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Performance Audit Report of the Auditor General
Specialized Health-care Delivery at
Kenyatta National Hospital
Waiting-time for Cancer, Renal and Heart Patients



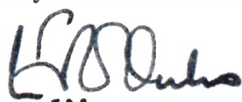
November 2012

Foreword by the Auditor General

I am pleased to publish and publicize this performance audit report that examines the delivery of specialized-care health services by Kenyatta National Hospital. My Office carried out the audit under the Public Audit Act, 2003. Section 29(1) of the Act mandates me to assess the economy, efficiency and effectiveness with which the Government, a state corporation or local authority uses its resources.

Performance Audits together with Financial and Continuous Audits form the three-pillar audit assurance framework that I have established to give focus to the varied and wide scope of audit work done by my Office. The framework is intended to give assurance to stakeholders that public resources are not only correctly disbursed, recorded and accounted for but that they also have positive impacts on the lives of all Kenyans. The overriding goal of our performance audits is to promote delivery to Kenyans of public services of outstanding quality. This audit report responds to that goal in a direct way.

The report is to be tabled in Parliament in accordance with Article 229(7) of the Constitution. I have, as provided in Section 30 of the Public Audit Act, submitted the original copy of the report to the Minister of Medical Services to table in Parliament as required of him under Section 31(1) of the Act. In addition, I have remitted copies of the report to the Minister of Finance and to the Permanent Secretary, The Treasury and to the Executive Director Kenyatta National Hospital.



EDWARD R.O. OUKO
AUDITOR-GENERAL

12 November, 2012

List of Tables and Glossary of Terms

Glossary of Terms

A&E	-	Accident and Emergency
AIDS	-	Acquired Immune Deficiency Syndrome
CCU	-	Critical Care Unit
CTC	-	Cancer Treatment Centre
HIV	-	Human Immunodeficiency Virus
ICU	-	Intensive Care Unit
OAG	-	Office of the Auditor General
KNH	-	Kenyatta National Hospital
NHSSP	-	National Health Sector Strategic Plan
SOPs	-	Standard Operating Procedures
WHO	-	World Health Organization

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Executive Summary

Background to the Audit

1. Kenyatta National Hospital (KNH) is the largest public hospital in Kenya. In addition to its primary mandate to provide specialized health-care services to patients on referral from provincial and district level hospitals, the Hospital facilitates medical training and research and participates in national health-care planning. The specialized health-care services provided by the Hospital include radiotherapy, heart surgery, neurosurgery, renal dialysis and kidney transplant operations, plastic and reconstructive surgery, orthopedic surgery and burns management, among others.
2. The Kenya Health Policy (1994-2010) Framework places Kenyatta National Hospital at Level Six; the apex of the national health-care delivery system. Therefore, the level of efficiency with which the Hospital delivers services to the public is a matter of national importance. Furthermore, due to its exalted position, the Hospital is expected to set high standards of health-care delivery that other public and private hospitals may emulate. It is for these and other pertinent reasons that the Auditor General considered it important to conduct a performance audit on the operations of the Hospital.
3. The audit assessed the level of efficiency at which the Hospital delivers its statutory mandate as a national referral hospital for specialized healthcare services. The specific objective of the audit was to assess the average length of waiting-time experienced by patients seeking treatment services in each of the Hospital's main specialized healthcare departments namely, the Cardiology Department, the Cancer Treatment Centre and the Renal Unit; as well as in the Accident and Emergency Centre.

Summary of our findings

Waiting time for cancer patients

4. Examination of samples and batches of data on the Hospital's operations and records revealed that patients experience long delays before they receive treatment in any of its specialized departments and units:
5. The data revealed that new patients at the Cancer Treatment Centre wait for an average of 63 days (over two months) to see a clinical specialist for the first time. Those booked for radiotherapy sessions wait for four months before they attend the first session while those due for chemotherapy wait for one and a half months. Patients due for brachytherapy (cervical cancer treatment) wait for an average of five months before they access treatment services for the first time. Among the cancer patients booked for chemotherapy, only one out of every two received the service on schedule.

6. The Hospital promises to release results on medical tests carried out on cancer patients at the Histology Laboratory within seven (7) days. However, the audit revealed that on average, the results are released after twenty-two (22) days.

Waiting time for heart patients

7. Records in the Cardiology Department revealed that patients wait for an average of 34 days (one month) to consult a specialist doctor for the first time and 112 days (three-and-a-half- months) to appear before a multi-disciplinary committee that recommends the mode of treatment for each patient. Further, the patients wait for an average of 207 days (seven months) before they are admitted into the Ward to prepare for heart-surgery. Upon admission, patients stay in the Ward for an average of 22 days (three weeks) before surgery.
8. On average, the multi-disciplinary committee deliberates on 23 cardiac patients every month. Of the 17 patients booked for surgery during the month, only 6 (six) are operated on. In view of the delays that precede surgical operations in the Cardiology Department, 132 patients on the waiting-list at the end of the year are carried forward to the following year.

Waiting time for kidney patients

9. International guidelines on renal therapy require patients to be dialyzed for at least four (4) hours, three times every week, or a total 12 hours in each week. The Hospital's target is to put renal patients on dialysis for at least eight (8) hours each week. However, most patients are dialyzed only once per week (4 hours) and some only once in two weeks. On average, the patients wait for eight (8) days from one dialysis session to another contrary to the recommended waiting time of three (3) days.

Effects of long delays in delivery of specialized health care services

10. Long waiting times before serious illnesses are treated prolong suffering and heighten anxiety of the sick and increase the risk of failure of any belated treatment that may eventually be provided to them. Further, patients who have their treatment regimes delayed may later on require more rigorous treatment which may result in side effects detrimental to their well-being not to mention the inevitable increase in financial costs of treatment.

Reasons for delays in delivery of the specialized services

11. Kenyatta National Hospital's failure to provide services efficiently is mainly caused by lack of sufficient numbers and variety of medical equipments and specialist staff to cater for the very large number of patients who come to the Hospital for treatment. The resource constraints faced by the Hospital are caused by lack of sufficient funds with which to procure and maintain the resources.

12. In addition to resource constraints, some management systems and practices applied by the Hospital, for example, its ineffective revenue management practices and inadequate management information system hinder the Hospital from delivering services in a timely manner:

Too many patients seek treatment at the Hospital because the national health-care referral system does not function as well as intended

13. Records on hospital attendance indicate that the KNH receives more than 2,000 in-patients and 1500 outpatients each day. The majority of the patients (at least 60%) suffer from common illnesses, even though the Hospital's mandate is to provide specialized health-care services.
14. The anomaly is a result of the national-health-care referral system failing to function as intended. Too many patients come to KNH because primary and other lower-tier health-care institutions face operational constraints and thus do not provide services in a manner that meets the expectations of the patients. In addition, unlike other regions, Nairobi Province lacks a provincial-level public hospital. Further, the KNH is the only public health-care institution in Kenya that provides the full range of specialized health-care services.

The Hospital lacks sufficient numbers of functional specialized medical equipments

15. The medical equipments used by the Hospital to provide specialized services are few and mostly, quite old. Therefore they are not only constrained in the range of services they may provide but also break down frequently. For example, the Renal Unit has only 14 out of the 23 machines it requires to provide dialysis services efficiently. Only eight (8) of the 14 machines were in good working condition at the time of the audit.
16. Similarly, the Cancer Treatment Centre has only two radiotherapy machines. One of the two machines, the Cobalt T780, is 28 years old, breaks down frequently, and thus disrupts delivery of services at the Centre. In the Cardiology Department, the Hospital's only closed-heart surgery machine was purchased in the year 1993. It was put out of service in early 2010 after it broke down.

The Hospital lacks sufficient space for all the patients that it admits

17. The management has set the Hospitals bed-capacity at 1,410. However, at the time of the audit, there were 1876 beds (133 % of the recommended capacity) in all of the Hospital's wards but these were still not sufficient to cater for all patients in need of admission at the time.

18. The Critical Care Unit, which provides both emergency as well elective surgeries, has 21 beds only. Scheduled surgical operations are cancelled often due to lack of bed-space. The Acute Room at the Accident and Emergency Centre has only five (5) beds, which are not sufficient to serve the many critically ill patients received at the Centre. Ward 6C, which admits orthopedic patients, registers occupancy rates of up to 180% causing congestion and an uncomfortable environment for the patients as well as the medical personnel who work there.

The Hospital has too few of the specialists it requires to deliver its unique mandate effectively

19. The number of doctors and other experts employed in the Hospital's specialized units are too few relative to the patients. For example, the Cancer Treatment Centre has only four (4) oncologists- (specialists trained to treat cancer) even though it receives between 50 and 60 new patients each week. The Centre has only two nurses trained in handling cancer patients and two medical physicists instead of the required ten and eighteen radiographers instead of the thirty-six (36) required. In addition, the Hospital does not meet the required nurse patient ratio of 1:1, which the World Health Organization (WHO) recommends for critical-care services.

There are occasional stock-outs of important medical supplies

20. Occasionally, the Hospital lacks vital and essential drugs required in the Critical Care Unit, theatres as well as in the resuscitation and burns units. Medical workers at the Hospital blame the stock-outs on inefficient procurement practices by the procurement unit and refusal by some suppliers to honor purchase orders when the Hospital fails to pay for previous deliveries in due time.

The Hospital's Management Information System does not support efficient delivery of services

21. The Hospital's management information system does not gather, analyze, store and control clinical, administrative and financial information in a complete and integrated manner. Key data and information required to plan and guide daily operations are not available to management fast enough and in a format that would support efficient delivery of services.

Efficiency standards and guidelines on the Hospital's key operations are not fully developed

22. The Hospital has not established and documented important operational standards and guidelines essential for efficient delivery of its services. Among the missing operational standards are those on waiting-time as well as policies and guidelines on admission and discharge of patients.

23. In the absence of measurable targets for efficient service delivery, the management of the Hospital cannot effectively monitor, evaluate and control performance of the specialized health-care and other departments and units of the Hospital. In addition, KNH has no documented policies on how to acquire, maintain, and replace organizational assets. Therefore, the Hospital is unable to manage its assets in a manner that supports efficient delivery of its services.

The Hospital's expenditures often exceed its revenues

24. The Hospital lacks sufficient financial resources to buy and maintain all the equipments and the human expertise it requires to deliver on its specialized health-care mandate. During the period under review, the actual financial allocations made to the Hospital by the Treasury were below what the Hospital had estimated and presented in its annual budgets by an annual average of about 16.84%. Further, revenue collection under the cost-sharing programme was below the budgeted levels by 27% during the period.
25. The Hospital's private wing levies fees to patients but does not collect as much revenue as expected. For instance, it reported annual financial losses totaling to KShs.35 million during the 2004/05 financial year and KShs.66.1 million in 2008/09. Over the same period, the Hospital incurred 71% of its total expenditure on personal emoluments.
26. The management explained that patients who fail to pay for the services provided to them by the Hospital are the main cause for the revenue shortfalls. Outstanding debts owed to the Hospital by patients as at 30 June 2009 amounted to Kshs.1,446,030,702 out of which, a balance of Kshs.1,256,527,193 (86%) was owed by those categorized by the Hospital as poor and unlikely to ever repay their debts. However, the audit revealed that the Hospital does not manage its debtors well because it lacks a documented credit control policy. For example, it recovered only 20% of the financial credit granted to patients during the period under review.

Conclusions

27. Patients who seek specialized health-care services at Kenyatta National Hospital endure long waiting times before they access treatment. The delays hinder the Hospital from delivering its unique mandate in an efficient manner and literary puts the lives of many citizens at grave risk. The delays are caused by various adverse factors that broadly result from an influx of patients to the Hospital due to a dysfunctional national referral health-care management system, inadequate operational systems that hamper efficient operations, and lack of sufficient human resource capacity and equipments as a result of lack of sufficient financial resources for investment.

Recommendations

28. The effective equipping of public referral hospitals is going to be critical to efficient delivery of health services nationwide. The Auditor-General recommends that the Ministry of Medical Services and the management of Kenyatta National Hospital should together resolve the constraints that hinder the Hospital and other referral hospitals from fulfilling their special mandate as national centres for specialized healthcare delivery:
- (i) To ensure timely delivery of specialized health-care services, the management of the Hospital should develop waiting-time and other service standards and establish mechanisms for monitoring, evaluating and reporting on how the Hospital performs against the standards.
 - (ii) To obtain and maintain the required assets, personnel and other resources that the Hospital needs to offer services efficiently, the management should raise the Hospital's income by improving the effectiveness of its revenue management systems through effective control of service fee collection and debt recovery. In addition, the Ministry of Medical Services should provide the Hospital with programme funds to renew and increase its stock of specialized medical equipments.
 - (iii) To reduce to manageable levels the very large numbers of patients that seek treatment at the KNH, the Ministry of Medical Services should;
 - revive the national health-care delivery system by ensuring that primary health-care institutions have sufficient medical supplies and appropriate equipments and are managed in the proper manner and ;
 - facilitate more public hospitals to provide some of the specialized health-care services now only provided by the KNH.
29. The complete set of measures that the Auditor-General has recommended to the Ministry of Medical Services and the management of Kenyatta National Hospital are outlined in Chapter 6 of this report.
30. The management of the Hospital have read the audit report and agreed with its findings and recommendations. Their comments on the findings and recommendations of the report are outlined in Appendix III.

Chapter 1

Background to the Audit

Introduction

- 1.1 This report contains findings and other relevant details of a Value-for-money audit conducted by the Office of the Auditor General on delivery of specialized healthcare services by Kenyatta National Hospital (KNH).

