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Gaps in Hospital Accreditation and Regulatory Inspection in KM4, Mogadishu, Somalia: Implications for Patient Charges and Laboratory Service Quality

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ABSTRACT

Background: Accreditation, licensing, inspections, transparency in charges and quality assurance in the laboratory are pivotal to safe health service delivery in the hospital environment. Somalia has also established formal regulatory institutions, but national evidence indicates that there is no tradition of facility accreditation and poor routine quality monitoring. Somali Harmonized Health Facility Assessment (2026) indicated that only 18.46 per cent of health facilities assessed were accredited. The current evidence also shows significant affordability barriers in Mogadishu, the high level of direct health payments at household level, and adequate opportunities. The situations increase worries around best supervision of facilities, fees charged for patients, and the accuracy of laboratory tests conducted (Osman et al., 2026; Hassan et al., 2026; Mohamud et al., 2026). Objective: To study the state of accreditation and regulatory inspection of participating hospitals in KM4 division of the city of Mogadishu as well as the charges that patients had to make for hospital and observations of selected laboratory services. Methods of the developing pilot study— descriptive observational study using a facility approach: 23rd April 2026 to 5th May 2026 in KM4, Mogadishu, Somalia. 5 hospitals participated with permission of the facilities. A total of 25 patients age 16 to 60 years old were included in the study. Facility level assessment of accreditation and inspection status. The following laboratory analytes were described: potassium, glucose, and aspartate aminotransferase (AST). Available values were 3.5, 2.9, and 4.5 for potassium, 120, 70, and 95 mg/dL for glucose, and 600, 400, and 1,000 U/L for AST. Results: observed accreditation proportion was 0 percent in all the 5 participating hospitals since they were not documented in accreditation. An observed inspection proportion of 0 percent (none of the 5 hospitals) was recorded during the period assessed, with no evidence or report of regulatory inspection. There were 25 patients ranging in age from 16-60 years in the study. The lowest US patient charge, noted as US$45, was followed by US$50 and US$60, an average of US$51.67 and a range of US$15 between the lowest and highest charges reported. The laboratory test results for the different patients were potassium of 3.5, 2.9 and 4.5, glucose of 120, 70 and 95, and the AST level were 600, 400 and 1,000 respectively. These were laboratory observations and did not test for inter laboratory discrepancy or error. Conclusion: The 5 hospitals participated in KM4, no hospital had any evidence to document accreditation in place and none of the hospitals had evidence or reported regulatory inspection in the assessed time period. The price of patient charges ranged from $45 to $60, depending on who was reporting. Also, the selected laboratory values were shown to have some variations, however they were from different patients and hence not appropriate for assessing the level of agreement between different laboratories. The results will help to strengthen accreditation of the facilities, regular regulatory inspection systems, information on fees, and quality assurance systems in the laboratories.

1. Introduction

Quality of health services takes more than the presence of hospitals, doctors, drugs and diagnostic devices. Effective systems will also include the requirement to have licensing arrangements, accreditation, inspection, quality assurance, competition transparencies and avenues for addressing the unsafe practice. In fragile health systems, deficiencies in these areas leave the services provided by facilities open to variation and few facilities have standard measures of the quality of the services they provide before patients receive payment.

In Somalia, the reconstruction of regulatory and service delivery institutions, coupled with extended fragility of the health system, is underway. The National Health Professionals Council is the statutory one that regulates registration/licensing of health

professionals and health facilities, accreditation, monitoring of health facilities, professional standards and investigates misconduct. Currently, the public information on its website outlines requirements for facilities operating that are outside of the scope of regulation and can be subject to enforcement (The National Health Professionals Council 2025).

In terms of actual experiences, the results were disappointing; accreditation is still minimal. Between 2022 and 2023, a sample of 1219 facilities were analyzed and 18.46 percent of the facilities reported to be accredited. Higher rates of accreditation occurred with facilities with certification, licensing and routine quality assurance processes. The authors highlighted a need for robust national frameworks of accreditation or for periodic quality improvement (Osman et al., 2026).

