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**Deanship of Postgraduate Studies and Scientific**  
**Research and Publication**  
Faculty of Medicine

**Assessment of Laboratory Quality Management Practices at Public**  
**Hospitals**

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(public health)*

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الآية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعاني : "...وقل رَبِّ زِدْنِي عِلْمًا" (الآية 111 سورة طه

صدق الله العظيم

## **dedication**

*I devote this thesis to:*

*My mom (Most beloved person to me in the world)*

*The soul of my father (Allah give him mercy)*

*Brothers and sisters (Shoulders of mine)*

*Teachers (My guiders)*

*Friends (My encouragers)*

*And all who have participated to my educational journey once  
a time*

*With love and respect*

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## List of Acronyms and Abbreviations

<b>Acronyms and Abbreviations</b>	<b>Complete Word or phrase</b>
M.Sc.	Master of Science
Prof.	Professor
MD	Medicine Doctorate
IUA	International University of Africa
WHO	World Health Organization
LQMS	Laboratory quality management system
MBO	Management by Objectives
MBE	Principle of Management by Exception
QC	Quality control
QA	Quality assurance
EQA	External quality assessment
EQC	External quality control
IQC	Internal quality control
EQAS	External quality assessment scheme
ISO	International organization for standardization
CLSI	Clinical and Laboratory Standards Institute
PHC	Primary Health Care
SPSS	Statistical Package for Social Science
CDC	Centers for Disease Control and Prevention
R & D organization	Research & Development Organization
TQM	Total Quality Management
IFCC	International Federation of Clinical Chemistry
NCCLS	National Committee for Clinical Laboratory Standards
CPD	Continuing professional development

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## Abstract

**Background :** The first step in a systematic approach to the management and organization of a health laboratory begins with the establishment of general goals and specific objectives by the laboratory staff. The use of such objectives for purposes of management is known as management by objectives (MBO). In order to achieve these objectives, the laboratory must have adequate facilities, equipment & supplies, an adequate number of qualified personnel and organizational structure.

**The main objective** of this study was to assess the of laboratory quality management practice at public hospitals in Khartoum state, 2019.

**Methods:** It is a descriptive cross-sectional study with a sample size of 45. The study population was laboratory managers who are; the head managers of laboratories. The vice managers of laboratory department. The quality managers who are responsible for quality of laboratory service. Any laboratory managers who are working as laboratory managers for more than 6 month willing to participate in the study was included in the study. Self-administered written questionnaire was used to collect data. The dependent variable of the study was laboratory management practices while independent variables was organization and management, personnel management, equipment management, laboratory safety management, laboratory environment management, laboratory testing management, document and record control etc.

**The main results:** the results of this study revealed that there were poor and weaknesses in the system of monitoring and evaluation (20%), and reviewing of operational procedures of the laboratory(33%), weakness in availability of quality manual (20%) and participation of external quality assessment scheme (EQAS) (13%), poor in staff awareness of the WHO laboratory biosafety manual (7%), shortage in safety management and poor vaccination of staff such as for hepatitis B virus (40%)s, flaw in the availability of written policy that details the process of procuring equipment (47%). Most laboratory staff don't have training and continuing education program for staffs (20%) also the is low in performance assessment at interval time (33%). weakness in availability of request form which details all the requirement of sample (24%). Poor in availability of work instructions at the workbench (40%) and inadequate in procedures for reporting of results including date, time, procedure and receiver (28%). weakness in contents of result report is also revealed (34%)

**Conclusion:** The assessment of laboratory quality management practice at public hospitals in this study conclude that most public laboratories in Khartoum state have weaknesses in the following areas

- Poor in system of monitoring and evaluation, and reviewing of operational procedures of the laboratories
- defects in quality management system specially in availability of quality manual and weakness in the participation of external quality assessment scheme (EQAS)
- poor vaccination of staff such as for hepatitis B virus and staff awareness of the WHO laboratory biosafety manual
- unavailability of written policy that details the process of procuring equipment.
- Poor training and continuing education program for staffs and in performance assessment for personnel at interval time.
- unavailability of request form which details all the requirement of sample
- Insufficient specimen management practices, Mainly the is no SOPs and work instructions at the workbench and weakness in availality of request and report forms.

**Key words:** laboratory management practices, quality management, quality control, organizational management, quality management systems, health laboratories, management principles.