Motivation for the audit

- 1.2 The Auditor-General authorized the audit after having considered the following factors:
- i. Kenyatta National Hospital operates at the apex of the health-care delivery system in Kenya. Therefore, the quality of the services that it delivers is a matter of national importance.
 - ii. Due to its exalted position, the Hospital should play a vital role in setting national health-care service delivery standards. In addition, the performance of the Hospital could, influence the attainment of the objectives outlined in the second National Health Sector Strategic Plan (NHSSP II) of 2005 to 2010 as well as the goals of the national long-term plan, Kenya Vision 2030 and the Millennium Development Goals.
 - iii. Patients who seek specialized services at the Hospital perennially complain of delays in receiving treatment. Therefore an audit would help establish the causes of the complaints and provide recommendations on how service delivery may be improved.
 - iv. The ailments that the Hospital deals in are life-threatening and need to be attended to in a timely manner and with specialized skills and resources. Delays in providing treatment to patients are bound to result in prolonged suffering and terminal outcomes on the lives of patients.

- v. Parliament, the management of the Hospital and the Ministry of Medical Services would be interested in obtaining independent and objective information on the performance of the Hospital in delivering its statutory mandate. Among the issues these stakeholders would wish to know is whether the Hospital delivers its services in an efficient manner and makes effective use of resources at its disposal.

Chapter 2

Design of the Audit

Objectives of the audit

- 2.1 The audit sought to establish the level of efficiency at which Kenyatta National Hospital delivers specialized healthcare services. The specific objectives of the audit were to:
- i. Assess the length of waiting-time experienced by patients who seek specialized healthcare services from the Hospital and ;
 - ii. Establish the reasons for any delays by the Hospital in delivering the services.

Scope of the audit

- 2.2 The audit examined the health-care service delivery systems applied by Kenyatta National Hospital in providing its statutory mandate as a national referral hospital for specialized health-care services. The focus of the audit was on the length of waiting-times that patients experience in various specialized departments and units of the hospital before they are diagnosed, treated, admitted into the wards or undergo surgery or other medical procedures.

The audit examined specialized healthcare services provided by the Cardiology (heart ailments) Department, the Cancer Treatment Centre, Histology (cancer diagnosis) Laboratory, the Renal (kidney ailments) Unit, and the Accident and Emergency Centre. The audit initially covered the operations of the hospital for the period July 2004 to June 2010 but has since been updated to the position as at October 2012.

Audit (Performance) Criteria

- 2.3 The audit assessed the performance of the Hospital against criteria drawn from the statutory mandate, the Service Delivery Charter and strategic goals. We also referred to recommended practices on management of specialized health-care. Details on the audit criteria are provided in Appendix I of this report.

Methodology of the audit

- 2.4 We conducted the audit in accordance with Performance Auditing Guidelines set by the International Organization of Supreme Audit Institutions (INTOSAI) and audit policies and procedures established by the Office of the Auditor General (OAG). The guidelines and policies conform to the requirements of International Standards on Auditing.
 - 2.5 The methods used to conduct the audit included document reviews, interviews, and physical observation. Our methods are explained in detail in Appendix II of this report.
-

Chapter 3

Description of the Audit Area

Statutory mandate and role of Kenyatta National Hospital

- 3.1 Kenyatta National Hospital (KNH) is a public referral, teaching and research hospital established in 1901. The Government converted it into a state corporation through Legal Notice No. 109 of 6 April 1987. The Notice spelled out the responsibilities of the Hospital as being;
- i) to receive patients on referral from other hospitals or institutions within and outside Kenya and provide them with specialized health-care services ;
 - ii) to provide facilities for medical education for the College of Health Sciences of the University of Nairobi;
 - iii) to provide facilities for medical training in nursing and other health and allied professions; and;
 - iv) to participate as a national referral hospital in national health planning.
- 3.2 The core business of Kenyatta National Hospital is to receive and treat patients on referral from lower-tier institutions. The Hospital provides radiotherapy, heart surgery, neurosurgery, plastic and reconstructive surgery, critical-care, post-natal care, orthopedic surgery, kidney transplant surgery, renal therapy and burns management among other specialized services.

Kenyatta National Hospital's Vision, Mission, and Core values and, Strategic goals and objectives

- 3.3 The Vision of Kenyatta National Hospital is; 'to be a world class referral hospital in the provision of innovative specialized health care'. The Hospital defines its Mission thus; 'to provide accessible specialized quality healthcare, facilitate medical training, research, and participate in national health planning and policy'. It defines its core values as; responsiveness, quality services, professionalism, integrity, customer satisfaction and teamwork, among others.

KNH Strategic Goals and Objectives

KNH has identified the following as its strategic goals for the period 2008-2012:

- i. To provide internationally acceptable specialized health care;
- ii. To enhance training and research;
- iii. To attain financial sustainability;
- iv. To make optimal use institutional capacity.

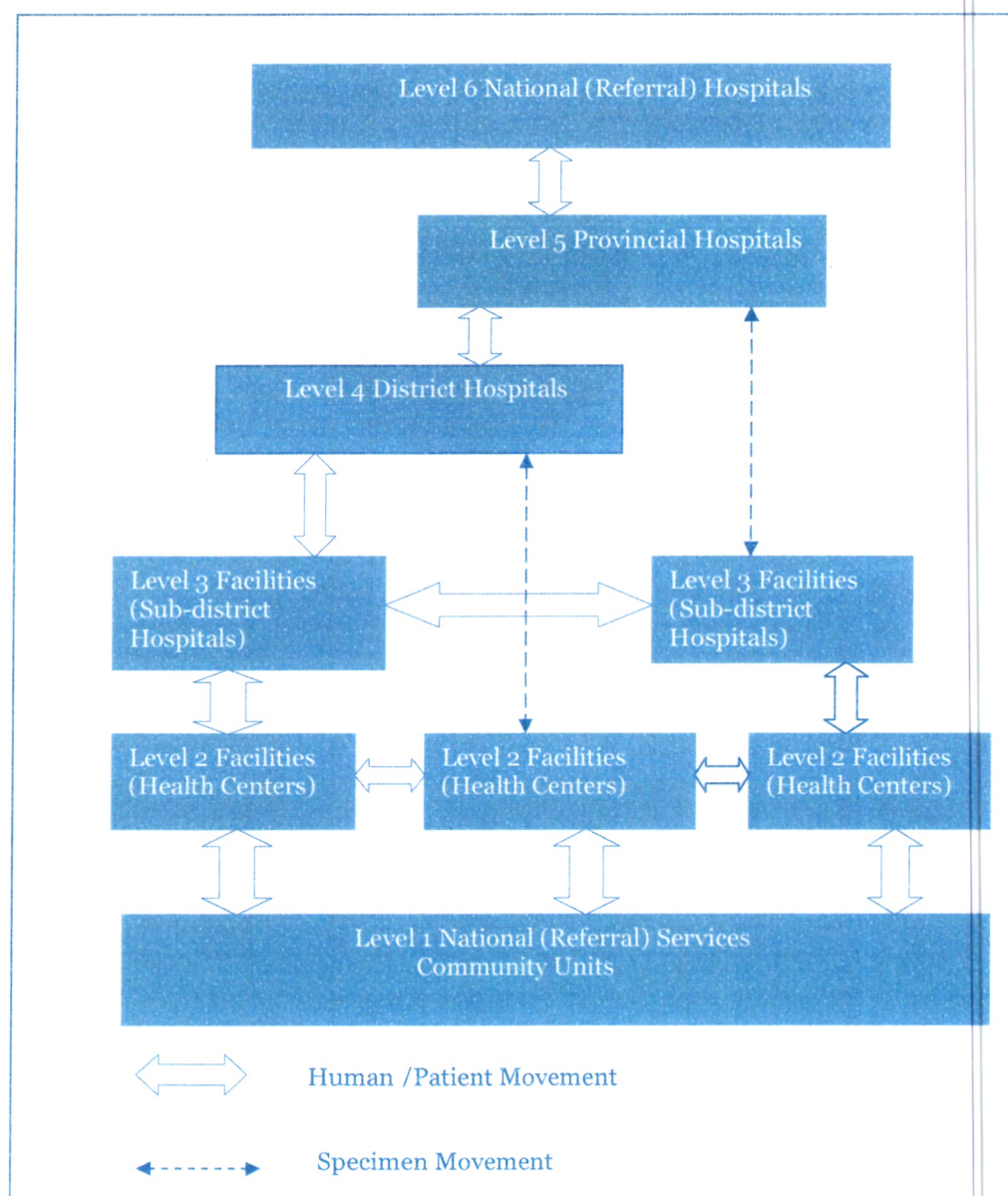
Its strategic objectives include:

- (i) To provide quality specialized health care;
- (ii) To acquire international accreditation;
- (iii) To promote institutional linkages and collaborations;
- (iv) To strengthen training and research capacity;
- (v) To ensure cost efficiency and effectiveness

Organization of the National Referral Health-care System

- 3.5 The public health-care system in Kenya operates through a network of facilities organized in a pyramidal structure. The level of sophistication of the services provided by each category of the health facilities rises as one climbs up the hierarchy. At the lowest-end are dispensaries and health clinics, next are health centers, then sub-district Hospitals followed by District Hospitals, then Provincial General Hospitals and at the apex are the national referral hospitals of which there are only two; namely Kenyatta National Hospital in Nairobi and Moi Teaching and Referral Hospital in Eldoret. However, KNH, being the first and the largest referral hospital in Kenya, is the first among equals.

Figure 1: National Referral Systems Linkages



Source: Health Sector Referral Strategy and Investment Plan, 2008 – 2012

Organization Structure of Kenyatta National Hospital

- 3.6 A management Board appointed by the Minister of Medical Services supervises the affairs of the KNH. The Board develops policy directions and guidelines and appoints the Executive Director who becomes its Secretary. The Director is responsible for day-to-day management of the Hospital and is assisted by two Deputy Directors, one responsible for Clinical Services and the other for Administration and Finance. Serving under the two Deputy Directors are the heads of departments, professionals and other staff cadres.

Sources of Funding to the KNH

- 3.7 The KNH finances its operations from two main sources namely, fees charged to patients under the cost-sharing programme and from annual grants provided by the Government. In addition, international and local donors occasionally finance projects undertaken by the Hospital.

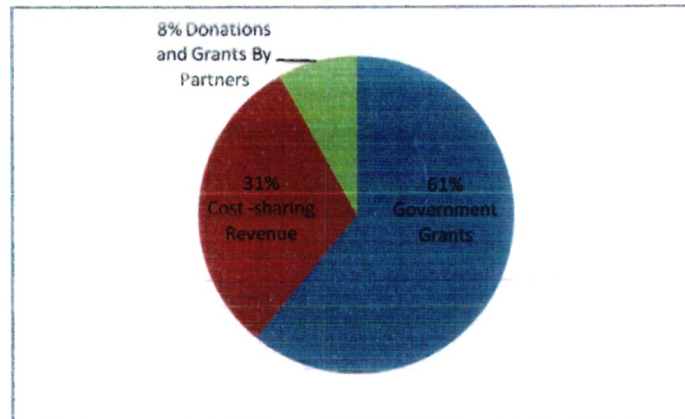


Figure 2: Sources of Funding to KNH -The Government is the main source of operational and investment funds to the Hospital.
Source: OAG Analysis of KNH audited Financial Statements

- 3.8 The aggregate amount of funds received by the Hospital from all sources between the 2004/2005 and 2008/2009 financial years is shown in Table 1 below:

INCOME	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	Total	% of Total
							Revenue
Cost sharing revenue	1,304,772,542	1,329,136,208	1,700,000,000	1,627,487,398	1,685,985,616	7,647,401,764	31.17%
GOK Grants	2,670,014,959	2,858,014,959	2,858,014,900	3,116,791,765	3,615,808,818	15,118,645,401	61.62%
Other Grants/Loans	42,387,227	62,764,066	1,400,000,000	101,945,688	160,742,598	1,767,839,579	7.21%
Total Income	4,017,174,728	4,249,915,233	5,958,014,900	4,846,234,851	5,462,547,032	24,533,886,744	100%

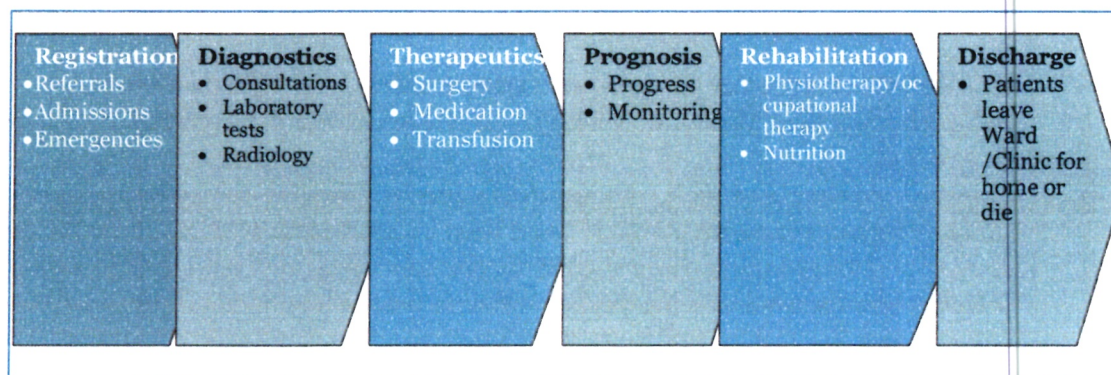
Table 1: Sources of Revenue for KNH: Fees charged to patients under the cost-sharing Programme were the largest contributors to Revenue collection.

