

TITLE

**PATIENT CARE IN THE DIAGNOSTIC IMAGING DEPARTMENT OF KENYATTA
NATIONAL HOSPITAL (K.N.H)**

**BY
DR. AUKA JOASH
MB.ChB (NRB)**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT FOR THE DEGREE
OF MASTER OF MEDICINE IN DIAGNOSTIC RADIOLOGY, UNIVERSITY OF
NAIROBI**

**MEDICAL LIBRARY
UNIVERSITY OF NAIROBI**

April, 2003

University of NAIROBI Library




0325985 0

DECLARATION


CANDIDATE

This dissertation is my original work and has not been presented for a degree in any other University.

Signed:  6/5/2003
.....
DR. JOASH AUKA
MB.ChB (NRB)

SUPERVISOR

This dissertation has been submitted for examination with my approval as a University Supervisor.

Signed: 

DR. AYWAK A.A
MB.ChB (NRB), M. Med (NRB)
Lecturer and consultant Radiologist,
Department Diagnostic Radiology,
University of Nairobi.

DEDICATION

To my loving sister, the late Stella Okenyuri, who passed-on shortly after my admission into the post-graduate program in Diagnostic Radiology.

And

To my son, Samuel Gift Osiemo, the one biggest joy in my life and current works in progress, who was born shortly after the tragic road accident that almost ended my career in radiology.

ACKNOWLEDGEMENTS

It is impossible to thank individually in print everyone whose support and cooperation enabled me to accomplish this project.

I thank all the patients that participated in giving their views and suggestions regarding the health care delivery at the KNH x-ray department.

I am particularly grateful to Dr. Angelina Aywak, my supervisor, who encouraged me to do this research and helped me discover that great things are achieved by putting down one's ideas concisely in written before constructive criticism can be forthcoming. Her friendship, patience, support and valuable guidance throughout the preparation of this dissertation are impeccable.

I am also indebted to my parents, Zablon and Robina whose support and love of learning were the unspoken pillars that led me into pursuit for academic excellence then into Medicine. They took pleasure in my successes, which they were in large part responsible for, and they have lived long enough to see me achieve many of my goals.

I cannot forget Professor Joseph M. Kitonyi, my mentor, friend and teacher who inspired me to pursue post-graduate training in radiology, but most importantly taught me and others of compassion, the love of family and the joy of life.

To Drs. Wambugu, Rodriguez and Ikundu, all of who as lecturers in radiology taught me to push my diagnostic capabilities to their limits and most importantly to be conscientious and considerate in the handling of patients.

To my wife, Beatrice, a devoted loving spouse and an excellent nurse who encouraged me a great deal to carry on with life and this research during the transient period of incapacity after the tragic accident that almost ended my career. She fine-tuned much of my writing and offered unique insights such as, "you weren't very keen when you wrote this paragraph, were you?"

Finally, to all the radiology residents I have been privileged to work with at the Department of Radiology, university of Nairobi, whose interest in learning and concern for the care of patients was the primary incentive for me to undertake this project.

ABBREVIATIONS

KNH- Kenyatta National Hospital

CT Scan- Computerized Tomography Scan

MRI- Magnetic Resonance Imaging

HSG- Hysterosalpingography

ICRP- International Commission For Radiological Protection

HIV/AIDS- Human Immunodeficiency Virus/Acquired Immune deficiency syndrome

IVU- Intravenous Urography

MCU- Micturating CystoUrethrogram

TABLE OF CONTENTS

Study Title.....	1
Declaration.....	2
Dedication.....	3
Acknowledgment.....	4
Abbreviations.....	5
Table of contents.....	6
Abstract.....	7-8
Introduction.....	9
Literature review.....	10-18
Research objectives.....	19
Methodology.....	20- 22
Ethical considerations...	23
Results.....	24-28
Discussion.....	29-38
Conclusion.....	39-40
Tables.....	41-52
References.....	53-55
Appendices.....	56-60

ABSTRACT

A three-month descriptive cross-sectional survey about the care of 400 patients referred for radiological investigations at KNH X-ray department and the findings are presented. The specific purpose of this survey was to determine the present level of patient care in both content and provision in the x-ray department of KNH and make recommendations for the development of the imaging services.

To obtain the necessary information for this research, patients were required to complete a questionnaire comprising of general aspects of care.

The technical aspects of care were evaluated by use of another questionnaire. Employees of KNH and all the on-call patients were excluded from the study. All the radiological examination rooms were covered during this survey. The questionnaires used had both open and closed questions. The data from closed questions allowed for numerical analysis.

A total of 233 females and 167 males were surveyed. The age range was from a 2-day old neonate to adults above 70 years with a median age of 26 years.

The majority (50%) of patients were referred from the KNH clinics.

Out of 388 patients that responded, 47.95% came unaccompanied to the X-ray department. For 75.5% of the participants, the sign posting within the X-ray department was easy to follow. The majority (84.4%) of the patients were made to wait for more than 10 minutes at the reception desk. The staff at the reception was found to be considerate and kind by 63.2% of the respondents. The waiting area was overcrowded and boring to 62.8% of the participants. It was also the area that was most criticized in the study. The level of cleanliness was judged acceptable. The changing gowns were oversize for 44.4% of the 81 respondents.

93.5% of the patients were booked. 90% of those that were given instructions for the radiological examination found the explanation easy to follow.

The KNH charges for radiological examinations in comparison with other hospitals in Nairobi were reasonable. The majority of the comments from the open-ended questions were compliments for staff. The practice of technical aspects of care at the KNH X-ray department by radiographers and radiologists was impressive.

In conclusion, many of the responses from this study, especially from the open-ended questions, were very reasonable and valuable as the basis for any improvements in the x-ray department. The majority of measures required by patients could be best facilitated by the formation of a department customer relation's workshop. The group should comprise a number of staff that is committed to a more patient-oriented service. The first task for this group is to form an action plan for the patient Waiting area, as it was the area most criticized in the study. Further to this, there is need for regular continuing medical education programs for both radiographers and radiologists to enhance their practice to even greater heights of excellence.

INTRODUCTION

We find no new tools because we make some venerable but questionable proposition as an indubitable starting point. Now, if a man will begin with certainties, he shall end in doubt; but if he were content to begin in doubt he shall end in certainties.

Francis Bacon

The above statement drawn from the literary works of Francis Bacon is very applicable when it comes to the field of research where you have to hold with suspicion any assumptions until the same is proved correct or otherwise after a study is conducted.

Now, the purpose of this research is to determine the present level of patient care in both content and provision in the x-ray department of Kenyatta National Hospital (KNH) and make recommendations for the development of imaging services.

For the sake of this research, the researcher divided the patient care into general and technical aspects.

- i. The general aspect of care covered a range of topics that are easily quantifiable by patients such as sign posting, staff attitudes, appointments, Waiting area, changing facilities just to mention a few. All patients evaluated these.
- ii. The technical aspects comprised the practice by staff in the provision of the following; hygiene, privacy, radiation protection, infection prevention and control just to mention a few. The researcher as a participant observer evaluated these.

A pilot survey carried out from 7th December 2000 by the researcher had indicated problems /difficulties experienced by patients in the x-ray department of KNH. The majority of the patients' complaints related to directions within the department 40%, waiting time 20%, and staff attitude 10%, changing facilities, waiting area and reception 10%, and appointment 10%. During this pilot survey 100 questionnaires had been distributed and this represented only about 2% of the total monthly patient attendance at the KNH x-ray department. Therefore it was considered necessary to increase the patient sample size, redesign the questionnaires and distribute them over a longer period of time for the information gathered to be reliable.

The final report identified the aspects that were causing concern and those that are exceptionally popular. The area that gave a high level of common satisfaction can be treated as a commendation from the patient. By highlighting problem areas, an action plan for the development of the service could be formulated.

LITERATURE REVIEW

The health service now has to learn to listen better to the public and be more guided by its wishes. It has to learn to trust them, to respect their opinion and respond to what they say. The people we serve should not be treated as mere passive recipients of care.

BRIAN MAWHINNEY (U.K MINISTER OF HEALTH)

ADDRESSING THE FEDERATION OF NHS TRUSTS, OCTOBER 1993.

User perspectives on health care are currently being given high political priority, at least rhetorically over the last decade as exemplified by the above statement issued by one Brian Mawhinney.

As a consequence, policy makers and healthcare providers have to turn to research as one way of finding out what the public (read patient) need or feel about the "care" being given to them.

Coming to our theme, in the case of radiology department, patient care is two-fold as it encompasses both the general and technical aspects of care. The general aspect of care is routine and it entails the outlay of the department offering care as well as staff attitudes. The technical aspects deal with issues of whether the patient is handled professionally with due regard to safety, timeliness and usefulness of the investigation/ examination he/she is to undergo within the department.

