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Chapter

# Patients' (Clients) Satisfaction with Medical Laboratory Services Contributes to Health and Quality Improvement

*Nkereuwem S. Etukudoh and Uchejeso M. Obeta*

## Abstract

Patients' (clients/customer) services and satisfaction in Medical Laboratory Services and general healthcare is one of the twelve (12) quality essentials of Total Quality Management System (TQMS) emphasized by quality standards as seen in ISO 17025, ISO 15189 and ISO 9001. The patients otherwise referred to as customers or clients to Medical Laboratory and healthcare in general, is the heart-beat and kings to the healthcare system. This chapter looks into the quality aspect of medical laboratory services from the patients' angle towards thorough satisfaction or dissatisfaction index and otherwise creates room for improvement in the services and healthcare in general. The chapter therefore, identified medical laboratory clients to include patients and patients' relations, physicians and other healthcare workers, public health and government, communities and interested parties, and medical laboratory profession. There is a need to administer services satisfaction survey developed by Director of Medical Laboratory Services or human resources/quality officers in line with the ISO 15189, ISO 17075 and ISO 9001 to customers/clients from time to time so the outcome can be used to correct services errors and cause quality improvement. It is believed that patients' satisfaction causes improvement in healthcare, quick recovery of patients and willingness of the patient to return to the healthcare facility in future. Patients' and customers' in medical laboratory feedback contributes to quality management and improvement to Medical Laboratory services and healthcare as an ingredient of TQMS.

**Keywords:** patients satisfaction, Medical Laboratory clients, customers, quality improvement, healthcare

## 1. Introduction

The Medical Laboratory is a laboratory that is equipped with biomedical instrument/equipment, materials and reagent (chemicals) for performing different medical laboratory tests using biological specimen (whole blood, serum, plasma, urine, stool, swab, sputum, exudates etc.), for disease discovery management and healthy living assessment. In the medical laboratory, some services like arrangements for test requests, preparation of patients, patient identification, samples collection, transportation, storage, processing and examination, test validation,

interpretation, reporting and advice, in addition to safety and ethics are carried out during medical laboratory services [1, 2].

Treatment by patients themselves or treatment as a result of prescription given by a physician or other healthcare givers without the medical laboratory test leads to self-medication and medical guess work respectively. Cost of diagnosis could probably have contributed to the poor attitude towards visiting medical laboratories for proper diagnosis [1].

Patients' satisfaction is imperative for success. Without the patient in the laboratory, there would not be medical laboratory testing and examination of specimens in the laboratory. Patient are the most essential values in the hospital environment, medical laboratory inclusive. Just as patients contribute to safety in healthcare [3], patients equally contribute to medical laboratory services and quality of healthcare in general.

Medical laboratories continuously strive to attain very high levels of customer's satisfaction thereby serving their clients, improving quality and maintaining accreditation. The concept of customer service has not yet been made popular and accepted in most medical laboratories [4].

Patients' satisfaction is a component of healthcare quality and is increasingly being used to assess medical care in many countries in the world. Until recently traditional assessments of medical care were done purely in terms of technical and physiological reports of outcomes [5–8]. This patient/client satisfaction in the medical laboratory services is equally needed especially in Nigeria and other African countries and no wonder this chapter.

## 2. Conceptual clarifications

Patients are referred to as the main value of the medical and clinical environment. They are the reason for all works and therefore work cannot be done without them. Patients' satisfaction has a positive effect on clinical improvement, patient's adherence and retention, job satisfaction and appropriate clinical care by physicians [5, 9].

Patients' satisfaction is an expression of the gap between the expected and perceived characteristics of a service. It is recommended that patients be asked to report on their experiences through specific questions. Technique of factor analysis has demonstrated that patients' satisfaction is chiefly determined by 6 dimensions which are; care and information, food and physical facilities, non-tangible environment, nursing care, quantity of food and visiting arrangements [8]. However, any quality and improvement in healthcare without consideration to medical laboratory services may be missing a lot. The quality improvement in healthcare is mainly proven by the high quality of medical laboratory results.