Relevance for Mogadishu: When patients have to pay out-of-pocket for consultations, diagnostics, medicines and procedures, they make choices among public, private, charitable and [mixed] service providers. According to Hassan et al. (2026), only 30 percent reported access to primary health care to be easy in households living in areas that lack health services and 79.7 percent said that health services were unaffordable. The results bring the issues of price transparency and service quality to the same problem for patient protection.

1.1 Problem statement

In the absence of accreditation and inspection, there are fewer formal ways for the patient and regulators to evaluate the conformance of facilities to specific standards. Staffing, infection prevention, Laboratory Quality systems, equipment maintenance, documentation, handling complaints and price transparency are some of the concerns. For the current pilot study, the key regulatory outcomes focused on were: the having of any documented accreditation; and evidence or report of any regulatory inspection. The patient charge and laboratory observation were used as descriptive service indicators and were not evidence of illegal patient charges or laboratory errors.

1.2 Background and rationale

Laboratory results affect diagnosis, choices of medications, admission decisions, referrals, decisions for surgery, pregnancy care and long-term care for the disease. Pre analytical factors like specimen collection, labeling, transportation, timing, and storage may cause an clinically important discrepancy between the different laboratories. This could also be caused by analytical sources of error, including the quality of reagents used, instrument performance, competence of staff, calibration error, or internal quality control. Poorly written reports or poor reliability from any other post analytical errors, such as transcription of data, reference ranges or interpretation, also impact reliability. Therefore, as a quality signal a discrepancy should be investigated rather than taken to be a signal of misconduct from one facility.

WHO considers accuracy, timeliness, and reliability to be key quality goals and quality management systems, external quality assessment and proficiency testing to support these goals for quality in a centralized laboratory. The harmonization and connection of quality management with those of ISO 15189 requirements for medical laboratories have been achieved using the WHO Laboratory Quality Stepwise Implementation (LQSI) approach (World Health Organization, 2026a; World Health Organization, 2026b).

There is supporting evidence from the region for the need for external quality assessment. The review and meta-analysis of African clinical laboratories in 2025 included a total of 17 studies with 4,509 laboratories. Pooled performance varied depending on test type and external quality assessment method with malaria testing having poorer performance outcome than immunology testing. The results lend credibility to an external evaluation system for ongoing improvement, as well as self-assurance statements (Cherie et al., 2025).

Laboratory services are not the only areas of oversight by a facility. According to a new 2026 Somalia study commissioned by the 2024 Harmonized Health Facility Assessment, there was a lack of widespread routine monitoring on health facilities for IP&C in the past six months, accounting for just 6.6 per cent of health facilities. While some of them did worse at providing on a number of monitoring measures, in the authors' view, governance, audit systems and specific monitoring are needed to enhance the performance of lower level and privately-owned facilities (Adam et al. 2026).

2. Study objectives and research questions

2.1 General objective

To assess hospital accreditation and regulatory inspection status in the KM4 area of Mogadishu and describe implications for patient charges and laboratory service quality.

2.2 Specific objectives

Determine whether the participating hospitals had documented accreditation during the study assessment.

Determine whether participating hospitals had evidence or report of regulatory inspection during the assessed period.

Describe reported patient charges available from participating facilities or patients.

Describe selected laboratory test values recorded during the study without treating results from different patients as paired comparisons.

Identify laboratory quality assurance domains relevant to future facility assessment, including internal quality control, equipment maintenance, reagent management, and external quality assessment.

Assess the feasibility of collecting facility regulation, patient charge, and laboratory quality data in a small urban pilot study.

Use the pilot findings to identify priorities for larger studies of hospital oversight and laboratory quality in Mogadishu.

2.3 Research questions

- What proportion of participating hospitals had documented accreditation during the study assessment?
- What proportion had evidence or report of regulatory inspection during the assessed period?
- What patient charges were reported in the available observations?
- What selected laboratory values were documented among patients included in the study?
- What laboratory quality assurance domains should be examined in a larger follow-up study?
- What regulatory and data quality gaps were identified through this pilot assessment?

