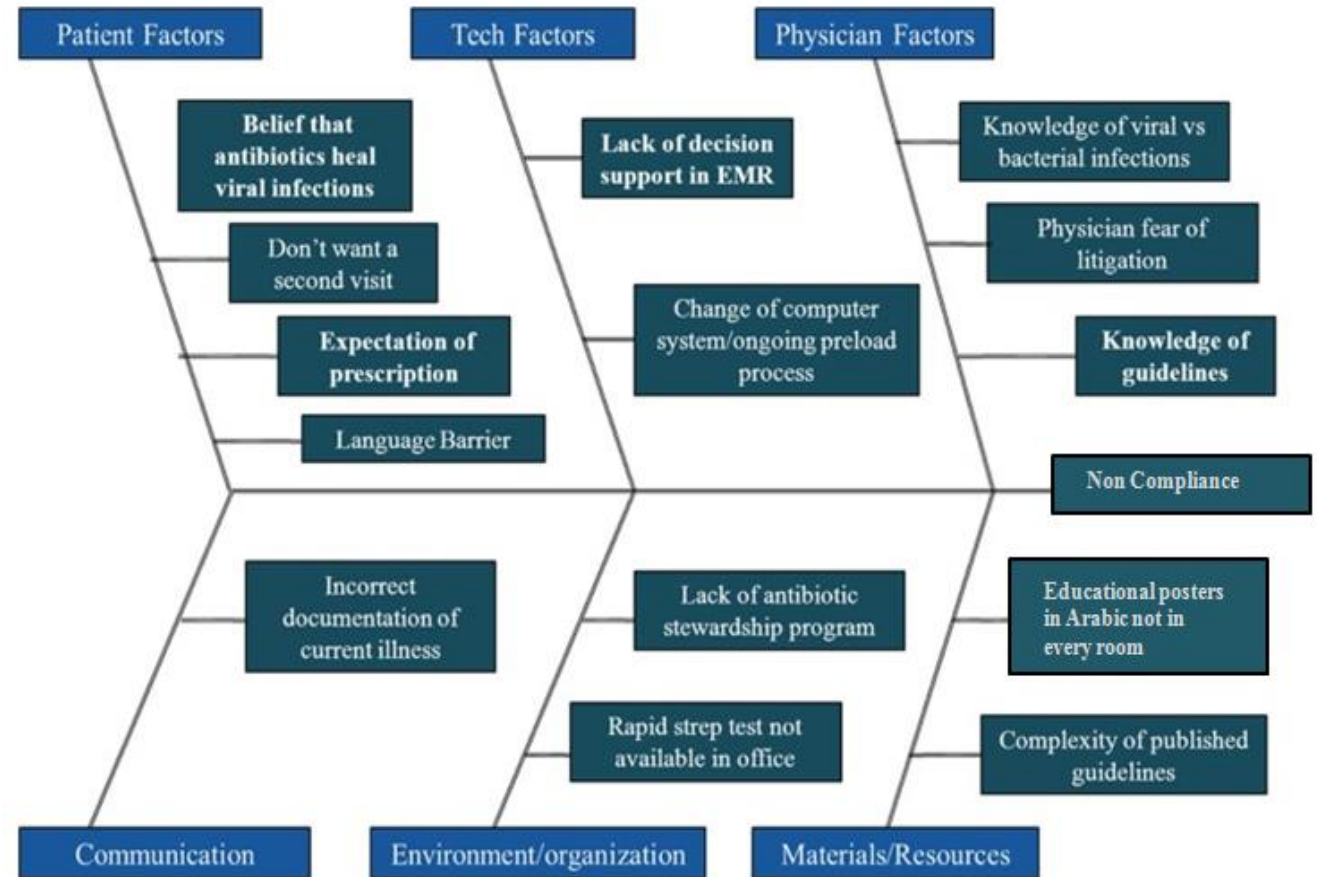


- ▶ The following graph shows the compliance of restricted antibiotic justification forms by the physicians from January to March. All the forms (38 in January, 31 in February, 27 in March) were audited by the Antibiotic Stewardship Team and were segregated as justified and non-justified, taking into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