Medical laboratory services in Nigerian public health facilities, have been rated very poor by patients. This is because patients are faced with overcrowding, long waiting time, poor provider-patient communication, poor facilities and environment while the patients are expecting higher standard. There is no doubt that there is a shift from professional perception that patients are uneducated and with little healthcare choice, to the fact that they are educated consumers who have many service demands and healthcare choices to make. This sends a signal to respect the patients and their needs or wishes as patients' perception provides the standard of quality in medical laboratory services and healthcare in general. The patient's satisfaction with medical laboratory service involves satisfaction with laboratory staff-patient interaction, satisfaction with sample collection processes, satisfaction with waiting time, satisfaction with laboratory facilities and environment, and satisfaction with costs of service [10, 11].




**Figure 1.**
*Customer service is an essential inclusion in quality systems in the laboratory.*

Patients satisfaction towards medical laboratory service is influenced by the quality of service and professionalism of the staff, provision of adequate information to collect sample and when and how to receive laboratory results, waiting time to receive laboratory results, availability of ordered laboratory tests, cleanness of the laboratory and accessibility of latrines [9].

Patients' satisfaction is core to quality of health and medical laboratory quality essential (**Figure 1**). It is always meaningless when it does not satisfy its users and clients. Measuring patients satisfaction plays an important role in the growing push towards healthcare, provide accountability and is critical in the implementation of continues improvement in medical settings. Patients satisfaction often reflect their perception of the healthcare offered as well as the process of giving that care compared to their expectations. In the laboratory, the connection between health service of quality and naturally experiencing quality leads to customer satisfaction. The customer satisfaction leads to the experiencing quality and experiencing quality also leads to customer satisfaction [12–14].

## 3. Discovering clients as the king in medical laboratory practice

The universal saying that the client (customer) is the king is also applicable in medical laboratory science. The clients in the medical laboratory practice are the pioneer of all work that are been carried out in the laboratory.

| Medical laboratories found in | Possible customers (clients) |
|---|---|
| Hospital (Tertiary, Secondary/Specialist) | Physicians |
| | Other healthcare professionals |
| | Patients and relatives |
| | Hospital facility and management |
| | Community inhabiting the hospital |
| Primary Health Care (PHC) | Community healthcare workers |
| | Other healthcare professionals |
| | Patients and relatives |
| | PHCs and management |
| | Community and her people |
| Public health | Public health professionals |
| | General public |
| | Government |
| | Interested groups |
| Healthcare Industries | Healthcare professionals |
| | Industry and management |
| | Community and the people |
| Other Industries | Industry and staff |
| | Product customers |
| Private Medical Laboratories | Physicians |
| | Other healthcare professionals |
| | Patients and relatives |
| | Laboratory facility and management |
| | Community inhabiting the laboratory |
| | Medical laboratory regulating bodies |
| | Medical laboratory professional Associations |

**Table 1.**
*Categories of medical laboratories and possible customers (clients).*

There is an increase attention to the clause "customer is the king" which relates the companies and their customer market. This new era of world economy globalization presents customers and the public as having the ears of the sellers based on the ability to choose, intervene and cause changes and improvement through buying power and definitions of necessities in the offers made by various companies and their marketers [15].

The emphasis on customer is the king is on satisfaction and a major reason of companies (health facility) existence. While the want of customers of interest to companies, marketing strategies should not be neglected even in the healthcare arena. Though customers may indicate what they want at any point, a time will come when there would be a need for new things and no wonder there is shape, design and size change by good marketing companies and this can be adopted in healthcare services especially in medical laboratories in other to satisfy their customers [16].