Source: Kenyatta National Hospital-Audited financial statements.

Process for Delivery of Specialized Services at KNH

- 3.9 The general order of procedures applied by the Hospital in delivering specialized Healthcare services are illustrated in Figure 3 below.

Figure 3: Procedural steps in delivery of specialized healthcare services at Kenyatta National Hospital



Source: OAG Analysis of KNH ICT Strategy Document

- 3.10 New patients are received at the Accident and Emergency (A&E) Unit, the Pediatric Emergency or the Outpatient Clinics as appropriate. A medic at each receiving point registers each patient and thereafter refers the patient to the doctor on duty who after interviewing and assessing the patient, recommends diagnostic tests. After the patient is diagnosed, the doctor recommends treatment, which usually entails medication or surgery. Should the doctor recommend admission, the records officer opens a file on the patient. For any patient whose condition requires follow-up in a specialized clinic, a case file is opened at the central records office.

Chapter 4

Detailed Findings of the Audit

Patients experience in-ordinate delays before they receive specialized services at Kenyatta National Hospital

- 4.1 The management and staff of Kenyatta National Hospital endeavor to serve in a timely manner patients who seek specialized health-care services at the Hospital. However, data generated from the Hospital's operations revealed that in reality the patients wait for unduly long periods of time before they receive the services. The delays occur in all the units that we audited namely; the Cancer Treatment Centre, the Renal Unit, the Cardiology Department and the Accident and Emergency Centre as explained below:

Waiting-time at the Cancer Treatment Center

- 4.2 The KNH management is yet to develop standards on waiting time for cancer treatment. However, the Joint Council of Clinical Oncologists of the United Kingdom (UK) and the Department of Health recommends that any patient suspected to have cancer be assessed by a specialist within two weeks from the time the symptoms of the disease are detected.
- 4.3 The patient should spend no more than one month from diagnosis (decision to treat) to first treatment; or in all, not more than two months from referral for suspected cancer to first treatment. Similarly, the National Cancer Action Team of the National Health Services (UK) waiting-time standard for cancer patients is thirty-one (31) days from the point a decision to treat is made to the time the treatment is provided for the first time and (62)sixty-two days from referral for suspected cancer to first treatment. However as the following audit findings show, the delays at Kenyatta National Hospital last much longer.

Delays in accessing radiotherapy services

- 4.4 Our examination of batches and samples of patient records retained by the KNH revealed that after referral to a specialist, cancer patients on average spend sixty-three days (over two months) on the waiting list before they meet the specialist for the first time. An average of fifty-five more days (about two months) elapse before an expert simulates the patient to map the treatment area. An additional, forty-five days (one and a half months) elapse before the patient receives treatment for the first time.

The Cancer Treatment Centre

The Cancer Treatment Centre at Kenyatta National Hospital is the only public cancer treatment facility in Kenya. It was established in 1968 under a collaborative research project undertaken by the Swedish and Kenyan Governments. The Centre's role is to provide high quality specialized therapeutic radiation and patient management to all patients referred to the KNH from other health institutions in Kenya or clinical departments of the KNH. It also incorporates a nuclear medical unit for treatment of thyroid related cancers. According to data from the World Health Organization there were in 2008 7.6 million cases of cancer worldwide and these were predicted to reach 16 million by 2020. It is predicted that 70% of the new cases will occur in developing countries of which Kenya is one. Currently, the Cancer Treatment Centre receives between 2,000 and 3,000 new patients annually.

Treatment Processes

The Centre receives patients from within other departments of the KNH as well as from outside the hospital. Each patient referred to the centre is first booked for an appointment to see the consulting doctor who assesses the ailment and condition of the patient and recommends the mode of treatment which may entail chemotherapy and/or radiotherapy sessions or palliative care depending on the outcome of the investigations.

- 4.5 A sample of twenty-seven files obtained from a batch of three hundred which had complete data on the whole treatment process (from referral date to 1st clinic then to 1st treatment session) indicated that cancer patients at the KNH took an average of nine months from the time of referral to the time they received treatment for the first time.
- 4.6 The Hospital management explained that patients wait for long before they are seen by specialists because there are not enough specialists to serve. The Cancer Treatment Centre employs only four oncologists (cancer treatment specialists) but receives between 50 and 60 new patients each week. The Hospital also lacks sufficient numbers of trained nurses and radiographers. To serve as many patients as possible, doctors shorten the time they consult with each patient.
- 4.7 The management attributed the delays in commencement of treatment to shortage of vital medical equipments. The Department has only two radiotherapy (Cobalt) machines that it uses to administer radiation treatment to patients. One of the two machines (Cobalt T 780) is over 26 years old and breaks down frequently, at times even when a treatment procedure is in progress, and thus disrupts continuous delivery of quality services to the patients.
- 4.8 Spare parts required for the repair and maintenance of the Cobalt T 780 are no longer available in the market. Whenever it breaks down, patients booked for radiotherapy are transferred to the alternative Cobalt-60 (Phoenix) machine, which often has its own long waiting list of patients.

Radiotherapy Treatment

Radiotherapy treatment entails localized exposure of cancerous body parts to high-energy radiation from radioactive elements. Its purpose is to sterilize (kill) cancer cells. A simulator is used to identify the area to be exposed to radiation in the course of treatment. A medical physicist plans the treatment using a computer. The simulation results in a radiotherapy treatment plan. The doctor approves the plan and prescribes the dose, duration of the treatment and the position of the patient on the radiotherapy machine.

- 4.9 According to the Royal College of Radiologists of the United Kingdom, delays suffered by patients in accessing radiotherapy treatment may allow time for cancerous cells to multiply and thus make radical treatment difficult and more expensive, and worse, may enhance the possibility of worst patient outcomes.

Delays in accessing Chemotherapy Treatment

- 4.10 The first course of chemotherapy treatment should ideally start immediately after the doctor recommends it. However, our analysis of patient registers revealed that after a treatment course is formulated by the doctor, a cancer patient at the KNH waits for an average of forty-three days (about two months) before accessing chemotherapy treatment. In one sample that we examined, out of 503 patients booked for chemotherapy treatment in the period, only 261 (51%) received treatment on the dates scheduled. The rest, (242 or 42%) of the patients had their appointments rescheduled at least once. In one peculiar case, a patient booked for chemotherapy had the treatment rescheduled numerous times and only received the service six months after the doctor's recommendation.

Chemotherapy Services

Chemotherapy involves administration of a combination of drugs (either orally or intravenously) to cancer patients. The purpose of the procedure is to attack and sterilize (kill) cancer cells. The treatment should take a period of three to four weeks for a normal dose of six to eight courses. The first course of treatment should under normal circumstances, start immediately after the doctor's recommendations.

- 4.11 Among the causes for the delays in providing chemotherapy services at KNH is lack of sufficient room in which to admit patients. Only 32 beds are reserved for cancer patients (Ward GFD) in the Hospital. Of the 32 beds, two (2) beds are reserved for brachytherapy (cervical cancer) patients, two (2) for nuclear medicine patients and only 28 for chemotherapy patients. The rest of the cancer patients are admitted to the Hospital's general wards. Since the Hospital handles many cancer patients in need of chemotherapy at any one time, waiting times for the service are unduly long.

- 4.12 The Cancer Treatment Center (CTC) has two cobalt machines, Cobalt 60 T 780 and the Cobalt 60 Phoenix Machines. The Cobalt T 780 had at the time of the audit been in use at the Hospital for 26 years even though its useful life was estimated at 15 years when it was purchased in 1983. Thus by the year 2012, the machine, though still in use, was 14 years over and above its useful life due to have ended in 1998. The machine breaks down frequently but spare parts required for its repair and maintenance are no longer available in the market. Although the heads of the Cancer Treatment Center and the Biomedical Department of the Hospital had recommended that the machine be decommissioned in September 2008, the Hospital management ignored the advice as they had no money to buy a new one.

Delays in accessing Brachtherapy Services

- 4.13 Brachtherapy refers to a specialized form of medical treatment offered to cervical cancer patients. Under the treatment, cancer is exposed to localized high-energy radiation in a cavity (closed) area. Patients first have to be admitted into the Hospital for assessment from where they regularly visit the treatment room for the procedure.
- 4.14 Analysis of the register used by the Centre to book patients for brachytherapy sessions revealed that the majority of patients waited for between six to seven months before treatment. As at the end of March 2010, the Centre had completed bookings for the patients due to receive the services for the following seven months to September 2010. Thus, any new patients diagnosed in April would have had to wait for not less than six months before treatment.

Rising Need for Brachytherapy

Cancer of the cervix is a major threat to the health system in Kenya. In 2002, it had the highest rates of occurrence at the hospital at 45 patients per 100,000 while in 2005 it caused the highest number of deaths among other forms of cancer at 26 patients per 100,000. Please see Table 5 below.

Table 2 : Incidences of Cancer in 2002 and Deaths in 2005

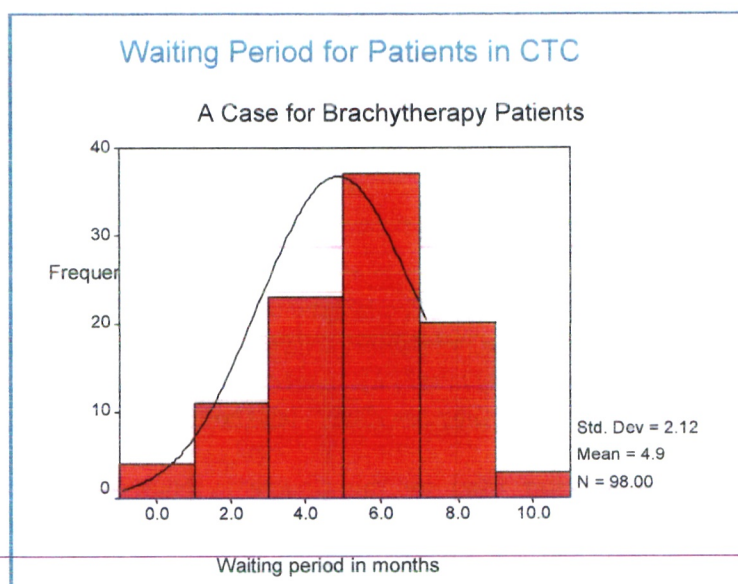
Cancer Type	Incidence per 100,000 in 2002	Death Rate per 100,000 in 2005
Cervix uteri cancer	45	26
Breast cancer	22	14
Stomach cancer	11	9
Lymphomas, multiple myeloma	13	9
Liver cancer	10	8
Ovary cancer	11	7
Esophagus cancer	7	6
Melanoma and other skin cancers	4	3
Colon and rectum cancers	5	3

Cervix uteri Cancer has the highest prevalence (as shown by incidences in 2002) and death rate (as shown in 2005) followed by breast cancer and stomach cancer, respectively.

Source: OAG analysis of KNH data

- 4.15 The only brachytherapy services machine at the Hospital is old and breaks down often. In practice, the Unit can only treat four patients each week since it has only one machine at its disposal and in addition, the admission Ward for cancer patients reserves only two beds for patients that require brachytherapy services. At times, patients overdue for treatment are referred to hospitals abroad since the KNH is, reportedly, the only hospital that offers the services in Kenya.

Figure 4: Analysis of Waiting- time for Brachytherapy Services



Source: OAG analysis of KNH Data

Most patients seeking Brachytherapy services wait for between 6 - 7 months to receive treatment

Results of cancer tests conducted at the Histology Laboratory take long before they are released to patients

- 4.16 The Histology Laboratory is a Unit of the Department of Laboratory Medicine where tests on patients suspected to have cancer are conducted. Medical experts examine laboratory specimens for between 18 and 24 hours and then prepare them for reading to reveal the type of cancer cells in the specimens.
- 4.17 KNH standards call for medical tests results to be released within seven days after the respective specimens are submitted to the laboratory. However, our examination of entries made in the specimen register in June and December 2009 revealed that the laboratory took an average of 18 and 22 days respectively before releasing test results during the two months.

- 4.18 Delays in releasing test results in turn delay commencement of treatment and thus, hamper possible recovery of cancer patients. Among the reasons given by the Hospital management for the delays in releasing test results included;
- i) laboratory supplies such as re-agents with which to conduct tests not being available in the Hospital's medical stores and;
 - ii) some key experts (histopathologists) assigned to the laboratory pre-occupied elsewhere since they, among other duties, supervise students studying Medicine at the University of Nairobi.

Waiting-time at the Cardiology Department

- 4.19 The Cardiology Department serves patients with heart ailments. Among the services offered by the Department include surgery, echocardiogram (ECG), stress tests and provision of pacemakers to patients who may need the gadget.