As such, care of the patient in the radiology department is not a static subject. Imaging techniques extend in their complexity and produce ramifications in patient care with which staff in radiology department must become familiar. This is because the patient is the most important person in the hospital although he will seldom look and unfortunately will rarely feel as if he were (1). The whole concept of patient care is being given increasing priority presently as the patients are becoming increasingly knowledgeable as regards their rights (2). The aspects of patient care that are relevant to diagnostic imaging and constitute the core of good care for the patient begin with the need of recognizing the patient as a human being. The main aspects of good patient care have been considered under the subheadings of **patient identity, staff attitude, hygiene, waiting, undressing, patient preparation/instructions, privacy, comfort, immobilization, emergencies, infants and children, consent, equipment and radiation safety measures, radiological reports and standards of care.**

Patient identity

As part of good patient care practice, the staff working in the Radiology department should ensure that the patient is identified correctly before they conduct any examination on him/her.

All attempts should be made to identify the patient by name and not as the 'next case' or by the investigation he/she is about to undergo for example 'the HSG' or 'the Barium Enema' (1,2,3). This can reassure the patient and get his/her cooperation and avoid imaging the wrong patient as experience has shown that an apprehensive patient occasionally answers to a name not his/her own (4).

Staff attitude

In as much as the workload in the radiology department can at times be overwhelming and thus physically and mentally exhaust one, the staff serving a patient should use a friendly and/or calm approach manner. This practice enables the patient to develop confidence that he/she is in efficient and sympathetic hands and that his/her examination is both necessary and being performed in a department where his/her well-being is of real concern and interest to the staff. Handling of patients in a rough manner or with a threatening unwelcome look is to be avoided as it makes them fearful thus rendering the staff unapproachable. An over familiar friendly approach is also counter productive (2,4).

Hygiene

No matter how skilled the attending staff in the x-ray department are, if they do not have a sense of hygiene or do not adhere to basic principles of infection prevention and control then this can erode a patient's confidence in the staff thus impinge negatively on the practice of good patient care. Ideally, the imaging room should be tidied immediately after use so that it is clean and tidy when the next patient is ushered in. This is in order to prevent acquisition of nosocomial infections by patients more so in this era of HIV/AIDS pandemic. A vomit bowl should also be within easy reach for some ward patients or accident victims for whom change in position triggers vomiting (1,4).

Patient preparation/Instruction

Another aspect of good patient care in the x-ray department is the issuing of adequate and concise pre-investigation instructions to patients by the radiological staff. The instructions can reassure an apprehensive patient and make the imaging examination successful. These instructions issued to patients required to undergo specialized imaging procedures should be explicitly simple and if possible be issued in written form and also in case of ward patients be indicated in the file and the nursing staff notified (4,5). Since patients in the x-ray department are often worried /apprehensive making it difficult for them to understand instructions, the staff handling them should be kind and tolerant.

Waiting

Nearly every patient who attends an x-ray department has to spend some time waiting, if not for the actual imaging procedure then for checking or reporting on the films (4). It is necessary to supply the patient with a newspaper, television, pictures, or toys depending on the age and personal taste as he/she waits. Flower arrangement in the waiting room or corridors has a favourable effect on a patient's peace of mind (1,4). Separate waiting areas for the seriously ill or accident victims are recommended. Lavatories must be available near the waiting room and the location indicated by clearly visible notices.

Undressing

During an imaging examination, a patient is often required to undress/change dressing within the department. They should do so under circumstances that recognize individual privacy. A clean gown must be provided for each patient and a dressing gown also is required in case the changing cubicle does not lead to the room where imaging is to be done. Instructions about personal matters, such as which clothes to remove, should be given as privately as possible (1,4).

It is often helpful to have printed instructions displayed in the cubicle regarding undressing, what to put on and whether to proceed to another waiting room or wait until called. Often patients do not hear or fully understand instructions given too rapidly or too quietly. Some method of safekeeping for money or valuables must be provided (4).

Privacy

It behooves good medical practice to respect and preserve a patient's individual privacy more so with regard to x-ray investigations where the patient is required to undress and remain in full view of radiological staff.

This is more important given our situation at Kenyatta National Hospital where the number of staff in a particular imaging room can be more than 5 since it is a teaching hospital with different cadres of students. Imaging examinations should be carried out with as much privacy as possible. The door to the x-ray room should be closed and only the necessary people allowed in the room. This is of particular importance in examinations such as hysterosalpingography (HSG) and micturating cystourethrography (MCU), where the patient is required to relax but may find it difficult to do so without sufficient privacy. The patient should be adequately draped/ covered with a sheet if possible exposing only the part of the body being imaged (2,6).

Comfort

The patient seeking radiological services within the x-ray department should be kept as comfortable as possible before, during and after the imaging procedure as part of good patient care. It is necessary to provide ward patients who are unstable with a foam mattress in polythene covers on x-ray table, sufficient pillows, foam pads, and sandbags. The patient must never be allowed to descend from a table alone, as he/she is likely to hurt oneself as can happen if the patient is drowsy or has Meniere's disease. A wheelchair must be steadied before the patient is allowed to mount (1,4).

Immobilization

In order to get good quality images once the patient is being x-rayed and avoid unnecessary repeat examinations, the patient must remain absolutely still in the required position while each exposure is being made. Any movement during the exposure will cause blurring of the film, necessitating a repeat exposure. Use of head clamps or headbands in skull radiography is necessary. The patient must be made as comfortable as possible because if he is in pain or in an uncomfortable position, it is likely that he will not be able to remain still for long (4,5,7).

Explanation

The patient should be given detailed instructions regarding the imaging procedure to be performed so as to get his/her cooperation for the radiological examination to be successful (2).

If the procedure is going to cause pain or discomfort, the patient should be warned (usually by the radiologist) so that he/she will not be surprised or alarmed by it, and will be able to keep still when required (4).

Aftercare of the patient

This should be individualised especially for the patients undergoing invasive investigations such as angiography or depending upon the condition of the patient. For instance, diabetics should not be kept waiting for long beyond when their meal or insulin is due. Similarly, young children and babies should be scheduled early or on a specific day to avoid starving for long periods of time or being exposed unnecessarily to uncomfortable conditions (5,6).

Patients undergoing interventional radiology procedures or angiography should be accompanied by a nurse and should not be left with the porter alone (8).

Emergencies

The preparedness of the radiological staff to handle emergencies as they arise is of paramount importance in good patient-care practice. The radiological investigations that involve the use of intravenous contrast media and/or involve invasive interventional procedures pose a potential risk to patients. Never should an invasive radiology procedure or use of intravenous contrast media be undertaken without an emergency tray nearby. The tray should be fully stocked with none expired resuscitative drugs (9). The Radiology department ought to be fully equipped and have well-trained personnel for handling emergencies, like respiratory and cardiac arrest (8).

Equipment and radiation protection

High-powered equipment should be used for both departmental and mobile examinations. The equipment should be in good working order before the patient is called in.

In case of radiography, the X-ray beam must be collimated so that only the area being examined is irradiated (10). All unnecessary radiographic exposures are to be avoided and any radiation exposure kept As Low As Reasonably Achievable (ALARA principle) (11). Lead rubber gloves and aprons should be availed for the supporting relative of a patient that is undergoing radiographic exposure. A notice should also be displayed in the waiting room to the effect that if a woman accompanying a child for X-ray is pregnant she must inform the radiographer before the child is X-rayed. As such a notice fails if there are language or literacy problems the radiographer should always ask. Gonad shielding should be applied whenever it is indicated (12).

All said and done, the above measures constitute aspects of good patient care since radiation injuries may pose serious threat to the unsuspecting public due to later genetic effects caused by thoughtless irradiation of subjects.

Infants and children

Pediatric radiography presents particular problems and is best carried out by staff trained and interested in dealing with infants and children, preferably in a specially designed and equipped department (2,4).

Extra time should be taken in attempting to gain a child's confidence and it is also necessary to obtain co-operation and assistance of the parents, if present, as he/she is often required to hold the child during the examination.

Whole body irradiation of infants is to be avoided and it is at best condemned (4). The practice of radiographing a whole child on one cassette may appear to reduce the dose to the child, simply because fewer exposures are made. However, the radiation dose to the child may be up to 40% greater for the 'babygram' compared to a series of tightly collimated separate views of each limb or part examined (12).

Consent

The consent of the patient is only legally binding when he has been informed in advance of the objectives, extent, necessity and urgency, type, procedures, and alternatives of a medical investigation or therapeutic intervention and the accompanying risks

All the risks on the basis of which a responsible patient or parent/guardian of a patient can make the decision to consent or to reject a specific medical intervention are to be considered as relevant and must be explained appropriately (13). It is good practice for staff working in the Radiology department to seek written consent for invasive interventional radiological procedures and/or investigations that involve the use of intravenous contrast media.

Radiological reports

Timely and sound reporting of radiological examinations is another important aspect of good patient care that should be addressed.

Whether radiologists should report on every film or not has been challenged by Embry-Roberts (1975) who pointed out that virtually no other hospital based specialty insisted on seeing all cases in its area of interest [14].

Even so, there are sound arguments for the ideal but the reality is that many films do not get reported (15) or get reported too late to influence clinical management of patients and that many reports are never read by the clinician.

At the same time some radiologists are overloaded to a point of inefficiency by the effort to report on every film. These situations raise a number of practical and medicolegal issues, which should be squarely addressed. Ignoring these issues is part of dishonesty and may well be creating medicolegal pitfalls.