The increase in the buying experience is largely dependent on how the customers are being treated. That is why the failure to make transaction is majorly based on

poor quality customer service. The existing customers are majorly the king as the patronage continues excellently than have new customers. The customer is the king when all the services needed are met and improved upon to suit every condition and time. No wonder some products are modified after a while in companies and marketing areas. This is not excluded from medical laboratory services, ranging from how services are being rendered to all the facility components that needs renovation and improvement from time to time [15].

The standard at which the healthcare provider and the customer ensure the laboratory function in a valuable way for their needs to be served. Clients in the medical laboratory practice expects that all works are done accurately and perfectly. The healthcare system does not function without the clients as the main trust or target for the work.

The customer is the king in medical laboratory services based on what the various categories of customers (**Table 1**) can get from such facility at any time of patronage.

## 4. Categories of medical laboratory clients and customers

The laboratory has several clients otherwise called customers that expects much from the medical laboratory [17].

For the sake of this chapter, the customers shall be classified into five (5) as their expectations are shown in **Table 2**.

i. Patients and patients' relatives: Patients are individuals that are registered to receive medical treatment in any healthcare facility or hospital. The patient accesses healthcare and makes payment where necessary. The patient relatives are equally family members, friends and well-wishers that accompany or stays with the patients during the time of accessing healthcare. The laboratory services rendered to the patients can be better explained by patients or their relatives thereby exploring the satisfaction levels.

ii. Physician and other healthcare providers/workers: Physicians or clinicians and other healthcare workers are customers because they request medical laboratory services for their patients for better clinical management. They may be satisfied or dissatisfied in such services based on the patients' response to treatment.

iii. The Communities and interested parties: The communities patronize facilities closer to them. They are the immediate subjects and patients depending on the degree of medical laboratory services required. The community and interested parties equally expects a low risk environment that may be used by the laboratory facilities. Satisfaction is necessary for them to continue to patronize and advertise the facility to others for such medical laboratory services.

iv. Public health and government: Then medical laboratory testing is mostly carried out to meet the public health need of a people thereby making government, public health officials or workers become customers/clients of the laboratory. There is no doubt that the medical laboratory service is a critical partner in disease surveillance, detection and prevention, and in other public health issues. Medical laboratory services must meet the needs of the public health workers in addressing any public health problems. The information gotten from the laboratory is germane to public health safety of which there must be satisfaction in all cases to ensue improvement.

| Customers | Expectations |
|---|---|
| Physicians | Good request/result forms |
| | Short turnaround time to get result |
| | Quality result towards patient improvement |
| Other healthcare professionals (Medical laboratory Scientists, Nurses, Pharmacists, Community health workers, etc.) | As Above |
| Patients and patients relatives | Quality result |
| | Short turnaround time |
| | Health status discovery |
| | Good laboratory environment |
| | Humane and collaborative care from laboratory staff |
| | Less painful experience |
| Public health and government | Discovery of disease outbreaks and possible recommendations for eradication |
| | Provision of good result to the public and interested professionals |
| Community and interested parties | Quality results |
| | Good turnaround time |
| | Clean and hazard free environment |
| | Proximity and excellent practice |
| Medical laboratory profession | Quality results for confidence in professional services |
| | Respect from other customers due to service quality |
| | Community awareness and hazard free service delivery |

**Table 2.**
*Categories of customers and their expectations from medical laboratories.*

v. The medical laboratory profession: The medical laboratory profession is also a client in the sense that the regulatory body like medical laboratory science council of Nigeria (MLSCN) or the professional body like association of medical laboratory scientists of Nigeria (AMLSN) gets satisfied with medical laboratory services based on quality results released by qualified professionals from various medical laboratory facilities. This is because, the quality results released to the clients provides satisfaction to the patients and to the profession. This generally promotes the profession among others.

## 5. Quality standards that dwell on patient satisfaction towards improvement

Philip Crosby defined quality practice as meeting the requirements of the customer. He applied this practice to business and manufacturing, but it is equally important for a medical laboratory. The medical laboratory needs to know who its clients are, and understands clients need and requirements [17].

