



## Assessment of Laboratory Practitioner's Competency in Kenya

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### Abstract

**Introduction:** *There has been increasing interest to improve the quality of laboratory services world-wide including in many resource poor countries. In tandem with this need, the Kenya government recognizes the delivery of quality laboratory services as an integral part of the national health care strategy. The quality of the laboratory services is important in achieving the national goal of improved health care. Service quality is influenced by the competence of the laboratory service providers who are the practitioners as well as the availability of the recommended working conditions as set by the Kenya Medical Laboratory Technicians and Technologists Board. The objective of this study was to assess laboratory practitioner's competence in Kenya by evaluating their levels of education and training.*

**Methodology:** *As a representation of each of the regions in Kenya the study areas were situated in Nairobi, Mombasa, Nyeri and Kisumu counties. Purposeful sampling was used to select the laboratories while as random sampling was used for the laboratory practitioners. The data was analysed using Excel spreadsheets and SPSS version 19.*

**Results:** *All the laboratories sampled were manned by staff with a basic minimum of ordinary level, Kenyan form four level of education. Very few practitioners were university graduates. Faith based laboratories had the highest rating in competency of practitioners ( $p < 0.027$ ,  $p < 0.05$ ,  $\alpha = 0.05$ ).*

**Conclusion:** *Findings of this research were that the laboratory practitioners were competent with the minimum qualifications recommended by the Kenya Medical Laboratory Technicians and Technologists Board.*

**Keywords:** *Competency, Laboratory Practitioners.*

### Introduction

Quality medical laboratory service provision is important in order to enhance diagnostic value and save lives. This is because recognition of disease is the foundation of disease control and prevention<sup>(1)</sup>. The quality of laboratory services offered is directly

affected by the competence of the laboratory practitioners. The human resource factors that affect service provision have been widely researched<sup>(2,3,4)</sup>. Laboratory workers need constant training in order to establish, maintain and demonstrate the accuracy of diagnostic tests, a major challenge for most

laboratories in sub-Saharan Africa. The Ministry of Education (MOE) Sessional Paper No. 6 states that training should include skills acquisition at a level commensurate with the resources available<sup>(5)</sup>. The process of laboratory diagnosis requires that after practitioners have learned to perform assays they learn through experience and by attending workshops and seminars how to improve and offer better quality of service<sup>(1)</sup>

Traditional attempts to describe competency were conceptualized to have been in terms of knowledge, skills and attitudes<sup>(6)</sup> while current attempts tend to focus instead on the specific success, traits, and motivation<sup>(7)</sup>. Motivation, particularly achievement motivation (n-Ach) and personality, was identified as most predisposing to successful activity<sup>(8)</sup>. Motivation may result from push or pull factors. Pull factors include having successful parents or positive role models. Push factors include being retrenched, retired or dissatisfied with prior employment. Studies have indicated that motivation correlates with success<sup>(7)</sup>. People who were devoted wanted to utilize their skills, wanted to follow the example of a person admired, and were concerned about their own status were more likely to succeed. Findings in Kenya indicated that family background, education, training, and knowledge of the enterprise were key performance success factors<sup>(9)</sup>.

### **Methodology**

The current study was carried out in Nairobi, Mombasa, Kisumu and Nyeri counties. Based on the old constitution, prior 2010, Kenya was divided into 8 provinces, namely Central, Coast, Eastern, Nairobi, North Eastern, Nyanza, Rift Valley and Western. Four former provinces were purposefully selected for this study. Ethical approval was

obtained from the Kenyatta University Research and Ethical Review committee. This study was both an observational and descriptive study using a cross-sectional design.

The population for this study constituted the practitioners in the functional medical diagnostic laboratories in the selected four counties. The medical laboratories were grouped into Private, Government and faith based. The research included autonomous laboratories, laboratories affiliated to a specific health worker mainly, nurses, clinical officers, laboratories run by community based organizations, NGOs and those run by mission or religious based organizations. Laboratories affiliated to public or government health centres were also included in this study.

