

## Utilization of laboratory services and perspective of lab practices among clinicians: A cross sectional study

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### Abstract

**Introduction:** In recent years, the care of patients has become increasingly dependent on the results of lab investigations. Lab investigations have always been and will continue to be an integral part of clinical practice. Clinicians focus their attention on the broader issue of protocols as a form of information management in medicine. While studies are available in western literature, in India studies regarding the utilization of lab services among clinicians are scant. Hence this study was done to assess the utilization of lab investigations by clinicians and also to take their perspective of lab practices so that it would help as a feedback and aids in improvement of lab services.

**Materials and Methods:** A questionnaire consisting of 15 questions was distributed to 30 clinicians and their response to different questions was converted to percentage scale.

**Results:** Majority of clinicians (86.6%) used lab services often. 33.3% felt that lab services were overutilised and the reason given was to aid in early diagnosis and for medico legal purposes. 33.3% of them had heard the term quality control but did not know its importance and 10 % had not heard of quality control. 76.6% of clinicians felt there is a need to include quality control and basic lab practices in MBBS curriculum.

**Conclusion:** Laboratory services are utilized very often by clinicians. Majority of them felt the lab services are properly utilized. There is a need to include quality control and basic lab practices in MBBS curriculum.

**Keywords:** Laboratory services, Quality control, Clinicians, Early diagnosis and treatment.

### Introduction

In recent years, the care of patients has become increasingly dependent on the results of lab investigations. Clinical labs have become a major component in the delivery of health care. Lab investigations has always been and will continue to be an integral part of clinical practice. Clinicians focus their attention on the broader issue of protocols as a form of information management in medicine.<sup>1</sup> Wong and Lincoln found that clinicians ordered lab tests according to informed protocols which was a product of accumulated experience sanctioned by general use, and thus appeared to have the weight of the authority.<sup>2</sup>

Efficiently managing laboratory tests utilization requires both ensuring adequate utilization and discouraging superfluous tests. The use of lab tests has been increasing in recent years due to various factors affecting laboratories, physicians, legal aspects, or patients themselves.<sup>3</sup>

Among various methods to test the efficacy of lab tests, the feedback or perspectives of health professional/clinician is an important one.

Health professionals should pursue a more rational use of diagnostic and therapeutic resources, especially considering the inherent costs, the appropriate use of lab is imperative for optimum medical practice. If there is improper use it must be corrected.<sup>4</sup>

A recurring theme in lab utilization management is determining from an evidence based approach what

constitutes overutilization. In many cases there is no consensus on what testing is, or is not, appropriate. Although clinical guidelines exist for some type of testing, often there is no peer reviewed literature defining appropriate utilization.<sup>5</sup>

The importance for understanding the principles for selecting and ordering the most rationale test is heightened in the current age of managed care, medical necessity and outcome oriented approach. Most clinicians are less informed about the type or which lab the tests should be ordered with respect to quality & accreditation. According to Dr Michel Laposta, the medical speciality that nearly every practicing physician relies on everyday for which training in many medical schools is limited to a few scattered lectures in the entire curriculum is laboratory medicine.<sup>6</sup>

While studies are available in western literature, in India studies regarding the utilization of lab services among clinicians are scant. Hence this study was done to assess the utilization of lab investigations by clinicians and also to take their perspective of lab practices so that it would help as a feedback and aids in improvement of lab services.

### Materials and Methods

The study was taken up among the clinicians working in Malla Reddy hospital associated with Malla Reddy Institute of Medical Sciences and SUT Academy of Medical Sciences, Thiruvananthapuram during

January to April 2018. Ethical clearance was obtained from institutional ethical clearance committee. All the clinicians involved were informed about the study and an informed consent was taken up. A questionnaire was provided to 30 clinicians. The clinicians were given the questionnaires of various questions to survey their knowledge, attitude and practice towards laboratory services and their perspective of lab services. Responses to selected questions were analyzed, tabulated, converted to percentages and presented below.

## Results

There were a total of 30 physicians. All of them had a master's degree. The mean duration of experience was 8.0+7.6years. Table 1 shows the frequency of ordering a diagnostic test. Most of the clinicians (86.6%) indicated that they often ordered a laboratory test. Table 2 shows the response to selection of a lab. Of the 30 clinicians 63.3% indicated that the selection of lab was left to the patient. Table 3 shows the response to utilization of lab services. 33.3% felt that lab services are over utilized. 33.3% gave the reason for overutilization was to aid in early detection and management, 13.3% gave the reason as medico legal factors. Table 4 shows the response to role of lab in decision making. 11 clinicians (36.6%) indicated that role of lab is always important in decision making. Table 5 shows the awareness of clinicians regarding quality control. 33.3% clinicians did not know the importance of quality control and 10% had not heard about quality control. Only 13 clinicians (43.3%) were aware of accredited labs and always considered it for referral. 66.6% of clinicians were not aware of preanalytical variables having impact on test results. Table 6 shows the response regarding inclusion of quality control and basic lab practices in MBBS curriculum. majority of clinicians (76.6%) felt there is a need to include a chapter on basics of quality control & diagnostics in MBBS curriculum. 10 (33.3%) physicians indicated that lab services they were using was deficient and 83.3% indicated that the lab results correlates with the clinical finding of the patient most of the time.