The laboratory must produce the a product and a test result for its customers, if the customer is not given the ultimate care and is not well served as needed, then the laboratory is not achieving the primary goal.

Customers' satisfaction is a major component which dwell on quality management system [18–21], and a significant focus in the international organization for standardization (ISO).

Laboratory staff should understand the importance of customer satisfaction, and should interact with the customers in an appropriate way and giving information that is needed, and being courteous [22].

Implementing some of the standards [1, 23–25] as medical laboratory quality initiatives with regards to the laboratory customers [26–28] provides both laboratory and business benefits such as:

i. More customers' patronage for testing and/or calibration.

ii. Providing opportunity for accreditation which builds confidence to the public clients towards patronage

iii. There is improved community, state, national and global reputation and as well protects the image of medical laboratory

iv. Continuous data quality improvement and effectiveness of medical laboratory

v. Forming the basis for quality systems of medical laboratories like good medical laboratory practices.

## 6. The customer focused services in line with quality standards ISO 17025, ISO 15189 and ISO 9001 in medical laboratories

Some of the customer focused services as noted [1, 23, 24] are:

- The laboratory should communicate with customers to clarify requests and get customer input.
- The laboratory should have a formal program to collect feedback from customers on an ongoing basis.
- The laboratory should allow customers to audit the laboratory.
- There should be a policy and procedure for the resolution of complaints received from customers.
- Records of complaints and all steps taken when resolving the complaint should be maintained. This includes documentation of investigations and corrective actions.
- If necessary, customers should be notified nonconforming testing and corrective actions.
- Audit findings related to the quality of test and calibration results should be reported to customers.
- Customer complaints and suggestions should be part of management reviews.

## 7. Medical laboratory clients and patients survey instruments

The medical laboratory service clients/patients' survey should address pertinent satisfaction and quality issues [29, 30] as presented in the **Table 3** below.

| SN | Dimension | Definition | Review codes |
|---|---|---|---|
| 1 | Medical laboratory service effectiveness and outcomes | The extent to which medical laboratory services are qualitative and services produce positive outcomes in patients including effectiveness and competence of providers. | • Evidence of quality diagnosis and revealing the status of the patient<br>• Evidence of effective /ineffective practice<br>• Evidence of competence/incompetence of staff<br>• Access to all laboratory services |
| 2 | Access to medical laboratory services | The extent to which patients are able to access required laboratory services when needed including waiting times, patients' ability to find out about, get referred to and physically get to services, accessibility to all, and the range of services provided. | • Physical access; locations and parking spaces;<br>• Responsiveness; waiting times and lists<br>• Service without boundary<br>• Range of services in the laboratory available |
| 3 | Medical laboratory organization of care | The extent to which users move smoothly between the necessary service departments or units throughout the medical laboratory services including pay points with adequate coordination, appropriate education and communication about quality service transition and continuity. | • Experience of humane and informed consent episode<br>• Experience of sample collection and diagnosis care episode<br>• Experience of turnaround time episode |
| 4 | Humanity of care | The extent to which clients are treated with dignity and respect including the provision of emotional support, alleviation of fear and anxiety, the provision of information and appropriate communication about the service. | • Privacy and confidentiality<br>• Patient involvement to reduce pain<br>• Promoting wellbeing<br>• Delivery of diagnosis; respect and dignity; staff attitudes |
| 5 | Environment | The extent to which the physical setting within which laboratory services are rendered as safe, comfortable and appropriate to diagnostic needs and the clients. | Physical state of facilities such as rest rooms and waiting room |

**Table 3.**
*Client dimension of experience, definitions and director medical laboratory service review codes.*

### 7.1 Preparation and examples

In preparation of medical laboratory service survey instrument, there is need to have a background of the client of interest. Patients and patients' relatives, Physicians and healthcare providers, public health and government, communities and interested parties and medical laboratory professionals as the client of interest give the picture of the adequate demographics and question content necessary at any time of survey. Equally, the survey may be prepared in three, four or five likert scale as may be structured by the auditor or the investigator. It shall be prepared to the standard and language the participant shall understand. Example of such survey is for the patient visiting a diagnostic centre in Jos (Template of Customer survey instrument) as seen below with three likert scale.