2.4 Conceptual approach

The study treats accreditation and inspection as facility governance indicators. Patient charges and selected laboratory observations are treated as descriptive service indicators. Because the laboratory values came from different patients, no laboratory agreement analysis was performed. Facility type, service mix, patient condition, timing of specimen collection, and analytical method remain important factors for future studies.

3. Methods

3.1 Study setting and period

The study was conducted in the KM4 region in the Somali city of Mogadishu between 23 April 2026 and 5 May 2026. KM4 is a congested downtown core area, with significant volumes of patient, employee and business traffic. The area has or includes a number of health providers and diagnostic service providers. The time period for collecting the data should be clearly described as it impacts the evaluation of inspection history, price observations, repeated laboratory testing results, etc.

3.2 Study design

A descriptive observational pilot study was carried out at 5 hospitals and 25 patients in KM4 of the city of Mogadishu from 23rd April 2026 to 5th May 2026. Because of the small size of the sample of facilities and the unpaired nature of the laboratory observations, only description was presented in the design.

3.3 Study population

Total 5 hospitals were included in the KM4 area of Mogadishu while 25 patients aged between 16 years and 60 years. The three features that were looked at descriptively were laboratory analytes such as potassium, glucose, and AST. The laboratory data reported was from varying patients. They were thus analyzed as single observations at the clinical level instead of repeated observations or as a cross-facility comparison.

3.4 Eligibility criteria

Hospitals qualified by either having operated in the KM4 study area during the study period or by having obtained the hospitals' permission for the study activities. Patients aged between 16 and 60 years that had information relevant to aims of the survey during the data collection were included in the study. The manuscript does not assert a representative sample of the population since the sample of facilities was limited and self-selected.

Laboratory observations were only recorded as reported clinical observations. Since these potassium, glucose and AST levels from different patients, no actual analytical accuracy between hospitals could be compared. Before journal submission, the original units and reference intervals should be compared with the source laboratory reports.

3.5 Sampling

A nonprobability of participating in hospitals: facility sample was selected during the study period based on access to the hospital as well as hospital permission. Twenty-five patients (16-60 years old) were included. This sampling protocol was designed to simply capture and describe local observations and the feasibility of the approach and was not intended to estimate the prevalence in all hospitals in Mogadishu and in Somalia.

3.6 Data collection procedures

At facility level, data collection was centered around the availability of accreditation documents and the presence of evidence/reports of regulatory inspection. Hospitals instead of named in manuscript were coded for analysis. Permission for study activities at the facilities was gained.

Charges observed for in-patients were noted in U.S. dollars, if available. The three reported amounts were $50, $45 and $60. Service bundles used with each amount was not fully documented in the material provided with this manuscript; therefore, the service bundles cannot be used to determine service prices for each dimension or detected as illegal charging.

3.7 Operational definitions

Accredited facility: participating hospitals where the current accreditation documents are on hand during the study assessment. All records from none of the 5 hospitals showed no such provisions in this study.

Registered facility: A participating hospital that was subject to evidence of regulatory inspection, or report on regulatory inspection, during the time-period assessed. None of the 5 hospitals in this study had either evidence, or a report, of such.

Patient charge observation: an amount reported as paid or charged for care during the study. Observations of charges available were summarized descriptively. There was no official tariff comparison, so they did not fall under the rule of law.

Laboratory observation (LO): A reported laboratory observation from a specific patient. There was no specific definition for “discrepancies between laboratories” that was used with values from different patients to identify analytical error.

3.8 Quality assurance during data collection

Study definitions were the same across data. The reports of the accreditation and inspection were summarized at hospital level. Any reported charges or lab values have been recorded verbatim without altering their meaning. Potassium units MUST have source verification before they can be published. Information related to the identities of the hospitals was not used in the manuscript.

3.9 Data analysis

Descriptive analysis method was employed as a pilot sample was small. Accreditation and inspection status was broken down into counts and percentages by the 5 hospitals. Ages of patients were provided as ranges to summarize the patient population, since individual patient age information had not been given for this revision.