**Table 1: Frequency of ordering a diagnostic test**

Response	Percentage
Always	None
Often	86.6% (n=26)
Rarely	13.8% (n=4)

**Table 2: Selection of lab**

Response	Percentage
At workplace	36.6% (n=11)
Patients choice	63.3% (n=19)
Suggest a lab outside workplace	None

**Table 3: Utilization of lab services**

Response	Percentage
Underutilized	10% (n=3)
Overutilised	33.3% (n=10)
Properly utilized	56.6% (n=17)

**Table 4: Role of lab in decision making**

Response	Percentage
Always important	36.6% (n=11)
Important most of the times	63.3% (n=19)

**Table 5: Awareness about quality control in lab services among clinicians**

Response	Percentage
Aware about its importance in giving correct results	56.6% (n=17)
Heard but do not know its importance	33.3% (n=10)
Not aware	10% (n=3)

**Table 6: Opinion regarding inclusion of quality control in MBBS curriculum**

Response	Percentage
Should be included	76.6% (23)
Not essential	23.3% (n=7)

## Discussion

The care of patients has become increasingly dependent on the results of laboratory investigations, and clinical laboratories have become a major component in the delivery of health care. Laboratory services are an integral part of clinical decision-making and contribute to various aspects of health services, including the making of diagnostic and therapeutic decisions for patients, as well as disease monitoring and prevention.<sup>7</sup> Laboratories in developing countries have been under-resourced and marked by poor performance. These issues have fostered distrust in laboratory data amongst clinicians, reinforcing cycles of inadequate investment in laboratory systems. However, with recent emphasis on improving access to testing so as to meet the needs of expanded treatment and prevention, the demand for diagnostics in resource-limited settings has increased substantially.<sup>8,9</sup> Of the different methods to test the efficacy of lab tests, the feedback or perspectives of clinician is considered to be an important one.

In this study taken up, more than half of the clinicians (86.6%) said that they ordered a lab test most of the time and 33.3% of them indicated that lab services are overutilised. It is in accordance to study conducted by Bakarman MA et al<sup>1</sup> where 25% of clinicians believed lab services are overutilised. However, in this study, the clinicians who thought the lab services are overutilised cited early diagnosis & management as a major reason followed by medico

legal reasons. In the study conducted by Bakarman MA et al<sup>1</sup> the important factors mentioned for overutilization were free lab services, clinicians lack of knowledge and patients demand. In another study conducted by William et al<sup>10</sup> reasons of overuse were habitual ordering of a group of tests and medico legal reasons. Wong and Lincoln<sup>2</sup> found that clinicians ordered laboratory tests according to an informal protocol which was a product of accumulated experience sanctioned by general use, and thus appeared to have the weight of authority. The problem of laboratory test misuse was therefore not a defect in cognitive knowledge, but a primarily protocol. In various other studies<sup>1,11-13</sup> different clinician related variables were also studied which led to overutilization of lab services.

33.3% of clinicians had heard the term quality control not knowing its importance and another 10% were not even aware of the term. This highlights the need for a basic course or update to clinicians about these important practices to help them in proper interpretation of results & proper advice to patients regarding selection of lab. A study conducted in Norway gave<sup>13</sup> a similar conclusion that there is still a need to update clinicians knowledge about basic lab practices and quality control through visits to practices, courses and written information. Furthermore the study concluded that there is a need of quality assurance of doctors clinical use of lab tests as part of comprehensive quality assurance. Most of the clinicians graded their lab services as good (43.3%) to satisfactory (23.3%).but about 10 physicians among 30 still felt their lab services was deficient the reasons why they thought so were not elucidated in this study. But in another similar study,<sup>1</sup> quality of lab services was cited as the reason by those who thought lab services were deficient. 16.6% clinicians felt the lab results always correlated with clinical condition of the patient & 83% said it correlated most of the time. In modern medicine, clinical laboratory correlations are part of everyday practice every clinical diagnostic process begins with the patient. Constant communication between clinicians and laboratory professionals, exchange of information and opinions should facilitate diagnostic process and improve patient treatment.<sup>14,15</sup> Regarding the inclusion of quality control and basic lab practices in MBBS curriculum, majority of clinicians (76.6%) felt it is necessary. Similar suggestion was made in another study.<sup>1</sup>

### Conclusion

1. Laboratory services are utilized very often by most of clinicians.
2. More than half of them felt the lab services are properly utilized of those who felt they were overutilised, medico legal reasons & early diagnosis were cited as main reasons for overutilization.

3. There is a need for update regarding QC practices and basic lab practices among clinicians
4. Inclusion of these in MBBS curriculum

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