Study Findings

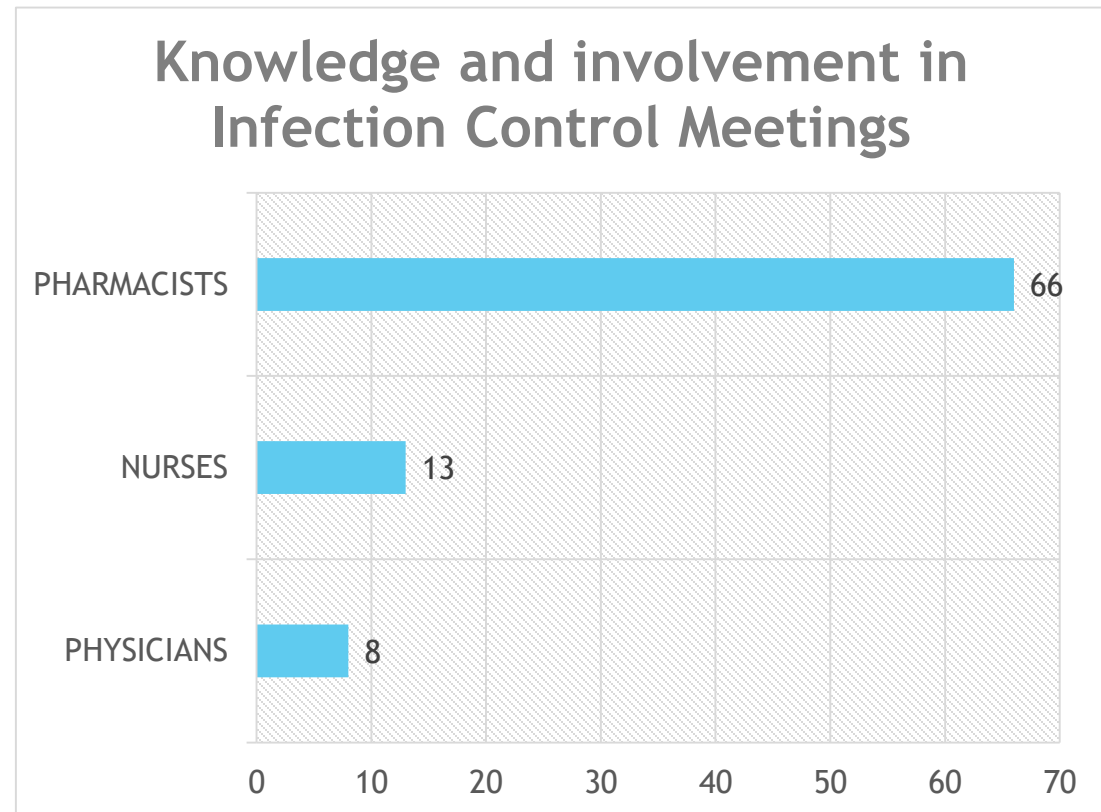
Based on the data derived from the auditing of the Restricted Antibiotic Justification Forms, a questionnaire was prepared to assess the awareness of the clinical staff about the Antibiotic Policy in the hospital.

A one-on-one interaction with the clinical staff along with the analysis of the questionnaire (by asking the clinical staff to write their suggestions/comments explaining the reasons for non-compliance to restricted antibiotic policy) helped in finding out the underlying causes for non-compliance.



Study Findings

- ▶ 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 of 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 as well as their interaction with the Restricted Antibiotic Stewardship Team about the changes/updates in the policy.



Study Findings



The questionnaire study suggested that among all the clinical staff, the awareness among the pharmacists about the Antibiotic policy was more as compared to others. This was a result of their continuous involvement in Infection Control meetings and regular educational intervention about the antibiotic policy of the hospital.



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 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.