## المستخلص

**خلفية:** لخطوة الأولى في اتباع نهج منظم لإدارة وتنظيم مختبر صحي تبدأ مع تحديد الأهداف العامة والأهداف المحددة من قبل موظفي المختبر. يُعرف استخدام هذه الأهداف لأغراض الإدارة باسم الإدارة حسب الأهداف. من أجل تحقيق هذه الأهداف ، يجب أن يكون لدى المختبر المرافق والمعدات واللوازم الكافية ، وعدد كاف من الموظفين المؤهلين والهيكل التنظيمي.

**الهدف:** الهدف الرئيسي من هذه الدراسة هو تقييم ممارسة إدارة جودة المختبرات في المستشفيات العامة بولاية الخرطوم ، 2019.

**الطريقة:** إنها دراسة وصفية مستعرضة بحجم عينة من 45. كان مجتمع الدراسة مديري المختبرات الذين هم ؛ مديري المختبرات. نواب مديري قسم المختبر. مديرو الجودة المسؤولون عن جودة الخدمة العملية. تم تضمين أي مديري المختبرات الذين يعملون كمديرين المختبر لأكثر من 6 أشهر ويرغبون للمشاركة في الدراسة. تم استخدام الاستبيان التحريري المدار ذاتيا لجمع البيانات. كان المتغير التابع لهذه الدراسة هو ممارسات إدارة المختبرات بينما كانت المتغيرات المستقلة هي التنظيم والإدارة ، وإدارة شؤون الموظفين ، وإدارة المعدات ، وإدارة سلامة المختبرات ، وإدارة بيئة المختبرات ، وإدارة الاختبارات العملية ، ومراقبة الوثائق والسجلات ، إلخ.

**النتائج الرئيسية:** كشفت نتائج هذه الدراسة أنه كان هناك ضعف وضعف في نظام المراقبة والتقييم (20%) ، ومراجعة الإجراءات التشغيلية للمختبر (33%) ، وضعف توافر دليل الجودة (20%) والمشاركة مخطط تقييم الجودة الخارجي (EQAS) (13%) ، ضعف في وعي الموظفين بدليل السلامة الحيوية في المختبرات التابع لمنظمة الصحة العالمية (7%) ، ونقص في إدارة السلامة والتطعيم الضعيف للموظفين مثل فيروس التهاب الكبد B (40%) ، الخلل في توافر سياسة مكتوبة تفصل عملية شراء المعدات (47%). معظم موظفي المختبرات ليس لديهم برنامج تدريب وتعليم مستمر للعاملين (20%) كما أنه منخفض في تقييم الأداء في الفترة الفاصلة (33%). الضعف في توافر نموذج الطلب الذي يفصل جميع متطلبات العينة (24%). ضعيف في توفر تعليمات العمل في طاولة العمل (40%) وغير كافية في إجراءات الإبلاغ عن النتائج بما في ذلك التاريخ والوقت والإجراء والمستقبل (28%). الكشف عن الضعف في محتويات تقرير النتائج (34%).

**استنتاج:** خلص تقييم ممارسة إدارة جودة المختبرات في المستشفيات العامة في هذه الدراسة إلى أن معظم المختبرات العامة في ولاية الخرطوم تعاني من نقاط ضعف في المجالات التالية

- الفقراء في نظام الرصد والتقييم ، ومراجعة الإجراءات التشغيلية للمختبرات
- عيوب في نظام إدارة الجودة وخاصة في توافر دليل الجودة وضعف في مشاركة نظام تقييم الجودة الخارجي (EQAS)
- ضعف تطعيم الموظفين مثل فيروس التهاب الكبد B وتوعية العاملين بدليل السلامة الحيوية المختبري لمنظمة الصحة العالمية
- عدم توفر سياسة مكتوبة تفصل عملية شراء المعدات.
- ضعف برنامج التدريب والتعليم المستمر للعاملين وتقييم الأداء للعاملين في الفترة الفاصلة.
- عدم توفر نموذج الطلب الذي يفصل جميع متطلبات العينة
- ممارسات إدارة العينات غير الكافية ، وبشكل رئيسي ليست إجراءات التشغيل الموحدة وتعليمات العمل في طاولة العمل وضعف في توفر نماذج الطلب والتقارير.

**الكلمات الدالة:** ممارسات إدارة المختبرات ، إدارة الجودة ، مراقبة الجودة ، الإدارة التنظيمية ، أنظمة إدارة الجودة ، المختبرات الصحية ، مبادئ الإدارة.