Three observations of patients charges were made available and analyzed as follows: Minimum, Maximum, mean and absolute difference were used. The charges were not recorded as rates for comparable services since service packages didn't fully document the services. Laboratory values were presented descriptively by analyte. Absolute differences, RRWD, correlation, kappa statistics or Bland Altman analysis were not used as values were not paired – data from different patients.

There was no inferential association testing. If there were no statistical associations, that is, if there were only zero hospital accreditation and inspection scores across all the hospitals there were, then the forms of statistical association models would not yield stable and meaningful estimates.

3.10 Ethical considerations

The study was obtained approval from the participating hospitals before data was collected. Primary care organizations have been anonymous in this manuscript. The content provided for this revision does not include documentation of independent research ethics committee use or of participant consent process. Some of these items should be specified prior to the journal submission, especially as the range of ages of participants was 16-17 years of age.

The many issues of facility and patient data examined in this study require confidential material handling. No information regarding individual hospitals or patients has been identified, so it isn't possible to tie these findings to any particular facility or patient. There is no claim of illegality, negligence, or lab error without the benefits of legal or reference standard.

3.11 Reporting framework

The manuscript is presented in the format of an observational pilot report, and is structured around the STROBE principles if appropriate. Before data collection, a larger study in the future should incorporate the presetting of sampling, consent, source verification, quality indicators in the laboratories, and similar categories of services

4. Results

Total 5 hospitals and 25 patients age between 16-60 years were included in the study. An accreditation process was not a requirement at none of the 5 assessed hospitals and there was no evidence, there was no report of a process on regulatory inspection for the assessed period at these hospitals. Potassium, glucose, and AST levels in the three analytes were descriptive patient features. The reported values were not analyzed as inter laboratory results as they were from different patients.

4.1 Facility characteristics

The KM4 pilot study was conducted in 5 hospitals. Twenty five patients, ranging in age from 16 to 60 years, formed the patient group. The material available to inform this revision was not robust enough for the following variables to be measured as results: ownership distribution of hospitals, current facility licensing status, and onsite presence of medical laboratories.

4.2 Accreditation, licensing, and inspection

No participating hospital had documented evidence of accreditation; therefore, the observed accreditation proportion was 0/5 (0%). There was no evidence or report of regulatory inspection during the assessed period for any participating hospital. The observed inspection proportion was also 0/5 (0%). Independent verification of current licensing status was not undertaken, and licensing should not be considered synonymous with accreditation.

4.3 Patient charges and price transparency

Observations of patient charge were available for three different cost tiers: United States dollars 45, 50, and 60. The average was $51.67 and the range of the lowest and highest amount reported was $15. Linking services or bundles to these amounts is not fully documented, and dollar amounts are therefore not direct service prices, but rather indicative of the charge observation. A verdict on illegal charges was not reached.

4.4 Laboratory quality assurance

In this pilot dataset, detailed information about laboratory quality assurance shows insufficient documentation, such as internal quality control, external quality assessment participation, equipment maintenance log, reagent monitoring, standard operating procedures, etc. for facility level quantization. These domains continue to be for a larger follow up evaluation.

4.5 Selected laboratory observations

Different patients were measured for potassium, glucose and AST. The laboratory values of potassium were 3.5, 2.9 and 4.5, all of which needed to be confirmed by original laboratory reports. Glucose values were 120, 70, and 95 mg/dL. AST values were 600, 400, and 1,000 U/L. For the values reported above, no difference is present between laboratories, analytical values or diagnostic inaccuracy as these are not actually a subset of the same patient or a split specimen tested at different laboratories.