However, without a report, no one has made a formal record of the findings and this is rather like examining a patient but making no record in the notes. Furthermore, reporting is also a means of monitoring radiographic quality.

Whereas it is a good practice for the radiologist to have access to a patients' old films for comparison, late reporting of radiologic investigations or delaying the reports until old films are found impacts negatively on the patient's clinical management (16). This is administratively and medico legally messy and is clinically ineffective.

To reduce the reporting work load, the radiologists may have to enter into agreements with the referring clinicians whether it is possible to have a 'report not required' box on the hospital radiograph request forms and in entering such agreements the clinicians who elect to do so must create a mechanism for noting their own interpretation of the films in their notes and carry full medico legal responsibility (17). Similarly, those films, which the clinicians do not want reported, must be returned within finite time for formal reporting (18). An alternative might be to arrange to review such films at clinicoradiological meetings, after they have been returned for formal reporting and in this way; the radiological input will still affect patient management (15, 18).

As radiological reports constitute part of patient care, they should be made quickly and this means a 'hot' reporting system covering in-patients, general practitioner (GP) referrals, and selected outpatients. Whenever possible the report/film (s) should be sent back with the patient to the referring clinician. In cases where old films are unavailable for comparison, then provisional reports should be issued (14, 18).

Standards of care

In order to streamline the aspect of good patient care practice, one has to contend with the ideal standards of care. As a matter of fact, Radiology has gained an enviable position among medical specialties. The new technology has expanded imaging techniques and procedures far more than the overall growth in health care services. In this emerging scenario, the radiologists being the managers must do much more than interpreting imaging procedures (1,19). They must efficiently manage resources, organize their practices and define their marketing strategies so as to use the most performant available imaging techniques or intervention to achieve the best possible outcome for the patients at lower possible costs (19,20). The identification of promoting factors for excellence improvement in radiology service management requires clear assessment of how the different aspects of the service are managed at various levels (21a). The benefits derived from implementing and using new technologies should be carefully evaluated against the associated costs to both patients and service providers. Such assessment might involve evaluating the ability of the technology to improve diagnosis; positively impact on treatment plans and, above all, improves health care (22).

Heyman while researching on whether a patient focused approach is a better way of running a hospital found that it can take 2 hours of hospital staff time to obtain a routine chest radiograph, up to 47 clinical staff may be involved with a patient during a five day stay, and only a quarter of total costs maybe for direct patient care. Some hospitals are experimenting with patient focussed care by relocating services such as X-ray to the bed side, training ward staff in a wider range of skill, and managing care itself by using multi-disciplinary protocols (23). The recent advances in information technology have overtaken these measures since automated computerized scheduling of radiological examinations is certainly a step forward in modern rational management of diagnostic imaging services (21 b). The relationship with the patient is improved with the optimization of care delivered. The radiologist with the help of new technology is able to rapidly consult the previous examinations as well as the lists of procedures to be performed and transmit radiological reports by Teleradiology.

Whyke whilst advocating for total patient care comments that the needs of patients as individuals are often subordinated to those of technical procedures (24).

All radiology facilities are required to create policies that govern the conduct of radiology practice, including but not limited to techniques or views necessary to complete radiographic procedures and communication of results to physicians and patients. Radiologists should adhere carefully to these policies and review them periodically. If a facility policy is impractical or difficult to comply with, radiologists should modify the policies so that full compliance is achieved (25).

In a report of practice guidelines and malpractice litigation issued in 1994, researchers at the school of public health at Harvard University found that the predominant use of guidelines has been to inculcate rather than exculpate physicians in malpractice cases. Nevertheless such guidelines would improve patient care and at the same time diminish the incidence of and the cost related to malpractice litigation (26).

James Moorefield says that the most learned and astute radiologist is worthless if he or she is not available and recommends further that if practice setting include sonography, CT scan, Angiography or Magnetic Resonance imaging during the day, these services should be available on emergent basis at all other hours (27). The absence of any of these services at any given time interferes with quality patient management.

RESEARCH OBJECTIVES

Broad Objective

To determine the present level of patient care in both content and provision in the diagnostic imaging department of KNH and make recommendations for the development of imaging services.

Specific Objectives

-Determine patients' opinions about the following eight features of care and service in the X-ray department:

- Signposting;
- Reception;
- Waiting area;
- Cleanliness/Hygiene;
- Appointment/Booking;
- Changing facilities;
- Staff attitude; and
- X-ray/ imaging examination.

-Determine the proportion of patients who get adequate care/ are satisfied with the present level of patient care in the X-ray department based on:

- Patient identity;
- Staff attitude;
- Patient instructions;
- Hygiene/ infection prevention and control;
- Cleanliness
- Radiation protection
- Privacy; and
- Outcome of the X-ray/ imaging examination.

METHODOLOGY

In order to obtain the necessary information for this research, one questionnaire with two sections, one for the patients and the other for the researcher as a participant observer was designed.

Section A of the questionnaire contained the general aspects of care that are quantifiable by patients such as reports on their behavior observations of staff while section B of the questionnaire comprised the technical aspects of care in a radiological service that are not easily quantifiable by patients such as radiation protection measures, privacy, hygiene and infection prevention just but to mention a few.

Questionnaires were chosen to allow for an anonymous response by use of the patient x-ray number therefore encouraging free expression. Interviewing would have been difficult and time consuming especially during the working hours. The results obtained are also dependent on the skill of the interviewer.

Both sections of the questionnaire contained open and closed questions. The open-ended questions were included to allow respondents to answer in their own words. It was also hoped that these questions would allow the respondents to raise subjects, which were perhaps not contained within the questionnaire and increase the range of the agenda. Although the data collected from open responses are more difficult to interpret, I considered them worthwhile.

The majority of items in both questionnaires consisted of closed questions. Each question had a number of potential answers where one or more responses may have been applicable. These questions allowed for examination of topics I suspected required improvement or that had been identified in the pilot study. The data from the closed questions allowed for numerical analysis.

All questionnaires were accompanied with a research consent form and the purpose of the survey was explained beforehand to the participants. Both questionnaires and the research consent form were available in both Kiswahili and English languages.

The patient section of the questionnaire (section A) asked for the patients' opinions about the following eight features of care and service in the KNH x-ray department:

Sign posting;
Reception;
Waiting area;
Cleanliness/Hygiene;
Appointment/Booking;
Changing facilities;
Staff attitude; and the
Imaging procedure.

The participant observers' section of the questionnaire (section B) sought the views of the researcher on his observations regarding the practice of technical aspects of care in a radiological service by staff at the KNH X-ray department during the health care delivery in the imaging rooms.

The data collected enabled the present level of care to be graded/categorized based on:

Patient identity;
Staff attitude;
Patient instructions;
Hygiene/Infection control and prevention;
Cleanliness;
Radiation protection;
Privacy; and
Imaging Procedure outcome.

Distribution of the questionnaires began on 2 July 2002 to every even numbered patient that entered the department regardless of the referral source (both in-patients and out-patients were surveyed). If the patient was unfit to fill the questionnaire, e.g. if he/she was very young or very ill, then the questionnaire was given to their escort, where applicable, or to the next patient that entered the imaging room. All the imaging rooms were surveyed in turns since I positioned myself in a specific room for that particular day and performed the data collection and then proceeded to the next room subsequently thus ensuring that all the rooms were eventually covered.

Before the questionnaires were distributed to the patients they were marked with the patient X-ray number, source of referral, date of booking, type of examination, age and sex of patients and the actual date that the particular examination was being conducted. Some of these features were readily available in the X-ray request form. Sharpened pencils were given those that consented to answer the questions.

Those patients referred for radiological investigation and happened to employees of Kenyatta National Hospital were excluded from the study owing to the obvious bias of preferential treatment they may have been accorded by the staff attending them. All the patients attended during the on-call hours (5.00PM-8.00AM) were excluded from the study due to the acute nature of their condition and difficult to cooperate as had been discovered during the pilot survey.

An unforeseen limitation of this study was lack of a poster with a suggestion box, which should have been prominently displayed at the patient Waiting area for the period of three months that the study was undertaken. Future studies should incorporate such a poster, which should be brightly colored to attract attention and carry information explaining the purpose of the suggestion box. Paper and pens should also be provided to encourage response. Despite the anticipated low response, the suggestion box can be examined at the end of the week to identify uptake. I consider it important, as it would provide the patients another opportunity for creative comment. I hope the anonymous nature of the comment would encourage patients to express their feelings without fear of reprisal.

ETHICAL CONSIDERATIONS

The ethical side of patient-care is intangible, as it is a most important factor in the patient-provider relationships. In line with the Helsinki Declaration (30,31) the following guidelines were followed in this study:

- ◆ Patients' names, race, or religious background were not documented to safeguard confidentiality and encourage free expression without fear of reprisal.
- ◆ Informed written consent was obtained from the participants or their legal guardians.
- ◆ No radiological examination other than the one requested by the referring physician was done on the participants.
- ◆ All patients were managed to the optimal standards as facilities and personnel allowed and nobody was denied anything nor accorded special favors as a result of this study.
- ◆ No extra fees or blood samples were collected, as they were not indicated in this study.
- ◆ Approval was obtained from the KNH Ethical and Research committee to undertake this study after submitting a copy of the study protocol.
- ◆ Copies of the findings from this study will be availed to the KNH Ethical and Research committee and Kenyatta National Hospital as part of their database and possible implementation of the recommendations and thus promote better patient care.