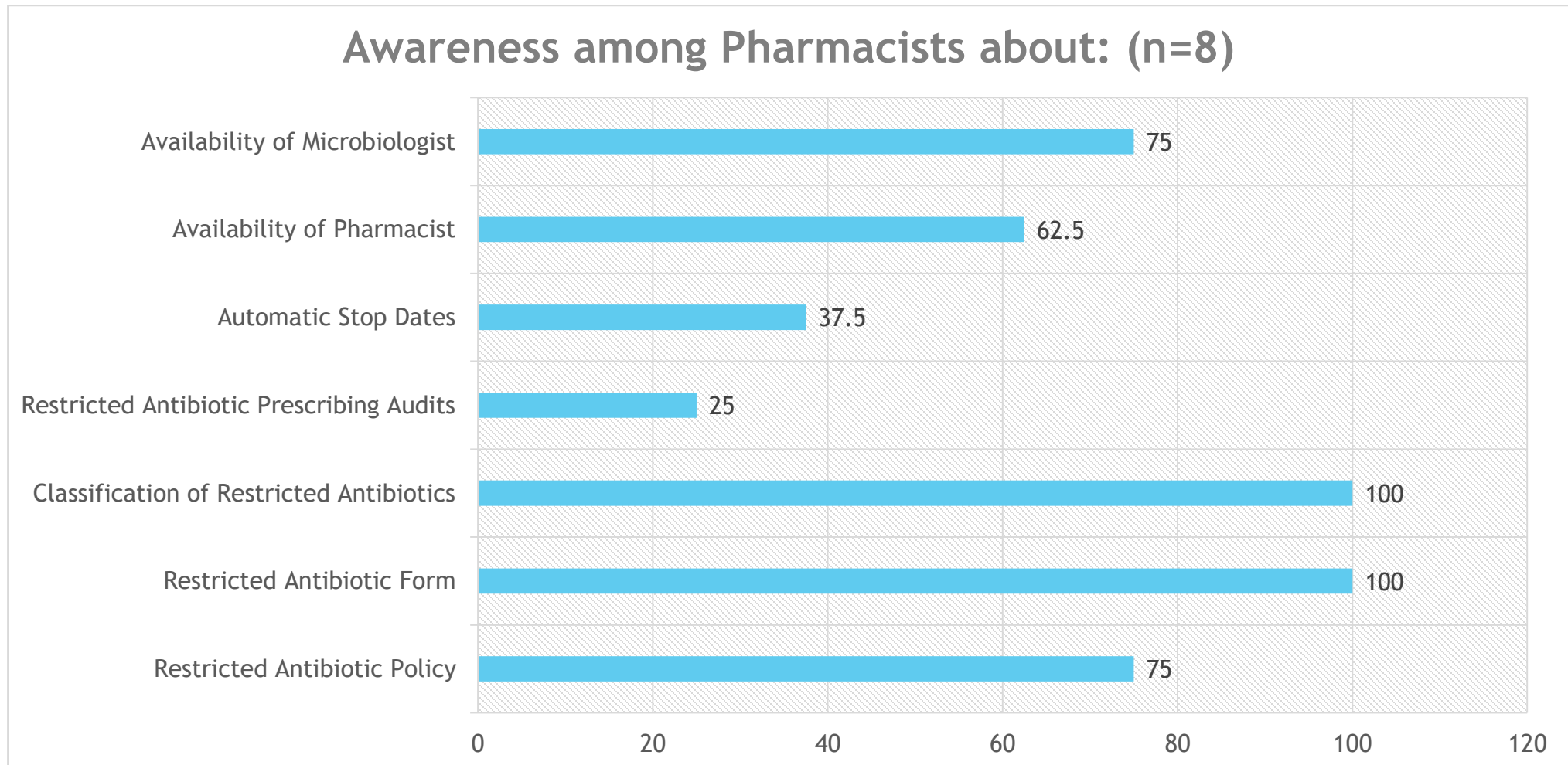


Also, by questioning the physicians and nurses further, during one-on-one interaction, it was found that the staff faced a lot of difficulty in reaching the infection control physician when required, due to his/her unavailability.