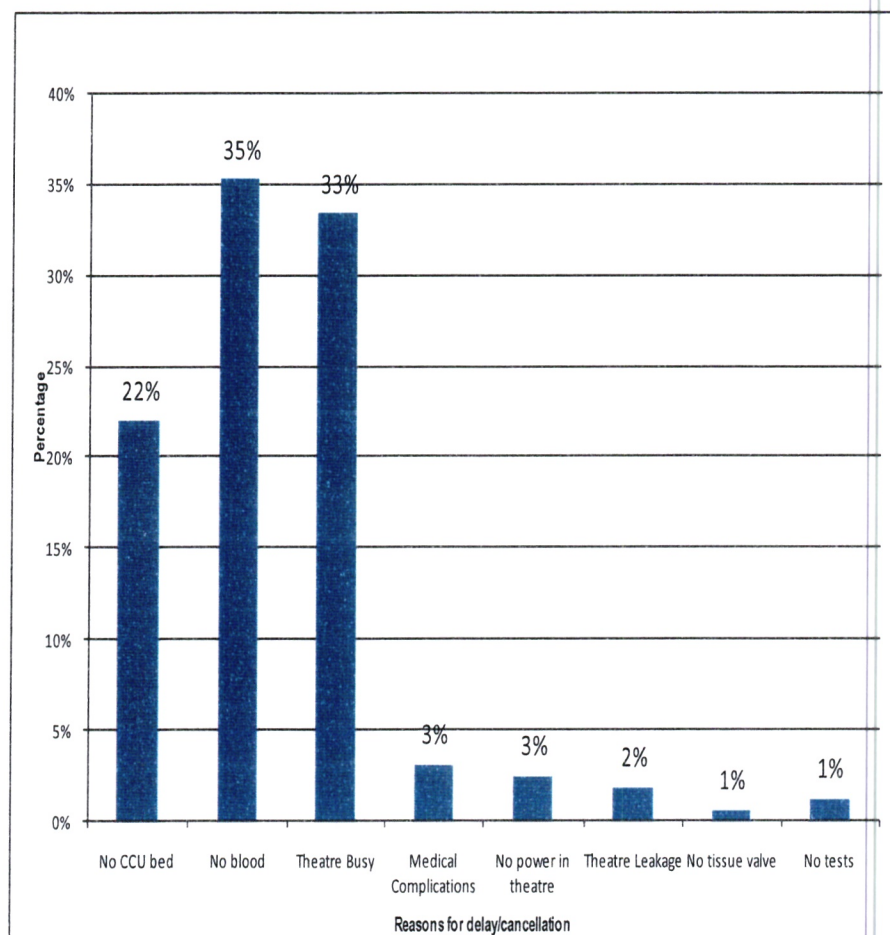
Procedure to Accessing Treatment at the Cardiology Department

A patient's pathway to cardiac surgery at KNH is relatively complex, typically involving a number of hospital visits and several investigations before the patient is put on the waiting list. Patients suspected to have cardiac problems are referred to the Cardiology Department where they undergo various tests. The tests determine the type of treatment to be given to the patient. Depending on the outcome of the tests, patients are booked for discussion/interview by a multidisciplinary committee made up of various experts who decide on the best mode of treatment. The expert may recommend either open or closed heart surgery on the patient depending on the conclusions arrived at the discussion. Patients recommended for surgery are then scheduled for admission in Ward 4B where they are in turn booked in the theatre for surgery. The likelihood of a patient being booked for surgery depends on the availability of beds in the Ward and at the ICU Unit as well as blood for transfusion.

- 4.20 At the time of the audit, the KNH had not established standards on waiting-time for its cardiac patients but was instead, using an eight-month target set in its performance contracts for the year ended 30 June 2010.
- 4.21 Sample records that we obtained from the Cardiology Department revealed that patients waited for an average of 34 days (one month) to consult a specialist doctor for the first time and 112 days (three and a half months) to appear before a multi-disciplinary committee that recommends the suitable mode of treatment. Further the patients waited for an average of 207 days (seven months) to be admitted into the Ward to prepare for heart-surgery. Upon admission, patients stayed in the ward for an average of 22 days (three weeks) before surgery.

- 4.22 A batch of records with complete information on milestones of the treatment process revealed that it took six and a half months (196 days) from the time the Hospital identified and recommended heart-surgery as the relevant mode of treatment to the time the patient was operated on. The longest waiting-time occurred between the moment the multidisciplinary committee discussed a case to the time the patient was admitted into the Ward to await surgery. The delays mainly resulted from lack of room for admission since the heart-patients' Ward (Ward 4B), has 35 beds only, all of which are usually occupied.
- 4.23 As at March 30, 2010, bookings for open-heart surgery had been done up to April 2011. Another major reason for the delays is that some patients are unable to pay for the cost of treatment, which ranges between Kshs.80,000 and Kshs.250,000. The Hospital withholds treatment in such instances. However, the Deputy Director (Clinical services) occasionally authorizes surgery for patients who have paid the minimum deposit or have obtained the authority from the head of Department to raise funds from well-wishers.
- 4.24 Even so, waiting times for patients seeking waivers are unduly long because the Hospital does not respond to or approve the requests immediately. A review of 23 applications for fee waivers that had complete details on waiver requests and approval dates showed that patients waited for an average of 36 days(five weeks) before their applications were approved. One patient waited for 333 days (eleven months) before the Hospital approved her application. However, some of the patients whose applications were approved still failed to raise enough money to pay for the deposit required by the Hospital before surgery.
- 4.25 Data retained by the Department revealed that it postpones a large proportion of the heart-operations that it schedules. For instance, in the period July 2009 to February 2010, 120 (36%) of the 403 patients booked for closed-heart surgery had their respective surgeries postponed for one reason or the other. Among the reasons for the cancellations were non-availability of beds in the Intensive Care Unit or lack of electric power in the theatre, lack of blood for transfusion, 'the theatre being busy', preceding surgeries taking longer than planned, and in some instances, patients on the waiting list dying before surgery.
- 4.26 In the same period, scheduled operations on 54 (35%) of the 170 patients booked for open-heart surgery were postponed due to various reasons. The causes for the delays and cancellations are shown in Figure 5 below:

Figure 5: Reasons for Delayed Heart Operations at the Cardiology Department



Most delays in undertaking cardiac surgeries were due to lack of blood, theatre time and Critical Care Unit beds.

Source: OAG analysis of KNH data

- 4.27 Records maintained by the Department indicated that on average, 23 patients were discussed by the multi-disciplinary committee each month, with seventeen (74%) of these being booked for surgery. However, only six (27%) of the booked patients were operated on. At this rate, the Hospital may only be able to discuss an average 276 heart patients each year with 204 of these being booked for surgery but only 72 undergoing the operation. Therefore, the Department's level of efficiency in undertaking planned surgeries is a mere 26% and as a result, at least 132 patients are carried forward to, hopefully, receive surgery in the following year.
- 4.28 The Cardiology Department requires special equipments to perform closed-heart surgeries and other complicated surgical procedures. However, the Department has only one Cathlab machine, which was installed in 1993. At the time of the audit, the machine was out of use having broken down in November 2007. The manufacturers of the machine had advised the Hospital management not to spend more money on its repair or maintenance since it is obsolete.

- 4.29 With the Cathlab machine out of use, the Department was at the time of our visit no longer performing some treatment procedures that required the use of the machine. Instead the Department had to improvise and use alternative methods to diagnose ailments but these were said to be less effective. Worse, the procedures reportedly put the health of patients at risk because they did not provide medical teams with accurate information on the condition of patients. The Hospital management indicated that at times, they have to request some of the patients to seek treatment in private hospitals even though most of them may not afford the high fees charged by the hospitals.
- 4.30 The inability of the KNH to rehabilitate, replace or efficiently maintain its cardiology equipments slow down and constraints treatment processes and results in a large backlog of patients that require critical services. In addition, equipment failure is also the cause of the many cancellations of surgeries planned in the Department as shown in Table 7 below. For example, during 2008/2009, 13% of scheduled heart surgeries were cancelled. The Department attributed the cancellations to breakdown of equipment, the limited number ICU beds, and lack of anesthetic drugs or other medical supplies.

Table 3: Theatre workload at KNH for 2008/2009

Workload in the Operating Theatre				
Month	Booked	Operate	Cancelled	% Cancellation
July	2,108	1,809	299	14.18%
August	1,836	1,617	219	11.93%
September	2,037	1,684	353	17.33%
October	2,032	1,718	314	15.45%
November	1,932	1,672	260	13.46%
December	1,926	1,685	241	12.51%
January	1,861	1,652	209	11.23%
February	1,690	1,458	232	13.73%
March	1,945	1,725	220	11.31%
April	1,893	1,651	242	12.78%
May	1,870	1,658	212	11.34%
June	1,892	1,673	219	11.58%
Tota	23,02	20,002	3,020	13.12%

Many scheduled surgical operations are cancelled before they start. In 2008/09 a total of 3,020 operations were cancelled (13.12% of bookings). Among the reasons cited for the cancellations were deaths of sickly patients.

Source: OAG Analysis of KNH data

- 4.31 In addition, the Hospital lacks sufficient beds and room to admit all heart patients due for surgery. Ward 4B, which meant for the patients, has only four cardiac beds which were installed in 1998. Some of them are broken and thus, contrary to recommended practice, most of the patients recovering from surgery in the Ward sleep on ordinary beds. The Ward also lacks ventilators and resuscitation equipment (machines and trolleys) and has only one electro-cardiogram (ECG) machine, which is shared with patients admitted in other Wards.

Waiting time at the Renal Unit

- 4.32 The Renal Unit was established in 1984 and treats patients suffering from kidney ailments. The Hospital's management says it is the largest and the only fully functional government-run renal unit in sub-Saharan Africa outside of South Africa. The Unit serves as an outpatient clinic, an admission Ward and a kidney dialysis facility. The services offered by the Unit include renal replacement therapy for patients whose kidneys have failed. In addition, biopsies, insertions, and removal of various devices on heart patients are done here.
- 4.33 Most patients treated at the Unit are on referral from Provincial General Hospitals, and District Hospitals as well as from private hospitals. Others are referred to the Unit from the general wards of the KNH such as the Labor Ward, Diabetic Clinic, and the Accident and Emergency Centre.
- 4.34 Over the years, the inflow of kidney patients to the Unit has increased significantly. At the time of the audit, the Unit had 137 patients who required dialysis three times a week. Our examination of the Unit's records indicated that although many patients were booked for dialysis, only a few received the service in due time. The batch of the booking register data that we examined revealed that on average, out of 48 patients booked for dialysis each day, only 31 (64%) were dialyzed while sessions for 17 (36%) were postponed as shown in Table 2 below:

Table 4: Comparison Between Patients Booked and Dialysed

Month	No. of patients Booked daily	No. of patients dialyzed daily	No. of patients not dialyzed each day
Oct-08	44	37	7
Nov-08	47	34	13
Dec-08	46	31	15
Jan-09	42	31	11
Feb-09	39	31	8
Mar-09	37	29	8
Apr-09	39	33	6
May-09	44	34	10
Jun-09	53	29	24
Jul-09	62	30	32
Aug-09	53	27	26
Sep-09	59	28	31
Oct-09	60	29	31
Total	625	403	222
Average	48	31	17

On average, out of 48 patients booked for dialysis each day, 17 of them (35%) do not receive the service.

Source: OAG analysis of KNH data

- 4.35 The National Kidney Foundation of United Kingdom recommends in its guidelines (NKF KDOQ1) that kidney patients be dialyzed for four hours three times per week-a total of twelve hours each week. However, patients at the KNH are dialyzed for only four hours two times a week or in total, eight hours per week. Our examination of twenty eight (28) patient files picked at random revealed that 18 (64%) of the patients waited for an average of one week from one dialysis session to another, nine patients (32%) waited for an average of two weeks from one session to another, and one patient (1%) waited for an average of four weeks from one session to another:

Table 5: Frequency of Dialyses Sessions

No of Weeks between dialysis sessions	Number of patients	Ratio
1	18	64%
2	9	32%
3	0	0%
4	1	4%
Total	28	100%

Source: OAG Analysis of KNH data

Most patients at the Unit were dialyzed only once each week.

None received dialysis three times a week as recommended in practice standards.

- 4.36 Each patient at the Unit waits for an average of eight days from one dialysis session to another although the recommended standard is two days only. Further analysis of records retained by the Unit revealed that on average, 37 patients were dialyzed daily in October 2008 compared to 29 only in October 2009. To the contrary, the average number of patients booked for dialysis each day increased by 36 % from 44 to 60 over the same period. Thus, while the number of patients dialyzed over the period declined by 21%, the number of those booked for the service increased by 36%. Therefore waiting times for renal patients on dialysis rose in 2009.
- 4.37 The main cause of delays in providing dialysis services at KNH is shortage of equipments –the Unit does not have enough dialysis machines to serve all patients promptly. It has only fourteen (14) machines instead of the twenty-three its managers say it needs. Further, only eight of the fourteen (14) machines were in good working condition at the time of the audit. Of the remainder, one machine was set aside for use by Hepatitis B patients, one for patients with HIV/AIDS. The four others make use of supplies that the Hospital requires patients to buy. Those unable to buy the supplies may have their sessions cancelled or delayed. Therefore, in all, only two machines are readily available for use by all renal patients.

The Renal Unit

The Result Analyzer in the Renal Unit was donated to the Hospital by the Government of Japan in 1993. It has not been replaced since. The Superficial X-ray machine in the CTC broke down completely in year 2000 but the manufacturer was unable to repair it. The Hospital took the faulty X-ray tube to the manufacturer in Europe but it was returned as the manufacturer had long ceased to make the model. The machine is, therefore, obsolete and requires replacement

- 4.38 Renal patients put on dialysis should receive treatment while seated on special medical chairs but the Unit has none of these so its patients use ordinary beds. The Unit also lacks an ultra sound machine that is of critical importance in renal treatment. In addition, it has one cardiac monitor (three are required) and one blood pressure machine that cannot effectively serve the large number of patients. Further, the Unit has only one water-treatment plant and whenever it breaks down provision of services to patients is disrupted.
- 4.39 The Unit also lacks sufficient numbers of specialists to serve its large number of patients. The key experts required in the Renal Unit are nephrologists and nurses trained in renal health-care. Others include medical laboratory technologists and medical records officers. The Unit has an establishment of ten renal specialists but only seven were in position at the time of the audit. Of the ten, only two were employees of the Hospital while four were from the University of Nairobi (UON) and one was from the Ministry of Medical Services. When the Unit was established in 1984, it had a staff establishment of 14 specialists. Medical students undertaking post-graduate studies augment the Unit's needs for specialist workers.
- 4.40 Further, the Unit has an approved staff compliment of 54 nurses but only 32 were in position at the time of the audit. Of these, only two had received training on handling critically ill patients

Waiting time at the Accident and Emergency Center

- 4.41 The Accident and Emergency (A&E) Centre is the main point of entry for patients visiting the Hospital for the first time. A filter doctor examines new patients to establish which among them requires specialized services. The doctor refers patients with ailments that do not require specialized treatment to lower-tier hospitals such as Mbagathi District Hospital.
- 4.42 Patients deemed to be seriously ill are referred to medical officers at the Centre who in turn refer the ones among these that require specialized treatment to the respective specialized departments or units. The audit team observed long queues of patients waiting for services at the waiting bay of the Accident and Emergency Centre.