THE RESULTS

Patient questionnaire

A total of 400 patients were surveyed and analysis of the questionnaires they completed was done.

Sign posting: - 73.1% of the respondents found the signs to the X-ray department easy to follow; 4.3% found the location of the X-ray department with difficult; 19.3% found the sign posting insufficient and needed help, while the remaining 3.3% did not respond to this question regarding signs in the X-ray department. The majority of patients who found difficulties in finding their way to and within the X-ray department were private patients.

X-ray reception: - The majority (84.4%) of the 390 patients who responded had to wait at the reception for more than 10 minutes, but only 2.5% of them did not wait at the reception desk. Of the 386 patients who responded 63.2% of them found the reception staff approachable and considerate, 33.7% found them to be helpful and friendly while 3.1% found them brisk and unhelpful.

Waiting area: - 63.2% of the 383 respondents felt that they waited longer than necessary at the waiting bay while 36.8% felt they did not wait for long before their turn to be imaged came. 36.4% of all the patients did not cite any reasons for having waited but of the 255 who responded, 49% did so due to the large queues of other patients ahead of them, 8.4% waited as there were no staff in the specific rooms they were assigned to and 11.0% waited because the staff did not follow the queue when serving them. 21.6% did not get any explanation as to why they waited that long.

62.8% of the 376 respondents found the waiting area to be crowded and boring, 4.5% felt the waiting area was hot and stuffy but only 30.3% of all the respondents thought the waiting areas were comfortable and clean. 9 patients however, found the space at the waiting area inadequate.

Cleanliness: - 92.2% of the 383 respondents considered the standard of cleanliness within the x-ray department acceptable; 5.2% thought it was very high but 2.6% found the standards unacceptable.

43.1% of the 332 patients who responded used the toilets at the X-ray department. However, quite a large proportion of the users did not give their views regarding the status of cleanliness (59.4%). Nevertheless, out of those who did give views, 89.7% found the cleanliness satisfactory while 6.9% rated the cleanliness of the toilets highly. Two patients found the condition of the toilets unacceptable and one of them did lament, "Why is there only one external toilet to be shared by both male and female patients?"

Of the 167 patients who responded regarding the location of toilets, 83.3% felt that they were easy to locate but 16.8% felt they were difficult to locate.

Appointments: - Out of the 371 respondents, 93.5% had been booked. The waiting time after a booking was as follows;

24% waited between 7-14 days, 52% waited less than 7 days, 14.8% waited between 15-21 days but only 9.2% had to wait for more than 21 days.

The one question that sought to find out what patients thought was acceptable waiting time after a booking elicited a number of views from the respondents as follows:

63% thought up to 7 days agreeable, 9.2% were prepared to wait 7-14 days, 24.8% did not know the appropriate waiting time while 3% found more than 21 days acceptable.

For the 331 patients with an appointment/ booking who responded, 74.9% of them underwent the examination as scheduled while 25.1% did not.

Instructions given with the appointment were found easy to follow by 90% of the 342 that responded, 9% found them slightly confusing but 3 patients found them very confusing and needed help to understand them.

Changing facilities: - 43.8% of the 400 patients gave views about the changing cubicles. Of those that responded, 16.6% found they were satisfactory, 50.3% felt that they give sufficient privacy, 30.8% found them to be too small with no facilities for safe keeping their property while 2.3% felt that they did not offer sufficient privacy.

The X-ray gowns were used by 66.2 % of the 216 patients who responded; Out of those who used the gowns, 43.4% gave no response regarding the status of the gowns. Of those that responded, 44.4% found them oversize, 19.8% found them in good repair and fitted well, 23.5% found them too small, and 10 of the patients stated they need attention. None of the users found the gowns dirty.

Staff attitudes: - Of the 383 respondents, 47.0% thought the staff were approachable and helpful, 51.7% thought they were considerate and kind but 1.3% thought they were brisk and unhelpful. The majority (44.3%) of the 377 patients who responded were well pleased and thought the service provided by the X-ray department to be better than they expected, 43.2% found the service just as they had expected while 12.5% found the service was worse than they had anticipated.

X-ray examination: - 98.1% of the 360 respondents were given instructions to follow during the imaging procedure. 90.5% of the 296 who responded said they felt more relaxed due to the explanation they were given. However, 9.5% felt that the explanation given to them was very detailed and questions were not allowed. Seven patients had indicated they were not given any instructions at all.

Difficult areas in the x-ray department: - The majority (78.9%) of the 346 respondents' complaints related to the Waiting area. 10.7% of the 346 respondents complained about the examination room. 4.9% of the respondents' complaints were directed at the reception while 3.8% of the respondents encountered problems in all areas of the X-ray department from the reception to the examination room. Only 1.7% of the respondents did not complain about any area of the x-ray department. However 13.4% of the respondents did not indicate the area in the X-ray department that gave them problems.

Question 19 was an open one included to allow the patients to comment, if they wished, and 86% of the 400 respondents took the opportunity. A total of 344 comments were recorded. They related to: -

Compliments	51.7%
Need to increase number of staff	9%
Need for improvements to waiting area	14.8%
Increase number of machines, e.g. CT scan, U/S	8%
Improve public relations	6%
Need to reduce charges	3.5%
Need for all patients to queue	2%
Toilets need attention	1.7%
Improve changing gowns	1.5%
Need for improvements to changing facilities	1.2%

Most of the compliments were for the staff and the quality of care they provided

Demographic characteristics of those surveyed at the KNH X-ray department

The majority (50%) of the respondents surveyed were referred from KNH consultancy clinics, 20.8% were from private clinics, 18.3% were from KNH wards and 9.8% were from casualty. Of all the respondents the majority (58.4%) were females and 41.6% were males.

The age range of patients attended at the X-ray department ranged from a two-day old neonate to adults above 70 years with a median age of 26 years. 23.3% were below 10 years old, 22.6% were between 31-40 year age group, 22% were in the 21-30 year age group, 5.2% were in the 11-20 year age bracket and the rest (26.8%) were adults above 50 years.

The majority (46.6%) of patients surveyed were unaccompanied to the X-ray department, 29.5% were accompanied by a relative, 6.9% were brought by a nurse and 14.1% by a porter but 3% of respondents did not answer this question.

The distribution of the x-ray requests were general and dental radiography 23.2%, ultra sound 24%, CT scan 20.8%, IVU 2.5%, Fluoroscopy 22.8%, Mammography and ductography 7.2% and sialograms 0.3%.

Participant observer's questionnaire

The researcher as a participant observer filled section B of the questionnaire that dealt with technical aspects of care for the 400 patients surveyed.

The overall impression about the technical aspect of care was excellent for 92.8% of the patients, satisfactory/acceptable care for 5.5% of patients and 1.7% of the patients received sub-optimal care. This was based on a point system regarding the 8 features of care whereby a score was given if the patient was accorded that particular feature by the staff attending him/her. These features included: -patient identity, staff attitude, patient instructions, hygiene, room cleanliness, radiation protection, privacy and outcome of the imaging examination.

Patient identity: - The staff identified 98% of all patients by both name and the type of investigation that they were to undergo. Only 2% were identified by either their name or imaging examination only.

Staff attitude: - In 98.3% of the cases, the staff attitude was judged to be considerate and kind whereas in 1.7% of cases the staff appeared brisk and unhelpful. Indeed in 96.3% of cases the staff established good rapport with the patients or their escorts.

Patient instructions: - 95.4% of the patients received elaborate instructions from the attending staff during the imaging procedure.

Basic hygiene: - In 97.1% of the cases the staff practiced basic hygiene in the handling of patients.

Cleanliness of the imaging room: -In 92.5% of the cases the level of cleanliness within the imaging room was satisfactory.

Radiation protection: - 95.1% of all patients surveyed were offered adequate radiation protection measures during the examination procedure.

Privacy: - 92.5% of the patients were accorded sufficient privacy, as the number of staff/students present in the imaging room was less than 5.

96.3% of patients were adequately draped to expose only the part being imaged. In 89.3% of the cases the doors and curtains to the imaging room remained closed during the procedure. However, in 10.7% of the cases the doors and/or curtains of the examination room were not closed during the procedure.

Outcome of the examination: - 90.5% of the patients underwent the X-ray examination successfully but for 6.6% of the patients the examination had to be repeated and 2.9% of the patients had their examination rebooked.