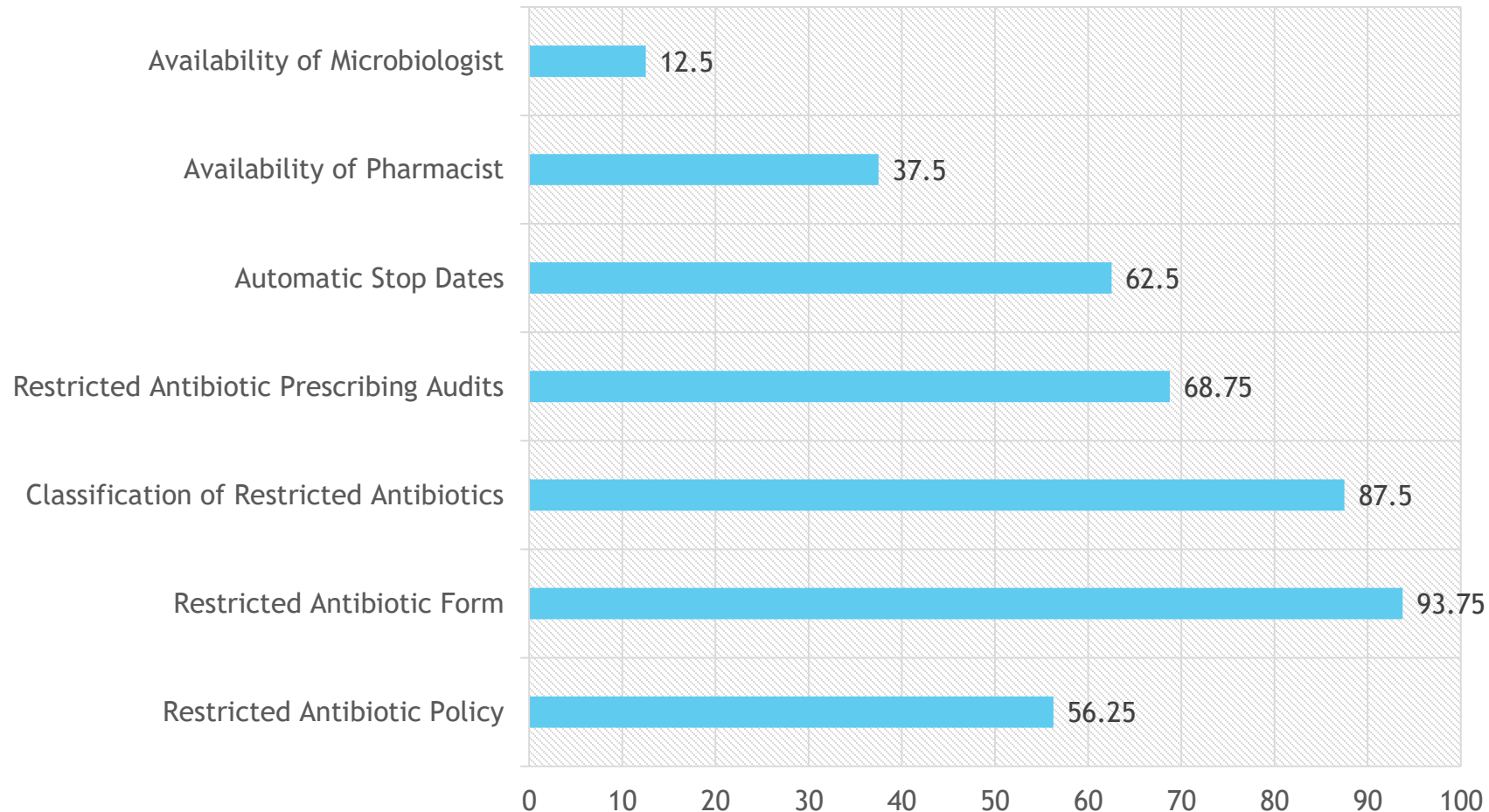
The next part of the questionnaire requested data relating to the awareness of the clinical staff (physicians, nurses, pharmacists) on antibiotic prescribing and included sections on committees, formularies, policies, antibiotic availability and policies addressing empirical therapy and prophylaxis.

Awareness of Antibiotic Policy amongst Pharmacists



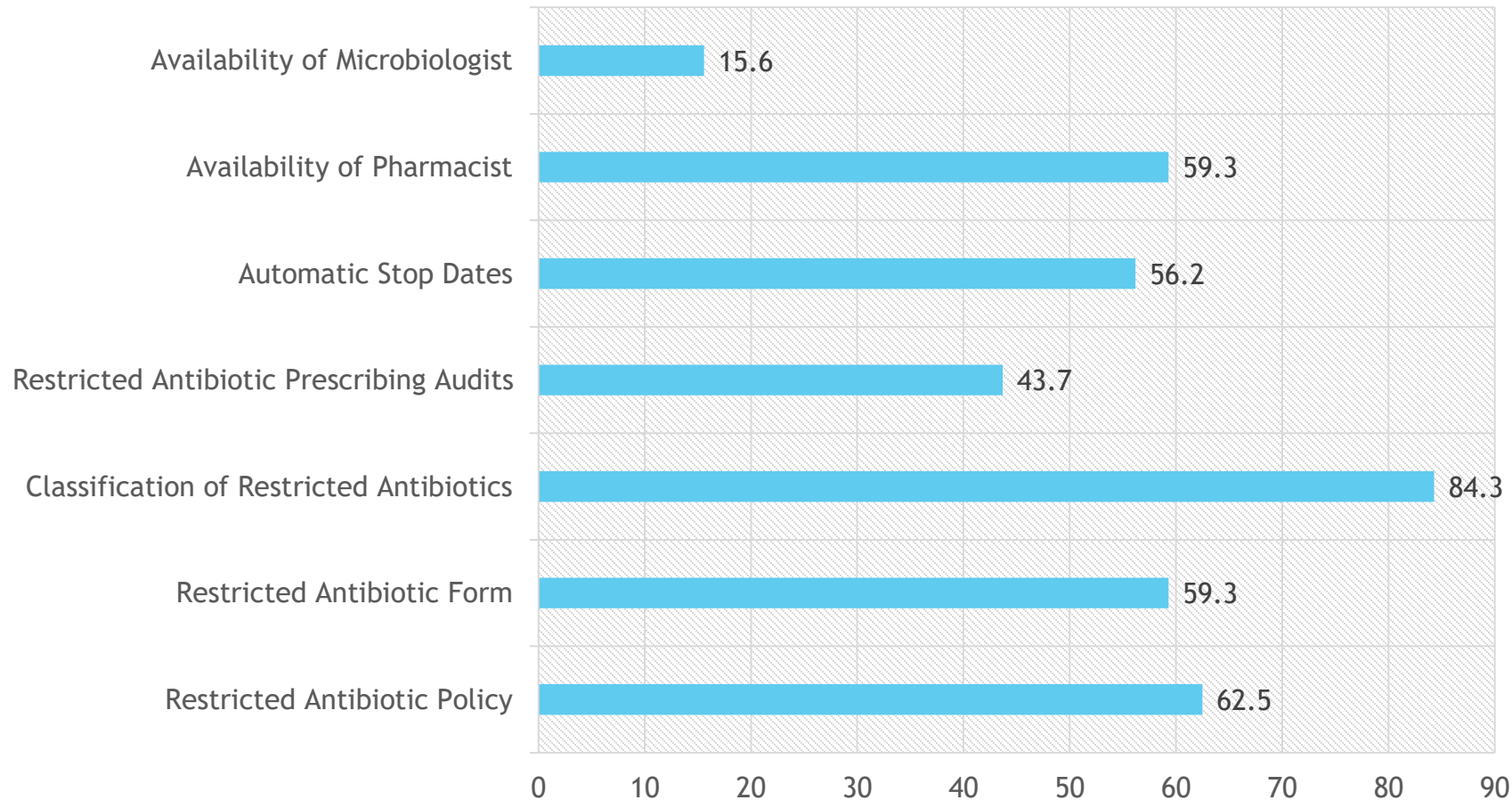
Awareness of Antibiotic Policy amongst Nurses