- 4.43 The waiting lounge was very congested with most patients lying on the bare floor. The Acute Room at the Accident and Emergency (Mini-CCU) Centre had only five (5) beds. The congestion and shortage of beds made it difficult for doctors and other medical workers to serve patients well whenever the Centre received many critically ill patients.

Reasons for delays in delivery of specialized services

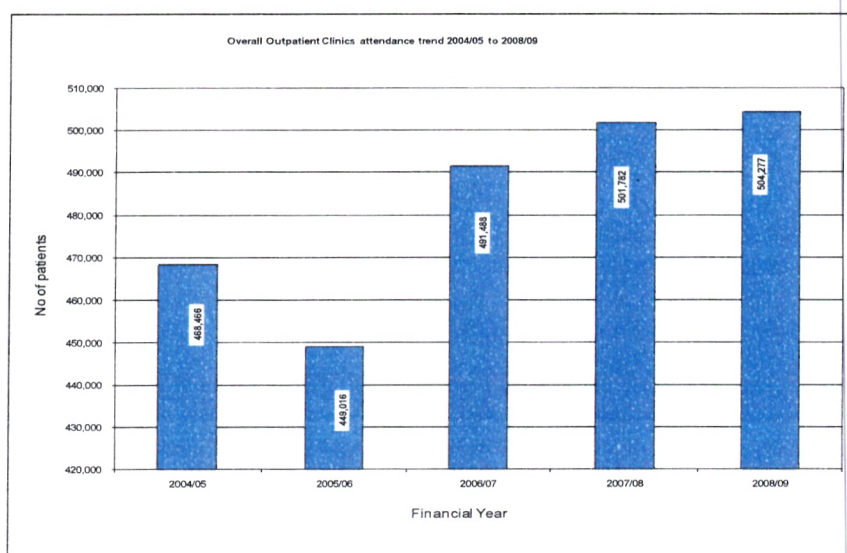
- 4.44 We found three broad reasons why patients at the KNH endure long waiting-times before they access treatment services:
- i) Firstly, too many patients visit the Hospital and thus constrain its capacity to offer its services efficiently,
 - ii) Secondly, some key operational systems of the Hospital are not as efficient as they should be and;
 - iii) Thirdly, the facilities and specialist personnel deployed by the Hospital are not sufficient to provide services in a timely manner.

We have already mentioned various aspects of the three factors while discussing the lengths of service delay experienced by patients in the various Departments of the Hospital. The remaining part of the findings of the audit will discuss the factors in detail:

Too many patients visit KNH due to failure of the national health referral system to function as intended.

- 4.45 Kenya Health Policy Framework 1994-2010, structures the national healthcare delivery system into six levels. KNH is positioned at Level 6, the apex of the system. The main role of the Hospital is to receive and treat patients on referral from hospitals at Level 5 and below. The Chart (Figure 6) below illustrates the growth in the number of patients visiting the hospital between the 2004/05 and 2008/09 financial years.

Figure 6: Total number of outpatients served in KNH (2004/05 - 2008/09)



The number of outpatients visiting KNH has been increasing over time
Source: KNH Statistical Records

- 4.46 However, contrary to what the national health-care referral system provides for, KNH receives many patients without any referral letters from institutions on Level 5 and below. Until September 2009, the Hospital did not maintain records on patients on referral from other institutions. However the management sampled patients treated at the Hospital between September and December 2009 and found out that out of 168,417 patients attended to at the Hospital during the period, only 6,069 or 3.6% came on referral from other health facilities. The rest (96.4%) were walk-in patients. The sample study conducted revealed that lower-tier health facilities were capable of treating at least 60% of the ailments attended to at the Hospital.

Table 6: Analysis of referral patients vs. total patients attended to at KNH

Month	Total patients	Referrals patients	Referral patients as percentage of total patients
September 2009	43,192	1,752	4.06%
October 2009	42,083	1,723	4.09%
November 2009	40,605	1,362	3.35%
December 2009	42,537	1,232	2.90%
Total	168,417	6,069	3.60%
Average	42,104	1,517	3.60%

Only 3.6% of patients treated at KNH were referred there from lower-tier health facilities. Source: OAG Analysis of KNH Data

- 4.47 Further, out of the 6,069 referral cases in the batch, 179 or 3% were referred from provincial hospitals, 993 or 16% patients were from private hospitals and mission hospitals while the majority, 4,897 or 81 % of the patients were from private practitioners, district hospitals and government-owned public health centers. The Hospital has therefore deviated from its core mandate as a specialized health-care institution and is instead using its scarce resources to treat minor health ailments.
- 4.48 Patients come to the Hospital without passing through lower-tier institutions because the national health-care referral system does not function as well as intended. Many patients lack confidence in the services offered in the primary public health-care institutions because more often than not, the institutions lack proper facilities, have poor management systems, or the patients are not aware or confident that the institutions would successfully treat their ailments.
- 4.49 KNH management also attribute the overall rise in the number of patients at the Hospital to the increase in the national population as well as that of the City and prevalence of opportunistic illnesses due to the spread of the HIV/AIDS syndrome over the years. Further, Nairobi Province has no provincial public hospital and has only one district hospital. The KNH therefore caters for the primary healthcare needs for most residents of the City who may not afford to pay for the services provided by privately-owned hospitals.

Facilities for service delivery are inadequate and insufficient

- 4.50 Efficient service delivery in any medical facility depends largely on the availability of proper support systems in equipment, drugs, personnel, and other essential facilities. However, KNH lacks sufficient equipments and physical infrastructure that it needs to deliver its specialist mandate efficiently:

The Hospital lacks an elaborate asset management policy

- 4.51 An important factor in providing quality health-care services is the availability of appropriate medical equipments and physical facilities. Even the best-qualified doctors, would not perform to their full potential should they lack infrastructure to support their skills. Therefore, any hospital with a specialized mandate like KNH should have in place an asset management policy that ensures availability of appropriate and serviceable medical equipments at all times.
- 4.52 However, the KNH is yet to formulate policies on acquisition, maintenance, and replacement of its medical equipments and other infrastructure. Thus, the Hospital does not repair, maintain, or replace its assets in a methodical and timely manner. As a result, most of the equipments in the specialized units are old and breakdown frequently.

- 4.53 In addition, equipments whose warranties have expired are serviced only when they break down rather than on scheduled cycles. Further, the absence of service maintenance contracts, leads to delay in repair of equipments that break down. For example, of the Hospital's 24 Haemodialysis (renal therapy) machines, 11 had broken down and were not in use at the time of the audit.
- 4.54 Likewise, several ventilators that assist critically ill patients to breath and are mostly used in the Intensive-care Unit as well as in the newborn and burns units and in operational theatres and at the Accident and Emergency Unit had broken down.
- 4.55 Perennial shortage of funds constraints the capacity of the Hospital to buy new equipments and replace old ones in a timely manner due to shortage of funds. For instance, at the time of the audit, the Biomedical Department of the Hospital had long requested the management to replace the old and obsolete cobalt and cathlab machines used in the Cancer Treatment Centre and the Cardiac Unit respectively. However, there were no funds to finance the replacements. The management estimated that purchase of a new Cobalt Machine and a Cathlab machine would cost the Hospital KShs.90 million and Ksh120 million respectively in the year 2010.
- 4.56 The annual capital budget of the Hospital is small and most of its development expenditure is financed through donations from multilateral and bilateral partners. Our analysis of expenditures incurred by the Hospital during the period under review revealed that about 71% of the total budget was spent on payment of personal emoluments to staff leaving only 30% for operations and development purposes.

The Hospital occasionally runs out of essential medical supplies

- 4.57 Drugs and other medical supplies are critical for effective health service delivery. KNH stocks medical drug under three categories namely; vital, essential and non-essential. Vital drugs are used in critical services such as in the Intensive Care Unit, operation theatres, and in the resuscitation and the burns units. These must always be available in the Hospital on demand. Essential drugs are those that meet the basic requirements of the majority of the patients. They must also be available in the hospital when needed. Non-essential drugs are those that the Hospital uses occasionally.
- 4.58 Although the Hospital has established re-order levels for all the types of drugs that it stocks, it occasionally experiences shortages of vital and essential drugs. For example, an analysis of the stock of drugs maintained at the pharmacy that serves the Accident and Emergency Centre indicated that the pharmacy did not have in store some vital and essential drugs for several for periods lasting up to three months. Likewise, Ward 4B which caters for cardiac patients did not have in stock critical drugs (such as those used for blood thinning) for a period of three months.

- 4.59 The management of KNH attributes the stock-outs to long procurement procedures, occasional shortages of vital drugs in the market, lack of sufficient funds with which to purchase new supplies and the inadequacies of the Hospital's stock management system. The stock-outs are also caused by delayed payments to suppliers. For instance, as at 28 September 2009, the Hospital owed medical suppliers KShs.128,271,070 for drugs supplies. The debts were equivalent to nearly 25% of the Hospital's total creditors balance amounting to KShs.519, 083,354 as at that date. Out of the total sum owed to the suppliers, KShs.8, 297,915 had been outstanding for more than one year.

Room and bed facilities are not sufficient for the large number of patients

- 4.60 Although the KNH has experienced a steady increase in the number of patients seeking treatment at the Hospital over the years, the growth in the Hospital's physical facilities has not matched that on patients.
- 4.61 The management of the KNH has set the Hospital's bed capacity at 1,410 beds. However, because the wards are fewer than the patients admitted, the actual number of beds in use was 1,876 as at June 2010. Thus, the wards carried 466 excess beds or an additional one third of the recommended number.
- 4.62 However, the additional beds installed in the wards have not satisfied the demand for accommodation from all the patients that the Hospital admits. As a result, patients are made to share beds but still, others have to wait for long to get admission. Data on Hospital's bed-occupancy rates indicated that 40% of the Wards had occupancy rates of over 100%. The most adversely affected ward was 6C that caters for orthopedic surgery patients. The occupancy rate was 180%. Thus 80% of the patients had to share beds. Other wards with high bed occupancy rates were Wards 6D which serves orthopedic surgery patients (174.4%) and Ward GFB (171.8%) which is for obstetrics and gynecology patients.
- 4.63 As highlighted in paragraph 4.26 of this report, the Cardiology Unit postpones surgeries frequently due to lack of beds in the wards while in the Cancer Treatment Centre, therapy sessions are preceded by long waiting times. For example, the Critical Care Unit (CCU), which serves the whole Hospital for both emergencies and elective surgeries, has only 21 beds. As a result, some of the surgeries, which require critical care, are delayed or cancelled due to lack of CCU beds.
- 4.64 Further, as highlighted in paragraph 4.41, space in the waiting lounges of all of the Hospital's clinics and in the reception area of the Accident & Emergency Centre can only comfortably serve a fraction of the patients that seek treatment at the Hospital.

The specialist units of the Hospital lack sufficient numbers of skilled personnel.

- 4.65 KNH requires personnel with specialized skills to deliver its special mandate in an efficient and effective manner. As at July 1 2010, the Hospital had an approved establishment of 3,427 staff members but only 2,593 of the positions were filled resulting in a shortfall of 834 or 24% of the approved establishment. In particular, the Hospital had severe shortages of specialist staff. For instance, the Cardiology Unit had 323 approved positions but only 207(64%) in position.

The Cancer Treatment Centre had 62 approved posts, but only 26 (59%) were in position at the time of the audit. Taken together the Cardiology Department and the Cancer Treatment Centre staff levels were equivalent to only 60% of the approved levels.

- 4.66 One of the Hospital's critical service functions faced with staff shortages is nursing care. The World Health Organization (WHO) has set standards for minimum nurse-patient ratios for referral health facilities such as the KNH. As shown in Table 8 below, the Hospital does not meet the nurse-patient ratios recommended by the WHO:

Table 7: Nurse Patient Ratio

	WHO Recommended Nurse to Patient Ratio	KNH Nurse to Patient Ratio
Wards	1:6	1:30
Outpatient	1:6	1:50
Critical areas	1:1	1:3

The average nurse patient ratio in KNH is low compared to the recommended WHO standards. The Hospital does not have the required number of nurses it requires to deliver good nursing care.

Source: KNH Strategic plan 2005 – 2010

Staff shortages in the Cardiology Unit

- 4.67 Specialist personnel required in the Cardiology Department include surgeons, cardiologists, radiographers; nurses specialized in cardiac care, perfusionists (heart and lung machine operators), clinical medicine and anesthesia experts and echo technologists. However, these are not available in sufficient numbers at the KNH. For example, as at 31st July 2009, there were six approved posts for cardiac technologists but none had been filled.
- 4.68 Similarly four of the six neurophysiologic technologist positions approved in the establishment were vacant. Ward 4B that serves heart patients had 19 nurses with only one of these (the Senior Nurse- in-charge) having been trained in critical care. The ratio of nurses to patients in the Ward was 1:10 against the standard of 1:1 recommended by the WHO.