The practitioners included in this study were those managers who were willing to participate and allow the researcher to investigate the laboratory and service providers who were employees having worked in the facility for more than three months. Excluded were all other categories of medical diagnostic laboratories other than clinical laboratories. Any practitioner who was not willing to participate in this study was excluded.

The methods of collecting primary data pertaining to the competence of the practitioners were structured interviews using semi-structured standard questionnaires and structured primary observation. Structured face-to-face interviews was used to minimize weaknesses such as low questionnaire return rates, misinterpretation of questions and other limitations inherent in mailed survey questionnaires. Data was analyzed using Excel spreadsheets and SPSS version 19. The data was double-entered, cleaned and subsequently analyzed. Data analysis was done mainly using quantitative statistical methods.

**Results**

**Table 1** Practitioner’s demographic profiles

Demographic Profile		Laboratory Workers (%)					
		Managers	Employee	Mombasa	Nairobi	Nyeri	Kisumu
Gender	Male	71	59	50	47	80	90
	Female	29	41	50	53	20	10
Age	18 – 24	0	6	7	0	0	10
	25 – 34	47	53	50	60	40	50
	35 - 44	53	37	43	40	50	40
	45 – 54	0	4	0	0	10	0
	Marital Status	Single	14	22	29	21	10
Marital Status	Married	75	74	55	72	79	86
	Separated	2	2	14	4	5	1
	Divorced	1	1	1	2	3	1
	Widowed	1	1	1	1	3	1
Religion	Catholic	23	26	9	26	51	12
	Protestant	55	53	33	61	38	74
	Muslim	12	9	52	1	0	2
	Indigenous	6	6	3	4	6	8
	Atheist	2	3	1	5	2	2
	Other	2	3	2	3	3	2

Table 1 shows the demographic profiles of the laboratory practitioners. Even though the interviewees were randomly selected, far more men than women working in the laboratories were interviewed. Only a third of the laboratory managers who participated in this study were female. In Mombasa County the male female ratio of the respondents was approximately 1:1, in Nairobi approximately 1:1 but in Nyeri and Kisumu counties the ratios were approximately 8:2 and 9:1 respectively. The workforce gender proportions in the selected laboratories were roughly even. The mean male to female ratios of the technical

workforce, excluding the auxiliary and support staff, in the laboratories sampled were approximately 49% female and 51% male. The male female ratio of the laboratory practitioners was approximately 1:1. The largest percentage of the managers that were interviewed was in the 35-44 years age bracket while the biggest percentage of employees interviewed was between 25 and 34 years old. Employees that participated in this study were of a younger age grouping than their bosses. Majority (55% - 86%) of the laboratory practitioners who participated in this study were married.

**Table 2** Assessment of laboratory practitioner’s education and training

Laboratory categories								
Education/ Training	Provincia I (%)	District	Dispensary	Faith based	Private high class	Private middle class	Private low class	Mean
Support staff	24.4	17.1	2.4	26.8	14.6	9.8	4.9	14.3
O Dip MLS	41.7	24.1	2.5	10.5	13	7.4	0.9	14.3
H ND MLS	20	6	4	16	24	22	8	14.3
<b>Managers: (%)</b>								
Form four	100	100	100	100	100	100	100	100
Form six	6	4	2	7	9	5	9	6
University Degree	4	2	0	5	10	6	0	3.9
<b>Employees: (%)</b>								
Form four	100	100	100	100	100	100	100	100
Form six	2	1	0	5	6	3	3	2.9
Graduates	1	0	0	2	2	1	0	0.9

Key

- Support staff - Support staff with no formal training
- O Dip MLS- Ordinary diploma in medical laboratory science
- H ND MLS - Higher national diploma in medical laboratory science
- Form four- Form 4 education prior laboratory training
- Form six- Form 6 education prior laboratory training

Table 2 shows the Laboratory practitioners levels of education and Training. The laboratories sampled were manned by well-educated and trained staff. Only a minority of the support staff were reported to have no formal training. All the laboratories were manned by staff with a basic minimum of ordinary level, Kenyan form four level of education. Very few practitioners were university graduates.