### 7.2 Administration of survey tools

The status of the medical laboratory service provider and her clients determines the way the survey tool can be administered. The survey tool can be administered in hard or soft copies to customers of a laboratory facility that is interested in the assessment. Hard copies can be given to customers after services delivery before departure from the facility while soft copies or online survey using survey monkey for instance or soft copies can be shared to clients via e-mails or social media such as Whatsapp, Twitter, facebook, etc. for convenience.

### 7.3 Data analysis

Data analysis of medical laboratory services survey of customers can be analyzed by the assessor or auditor or quality officer in charge. The analysis may be in percentages, means or use of SPSS or other statistical tools. This may involve the services of a statistician.

### 7.4 Implementation of findings from the patients

Having carried out the medical laboratory customers/patients' survey, implementation is very important by the quality officer or the human resources manager or Director, medical laboratory services. Any attempt to disregard patients' feedback may cause persistent disruption of testing because by the patient in the case of repeated visits. If not well handled, patients' medical laboratory experience can turn them off from allowing the physician to send them to the same laboratory and in turn makes the physician or other healthcare workers to stop or reduce referring of patients. The survey gives patients/customers a voice, about their needs and expectations and equally aids improvement.

The implementation of findings may be in the positive or negative depending on the variable involved. Oja et al. [30] puts it that "Customer satisfaction surveys cannot result in quality improvement, if proper corrective actions are not carried out".

## 8. Template of customer survey instrument

The template may be for patients alone, patients and patients' relatives, physicians and or other healthcare workers, public health experts or a combination of all medical laboratory customers. For this chapter, the template below (consent form and questionnaire) is for only the patients.

## CONSENT FORM AND QUESTIONNAIRE

Etukudoh N.S. and Obeta M.U., of the Federal School of Medical Laboratory Technology (Science), Jos., would like to assess your satisfaction with the "**Federal School Diagnostic Centre**" so as to create a room for satisfaction and improvement in the services.

The survey will involve giving you a questionnaire to answer your choice in options provided or make comment where necessary. You are free to participate in this survey but if you decide not to, there is no penalty attached and this study will not in any way affect the outcome of your visit to the establishment or result for the test you requested.

All information filled in the questionnaire will be kept strictly confidential and your identity will not be disclosed.

If you accept to participate in the study, kindly sign in the space provided below;

Thank you.

Signature of participant/Date .....

Signature of investigator/Date .....

**Instructions for the Questionnaire.**

Filling the Questionnaire: The questionnaire takes within 5–15 minutes.

TICK your option box [√] or all that applies to you based on given options. Be frank and honest. Please answer every item. Give a true picture possibly with presentation of any available evidence.

Contact person: Please for any question, contact the assessor via 08039664892.

Thank you for participating.

**Part 1. Demographics.**

Age (Yrs): [≤20] [21–30] [31–40] [41–50] [51–60] [≥61].

Sex: [male] [female].

Marital status: [single] [married] [divorced] [widow/widower].

Education: [no form of school] [primary] [secondary] [polytechnic] [university].

Occupation: [farmer] [business] [private] [public] [others].

Residence: [rural] [urban].

Number of visits: [1st] [2nd] [3rd] [more than 3].

Distance to facility: [≤ 30 mins] [31–60 mins] [61–90 mins] [≥90 mins].