Question 12 was an open one for any additional observations by the researcher. A total of 64 comments were collected and they related to: -

Repeat done due to incorrect radiographic technique	31.3%
Compliments	25.0%
Patient did not understand instructions	4.7%
Door to imaging room open but curtains closed	15.6%
Staff did not wear radiation protection gowns	6.2%
Patient x-rayed twice due to similar name	1.6%
“Babygram” done instead of chest x-ray	3.1%
Basic hygiene not observed when doing ultra sound	6.2%
Patient left unattended for long on examination couch	1.6%
Patient escort was answered rudely by staff	3.1%
Ward Patient brought for x-ray twice by mistake	1.6%

DISCUSSION

Results from the patient questionnaire

About 23.6% of the patients found the sign posting within the X-ray department to be insufficient or difficult. The majority of those who had difficulties in finding their way to and within the department were 36 private patients and 32 patients from the KNH consultancy clinics. Considering that the largest number (46.6%) of patients visiting the X-ray department came unaccompanied, it does bring to our attention the need for improving the design of the signs used or perhaps introducing the concept of color-coding different departments.

At the x-ray reception only 2.5% of the 390 respondents did not have to wait at the desk. In fact the majority (84.4%) of patients waited for more than 10 minutes, but unfortunately it was not possible to establish the reasons for waiting, as the design of the questionnaire did not allow for this item to be evaluated. But if for example the reasons for waiting were due to a large queue of people or the receptionist was not there then this situation could be alleviated by simple organizational effort such as having several staff at the reception desk at peak time to deal with the influx of patients.

It would be worthwhile for future questionnaires to include or provide an item sourcing for the reasons why patients have to wait at the reception area.

Although 78.9% of the 346 patients that responded cited the Waiting area as the area in which they encountered most difficulties, some of them did put forward suggestions for ways it could be improved. The most popular suggestions were for the installation of a television set. In fact during the period of the survey, a television was installed at the Waiting bay and patients did give compliments about this development. However, the patients for CT scan and Fluoroscopy do not have the advantage of accessing this facility as they have a separate Waiting section. Other suggestions were for improvement of the sitting arrangements whereby chairs with slightly higher seat heights and arm-rests than the present fixed benches should be provided especially for the elderly and disabled. The chairs should be made easily accessible within the Waiting area and perhaps have a sign indicating that they would be greatly appreciated by the elderly and infirm. To avoid costly mistakes advice on such purchases should be sought from the physiotherapy and occupational therapy department.

Of the 383 patients that responded the majority (63.2%) felt that they were made to wait longer than necessary at the Waiting bay. The reasons for waiting were due to large queues ahead for 49% of the 255 patients that responded. 11% of the 255 respondents waited because the staff did not follow the queue while serving them. 21.6% of the 255 respondents did not decipher the reasons nor get an explanation as to why they waited that long. 18.4% of the 255 that responded said they waited, as there was no member of staff in the imaging rooms that they (patients) had been assigned. Despite the fact that these perceptions of delays in service were subjective, it does call upon the managers of the KNH X-ray department to explore ways of speeding up the rate at which patients are attended within the department. For example the tea break can be taken in turns by staff so as to ensure that there is no interruption in service delivery. Furthermore the formation of a 'consumer relations' workshop is a necessity in these days of emerging critical consumers. The staff should also be courteous enough by sticking to their work ethics to avoid being perceived as partisan when not giving their service on first come first served basis.

A significant proportion (62.8%) of the 376 patients that responded highlighted the need for increased space for Waiting as they considered this area crowded and boring. This is a difficult area to resolve due to the existing nature of the department that does not allow for an extension of the Waiting room. However, the creation of a sub-waiting room in a disused preparation room can be handy for the gowned patients and help alleviate the limited space of the main Waiting room/sections.

There is no available space for the children's play area but toys and books if they are to be availed should be contained at one end of the waiting area. Departmental staff will have to monitor the waiting room to ensure toys and books are contained and not strewn across the floor.

Lighting and décor in the waiting area could be improved by wider use of pictures, prints and collages. It may be worthwhile to contact local schools and colleges for loans of paintings created by the students.

Appointment waiting times were less than 14 days for the majority of patients. There were no complaints of waiting lists though one patient did suggest that bookings should be done against time rather than all patients arriving at 8.00AM on the day of the examination. The fact that 63% of the respondents considered less than 7 days as the most appropriate waiting time does indicate the high expectation patients have regarding this particular X-ray department. The design of the questionnaire did not allow for differences between in-patients and outpatients' waiting times to be worked out. The questionnaire would thus need alteration for a further survey.

Only 3 patients thought that the instructions given with the appointment were very confusing, requiring help to understand them. This was encouraging, in view of the many varied preparations required by an X-ray department. Obviously the appointment instructions were clear and easy to follow for the majority (76.3%). For the 29 patients that found the instructions very confusing or slightly confusing, 8 were for general radiography, 6 for CT scan, 5 for Barium meal and one each for venography, IVU, and Barium enema.

Although the patients did not request further information, the introduction of information leaflets, both general and specific, is considered a good idea for improving communication.

The x-ray gown was subject to criticism in the pilot survey as being too small, too short, and oversize and in bad repair. In this survey quite a significant proportion (43.4%) of the 143 who used the gowns did not give their views regarding the status of the same. This was very disappointing. However, out of those who did respond, the majority (44.4%) indicated the gowns were oversize; 23.5% said the gowns were too small and 12.3% said the gowns needed attention. This left only 19.8% of the respondent users as those who found the gowns to be in good repair and fitted well.

It would therefore be a worthwhile exercise to examine all the gowns before they are distributed to ensure that the seams are intact and that repairs have been carried out where necessary and in addition medium sized gowns should also be purchased to cater for the patients that found the gowns either too small or oversize. To cut down on the cost of purchasing new gowns, a tailor can be hired to refashion some of the oversize gowns.

Staff attitudes were judged as excellent whereby 5 patients out of the 383 who responded decided other wise, which is nevertheless five too many. The majority of open comments provided at the end of the questionnaire were actually compliments for staff. Indeed one such compliment ran as follows: 'X-ray department is clean, prompt and very pleasant to patients. I have no complaints'

About 43.2% of the 377 respondents received the kind of service as they had expected, however, even in these days of emerging critical consumer 43.3% of the respondents thought the service was better than they had expected, which can certainly be taken as a commendation for this particular X-ray department. Perhaps all the recent media hysteria about deteriorating health care standards in public hospitals KNH inclusive has lowered patient expectation still further or we may be just fortunate to flourish under a prosperous health authority.

Although most patients stated that they were more relaxed after they had received an explanation during the imaging procedure, 9.5% of them found the information very detailed and they were not offered opportunity to ask questions. None of the patients stated that the instructions given were difficult to understand. There is obviously a need for improvement in the interpersonal skills of many staff. This does highlight the need for induction and in-service training concerning 'customer relations'.

The open question at the end of the questionnaire was answered by 86% of the 400 respondents. The majority of comments were compliments for staff. The next most common area for comment was the need for improvements to the waiting area. This was encouraging, as this was also the area most criticized as a difficult area within the KNH X-ray department by 78.9% of the respondents. In the past year steps have been taken in an attempt to improve the situation. A television set has been installed at the Waiting area to help limit the patients' boredom. It might also be of help to introduce background music at the Waiting area. If music is to become a feature of the department we have to ensure it is of a quality that patients would appreciate. It is difficult to please everyone all of the time and a follow up survey would be necessary to ensure that the background music did not inconvenience or annoy other patients.

Surveys such as this with a high positive response must not inspire false hopes. Even a general question such as 'How were you cared for during your visit' is greatly influenced by relief at having the episode finished. I believe it is a paradox that the KNH is so highly and affectionately regarded when complaints are often a topic of conversation.

Comparatively, even in the 1970s successive surveys on evaluation of medical care in the United Kingdom showed a marked reluctance on the part of patients to complain even when there was quite something to complain about. Patients still do not complain easily and will often be inclined to give the expected or required answer so as not to risk offence. It was in line with this that Kessner and Singer commented regarding evaluation of medical care that 'the question is no longer whether there will be intervention in health services to assure quality, but who will intervene and what methods they will use' (28).

As a matter of fact, evaluation of medical care alone cannot assure quality or improve the care. Locker and Dunt noted that an implicit assumption involved in the assessment of consumers' reactions and perceptions is that these data 'can provide prescriptions for improving services in some way that is beneficial to patients if not to the health care system as a whole' (29).

Result from the participant observer's questionnaire

The overall impression from the questionnaires was favorable. In the majority of cases, as a participant observer I was impressed with the quality of technical care offered to patients within the imaging rooms. It should also not be forgotten that the mere awareness by staff that somebody was 'monitoring' the work being done within the department could have influenced the way the health care providers dealt with patients/ patient-escorts.

Nevertheless, 92.8% of the patients were judged to have received excellent optimal care and 5.5% received satisfactory/acceptable care. Only 9 patients were considered to have received sub-optimal care while undergoing the particular technical examinations.

It was highly commendable that the staff identified 98% of all the patients surveyed by both name and type of imaging examination the particular patients were scheduled to undergo, but it appeared a gross misjudgment by the staff to just identify the patients either by name or imaging examination alone for 8 of the patients.

This was regrettable because in the process one of these patients ended up being x-rayed twice due to a similarity in name with another patient! It is therefore necessary that staff ensure that patients are identified by both their names and the type of investigation they are to undergo to avoid such grievous costly mistakes.

The staff attitude during the imaging procedure was found to be excellent in 98.3% of all those surveyed. As a matter of fact attending staff did establish good rapport with the patient /escort in 96.3% of cases.