Staff shortages at the Cancer Treatment Centre

- 4.69 The Cancer Treatment Centre requires the services of oncologists, radiographers, medical physicists, nuclear medicine technologists, and oncology nurses. However, the Centre had only four medical specialists (consultants) instead of the required six. It had only two trained oncology nurses, two medical physicists instead of the required ten, and eighteen therapy radiographers instead of the approved establishment of thirty-six. The few staff working at the Centre were clearly overwhelmed by the very large number of patients.
- 4.70 The management of the KNH attributed the shortage of various kinds of experts to; high turnover of those hired due to the Hospital's unattractive scheme of service and poor working conditions; and the long training periods required to acquire skills in specialized health-care delivery. The management said the Hospital perennially loses staff to other hospitals and institutions in the country and abroad because it does not offer them competitive terms of employment and an attractive working environment.

The Hospital lacks clear policies and guidelines for control of its operations and has not fully documented its service delivery standards.

- 4.71 Any service organization that aspires to serve its customers efficiently must have in place clear policies and guidelines with which to execute and control its operations and especially a health-care provider. The length of time that a patient waits for treatment is an important indicator of how well and efficient a health delivery system functions. However, KNH is yet to develop waiting-time standards for delivery of its specialized services.
- 4.72 The Hospital has only developed clinical Standard Operating Procedures (SOPs) and Service Charters for use in some of its departments. Although the Departmental Service Charters proclaim the time required to perform each specified procedure, the Hospital has not established means for recording how long patients actually wait for the services. Management therefore lacks objective criteria to measure and control the efficiency with which services are delivered to patients.

The Hospital lacks clear patient admission and discharge guidelines

- 4.73 A good admission policy ensures that only deserving patients are admitted for stay in hospital. Likewise, a good discharge policy ensures that patients do not remain in hospital any longer than necessary. Therefore, good admission and discharge policies, if implemented well, facilitate effective use of hospital resources and efficient delivery of services to patients.

- 4.74 KNH has no documented policies on admission and discharge of patients. We noted several incidents of patients who remained in the Hospital after their clinical discharge thereby denying new ones much needed bed facilities. The delays also deny the Hospital revenue since the patients who overstay their welcome do not eventually pay for their prolonged stay.
- 4.75 Data examined indicated that for most patients, the Hospital grants approvals for discharge after seven days. However, in some cases included in the data set, applications were approved after as many as 18 days. On average, it took five days for the Hospital to grant the approvals.

Overstay By Patients After Discharge Resulted in Losses Totaling Kshs 73,916,884 to KNH

Our analysis of information on 927 patients discharged between July and September 2009 indicated that the patients overstayed in various wards in the Hospital after being discharged because they could not afford to pay their outstanding hospital bills. The total amount due from the patients at the time of their discharge was KShs.56,457,334.

The Hospital has not prescribed the length of time a patient should stay on in the ward after discharge. By the time the managers of the various wards notified management of the matter, the Hospital had incurred nugatory costs totaling to Kshs.17,459,550 in respect of bed and food charges for the extra period the patients remained in the ward post-discharge. The unpaid bills thus rose to Kshs. 73,916,884. Eventually, the Hospital allowed the patients to go home without having paid the bills.

Further analysis indicated that, of the 927 patients, 650 (70%) had stayed in the ward for more days post-discharge than when they were on treatment. On average, for the total time the patients were in hospital, they were under treatment only 35% of the time. The rest (65%) of the time, they were well but stayed in the ward at the hospital's expense and in doing so denied needy patients space for admission.

In another instance, a patient stayed in the ward post-discharge for an extra 265 days (about 9 months) and incurred additional bills amounting to Kshs.119,250 while the bill at the point of discharge was only Kshs.11,730. There were similar cases of two patients who overstayed after discharge for an additional 255 and 224 days respectively and incurred additional bills amounting to Kshs.114,750 and 100,800, against Kshs.83,515 and Kshs. 80,365 at the point of discharge respectively.

The Hospital detained the patients in the Wards because it could not recover the debts they owed it once they left the Hospital. A policy on handling patients unable to pay service fees would have allowed the Matrons in the respective wards to discharge the patients as soon as their time to go home became due. This would have avoided the nugatory costs and made space available to new patients in need of admission.

- 4.76 Further examination of the data indicated that for patients released between July and September 2009, the delay resulted in additional admission costs totaling to KShs.1,740,150, which the Hospital however failed to recover from the patients.

- 4.77 As at 16 March 2010, the Hospital had 358 patients (about 20% of its bed capacity) detained in the Wards post-discharge. The patients had accumulated bills totaling to Kshs.21, 718, 361. Among these were 207 patients who had stayed on for over 30 days post-discharge and accumulated additional bills amounting to Kshs.15, 288,166. The majority of the patients had stayed on in the Wards for between two and three months after discharge. Two of the patients had stayed on for approximately one year after discharge.
- 4.78 Although the matter had been brought to the attention of management on 16th March 2010, the approval to release the patients was not granted until 1st April 2010. Thus, the Hospital incurred nugatory costs amounting to Kshs.450 on each of the patients for each of the additional 15 days they remained in the wards in total.

The Hospital's Management Information System does not support efficient delivery of services.

- 4.79 An effective management information system integrates separate databases and diverse batches of information for use among various approved users to meet diverse needs of the organization. For example, a good hospital management information system links clinical, administrative and financial information enabling efficient data flow and use among separate functions of the hospital including doctors, administrators and even the patients themselves.
- 4.80 However, the audit revealed that databases and functions of the management information system used by KNH are not integrated. The system maintains information generated from operational activities separately in the respective departments that generate the information. Furthermore, nearly all patient records are stored in non-electronic format. For example, the Hospital bills its patients using manual charge sheets. For these reasons, billings and settlements are not instantaneous and, inevitably, the Hospital does an elaborate audit trail on its revenue management function.
- 4.81 Data on patients and most administrative records at the Hospital are maintained in manual format. The records do not provide easy access to useful management information and are difficult to store in large quantities and retain over long periods. For example, registers used in recording patient information are not standardized. Therefore the Hospital does not capture and store information on patients in a uniform manner. In the Cancer Treatment Centre for instance, the simulation register indicates patient name and number while the register used in recording bookings for radiotherapy sessions shows the patient's name only. Therefore, the two registers are not fully compatible.
- 4.82 Several registers in other specialized clinics also bear incomplete information. The Cancer Treatment Centre in the Cardiology Department frequently reschedules appointments but the reasons for the postponements, which could provide the specialists and management with critically important information on service delivery, are not always indicated in the booking registers or in the respective patient files.

Similarly, the minutes of the multi-disciplinary committee of experts, which discuss heart surgery cases, lacks some important information.

- 4.83 For instance, reasons for not discussing some medical cases on the dates scheduled, or the recommendations made on some of those discussed, are not indicated in the registers.
- 4.84 Further, patient files do not have some vital information such as the dates medical procedures were conducted or the dates when the respective patients made follow-up visits to the clinic. Observations made by the doctors on the patients are in some instances not recorded consistently or chronologically. For example, of the 307 files from the Cancer Treatment Centre that we examined, only 27 had complete information with regard to the dates of referral, dates of the patient's first visit to a specialist and the dates on which the Hospital conducted simulation procedures on the respective patients.
- 4.85 Likewise, of the 222 files from the Cardiology Department that we examined, only six files had complete information on key milestone dates including when referral, first visit, interview with a specialist, discussion of the case by the Multidisciplinary Committee of Experts, or admission of the patient in the Ward and date the respective surgical operation was carried out.
- 4.86 Failure to integrate the Hospital's management information system slows down decision-making because various units and Departments cannot share operational information. Further, a non-electronic information system such as the one used by the KNH causes additional challenges to managers who may wish to analyze and understand trends and influences on the performance of their organizations.

Causes of the financial resource shortfalls that hamper the Hospital's Operations

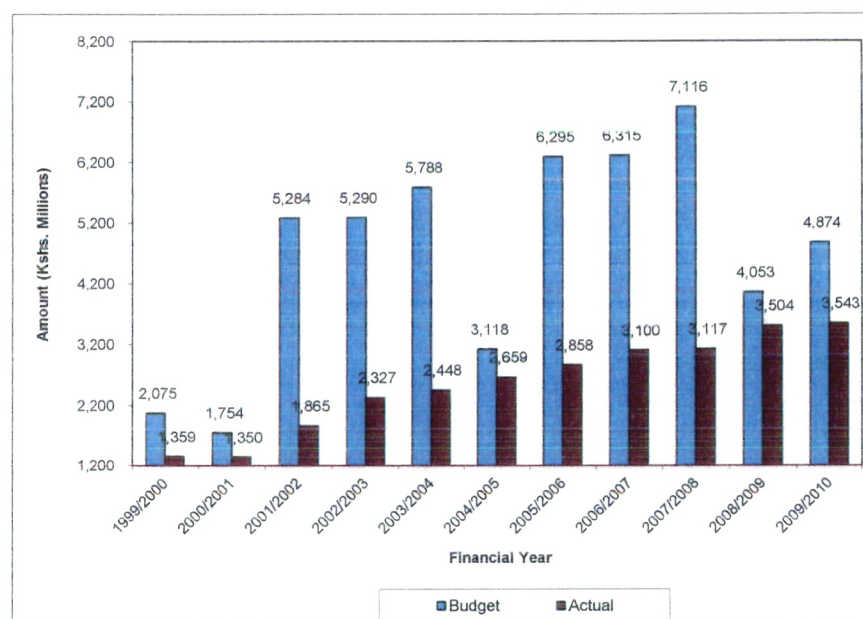
- 4.87 The final part of the findings of the report explains the reasons for the financial constraints faced by Kenyatta National Hospital. The constraints partly explain why the hospital is unable to procure and maintain the equipments, personnel and physical infrastructure it requires to provide specialized health-care services in a timely and effective manner:

The Hospital receives only a part the grants it budgets for each year

- 4.88 Every organization requires sufficient funds to finance its operations and investments in key assets with a view to attain its strategic objectives and fulfill its statutory mandate. KNH is mainly funded by the Government from the Exchequer (62% of annual revenue) but supplements the grants through the fees it levies on patients under the cost-sharing programme. Occasionally, the hospital receives grants from various international partners. The grants provided by the Government mainly finance salaries and allowances for staff.

- 4.89 For instance, the Hospital experienced shortfalls of exchequer grants equivalent to 17% of the total amounts it had budgeted for in the five financial years ended 30th June 2009. Figure 8 below contrasts the sums budgeted for from those received during the period.

Figure 7 : Comparison of KNH budgeted and actual allocations for personnel emoluments



The Hospital's grant receipts from the Government always fell short of the budgeted amounts during the period under review.

Source: OAG analysis of KNH audited financial statements and budgets

- 4.90 Information that we obtained from the management indicated that during the 2010/11 financial year, the Government had in the annual expenditure estimates set aside for the Hospital recurrent grants totaling to KShs.4.88 billion but only disbursed KShs.3.58 billion.

Annual Revenue Collections have consistently fallen short of expectations

- 4.91 In addition, the Hospital often experiences annual revenue shortfalls. For example, in the period under review, it did not collect all the revenue it had budgeted for. The under collections rose from Kshs.9.4 million in 2005/06 to over Kshs.329 million in 2008/09 with the highest recorded variance of Kshs.717 million being recorded during the 2007/08 financial year as shown in Table 8 below:

Table 8: Analysis of Budgeted and Actual Cost-sharing Revenue

Cost Sharing Revenue				
	2005/06	2006/07	2007/08	2008/09
Budget Revenue	1,341,460,000	2,000,000,000	2,344,819,142	2,015,500,111
Actual Revenue	1,331,972,184	1,606,076,811	1,627,497,398	1,685,995,616
Surplus (Deficit)	(9,487,816)	(393,923,189)	(717,321,744)	(329,504,495)

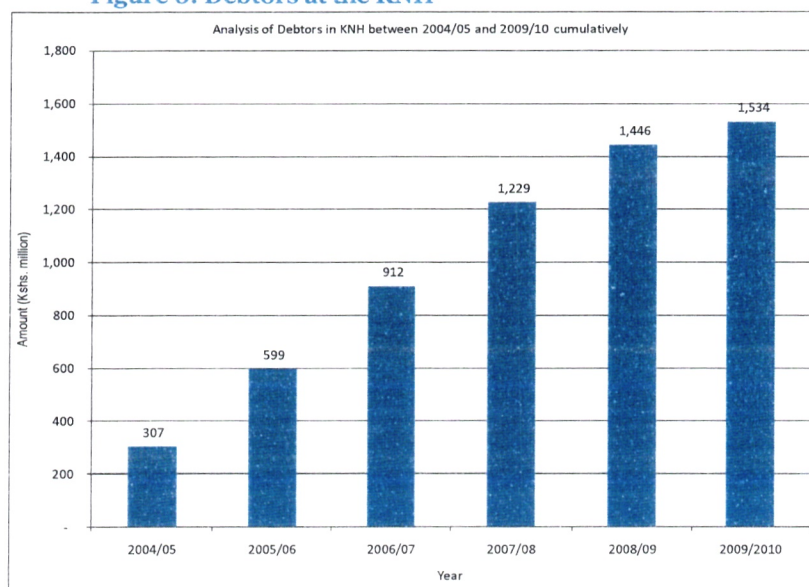
The annual shortfall/deficit in cost sharing revenue has grown more severe with time and peaked at 30.59% in 2007/08

Source: OAG analysis of KNH Audited Financial Statements and Budgets

Some patients fail to pay for services rendered to them by the Hospital

- 4.92 One major reason why the Hospital perennially fails to meet its revenue collection targets is that some patients fail to pay for the services rendered to them. As at 20 June 2009, patients owed the Hospital debts totaling to KShs.1,446,030,702 out of which a balance of KShs1, 256,527,193 (over 86%) was owed by those categorized by the Hospital as poor and who were unlikely to ever repay the debts. The Hospital is occasionally compelled to waive fees owed by such patients. The management has requested the Government to compensate the Hospital for the waivers to no avail. Among the fee defaulters are Government departments, for instance, the Prisons Department, which regularly takes sick prisoners to the hospital for treatment.
- 4.93 The Ministry for Medical Services in November 2009 directed the Hospital to release 480 patients and 32 bodies detained in the mortuary because of unpaid bills totaling to KShs.36,273, 795.00. The Hospital was in turn to forward an invoice for the bill to the Ministry of Medical Services for reimbursement. The Hospital forwarded the bill to the Ministry through Letter Ref.KNH/FIN/3 dated February 2, 2010 but had not received any reimbursement by the end of the financial year.