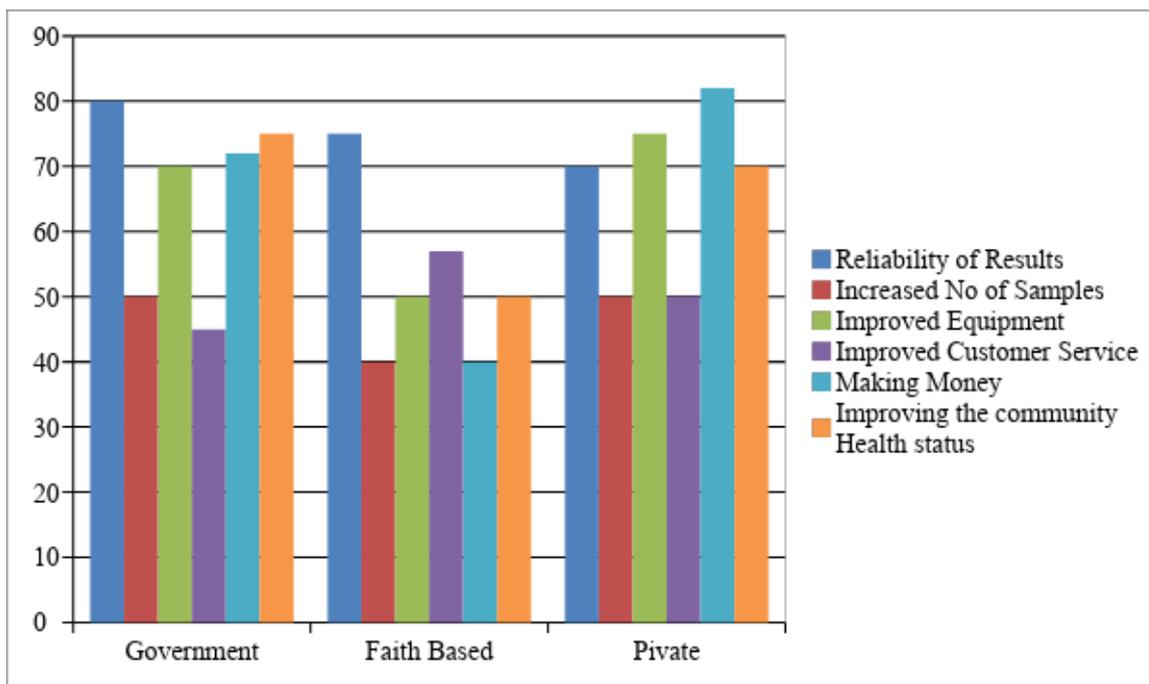


Fig 1 shows practitioners' responses on the motive they viewed as important in service provision. The ratings were different for the various laboratory categories. The practitioners in government laboratories placed no emphasis on making money. They rated reliability of results higher than any other motivation factor. Government laboratory practitioners placed the greatest emphasis on reliability of results when compared with faith based and private laboratory practitioners. According to practitioners of government laboratories, the next most important criteria was improving the health status of the community, improved equipment and lastly the factor they considered important in the implementation of

quality service was improving customer service. Faith based laboratory practitioners rated ensuring reliability of results as the most important motivator. Equally and highly rated were improving customer service and improving equipment. Least in rating was making money. Private laboratory practitioners rated making money as their primary motivator. They rated making money as very important in 82% of the cases which was greater than their emphasis on reliability of results, improved equipment and improving the health status of the community. Ensuring reliability of results was rated lowest by the private laboratories in comparison with government and faith based laboratory practitioners.