Awareness among Nurses about: (n=16)



Awareness of Antibiotic Policy amongst Physicians

Awareness among Physicians about: (n=32)



Study Findings

- ▶ The doctors and nurses 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 reason being their direct involvement with prescribing as well as administering the Restricted Antibiotics.

Limitations



The data for the whole year was not included due to the large volume of the data.



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. But due to limited accessibility to patient microbiological reports, this could not be included in the study.



The patient outcomes on the whole should also be assessed along with restriction of antibiotics.

Recommendations



Implementation of an antibiotic order form for restricted antibiotics and follow-up by pharmacists can be associated with a marked reduction in restricted antibiotic prescription.



A combination of both restrictive and educational measures appears to be necessary to improve overall antibiotic usage in hospitals. This multifaceted approach should involve pharmacists, clinical microbiologists and infectious diseases experts.

Conclusion



Despite the introduction of the restrictive antibiotic justification form in the hospital, the retrospective analysis showed that 37% of the prescriptions were still unjustified, especially in case of prescriptions issued without susceptibility testing.



The large numbers of inappropriate prescriptions show the need to intensify the control of restricted antibiotic use. The questionnaire study 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.



In conclusion, our survey found considerable room for improvement in hospital restricted antibiotic stewardship program.

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Thank You

Review of Literature

- ▶ According to CDC, 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.
- ▶ According to Bergstorm, An ICARE survey of 47 hospitals participating in the Centres for Disease Control and Prevention's Project found that among all the hospitals which were reported by their antibiotic formulary, 91% of these hospitals used different antimicrobial control strategy. Studies indicated that their antimicrobial strategies generally covered their costs and provided significant cost savings through reduction in drug costs and providing financial incentives to bottom-line-wary administrators. With improved quantification of economic costs of antimicrobial use, programs demonstrated also a reduction in antimicrobial resistance which was able to highlight the cost savings through avoidance of resistance.

Review of Literature

- ▶ According to ntagiopoulos, study on impact of antibiotic restriction policy on the antibiotic resistance patterns of Gram-negative micro-organisms in an Intensive Care Unit in Greece showed that on implementation of antibiotic restriction policy can significantly reduce antimicrobial consumption and antimicrobial resistance rates. It showed that overall consumption of restricted antibiotics was reduced by 92.5% and 55.4% respectively. Susceptibility to Ciprofloxacin of three predominant infection causing Gram-negative bacilli was significantly increased. Ceftazidime showed an increased susceptibility only for Aeruginosa. Similar rates of infection episodes were recorded in the two periods and no differences were observed either in overall mortality of ICU ecology as expressed by the type of micro-organisms implicated in colonization and/or infection. (ntagiopoulos, 2007)