

A Study to Assess the Appropriate Use of Antibiotics

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18th Batch (1450)

14-05-15

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Introduction

- Medanta- the Medicity, is a 1250 bedded super specialty tertiary care hospital in Gurgaon.
- On an average 5000 patients get admitted per month in the hospital.
- Out of this 5000 patients around 50-60percent patients are prescribed with antibiotics.
- More antibiotic prescription, more chances of inappropriate use which ultimately going to cause multi drug resistance and less number of effective antibiotics for treatment.

Introduction

- In December 2014 hospital constituted a group of microbiologist and infectious disease physicians to conduct a point prevalence study to assess the antibiotic usage in the hospital.
- The study results pointed out the need for prompt action i.e. formulation of antibiotic policy for uniform guidelines and control for antibiotic use across the hospital.
- The hospital's antibiotic policy was formulated as a part of *ANTIBIOTIC STEWARDSHIP PROGRAM* based on the local antibiogram, current literature review and national and international guidelines.

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Rationale

- Formulation and enforcement of antibiotic policy was the beginning of the stewardship.
- Policing or auditing the use of antibiotics based on the criteria defined in the hospital's antibiotic policy is the next-step to get the real picture.
- As a result this study came into picture.

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Research Question

- ***Are antibiotics being used appropriately in the hospital?***



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Objective (s)

- To understand the hospital's antibiotic policy for prescribing antibiotics.
- To assess the compliance of antibiotic prescription with hospital policy.
- To understand and analyse the doctors perception with respect to antibiotic prescription.



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Methodology

- **Duration of study**: 2 months
- **Type of study**: Quantitative cross- sectional study.
- **Data collection**: Primary data was collected by HIS, patient's file , hospital's doctors dashboard and through doctor interviews. The data was collected only for the patients who were on restricted antibiotics keeping in mind the given time constraints for the study.

Methodology

- Tracking the patients on restricted antibiotics with respect to check points of the hospital's antibiotic policy. The tracking involved the following points:
- **Culture** should be **sent** before prescribing restricted antibiotics in the last 7 days (as blood culture reports take 3-5 days to come)
- **Culture report** should be **available** suggestive of restricted antibiotic prescription.
- **Prescription** should be **as per** culture sensitivity **report**
- In case of non compliance to the above mentioned 3 points discussion with antibiotic champions and microbiologist to know whether the prescription was appropriate or not.

Methodology

- The doctors were interviewed to understand their perception with respect to antibiotic prescription and data was collected with the help of a questionnaire .
- **Data collection tool:**
 - An excel tracker sheet was used to capture data regarding patients on restricted antibiotics.
 - A questionnaire was used for doctors.
- **Universe/Frame:**

ICU and IPD patients on restricted antibiotics during the study period.

Methodology

- **Sample Size:**
50 doctors

Doctor	Location	Number
Consultants	ICU	15
Resident doctors	ICU/IPD	19
Medical officers	IPD	16

- **Exclusions:**

Patients on antitubercular treatment (Rifampicin) and localized use of Vancomycin.

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Analysis and results

- Overview of hospital's antibiotic policy
- Compliance of restricted antibiotic prescriptions to policy
- Doctors' perception with respect to antibiotic prescription and policy
- Gap analysis between perception and practice



- *An Overview of Hospital's Antibiotic Policy:*

The contents of the antibiotic policy are as follows:

1. Classes of antimicrobials
 - I. Class
 - II. Generic name of the drug
 - III. Usual adult dose
 - IV. Route of administration
 - V. Duration of therapy
 - VI. List of Restricted Antimicrobials
 - VII. Hospital formulary for antimicrobials

Analysis and results

- *An Overview of Hospital's Antibiotic Policy:*
 2. List of Restricted Antimicrobials
 3. Hospital formulary for antimicrobials
 4. Broad Indications for antimicrobial prescription
 - Blood Stream Infection (BSI)
 - Urinary Tract Infection
 - Respiratory Tract Infection
 - Soft Tissue Infection
 - Antibigram for Wards and ICU (based on microbiology data)
 - Patient stratification (based on Carmeli's score)
 - Escalation and de escalation protocols

Analysis and results

- *An Overview of Hospital's Antibiotic Policy:*
 5. Specialty specific use of antimicrobials
 6. Surgical prophylaxis policy (specialty specific)
 - Pre operative
 - Peri operative
 - Post operative.