Figure 8: Debtors at the KNH



The level of debts owed to KNH has been rising over the last 5 years.

Source: KNH data

The Hospital lacks an elaborate Credit Control Policy

- 4.94 The KNH has not established an elaborate system to control hospital fee credit granted to patients. There are no documented policy guidelines to help determine who qualifies for credit or waivers of unpaid fees. Further, the Hospital hardly pursues patients who default on debt repayments.
- 4.95 The audited financial records of the Hospital indicated that on average, it accumulated bad and doubtful debts amounting to Kshs.268 million annually in the five financial years under review. In August 2009, the Executive Director wrote to the Ministry of Finance seeking authority to write-off old bad and doubtful debts totaling to Kshs.1,354,242,091 (1.3 billion) carried in the financial statements of the Hospital as at 30th June 2009.
- 4.96 The Hospital does not have in place an elaborate mechanism to ensure repayment of the credit and that the processes through which debt waivers are granted are objective and fair. Although the Hospital's Executive Director had reportedly stopped the grant of new credit to patients in February 2009, the practice continued unabated.
- 4.97 Our analysis of the Hospital's credit records revealed that on average, it collected only about 20% of the total credit it granted to its patients during the period under review. For instance, in 2005/06, the Hospital granted credit totaling to Kshs.338, 689,319 but only managed to collect Kshs.68,494,857 of the debts. Likewise, out of total credit of Kshs.178,651,887 that it granted in 2008/09, recoveries totaled to Kshs.35,039,532 only. The low level of credit recovery means that the Hospital has had to depend on the Treasury for grants to finance its operations.

The private wing of the Hospital does not generate as much revenue as expected

- 4.98 The Private wing of the Hospital was set up several years ago to help generate additional revenue by catering for fee-paying patients. However, the audited financial statements for the period under review indicate that the venture has not been as profitable as expected. For example it reported losses amounting to Kshs.35.7 million in the 2004/05 financial year and KShs.66.1 million in 2008/09.
- 4.99 The hospital management however says they do not recover full costs on their services since their main motivation in providing services is not to make profit but meet the health-care needs of Kenyans.
-
- 4.100 We however noted that the Hospital's revenue management system is not fully computerized. For instance, patients are billed through manual charge sheets. Internal controls to prevent errors and revenue leakages - including those that occur from fraud- are therefore difficult to enforce and further, a complete audit trail on revenue collection does not exist.

Chapter 5

Conclusions

- 5.1 Kenyatta National Hospital does not deliver its statutory mandate as a national referral hospital for specialized health-care services in a timely manner. Patients who seek for specialized healthcare at the Hospital's Cardiology Department, the Cancer Treatment Centre and the Renal Unit as well those attended to at the Accident and Emergency Centre experience unduly long waiting times before they access treatment. The patients undergo much suffering and anxiety as they wait for healthcare services whose timely delivery could make the difference between life and death.
- 5.2 The primary cause of the delays is the Hospital's lack of sufficient financial resources to acquire and maintain the equipments; physical facilities and human resources that it needs to deliver services efficiently due to two main reasons. Firstly, the Hospital does not receive sufficient amounts of annual grants from the Government to meet its operational and investment needs and secondly it does not manage its revenue collection function in an effective manner.
- 5.3 In addition to resource constraints, some management practices applied by the Hospital hamper efficient delivery of services. For instance, the Hospital has not established and documented its policy on management of assets and has not set service delivery standards - including waiting time standards for most of the services it provides. Therefore its management does have in place objective criteria with which to monitor and control the performance of its service centres. Also, the Hospital's management information system does not support accountable and efficient delivery of services and management of its resources.
- 5.4 In addition, the external operating environment facing the Hospital has stretched the Hospital's resource capacity beyond its limits. Since the national health-care referral system does not function as well as expected so many of the patients that would otherwise be treated in provincial, district or other lower-tier health facilities instead come the KNH and thus exert undue pressure on the Hospital's limited resources. The congestion constrains timely delivery of services and results in severe frustration for both the patients on one hand and health workers and the management of the Hospital on the other.
- 5.5 In view of the findings and conclusions of the audit, the Auditor-General has recommended for implementation jointly by the Ministry of Medical Services and the management of Kenyatta National Hospital several measures intended to facilitate timely delivery of quality services to patients in need of specialized services. The recommendations of the Auditor-General are outlined in Chapter 6 of this report.

Chapter 6

Recommendations

Containing the influx of non-referral patients to the Hospital

1. To contain the influx of large numbers of patients seeking treatment for common illnesses at Kenyatta National Hospital, the Ministry of Medical Services should;
 - (i) revive the national health-care delivery system by ensuring that primary health-care institutions have sufficient medical supplies and appropriate equipments and are managed well; and in addition;
 - (ii) finance additional public hospitals to offer some of the specialized health-care services now provided by KNH only.

Addressing lack of service standards and an ineffective Management Information System

2. To improve operational efficiency, the management of Kenyatta National Hospital should develop waiting-time standards for delivery of specialized healthcare services and establish mechanisms for monitoring, evaluating and reporting on performance of the Hospital against the standards on a regular basis.
3. To ensure that the Hospital has timely and reliable information for decision-making, the Hospital management should implement an integrated management information system that collects records, stores, processes and shares information in support of all operational functions.

Ensuring availability and maintenance of essential equipments and other facilities

4. To ensure systematic repair, maintenance and timely replacement of medical equipments and other assets, KNH management should develop and document a fixed asset management policy to guide its acquisition, maintenance and replacement of fixed assets and provide for means to finance their renewal.

Ensuring that the Hospital has sufficient resources to finance its activities

5. The Ministry of Medical Services should provide the Hospital with capital funds to renew and increase its stock of specialized medical equipments.

6. The management of KNH should strengthen the internal control systems on revenue management by;
 - (i) establishing, and implementing a credit management policy with proper systems of control and;
 - (ii) by developing a policy on debt waivers and write-offs with the necessary controls to ensure that only deserving cases are accorded the privilege.
7. To ensure that the Hospital's physical facilities and other resources are used effectively, KNH management should implement and document an elaborate policy on admission and discharge of patients.

Attracting and retaining sufficient numbers of specialist staff

8. To ensure that KNH has sufficient numbers of skilled personnel including Specialists in all its fields of operation, the Ministry of Medical Services should;
 - (i) provide the Hospital with its full budgetary requirements for personnel emoluments and;
 - (ii) increase funding and opportunities for training of specialized medical doctors and other workers.

Meeting the costs of treating patients who unable to pay for their bills

9. To address the medical needs of poor patients unable to pay for specialized treatment in public hospitals;
 - (i) the Government should compensate KNH for costs incurred in treating such patients; and;
 - (ii) establish and implement a policy for medical treatment for the poor in public Hospitals

Appendices

Appendix I : Audit Criteria

We obtained the audit criteria that we used to assess the level of efficiency and measure waiting times for delivery of various services from the Hospital's statutory mandate, Service Charter, and Strategic Plan and from best practices in hospital management: The criteria are outlined below:

- (i) KNH offers referral healthcare services in accordance with its statutory mandate.
- (ii) The management of the KNH have set standards on waiting-time for patients seeking specialized health-care services to ensure that the standards are observed in all Units of the Hospital.
- (iii) The management of the Hospital have developed and implemented policy guidelines on hospital operations pertaining to admission and discharge of patients.
- (iv) KNH is able to hire and retain the number of professional personnel it requires for efficient and effective health-care service delivery.
- (v) KNH has sufficient space and physical facilities for efficient delivery of its unique healthcare mandate.
- (vi) As concerns medical equipments and supplies, that;
 - KNH has a documented policy on acquisition, maintenance and replacement of its medical equipment and other fixed assets.
 - KNH has at its disposal sufficient number and range of medical equipments it requires to deliver specialized health-care services efficiently.
 - KNH maintains its medical equipments in good working condition at all times.
 - KNH at all times stocks sufficient quantities of drugs and other medical supplies that it needs to effectively deliver specialized health-care services.
- (vii) As concerns the management of financial resources, that ;
 - KNH is entitled to sufficient budgetary allocations from the Ministry of Health and receives all its entitlements.
 - KNH meets budgeted revenue targets and has put in place control systems to ensure that all revenue collection targets are met and the collections are properly accounted for.
 - The management of KNH have developed an elaborate credit control policy, which they apply in managing debts owed by patients.

Appendix II: Methods Used in Gathering Audit Evidence

We collected audit evidence by reviewing various documents including patient records, statistical and financial data retained by the Hospital. We in addition interviewed senior managers and staff of the Hospital and made physical observations on delivery of services in its specialized departments and clinics:

- (i) To obtain understanding of the mandate of Kenyatta National Hospital, we reviewed Legal Notice No. 109 of 6 April 1987, which established KNH as a state Corporation, the State Corporations Act, the Hospital's Strategic Plan for the years 2005-2010 and 2008-2012; and several other policy documents. These included the National Health Policy Framework, National Health Sector Strategic Plan (NHSSP II 2005 to 2010), the Strategic Plan(2008-2012) of the Ministry of Medical Services , and Kenya Vision 2030 document.
- (ii) To gain understanding of the operations of the Hospital, we interviewed at least 30(thirty) members of the hospital management including heads of the specialized clinical departments and units.
- (iii)To reconfirm audit evidence collected through document review and interviews, we visited and observed delivery of specialized health-care services in the specialized health-care Departments and Unit of the Hospital where we also interviewed the managers and other staff who deliver the services.
- (iv)The data cited in the report on levels of service delivery and waiting times was collected through examination of samples and batches of records maintained by the Hospital and thorough interviews with the hospital staff. Whenever an appropriate population of data with the range of characteristics we required was available, we took cluster or purposeful samples as appropriate. In instances where complete populations of data from which to draw a sample were not available, we worked with batches of data.

Appendix III: KNH Management Comments on the Audit Findings and Recommendations

a) Appendix III (a): KNH Management Comments on the Findings of the Audit

Audit Finding	Response By KNH Management	Auditor's Comments
1. Para. 4.1-4.17; Cancer Treatment Centre Cancer Patients who seek specialized services including radiotherapy, chemotherapy, Brachytherapy and histology laboratory at the Cancer Treatment Centre suffer unduly long waiting times before they are served. The main cause of the delays includes inadequate and obsolete equipments that break down often, too few specialists to meet the increasing demand of the patients and lack of necessary supplies.	Agreed The Hospital has introduced a day care-centre for the purposes of providing chemotherapy services. The Government has provided a budget of Ksh.300 million for linear accelerator, upgrade for HDR equipment and construction of a bunker. Two doctors are undergoing training in oncology in South Africa. Two more staff are in South Africa for MA in Biotechnology and one staff for clinical coordination, seven staff are being trained as nuclear physicists. Nurses and technologists are still required. The Hospital initiated procurement of a new Cobalt 60 machine in 2009 and it was installed in 2011. It is providing good service to patients. All documentation is available on the same.	While setting up a day-care chemotherapy centre may help to some extent, the constraints related to equipment and skilled personnel still remain. We shall follow-up on the implementation of the budget Some progress has been attained but the number of trainees is still insufficient No confirmation has been provided by the KNH management whether the equipment has shortened the waiting time for cancer patients.
	Except for the comments made above, the management agrees with all our findings and recommendations on the issue.	Our observations remain unchanged.

Audit Finding	Response By KNH Management	Auditor's Comments
2. Para.4.18-4.30;Cardiology Department Patients at the Cardiology Department wait for long before they access services. Delays occur before the patients see a specialist for the first time, before the suitable course of treatment is prescribed and before they secure admission for heart surgery. After admission into the Ward, the patients on average wait for several weeks before they undergo surgery. The delays occur due to lack of adequate bed capacity, inability by the patients to pay for the cost of treatment, cancellation of scheduled operations due to non- availability of ICU beds, lack of blood for transfusion electric power failures in the theatre, inadequate and outdated machines for the closed heart surgery (Cathelab) due to inability by the Hospital to rehabilitate, maintain or replace equipments among other reasons.	Agreed. All theaters are on maintained power since 2008. Procurement of Cathlab equipment is ongoing. The Hospital has budgeted for additional four ICU beds and ventilators in the current financial year. Two new generators were installed through the Spanish project. New theatre lights with UPS were installed in 2010. Agreed	Although the KNH management says that all the theaters are on maintained power since 2008, instances of lack of power outages were common during the period of the audit and thereafter. Thus our observation remains as reported. Our observations remain as reported.