This was encouraging considering the fact that they are overloaded with work due to the high numbers of patients seeking radiological services at the KNH. It was only in 7 cases that the observer noted the attitude of staff as brisk and unhelpful. The staff should strive to be calm and emphatic so as to gain the confidence of patients and thereby obtain the due cooperation of the patients during the imaging procedure.

In 95.4% of cases, the patients did receive elaborate instructions regarding the procedure they were to undergo in the X-ray department. Since most patients in the X-ray department are often worried/apprehensive making it difficult for them to understand the instructions, it was reassuring to see that the staff kept handling them with tolerance and kindness thus better cooperation was achieved (4,5).

The radiographers and radiologists exercised a high degree of basic hygiene in 97.1% of the cases. As a matter of fact in 92.5% of cases the imaging room was tidied immediately after use so that it was tidy when the next patient entered. This was encouraging considering the fact that in this era of HIV/AIDS, a lapse in the hygiene standards within the X-ray department could lead to monumental grievous harm to both staff and patients (1,4). For the 12 patients that were not handled hygienically by the attending staff in the imaging room, the majority was undergoing ultrasound examination. Infact during the imaging procedure it was noted that the sonographers just wiped the ultrasonic probe with a piece of tissue paper after handling patient with septic skin lesions and they proceeded to use the same on other patients some of whom were post-operative with raw wounds

It is recommended that if possible the ultrasonic probe should be disinfected with use of the manufacturer's recommended antiseptic solution.

Furthermore, regular workshops for infection control and prevention should be organized for all staff in the X-ray department to enhance better standards. The staff accorded 95.1% of all the patients surveyed adequate radiation protection measures during the examination. Of the 20 patients that were not accorded radiation protection the majority were adult males with limb fractures for whom no gonad shield was given. Two neonates who were to undergo chest X-ray ended up undergoing whole body examination. This practice of radiographing a whole infant or 'babygram' should be avoided (4). Infact it has been established that the radiation dose to the child may be up to 40% greater for the 'babygram' compared to a series of tightly collimated separate views of each limb or part examined (12).

Another serious lapse in radiation protection measures in the X-ray department was in the area of closing the doors to the imaging room during the procedure. In 10.7% of the cases the doors and /or curtains were not closed while the patient was being examined and out of this 10 patients got X-rayed (plain radiography) while only the doors were open. This is deplorable given the serious implications that this can bring about as scatter radiation could escape out of the open doors and irradiate unsuspecting members of the public that could be passing by. It is thus worthwhile to organize regular continuous medical education seminars or workshops for the radiographers regarding radiation protection to avert such lapse in safety radiation protection measures.

MEDICAL LIBRARY
UNIVERSITY OF NAIROBI

The privacy accorded to the patients surveyed was commendable as 96.3% of the patients undergoing the examination were adequately draped to expose only the part being imaged. Furthermore, the doors and curtains were closed during the imaging procedure in 89.3% of cases.

More importantly, the number of staff present within the imaging room during the procedure was less than 5 in 92.5% of the cases given the fact the Kenyatta National Hospital (KNH) is a training institution with a retinue of different cadres of students keen on getting practical exposure in the field.

Thus in as much as KNH is a teaching hospital, measures should be taken to limit the number of staff/students witnessing procedures in the imaging room to a minimum unless such an investigation is deemed quite rare, as to deny the learners vital exposure in their training. This is a difficult recommendation to implement that requires concerted effort by the departmental, faculty and sectional heads to meet and come up with training protocol that will be harmoniously implemented for the varied number of student population keen and eager to learn.

This will help alleviate the undue embarrassment suffered by patients that are undergoing such procedures as HSG, MCU, Vasogram, intracavitary sonography, and Barium enema.

The outcome of the various imaging procedures that the patients went through was favorable. In 90.5% of the cases the examination was done, 6.6% of the examinations were repeated and only 12 patients had to be rebooked for another day. The design of the questionnaire did not allow for the reasons of repeat/rebooking to be evaluated. It is hoped that future surveys should be done with modification of the questionnaire so as to be able to evaluate the number of repeats and rebook rates together with the reasons for doing so. In addition, the questionnaires of any future surveys should also include items to cover for radiological reports as to how timely the patients receive them since the questionnaire design used did not allow evaluation of this important aspect of care within a radiological service (15).

35.7% of the respondents used the toilets. However, the majority (59.4%) of them did not give their views regarding the cleanliness of these facilities. Of those that did respond, the majority (89.7%) said the cleanliness of the toilets was acceptable. Only two patients stated that the cleanliness of the toilets was unacceptable with one of them lamenting that do both males and females use only one toilet?

One of the suggestions by the 6 patients who gave their comments in the open question highlighted the need of establishing a separate urinal for the male patients seeking services at the X-ray department. If this recommendation were to be implemented it would help in improving the patient-care since the other available toilets are located within the special imaging rooms thus they are inaccessible to a majority of patients.

Question 12 was open and allowed the participant observer to give any comments. a total of 64 comments were obtained. The majority of the comments related to the high number of radiographic examinations that had to be repeated due to incorrect radiographic technique. Of the 26 patients that underwent a repeat examination, 20 of them it was due to incorrect radiographic technique. This does call for continuing medical education for radiographers in the field so as to improve on their radiographic technique knowledge and help reduce the number of unnecessary repeats considering the cumulative dangers that may arise out of such a practice. The next area for comment (25%) was actually compliments to the staff especially those involved in the handling patients within the imaging room. Another noteworthy observation was the failure to wear radiation protection gowns by staff in 4 instances while fluoroscopy was going on. This still does reinforce and justify the need for continuing medical education for all radiation workers.

Comparison

Three questions were common to both patient and participant observer questionnaires. 'Did the attending staff give the patient instructions to follow during the imaging procedures?' For the 90% of patients who did reply, 98.1% said yes and 1.9 %said no. The participant observer demonstrated slightly less restraint and found that 95.4% of all patients surveyed were given elaborate instructions while 4.6%did not receive any instructions at all or the instructions given were inadequate for the patient to comprehend.

The overall impression from this question was that the participant observer considered the instructions given to the patients during the procedure more important than did the patients for this comprised a vital aspect of technical care.

The next common question was 'How was the general staff attitude?'

For the 95.8% of patients who did reply, 94.4% found that the general staff attitude was good while 1.4% found it to be that of being brisk and unhelpful. The participant observer rated that in 1.7% of the instances the staff were brisk and unhelpful.

The overall impression from this question was that the staffs were well perceived by both the patients and the participant observer. This must surely be encouraging to the staff working in this particular X-ray department and help make all of them to feel more confident in the role they play in the health service.

The last question that was common to both data collection tools was 'How do you rate the general level of cleanliness in the X-ray department?'

For the 95.8% of patients who did reply, 97.4% found the level of cleanliness to be good/acceptable while 2.6%decided otherwise. The participant observer gave response that was mainly regarding the imaging room, which was considered clean in 92.5% of all cases surveyed and in 7.5% of cases the room was dirty

The overall impression from this question is that the general level of cleanliness in the X-ray department was found acceptable by both patients and the participant observer. This is a commendation for the staff charged with the responsibility of ensuring cleanliness within this particular X-ray department.

The open questions at both ends of questionnaires provided a response from 86% of the patients but the participant observer gave additional comments for 16% of the patients surveyed. The high response rate from the patients was very encouraging considering the fact that this survey was geared at obtaining the users perspectives regarding the care given to them.

Conclusion

Many of the responses from this study, especially from the open-ended questions were very reasonable and valuable as the basis for any improvements required within this particular X-ray department.

The majority of measures required by the patients could be best facilitated by the formation of a department customer relations' workshop. The group should consist of a number of staff that is committed to a more patient-oriented service. The first task to be undertaken by this group is the formation of an action plan for the patient waiting area. The workshop will also co-ordinate other consumer satisfaction surveys as required, to evaluate changes that they have implemented.

To eliminate some of the difficulties encountered in this research, in the future the opportunity should be made available to develop questionnaires for different categories of patients e.g. out-patients, general practitioner referral, accident and emergency patients and children.

The customer relations' workshop should not consist only of radiologists and radiographers but should also include representatives from the nursing and clerical staff. This would certainly be advantageous in tackling the problem of the number of patients waiting at the reception desk and the Waiting bay.

The investigation into our internal quality of patient care at Kenyatta National Hospital X-ray department was of great value. As matter of fact, all main users did reply during the survey and this is quite encouraging besides adding validity to the report.

Evaluation of the technical aspects of care in our radiological service provided a good insight into the present practices of our KNH staff. In future, surveys should also strive to assess the knowledge, attitudes and practice of the technical aspects of patient care by staff in order to get the areas they are most deficient in and then more in-house training workshops can be organized along this line to match the need of continued medical education.