Analysis and results

▪ Policy Compliance Criteria:

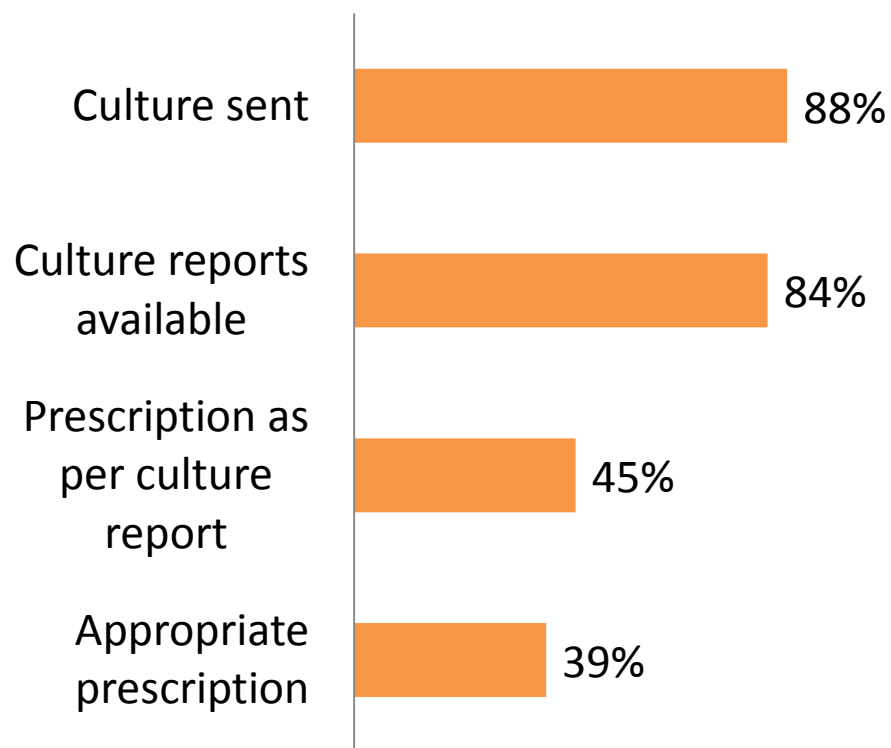
- Samples for culture need to be sent as per the protocol before starting antimicrobial therapy.
- Restricted antibiotics cannot be prescribed in Empiric therapy without any recent supportive report.
- On availability of culture sensitivity report review of antibiotic therapy needs to be done.(for Escalation or De escalation of antibiotic therapy).
- In Case of doubt consultation with assigned microbiologist and assigned antibiotic champion needs to be done.