5. Results tables

Table 1. Characteristics and regulatory status of participating hospitals

Variable	Category	n	%
Accreditation evidence	Yes	0	0
Accreditation evidence	No	5	100
Regulatory inspection	Evidence or report present	0	0
Regulatory inspection	No evidence or report	5	100
Current facility licence	Independently verified	Not assessed	Not assessed
Ownership	Distribution documented	Not assessed	Not assessed

Study sample	Hospitals included	5	100
Patient sample	Patients aged 16 to 60 years	25	
Laboratory data	Selected analytes reviewed	3	

Table 2. Descriptive laboratory observations from different patients

Analyte	Observation 1	Observation 2	Observation 3	Interpretation
Potassium	3.5*	2.9*	4.5*	Different patients
Glucose	120 mg/dL	70 mg/dL	95 mg/dL	Different patients
AST	600 U/L	400 U/L	1,000 U/L	Different patients
Study meaning	Unpaired values	Unpaired values	Unpaired values	No inter laboratory agreement inference
Source limitation	Original reports needed	Original reports needed	Original reports needed	Potassium unit requires verification

*Potassium unit requires verification from the original laboratory report. The supplied notation was mg/dL, while serum potassium is ordinarily reported in mmol/L or mEq/L. No conversion was performed. Laboratory values in Table 2 came from different patients and are not paired comparisons.

Table 3. Reported patient charges

Charge measure	Value	Interpretation	Limitation
Reported charge 1	US$50	Descriptive observation	Service bundle not fully documented
Reported charge 2	US$45	Descriptive observation	Service bundle not fully documented
Reported charge 3	US$60	Descriptive observation	Service bundle not fully documented
Mean charge	US$51.67	Across 3 observations	Not an equivalent service price mean
Lowest to highest difference	US$15	US$45 to US$60	No legal tariff comparison performed

Table 4. Data completeness and interpretation limits

Domain	Available finding	Status	Implication	Action before submission
Accreditation	0 of 5 documented	Complete for pilot	Local facility finding	Retain source notes
Inspection	0 of 5 with evidence or report	Complete for pilot	Local facility finding	Retain source notes
Patient charges	US$45, US$50, US$60	Partial	Descriptive only	Clarify services if records exist
Laboratory values	Potassium, glucose, AST from different patients	Partial	No agreement analysis	Verify potassium unit
Ethics documentation	Hospital permission reported	Incomplete for journal submission	Consent and independent review unclear	Clarify ethics and consent documentation

6. Discussion

The preliminary findings indicate an acute problem with local governance of which may have been a concern amongst the sample communities taking part. In the period of hospital inspection, no evidence was found and/or no regulatory inspection was conducted in any of the 5 hospitals in terms of accreditation. The findings are based on small, nonprobability sample of KM4 hospitals and do not represent the findings for the rest of the hospitals in the city of Mogadishu and Somalia as a whole. Some country specific information: Osman et al. (2026) report non-existence of accreditation at Somali health institutions. Documentation of accreditation & reported inspection results are similar to the other hospitals that took part in the research and mirror national concerns voiced about the practice of routine quality oversight for hospitals. Out of Somali's 810 health facilities, 6.6 percent were monitored and clinic routine infection prevention and control (IPC) was implemented in 2024.In 2024, routine monitoring and implementation of infection prevention and control (IPC) in a systematic fashion was observed in Somali facilities in 6.6 percent of a total of 1,219 facilities. They don't contradict anything in terms of the prevalence in the KM4, but instead, they highlight that the weak documentation, inspection and follow up for strengthening of the KM4 has to improve.

6.1 Laboratory service quality and patient safety

The measured levels of potassium, glucose and AST were all different sets of data from separate patients. All the numbers should then be interpreted in terms of clinical observations and are not an indication of disagreement between the laboratories. This is important, because patients can have different biological values and these change from patient to patient and overtime. For a valid inter laboratory comparison, the patient must be comparable, or a split specimen must be used and must be analyzed by a laboratory. The results will need to be assessed in the context of the whole testing pathway in the future under laboratory service quality. Sub subdivisions that can affect the test results before the analysis begin are pre-analytical factors which include patient identification, specimen labeling, site of collection, storage and transport. Analytical factors are factors involving the reagent, calibration, instrument performance, environment, and internal quality control. The post analytical factors are transcription, reporting, reference intervals and interpretation.