This research has been a positive move in the right direction towards quality services in the X-ray department. However, to be truly effective and reflective of the patients' wishes the quality assurance program must be continuous, easy to monitor and an integral part of the department's activity. The expectations of the customer/patient will also change as the advance of medical technology continues which is why tracking studies are necessary to plot our progress over a period of time

TABLES OF RESULTS

PATIENTS' OPINIONS ABOUT EIGHT FEATURES OF CARE AND SERVICE IN THE KNH X-RAY DEPARTMENT

RESULTS

Table 1A: Source of referral

Source	Number of patients	Percentage (%)
KNH Clinics	200	50.0
Private	83	20.8
KNH wards	73	18.2
Casualty	44	11.0
Total	400	100

Table 2A: Age

Age Group	Number of patients	Percentage (%)
<=10 yrs	93	23.3
11-20 yrs	46	11.4
21-30 yrs	88	22.0
31-40 yrs	90	22.6
41-50 yrs	41	10.2
51-60 yrs	20	4.9
61-70 yrs	16	3.9
Over 70 yrs	7	1.6
Total	400	100

Table 3A: Sex

Sex	Number of patients	Percentage (%)
Male	167	41.6
Female	233	58.4
Total	400	100

Table 4A: Waiting time after booking for the examination

Waiting time	Number of patients	Percentage (%)
Less than 7 days	208	52.0
7-14 days	96	24.0
15-21 days	59	14.8
More than 21 days	37	9.2
Total	400	100

Table 5A: Type of investigation

Type of investigation	Number of patients	Percentage (%)
General Radiography	74	18.5
Ultra sound	96	24.0
Barium meal	36	9.0
Colostogram	1	0.3
CT Scan	83	20.8
Mammography	24	6.0
Venogram	13	3.3
HSG	13	3.3
Barium Swallow	8	2.0
Ductography	5	1.2
IVU	10	2.5
Sialogram	1	0.3
Fistulogram	1	0.3
Barium Enema	5	1.2
Vasogram	5	1.2
MCU	5	1.2
Dental radiography	19	4.7
Angiographies	1	0.3
Interventional radiology	-	-
Total	400	100

Table 6A: Who had escorted the patient to the X-ray department

Escort	Number of patients	Percentage (%)	% Out of those that responded
Self	186	46.6	47.95
A relative	118	29.5	30.4
Nurse	28	6.9	7.2
Porter	56	14.1	14.45
Not indicated	12	3.0	-
Total	400	100	100

Table 7A(i): Signposting in the department

Response	Number of patients	Percentage (%)	% Out of those that responded
Easy to follow	292	73.1	75.5
Insufficient and you need help	77	19.3	20.0
Difficult	17	4.3	4.5
No response	13	3.3	-
Total	400	100	100

Table 7A(ii): Signposting in the department in relation to source of referral

Source of referral	Signposting in the department		
	Easy to follow	Insufficient and you need help	Difficult
KNH Clinics	167	32	1
Private	31	36	13
KNH wards	65	3	-
Casualty	29	6	3
Total	292	77	17

Table 8A: How long the patients waited at the reception

Response	Number of patients	Percentage (%)	% Out of those that responded
Did not wait	10	2.5	2.5
Waited less than 5 minutes	21	5.2	5.4
Waited between 5-10 minutes	30	7.5	7.7
Waited more than 10 minutes	329	82.3	84.4
No response	10	2.5	-
Total	400	100	100

Table 9A: The reception staff

Response	Number of patients	Percentage (%)	% Out of those that responded
Helpful and friendly	130	32.5	33.7
Approachable and considerate	244	61.0	63.2
Brisk and unhelpful	12	2.9	3.1
No response	14	3.6	-
Total	400	100	100

Table 10A: Whether the patient was made to wait longer than usual at the waiting area

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	242	60.3	63.2
No	141	35.4	36.8
No response	17	4.3	-
Total	400	100	100

Table 11A: Reasons for waiting at the waiting bay

Response	Number of patients	Percentage (%)	% Out of those that responded
Attending staff not available	47	11.8	18.4
Queue not followed by staff	28	6.9	11.0
Too many patients ahead	125	31.1	49.0
No explanation was given for the delay	55	13.8	21.6
No response	145	36.4	-
Total	400	100	100

Table 12A: How the waiting area was

Response	Number of patients	Percentage (%)	% Out of those that responded
Comfortable and clean	114	28.5	30.3
Hot and stuffy	17	4.3	4.5
Crowded and boring	236	59.0	62.8
Inadequate	9	2.3	2.4
No response	24	5.9	-
Total	400	100	100

Table 13A: Rating of the level of cleanliness in the department

Response	Number of patients	Percentage (%)	% Out of those that responded
Very High	20	4.9	5.2
Acceptable	353	88.2	92.2
Unacceptable	10	2.6	2.6
No response	17	4.3	-
Total	400	100	100

Table 14A: Whether or not the patient used the lavatories/toilets

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	143	35.7	43.1
No	189	47.2	56.9
No response	68	17.0	-
Total	400	100	100

Table 15A: Level of cleanliness of the toilets

Response	Number of patients	Percentage (%)	% Out of those that responded
Very High	4	2.8	6.9
Acceptable	52	36.4	89.7
Unacceptable	2	1.4	3.4
No response	85	59.4	-
Total	143	100	100

Table 16A: Location of toilets

Response	Number of patients	Percentage (%)	% Out of those that responded
Difficult to locate	28	6.9	16.8
Easy to locate	139	34.8	83.2
No response	233	58.4	-
Total	400	100	100

Table 17A: Changing rooms

Response	Number of patients	Percentage (%)	% Out of those that responded
Satisfactory	29	7.2	16.6
Give sufficient privacy	88	22.0	50.3
Too small	54	13.4	30.8
Do not give sufficient privacy	4	1.0	2.3
No response	225	56.4	-
Total	400	100	100

Table 18A: Whether or not the patient used the X-ray gowns

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	143	35.7	66.2
No	73	18.4	33.8
No response	184	45.9	-
Total	400	100	100

Table 19A: How were the gowns?

Response	Number of patients	Percentage (%)	% Out of those that responded
Too small	19	13.3	23.5
Are in good repair and fitted well	16	11.2	19.8
Oversize	36	25.2	44.4
They need attention	10	7.0	12.3
No response	62	43.4	-
Total	143	100	100

Table 20A: Booking of the examinations

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	347	86.9	93.5
No	24	5.9	6.5
No response	29	7.2	--
Total	400	100	100

Table 21A: Whether or not the examination was done

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	248	71.4	74.9
No	83	24.0	25.1
No response	16	4.6	--
Total	347	100	100

Table 22A: What was considered appropriate waiting time regarding booking examinations

Response	Number of patients	Percentage (%)
Between 7-14 days	37	9.2
Less than 7 days	252	63.0
More than 21 days	12	3.0
Don't know	99	24.9
Total	400	100

Table 23A: whether or not the details or requirements were explained with the appointment

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	342	85.6	93.2
No	25	6.2	6.8
No response	33	8.2	--
Total	400	100	100

Table 24A(i): How the explanation was

Response	Number of patients	Percentage (%)	% Out of those that responded
Easy to follow	261	76.3	90.0
Slightly confusing	26	7.6	9.0
Very confusing and needed help	3	0.8	1.0
No response	52	15.2	-
Total	342	100	100

Table 24A(ii): How the explanation was in relation to the examination type.

Type of examination	How the explanation was		
	Easy to follow	Slightly confusing	Very confusing
General Radiography	45	7	1
Ultra sound	82	5	1
Barium meal	12	5	-
Colostogram	1	-	-
CT Scan	64	5	1
Mammography	15	1	-
Venogram	6	-	-
HSG	12	1	-
Barium Swallow	2	-	-
Ductography	4	-	-
IVU	8	1	-
Sialogram	1	-	-
Fistulogram	1	-	-
Barium Enema	3	1	-
Vasogram	2	-	-
MCU	3	-	-
Total	261	26	3

Table 25A: Whether or not the attending staff gave the instructions

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	353	88.2	98.1
No	7	1.6	1.9
No response	40	10.2	-
Total	400	100	100

Table 26A: Feeling about the instructions

Response	Number of patients	Percentage (%)	% Out of those that responded
More relaxed	268	75.9	90.5
Very detailed and questions not allowed	28	7.9	9.5
Difficult to understand	0	0	0
No response	57	16.1	-
Total	353	100	100

Table 27A: Any similar investigation in another facility

Response	Number of patients	Percentage (%)	% Out of those that responded
Yes	189	47.2	51.8
No	176	43.9	48.2
No response	35	8.9	-
Total	400	100	100

Table 28A: How the charges were in comparison with other health facilities

Response	Number of patients	Percentage (%)	% Out of those that responded
Too high	5	2.6	5.0
Reasonable	91	48.1	90.0
Too low	5	2.6	5.0
No response	88	46.6	-
Total	189	100	100

Table 29A: Difficult areas in the department

Response	Number of patients	Percentage (%)	% Out of those that responded
Reception	17	4.3	4.9
Waiting area	273	68.2	78.9
Examination room	37	9.2	10.7
All of the above	13	3.3	3.8
None of the above	6	1.6	1.7
No response	54	13.4	-
Total	400	100	100

Table 30A: General attitude of the x-ray staff

Response	Number of patients	Percentage (%)	% Out of those that responded
Approachable and helpful	180	44.9	47.0
Considerate and kind	198	49.5	51.7
Brisk and unhelpful	5	1.3	1.3
No response	17	4.3	--
Total	400	100	100

Table 31A: How is the care given in the department?