Analysis and results

Compliance to antibiotic policy criteria in ICU

■ No of cases in ICU

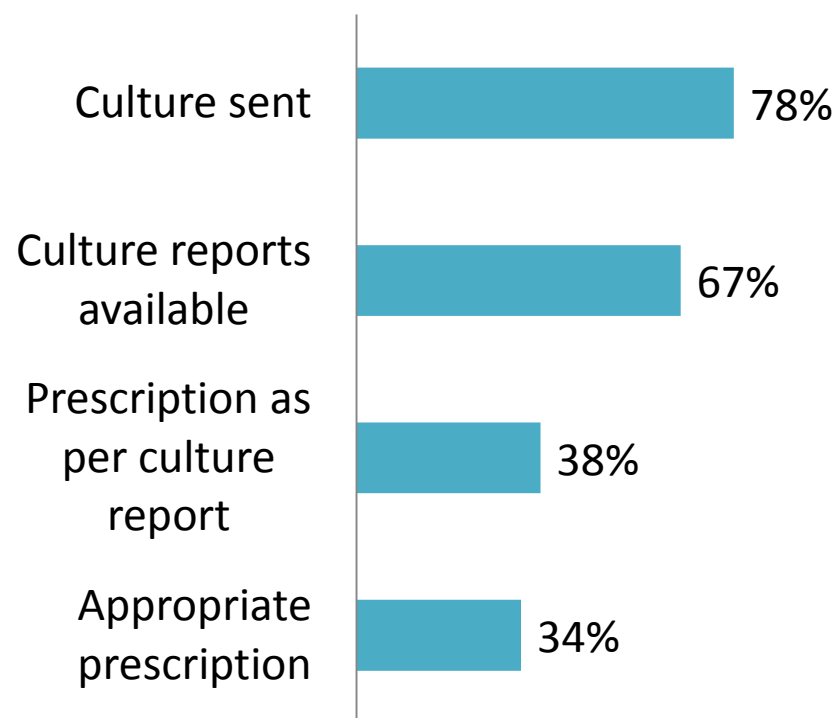
Total no of cases audited = 74



Compliance to antibiotic policy criteria in IPD

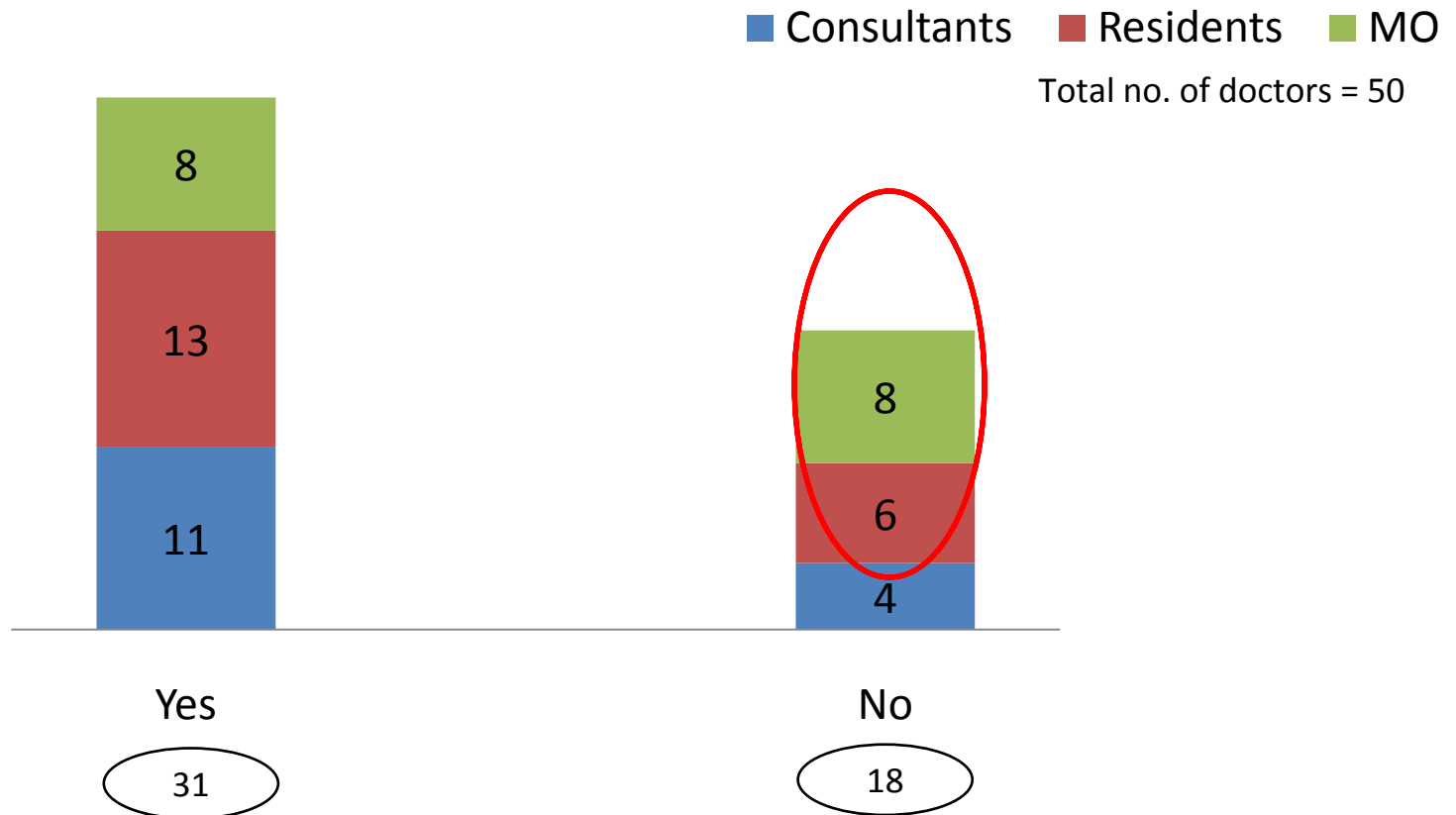
■ No of cases in IPD