**Table 3** Perceptions of management skills (%)

Perceptions of management skills (%)			
Trait	Laboratory managers' response	Employee's views of the lab managers.	<i>p</i> value
Committed	71.3	59.2	0.045
Internal locus of control	71.9	50.1	0.042
Self-confident	53.2	34	0.044
Initiative	65.7	68.8	0.057
People want to follow	59.8	64.5	0.056
Readily uses expertise	71.1	48.3	0.042
Honest	59.8	68.4	0.051
Inspires	88.6	63	0.045
Builds strong relationships	59	61.6	0.060
Empowers	62.5	39.1	0.038

There was a significant difference ( $p < 0.05$ ) between the employees and managers ratings on level of commitment, need to control, initiative, readily using expertise, inspiration and empowerment. Employees did not always agree with the boss's perception of their success traits. In some cases the discrepancies were large, like in the employees' perception that the boss inspires them (variance 25.6). The highest rating they gave their bosses was for initiative and honesty. Very few felt their managers were empowering. Bosses had a higher opinion of their own leadership skills than the opinion the employees had of them. The highest factor that laboratory managers perceived themselves having was that they inspire.

### Discussion

Laboratory service quality may be conceived as composed of not only the technical task but like all other health care service there is an interpersonal exchange at a practitioner patient inter-phase, hence the relevance of investigating the practitioner's delivery of service. The foundation of the assessment of results pertaining to the practitioner was based on pioneering work by Parasuraman *et al.*, which proposed that regardless of the type of service, consumers used basically similar criteria or determinants in evaluating service quality<sup>(10)</sup>.

The majority of practitioner respondents were of the protestant denomination, Christian faith. Based on this study, and in tandem with Max Weber's theory, the private high class laboratories sampled were owned by mainly protestant Christians. Pioneering

work concerning the protestant work ethics by Max Weber in the 1930s proposed the theory that Protestants trained their followers the value of hard work, thrift and a desire for material advancement as opposed to Catholics who placed a lower emphasis on material advancement of their flock<sup>(8)</sup>. Based on Max Weber's protestant work theory, the successful private enterprises were most likely to be run by protestants while as other non-profit making faith based laboratories run by Catholics.

All workers except a few manning dispensaries were found to be polite, friendly, showed respect and were clean and neat in appearance. Research indicates that health workers interaction involving empathy and responsiveness, and courtesy have a significant effect on health care service quality<sup>(11)</sup>

Based on this study the laboratory practitioners manning Kenyan laboratories were all competent. They were well educated with a minimum qualification of ordinary level, also well trained with a minimum qualification of ordinary diploma in Medical Laboratory science plus were all registered with the KMLTTB. The study showed that the managers tended to be better educated and trained than the employees.

Research has showed that experience and motivation are a necessity for quality execution of the production process<sup>(12)</sup>. The main motive the laboratory workers had in government laboratories in order to provide service was not to make money whereas the private laboratory owners rated making money as their most important motivating factor. For several laboratories making money was rated

more important than providing reliable results. In low socio-economic environments where a vast majority of Kenyans live, in resource poor areas, there is a need for health care providers to satisfy patients, provide quality service and maximize profit under limited resources in a competitive environment.<sup>(12)</sup>

Managers in this study were rated very well pertaining to their leadership traits. The results of this study indicated that 56% of the employees gave their managers a strong leadership rating and 62% regarded their manager as one who builds strong relationships. Those values are higher than but still in tandem with Chandrasekar, whose results were that 49.4% of the respondents maintained a strong relationship with their superior at the work place<sup>(13)</sup>.

Based on McClelland's achievement motivation theory some people, with certain characteristics have a great need to achieve irrespective of the surrounding. They assume responsibility and have internal locus of control. All people differ on that personality variable referred to as locus of control (The private low class laboratory manager's rated well and were all considered to have internal locus of control. The private low class managers were rated best by their employees as pertaining to their commitment, being emulatable, and empowering. The employees who rated their bosses most highly as having the best leadership quality were those of faith based laboratories. They felt their bosses were, polite, showed respect, were clean and neat, friendly and honest. Ultimately faith based laboratories had the highest rating in competency of practitioners  $p < 0.027$ ,  $p < 0.05$ ,  $\alpha = 0.05$ . This research indicated that the highest quality practitioner were of faith based laboratories followed by those of private low class laboratories.

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