**Part 2. Patients' Satisfaction Validated Constructs.**

| SN | Variables | Agree | Undecided | Disagree |
|---|---|---|---|---|
| | Medical laboratory service effectiveness and outcomes | | | |
| 1. | General satisfaction by the medical laboratory service | | | |
| 2. | Improvement of laboratory service from time to time | | | |
| 3. | Welcoming approach/friendliness/ competence of staff | | | |
| 4. | Laboratory personnel's professional appearances (neatness, professional dressing) | | | |
| 5. | Respect and courtesy of the staff | | | |
| 6. | Availability of requested laboratory tests | | | |

| SN | Variables | Agree | Undecided | Disagree |
|---|---|---|---|---|
| Access to medical laboratory services | | | | |
| 7. | Location of cashier office and proximity to laboratory | | | |
| 8. | Availability of laboratory staff on working hours | | | |
| 9. | Waiting time for specimen collection | | | |
| 10. | The cost of the laboratory service | | | |
| 11. | Cleanliness of the facility | | | |
| 12. | Location of rest rooms | | | |
| Medical laboratory organization of care | | | | |
| 13. | Test results received on time as told/not missing | | | |
| 14. | Information given before specimen collection outside the laboratory room | | | |
| 15. | Completeness of information on how and when to receive laboratory results | | | |
| 16. | Ability of person drawing blood to put client at ease | | | |
| 17. | Bruise development after phlebotomy procedures | | | |
| 18. | Number of needle stick attempts | | | |
| Humanity of care | | | | |
| 19. | Maintaining privacy and confidentiality | | | |
| 20. | Ability of the laboratory personnel to answer questions | | | |
| 21. | Application of informed consent | | | |
| Environment | | | | |
| 22. | Availability of place in the blood drawing room to put personal things | | | |
| 23. | Adequacy of sitting arrangement in waiting room | | | |
| 24. | Problem of overcrowding | | | |
| 25. | Cleanness and comfort of waiting room | | | |
| 26. | Cleanliness of the blood drawing area | | | |
| 27. | Latrine accessibility and availability | | | |
| 28. | Latrine cleanness and comfort | | | |

## 9. Proffering a way for patients/clients satisfaction in Nigerian medical laboratory administration

Patients and patients' relatives, Physicians and healthcare providers, public health and government, communities and interested parties and medical laboratory profession in general needs satisfaction from medical laboratory services. Such satisfied services needs team work among all healthcare workers [31, 32]

including patients [33, 34]. In Nigeria for instance, the following could improve customers' satisfaction:

a. Ensuring high levels of satisfaction among the team members and customers on delivery of health services.

b. Improving communication in the provision of healthcare services while interacting with patients and caregivers.

c. Improving communication and partnership among all health providers and patients.

d. Improved response processes in addressing issues in determination of healthcare of client based on survey outcomes.

e. Ensuring clarity of the roles of all health providers working with the patients/clients.

f. Patients are less likely to receive the best possible care if medical laboratory services are not of high quality.

g. Minimizing guess work in healthcare management, rather address quality issues and use medical laboratory services in all health cases.

h. Address leadership challenges in health sector, especially towards using health administrators and human resource managers.

i. Address labour crisis and incessant strikes.

j. Equip, quality control and maintain medical laboratory installations.

k. Government should address cost implications of medical laboratory services and if possible create subsidy packages for public health laboratory services just as it is done for COVID-19 testing across the world, Nigeria inclusive.

## 10. Conclusion

Medical laboratory clients ranging from patients and patients' relations, physicians and other healthcare workers, public health and government, communities and interested parties, and medical laboratory profession deserves satisfaction and quality improvement. Such customer service and satisfaction should be in line with the ISO 15189, ISO 17075 and ISO 9001. There is a need to administer services satisfaction survey to customers/clients from time to time so the outcome can be used to correct services errors and cause quality improvement. In healthcare, satisfaction of patients (customers/clients) in medical laboratory services actually contributes to health and quality improvement and this should be sustained.

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## Conflict of interest

The authors declare no competing interests.

## Notes/thanks/other declarations

Obeta M. Uchejeso conceptualized the Chapter, Both authors contributed equally in the chapter preparation, editing and approved the final manuscript for submission.

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