Total no of cases audited = 86



Analysis and results

Doctor's awareness regarding hospital's antibiotic policy

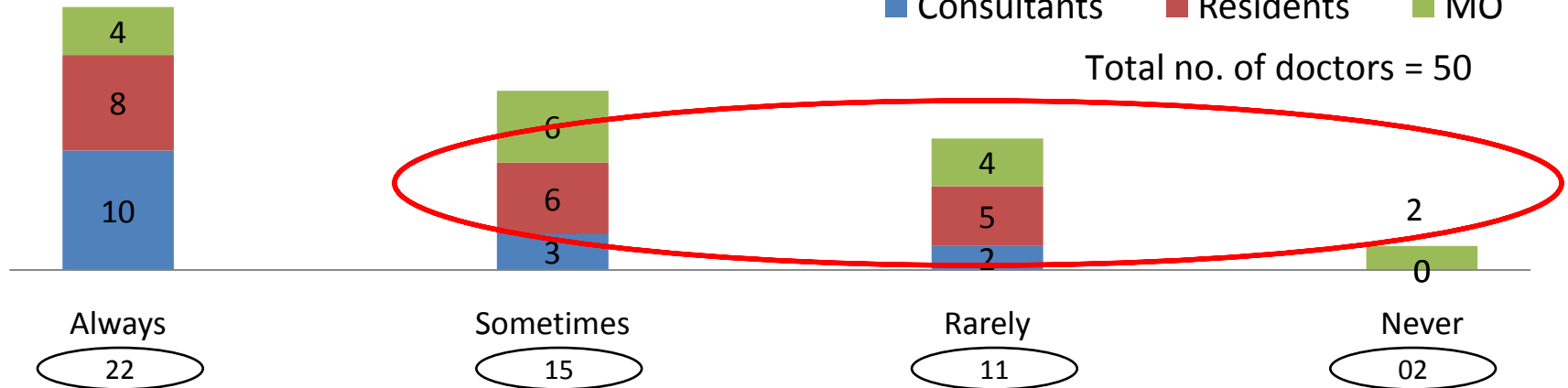


Analysis and results

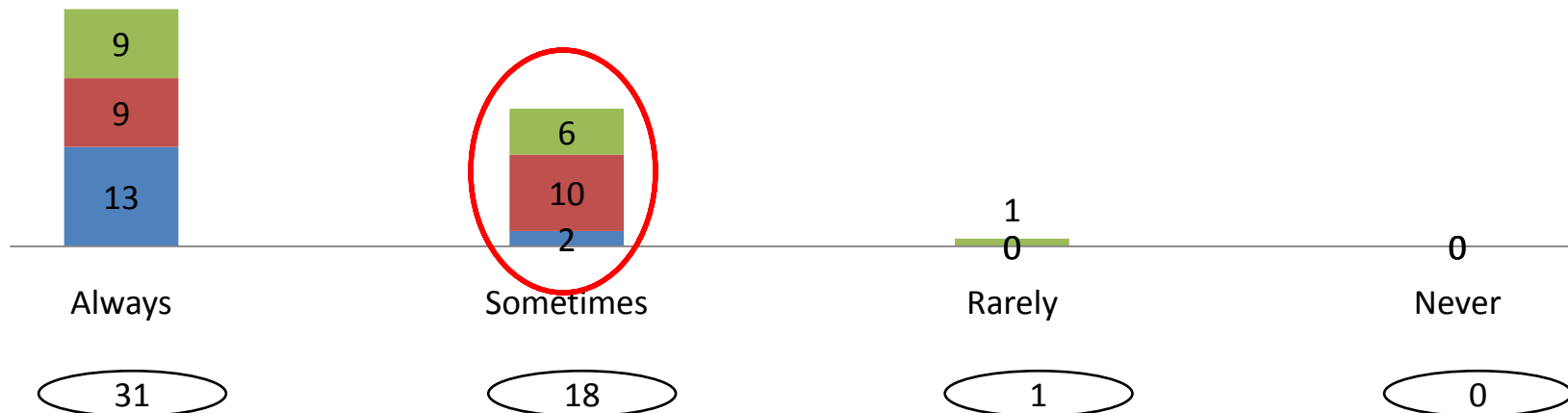
Distribution of doctors according to their preference to sent cultures