Audit Finding	Response By KNH Management	Auditor's Comments
3. Para. 4.31-4.39 Renal Unit Patients referred to the Renal Unit do not access the dialysis services as often as they are supposed to. Only a few receive the services on schedule while the majority are dialyzed only once per week, some wait for two weeks before they are dialyzed while others wait for up to four weeks from one dialysis session to another. The main cause of delay is lack of an adequate dialysis machine to serve all patients promptly. Further, the Unit has only one water - treatment plant and whenever the plant breaks down; the provision of services at the Unit is disrupted.	Agreed Three additional dialysis machines bought during the 2011/12 financial year. Five more budgeted for (2012/13). The Hospital installed one new water- treatment plant in August 2009 and rehabilitated the old machine in July 2010.	The purchase of the new dialysis machines is commendable. We shall follow up on their impact on service delivery. Although the management say a new water treatment plant was installed in August 2009, audit evidence adduced by the user department (the Renal Unit) indicated that they have only one water treatment plant and services are disrupted whenever it breaks down.
4. Para 4.40-4.48 Accident and Emergency Centre Long queues of patients waiting for services were observed at the waiting bay of the Accidents and Emergency Centre. This was attributed to the high influx of patients seeking treatment at KNH due to collapse of the national health- care referral system.	The management agree with our findings on the issues highlighted in these paragraphs. Separation of emergency and walk-in patients in A & E by use of tents for the non emergency patients. Rehabilitation of permanent facility for walk-in patients is ongoing. 10 doctors absorbed in KNH employment that were	There is no indication whether the changes implemented by the management have eased congestion at the Hospital. Thus our observation remains as reported.

Audit Finding	Response By KNH Management	Auditor's Comments
	previously on contract. Locum rates increased to attract more specialists. KNH facilitated the National Referral Protocols workshop and established a referral office with telephone and email facilities.	
5. Para. 4.49- 4.55 Inadequate and Insufficient facilities for Service delivery. KNH lacks sufficient critical equipments and other physical infrastructure that it requires to deliver its specialized mandate efficiently. The Hospital has not documented or established a policy on acquisition, maintenance and replacement of its equipments and other infrastructure. Thus it is unable to ensure availability of appropriate and sufficient well-functioning medical equipment at all times. The Hospital attributes its failure to acquire new and replace old equipments to shortage of funds. Most of its development expenditure is financed through donations while the largest portion of its revenues is spent on personal emoluments and other operating costs.	The management agrees with our finding. Equipments are under five years old are placed under comprehensive service contracts. Otherwise the hospital management agree with our findings	Our observations remain as reported. The action taken by the management on equipment under 5 years is commendable given the financial constraints facing the Hospital. However the largest portion of the Hospital's stock of assets is over five years old and is therefore not covered by the maintenance contracts. Our observations remain as reported.

Audit Finding	Response By KNH Management	Auditor's Comments
6. Para 4.56 4.58 Hospital occasionally runs out of essential medical supplies. KNH occasionally experiences shortage of vital and essential drugs- at times for prolonged periods of time. The management attributes the shortages to long procurement procedures, frequent shortage of drugs in the market, lack of funds, inadequacies of the hospital's information systems and delayed payments to the suppliers.	The Hospital management agree with our findings on the issues raised in these paragraphs. Currently payments are done within 60 days. Transition between tender awards may cause delays and outages. KNH has introduced a stock tracking system in the stores.	There is no indication that performance has improved as a result of the changes introduced by management. Our observation remains as reported.
7. Para. 4.59-4.63 Lack of sufficient space and facilities Although KNH has experienced a steady increase in the number of patients seeking treatment at the Hospital, the growth in the Hospital's physical facilities has not matched the increase in the number of patients. This has adversely affected the Hospitals capacity to admit patients due to the limited space available - the Wards had 466 patients above the recommended number.	Agreed The bed- capacity of the Hospital(including the Private Wing) is 1800. Except for these comments, the management agree with our findings and recommendations on issues raised in these paragraphs. The demand for services exceeds the hospital capacity and patients cannot be sent away due to lack of beds and other facilities. The current number of beds, cots and incubators stands at 2000. Construction of a National Burns and Paediatric Centre is in the process. On completion, 120 additional beds will be introduced.	The comments by the management do not change our observation since we did not include the capacity of the Private Wing in our calculation.

Audit Finding	Response By KNH Management	Auditor's Comments
8. Para. 4.64- 4.68 - The Hospital lacks sufficient number of skilled personnel. KNH requires personnel with specialized skills to deliver its special mandate in an efficient and effective manner. However the Hospital lacks sufficient specialized personnel for the Cancer Treatment Centre, Cardiology Unit while its nurse to patient ratio of 1:3 for the specialized department is far below the WHO recommended ratio of 1:1. The management attributes the shortage of experts to poor working conditions, high turnover due to unattractive terms of service and long training periods required to acquire the special skills.	Agreed The shortage of various kinds of experts is due to the long period of training and lack of sufficient training funds. The State Corporations Advisory Committee upgraded the Hospital from Category 3C to a parastatal which will help to improve the terms and conditions of service. A succession plan is under development for specialists in all areas of the hospital.	The managements' comments reaffirm our observations. Therefore the observations remain unchanged. It is not clear whether the upgrade of the Hospital's status has been implemented.
9. Para.4.69- 4.70: The Hospital has not documented its service delivery standards. KNH has not developed waiting –time standards for efficient delivery of its specialized healthcare services. The Hospital has only developed Standard Operating Procedures in some areas (these only indicate the time required to perform medical procedures and not the length of time patients should wait for the services).	Agreed. Management has put in place a team to audit the implementation of the Service Charter. Surveys have been conducted in various departments like A & E, the Radiology Unit to address service delivery standards and waiting times (turnaround time) and the findings are under implementation.	The action taken by management though commendable may not address inefficiency in service delivery in the absence of specific waiting-time standards on services provided to patients.

Audit Finding	Response By KNII Management	Auditor's Comments
10. Para. 4.71- 4.75: Lack of Clear Admission and Discharge Guidelines KNII has no documented policy on admission and discharge of patients. As a result, some patients remain in the Hospital long after their discharge and thus deny new ones admission facilities. In addition, the Hospital loses revenue since the patients do not pay for their prolonged stay.	Agreed The hospital management agree with our findings and the issues. The Admission and Discharge Policy is in place. Departmental Credit Committees are in place to facilitate discharge of those patients unable to pay for services.	The Hospital's action of establishing an admission and discharge policy; if confirmed is commendable. However, there is no indication as to whether the policy has been documented and whether it has helped improve the situation. Our observations remain unchanged.
11. Para.4.76- 4.81 The Hospital's Management Information System does not support efficient delivery of service. The Hospital's Management Information System does not integrate its clinical, administrative and financial information to enable efficient data flow and use among its separate functions. Thus the operational data generated does not aid efficient, timely and quality information for decision making and provision of services.	Agreed The hospital management agree with our findings on the issues highlighted under these paragraphs. ICT Master Plan for the Hospital has been developed in conjunction with the ICT Board of Kenya. A number of standalone systems have been put in place to improve efficiency. Four million medical records have been digitized.	The actions taken by the Hospitals management are commendable. Any improvements in service delivery brought by the new systems will be assessed after their installation is completed. Our observation remains unchanged.

Audit Finding	Response By KNH Management	Auditor's Comments
12. Para. 4.82- 4.92 ; The main reason why the Hospital lacks sufficient Financial Resources; Failure to receive budgeted government grants KNH receives only part of the grants it budgets for each year. For the five years ended 30th June 2009, the Hospital suffered a shortfall of about 17% of the total amount budgeted. (i) Cost sharing Revenues are below expectations Collection of revenue under the cost-sharing programme has consistently fallen short of expectations. The biggest deficiency of Kshs. 717 million was recorded during the 2007/2008 financial year. (ii) Patients failure to pay for services Some Patients do not pay for the services they receive from the Hospital. The Hospital occasionally waives the amounts owed by such patients. Outstanding debts stood at Kshs. 1,534million as at 30th June 2009. (iii) Lack of an elaborate Credit Policy The Hospital lacks an elaborate credit control policy that would ensure recoverability of credit granted and credibility of the process through which some of the debts are waived. As a result	Agreed. The shortfalls still persist. In 2009/ 2010, the Hospital received Kshs. 3, 543m, against a budget of Kshs. 4, 874(a short fall of 27%) and in 2010/ 2011, an amount of Kshs. 3,583m against a budget of kshs. 4,772m (a shortfall of 25%) Poor patients are not able to pay for services, hence the Hospitals' difficulties in meeting revenue targets. Frequent disasters and strikes affect revenue collection. The management encourages patients and relatives to register with the NHIF. A credit policy has been developed and is in place. Many patients are still unable to settle medical bills due to poverty.	The audit observations remain unchanged. The audit observation remains unchanged. The audit observation remains as stated. We shall assess the effectiveness of the credit policy during the follow-up phase of the audit. Our observation remains unchanged

Audit Finding	Response By KNH Management	Auditor's Comments
the rate of recovery on debts has been very low (on average 20%). (iv) Failure by the Private Wing of the Hospital to generate revenue as expected. Income from the Private Wing of the Hospital which was set up to supplement the Hospital's revenue has not been as good as expected. The wing has incurred losses for many of the years it has been in operation.	The Hospital management agrees with our findings and recommendations on the issue. The Hospital Management has established a KNH Prime Care (Private Wing) Strategic Plan to guide activities towards profitability. The comprehensive rehabilitation of the facilities will be completed in 13 months. The management has reviewed the rates and charges to reflect the cost of inputs and market trends.	The audit observation remains unchanged. We shall assess the implementation of the strategic plan during the follow-up phase of the audit We shall assess the implementation of the rehabilitation project during the follow-up phase of the audit

b) Appendix III(b): KNH Management Comments on the Recommendations of the Audit

Audit Recommendation	KNH Management's Response
Containing the influx of non-referral patients to the hospital. 1 To contain the influx of patients seeking treatment for common illnesses at Kenyatta National Hospital, the Ministry of Medical Services should: (i) Revive the national health-care delivery system by ensuring that primary health-care institutions have sufficient medical supplies and appropriate equipment and are managed well. (ii) Finance additional public hospitals to offer some of the specialized health-care services now only provided by KNH:	Agreed - Streamlining of the national referral system will be an added advantage. This will be done in line with the Constitution . Agreed - As a first step, it will be important to upgrade all Provincial General Hospitals to referral hospitals.
Addressing lack of service standards and an ineffective management information system 2 To improve operational efficiency, the management of Kenyatta National Hospital should develop waiting-time standards for delivery of specialized healthcare services and establish mechanisms for monitoring, evaluating and reporting on performance of the hospital against the standards on a regular basis.	Agreed: - SOP's are in place to monitor patient turnaround time - Patient Satisfaction Surveys have been done as well as -Internal Quality Audits/ISO and KQMH are being done.
3 To ensure the hospital has timely and reliable information for decision-making, the Hospital Management should implement an integrated management information system that systematically collects records, stores, processes and shares information in support of all hospital functions.	Agreed -ICT Master Plan has already been developed in conjunction with ICT Board, implementation is ongoing. -Stand alone systems in the Pediatrics, Emergency and Pharmacy are ready -Those in the Technical Services and Lab Medicine in progress.

	Audit Recommendation	KNH Management's Response
		-Intranet has been introduced (outlook) to improve internal communication and information sharing. - 4(Four) million medical records digitized
4	Ensuring availability and maintenance of essential equipment and other facilities To ensure systematic repair, maintenance and timely replacement of medical equipment and other assets, KNH Management should develop and document a fixed asset management policy to guide its acquisition, maintenance and replacement of fixed assets and provide for means to finance their renewal.	Agreed - A Consultant to be hired to help in the development of the policy, funds to be provided through MOF
5	The Ministry of Medical Services should provide the Hospital with capital funds to renew and increase its stock of specialized medical equipments	Agreed
6	To ensure the Hospital has sufficient resources to finance its operations and investment, the Management of KNH should strengthen internal control systems on revenue management by: (i) Establishing a credit management policy with proper systems of control (ii) Developing a policy on waivers and write-offs with the necessary controls to ensure only deserving cases are accorded the privilege.	Agreed - Draft credit management policy developed
7	To ensure that its facilities and other resources are used effectively, the management should implement and document an elaborate policy on admission and discharge of patients.	Agreed -The admission and discharge policy has been developed and in place
8	Attracting and retaining sufficient number of specialist staff. To ensure that the Hospital has a sufficient number of skilled personnel including specialists in all its fields of operation, the Ministry of Medical Services should;	

	Audit Recommendation	KNH Management's Response
	(i) Provide the hospital with its full budgetary requirements for personnel emoluments. (ii) Increase funding and opportunities for training and specialized medical doctors and other workers.	Agreed Agreed - The Government has to support the efforts by providing funding. - A Committee is working on long term succession Plan/policy. -the training budget is inadequate to train required number of specialists outside the country.
9	Meeting the costs of treating patients unable to pay for their bills To address the medical needs of poor patients unable to pay for specialized treatment in public hospitals, the Ministry of Medical Services should compensate KNH for costs incurred in treating such patients.	Agreed -A Cabinet Memorandum on funding for indigents and Children under 5 years developed, approved by the Board of Management and submitted to the Ministry of Medical Services.