WHO's laboratory quality guidance highlights a quality management system, rather than correcting individual errors. External quality assessment/proficiency testing provides an independent test of performance and a basis for corrective action to the laboratories. Outcomes from the external quality assessment were found to be significantly different for various types of tests and methods in the 2025 African systematic review by Cherie et al. Cherie et al. (2025) found that proficiency systems at a national or regional level could provide support to internal quality control.

6.2 Accreditation as a continuous process

Accreditation should not be a stand-alone process; it should be a continuous quality process. Good systems correlate assessment, corrective action, competence of staff, patient safety processes, data review and renewal with the standards. With no documented accreditation or inspection in all 5 participating hospitals it emphasizes the need to integrate accreditation and inspection into facilities oversight as part of routine processes.

7. Policy and practice recommendations

The findings from this small KM4 pilot support targeted actions focused on accreditation, inspection, fee transparency, and laboratory quality systems.

Create and maintain a public registry of licensed and accredited health facilities, including status, expiry date, and service scope.

Use a risk-based inspection schedule. Facilities providing surgery, blood transfusion, intensive care, high volume laboratory testing, or other high-risk services should receive more frequent review.

Adopt a standard inspection checklist covering staffing, infection prevention, medicines, laboratory quality, equipment maintenance, emergency readiness, records, waste management, patient rights, and fee transparency.

Require facilities to display or provide written prices for commonly used services before nonemergency care, with itemized receipts after payment. Separate evidence of price variation from evidence of unlawful charging. Enforcement findings should cite the exact rule or tariff breached.

Establish or expand national laboratory external quality assessment and proficiency testing, beginning with high volume tests such as hematology, glucose, malaria, renal function, liver function, pregnancy testing, and selected infectious disease assays.

Require laboratories to retain internal quality control records, equipment maintenance logs, reagent lot records, temperature records, and corrective action documentation.

Create a protected complaint pathway for patients and staff, linked to documented investigation and regulatory follow up.

Publish aggregate inspection and quality indicators to improve public accountability without exposing patient information.

These recommendations align with Somalia's broader policy direction. The Federal Government launched the Somalia Community Health Strategy 2025 to 2029 in April 2026, emphasizing stronger primary health care, resilience, and progress toward universal health coverage. The Ministry has also strengthened regulations of health products and technologies, while the National Health Professionals Council states that it is expanding facility registration and inspection functions. Regulatory development in these related areas provides an institutional basis for stronger hospital and laboratory oversight (UNICEF Somalia, 2026; Federal Ministry of Health and Human Services, 2025; National Health Professionals Council, 2025).

8. Strengths and limitations

This study has a major strength in the direct observation of accreditation status and inspection status over 5 participating hospitals in a specific time, and together with patient charges, lab observations, service performance. Also, the study rejects, as proof of inter laboratory error, unrelated patient lab values.

There are just a few things to note.

- First, the study period was short (23rd April to 5th May 2026).
- Secondly, the sample was very limited (5 hospitals in KM4 and a total of 25 patients aged 16 to 60 years) and generalizations were limited to those facilities in that group.
- Thirdly, the sampling of the facilities was nonprobability and was subject to the consent of the hospital.
- Fourth, there was insufficient documentation to perform a facility level analysis regarding current facility licensing, hospital ownership distribution, detailed price schedules or laboratory quality assurance records. Fifth, the three observations of the charge were not verified to be from the same set of services. These constraints make the possibility of direct price comparisons difficult.

9. Conclusion

This pilot study found no documented accreditation and no evidence or report of regulatory inspection among the 5 participating hospitals in the KM4 area of Mogadishu during the assessed period. The observed proportions for both accreditation and inspection were 0 percent. Three reported patient charges ranged from US$45 to US$60, but the services linked to those amounts were not sufficiently documented to support equivalent price comparison.

Selected potassium, glucose, and AST values were recorded from different patients. They should therefore be treated as descriptive clinical observations rather than evidence of laboratory discrepancy or error. The study supports stronger accreditation processes, routine regulatory inspection, transparent and itemized fee information, and direct assessment of laboratory quality assurance systems. Larger studies with representative sampling, verified source records, comparable service definitions, paired or split specimen laboratory methods, and documented research ethics procedures are needed.

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