■ Consultants ■ Residents ■ MO

Total no. of doctors = 50



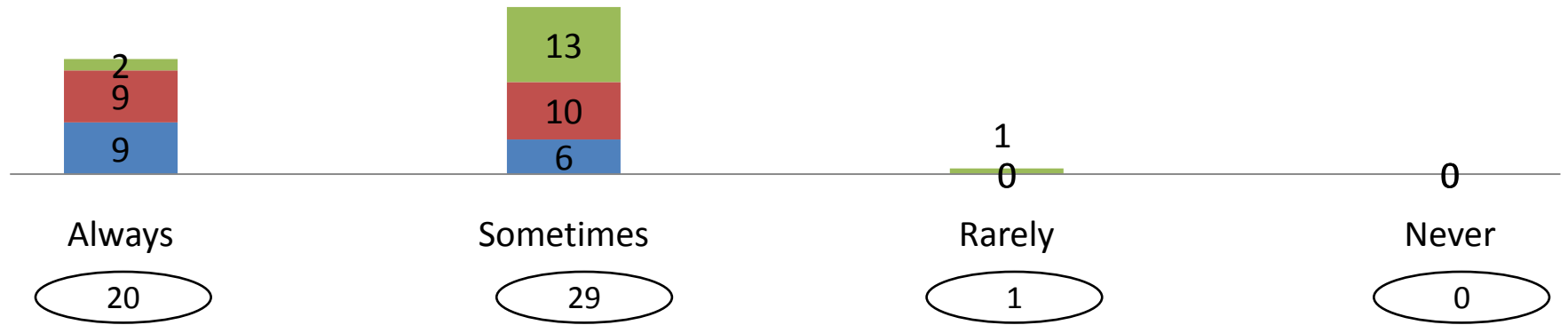
Distribution of doctors according to their preference to review the prescription



Analysis and results

Distribution of doctors according to their preference to consider patients past medical history

■ Consultants ■ Residents ■ MO
Total no of doctors = 50

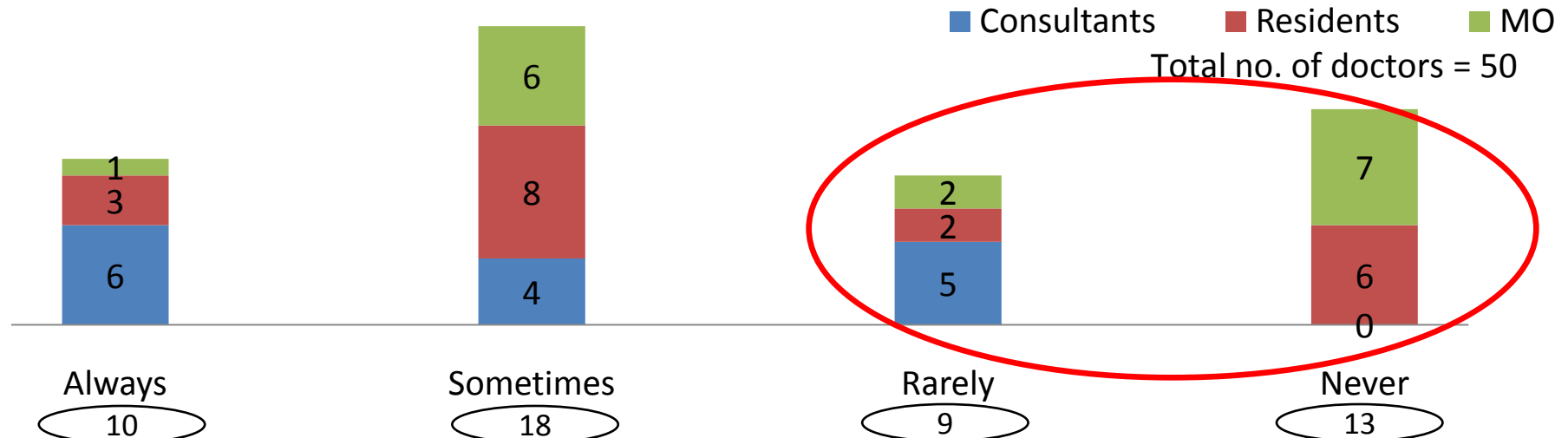


Distribution of doctors according to their preference to consider demographic details of patients

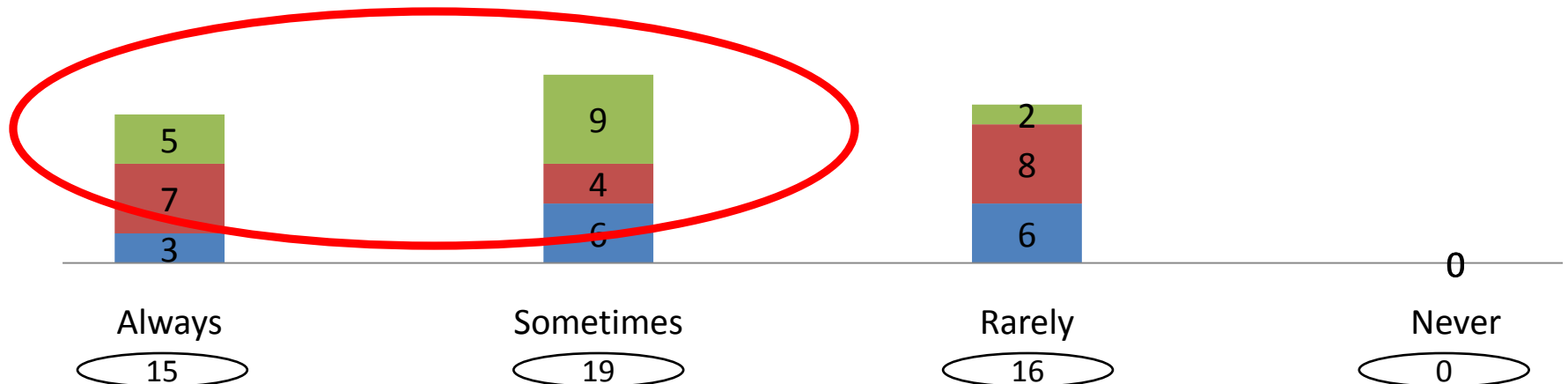


Analysis and results

Distribution of doctors as per their preference to discuss doubtful cases with microbiologist



Distribution of doctors according to their preference to prescribe antibiotics in suspected cases



Analysis and results

Summary:

Compliance to antibiotic policy is low both in ICU and IPD.

Process of prescription review on availability of culture sensitivity report was ignored largely.

There is huge gap between perception and practice of doctors with respect to antibiotic prescription.

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Suggestion

- Dissemination of antibiotic policy.
- Focused training of resident doctors and medical officers required, in the form of case studies.
- Introduction of Restricted antibiotic justification form
- Tracking of patients on antibiotics on daily basis regarding their review by the doctors, cultures being sent and arranging for microbiologist discussion in case of non compliant cases by the institute managers.

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