Response	Number of patients	Percentage (%)	% Out of those that responded
Just as expected	163	40.7	43.2
Better than expected	167	41.6	44.3
Worse than expected	47	11.8	12.5
No response	23	5.9	--
Total	400	100	100

Table 32A: Recommendations for improvement

Response	No. Of patients	Percentage (%)	% Out of number of comments
Compliments	178	44.5	51.7
Need for improvement at waiting area	51	12.7	14.8
Increase number of staff	31	7.7	9.0
Need for improvements to changing facilities	4	1.0	1.2
Increase number of machines (CT scan, U/S etc.)	28	7.0	8.0
Improve public relations	22	5.5	6.0
Reduce charges	12	3.0	3.5
Avoid some patients jumping the queue	7	1.8	2.0
Toilets need attention	6	1.5	1.7
Improve changing gowns	5	1.3	1.5
No Comment	56	14.0	--
Total	400	100	100

PARTICIPANT OBSERVER'S EVALUATION OF THE PRACTICE OF TECHNICAL ASPECTS OF CARE AT THE KNH X-RAY DEPARTMENT

RESULTS

Table 1B: Type of investigation

Investigation	Number of patients	Percentage (%)
General radiography	74	18.5
Ultrasound	96	24.0
CT scan	83	20.8
Barium meal	36	9.0
Barium swallow	8	2.0
Barium enema	5	1.2
MCU	5	1.2
IVU	10	2.5
HSG	13	3.3
Radiculogram	-	-
Angiographies	1	0.3
Vasogram	5	1.2
Interventional Radiology	-	-
Mammography	24	6.0
Dental radiography	19	4.7
Colostogram	1	0.3
Venograms	13	3.3
Sialogram	1	0.3
Fistulogram	1	0.3
Total	400	100

Table 2B: Identification of patient by both name and type of investigation counterchecking

Response	Number of patients	Percentage (%)
Yes	392	98.0
No	8	2.0
Total	400	100

Table 3B: Establishment of rapport with patient/escort

Response	Number of patients	Percentage (%)
Yes	385	96.3
No	15	3.7
Total	400	100

Table 4B: Elaborate instructions given to the patient

Response	Number of patients	Percentage (%)
Yes	382	95.4
No	18	4.6
Total	400	100

Table 5B: Staff attitude during procedure

Response	Number of patients	Percentage (%)
Considerate and kind	393	98.3
Brisk and unhelpful	7	1.7
Total	400	100

Table 6B: Basic hygiene observed during procedure

Response	Number of patients	Percentage (%)
Yes	388	97.1
No	12	2.9
Total	400	100

Table 7B: Level of cleanliness in imaging room

Response	Number of patients	Percentage (%)
Clean	370	92.5
Dirty	30	7.5
Total	400	100

Table 8B: Adequate covering/draping of patient to expose only the part being imaged

Response	Number of patients	Percentage (%)
Yes	385	96.3
No	15	3.7
Total	400	100

Table 9B: Doors and curtains closed during procedure?

Response	Number of patients	Percentage (%)
Yes	357	89.3
No	43	10.7
Total	400	100

Table 10B: Number of people present in the room

Response	Number of patients	Percentage (%)
Less than 5	370	92.5
More than 5	30	7.5
Total	400	100

Table 11B: Radiation protection offered to patient/escort

Response	Number of patients	Percentage (%)
Yes	380	95.1
No	20	4.9
Total	400	100

Table 12B: Outcome of procedure

Outcome	Number of patients	Percentage (%)
Examination done	362	90.5
Rebook examination	12	2.9
Repeat examination	26	6.6
Total	400	100

Table 13B: Additional comments

Comment	No. Of patients	Percentage (%)	% Out of number of comments
Repeat due to incorrect radiographic technique	20	5.0	
Compliments	16	4.0	
Patient didn't understand instructions	3	0.8	
Patient left unattended for long on examination couch	1	0.3	
Door open but curtains closed	10	3.0	
Staff did not wear radiation protection gowns	4	1.2	
Patient's escorts answered rudely	2	0.5	
Basic hygiene not observed when doing ultra sound	4	1.2	
Examination not done due to amenorrhoea	1	0.3	
"Babygram" done instead of chest x-ray	2	0.5	
Patient brought twice due to similar name	1	0.3	
No Comment	336	84.0	
Total	400	100	

Table 14B: Total Score

Score	Number of patients	Percentage (%)
Excellent optimal care	371	92.8
Satisfactory/acceptable care	22	5.5
Sub-optimal care	7	1.7
Total	400	100

REFERENCES

1. Chesney D.N and M.O Chesney: Care of the patient in diagnostic Radiography. 4th ed. Oxford, Blackwell Scientific, 1973
2. Ehrlich, A.R: Patient care in Radiography, 2nd ed. Saint Louis, Toronto, Princeton.
The CV Mosby company, 1985 pp 14-19, pp 24-16, pp 79-107, pp 152-174, pp 229-238.
3. Bhargava K.S: The features of general patient care in radiology. Textbook of radiology for technicians. 1st ed. New Delhi.
Publisher: S. K. Jain for CBS publisher and distributors. pp 114-120
4. Bryan Glenda: Patient care. Diagnostic Radiography. 3rd ed. Bristol Edinburgh. Publisher: Churchill Livingstone 1979
5. Watson J.C: Patient care and special procedures in radiological technology, 3rd ed. Saint Louis.
The CV Mosby Company, 1979 pp 14-17, pp 37-56, pp 193-206.
6. Chapman, S and Nakielny, R: A guide to Radiological procedures 1st ed. London. Bailliere Tindall, 1981 pp 1-12
7. Braun A.M Nemcek A.A, Vogelzaag L.R: Interventional Radiology procedure manual, 1st Ed. New York, Edinburgh, London, San Francisco, Tokyo, Madrid. Churchill Livingstone inc. 1979.
8. Dunbar J.S: comment on patient care.
Current problems in Radiology vol.1 No.6 Nov-Dec 1971 pp 3-8.
9. Bush, W.H and Swanson, D.P: Acute reactions to intravascular contrast media; Types, risk factors, recognition and specific treatment.
AJR 1991; 157:1153-1161.
10. Isadore Meschan: Patient protection against radiation.
Synopsis of roentgen signs. 1st ed. Philadelphia, London.
Publisher: W.B Saunders Company, 1963. PP 14-17
11. ICRP, 1977: Recommendations of the international commission on Radiological protection. ICRP. Publication 26. Pergamon press, Oxford.
12. Plaut S: Radiation protection in the X- Ray department, 1st ed. Oxford, London, Boston, Toronto.
Publisher: Butterworth- Heinman Ltd, 1993. PP 87-96.
13. Schunk -K: (Rights and responsibilities of the radiologist in determining indications and applying radiological procedures) Original in Germany: Rechte und Rflichten de Radiologen bei der Indikationsstellung und Anwendung radiologischer verfahren.
Source: Rofo – Fortschr- Geb- Rontgenstr- Neuen- Bildgeb-Verfahr.1999 Jan: 170(1): 7-15
- 14 Embrys Roberts R.M (1975): Must Radiologists do all the reporting.
British Journal of Radiology (BJR) 48,10

15. Rose J.T and Gallivan S (1991): Plain film reporting in the U.K.
Clinical radiology 44, 192-194
16. H.M Saxton: Reporting too late to influence clinical management.
Clinical Radiology no. 145, PP 1-3
17. Craig, JOMC (1989): The Knox lecture: radiology and the law;
Clinical Radiology 40, 343-346
18. Brindle MJ (1978): Radiology workload –a solution.
British medical journal (BJR), ii, 514-515
19. Claikens- B: Marketing mix in the radiology department; challenges for
future radiologists in management.
Journal of Belgium Radiology 1998 Aug; 81(4): 186-9
20. Parrish –AG (1997). Where does all the money go? An audit of cost and
waste distribution in a second-tier peri-urban hospital.
S-Afr- med- J. 1997 Oct; 87(10): 1365-70
21. Pirroh- T, Vincenzori- M, Ceruti- R, Bellomo- S, Masera-p & Marona-p
a) Excellence in diagnostic imaging management
b) Automated scheduling of radiological procedures
Source: Rays 1998 Apr- Jun; 23(2): 341-5
22. William-BJ: Diagnostic imaging in 2001- a health economics
perspective. European Radiology 1997; 7 suppl 5:251-2
23. Heyman- TD; Culling – W: The patient focused approach; a better way
to run a hospital?
J-R-coll- physician- Lord: 1996-Mar-Apr; 30(2): 142-4
24. Whyke M.: A Caring profession?
Radiography 1982; 48:87
25. Leonard Berlin: standard of care:
AJR 1998 Feb; 170(2): 275-8
26. Hirschfield EB- Practice parameters and malpractice liability of
physicians.
JAMA 1991; 226: 2856- 2860
27. James M. Moorfield: malpractice issues in radiology.
AJR 170 Feb 1998 PP 291-273
28. Kessner D.M, Kalk C.E and Singer J: “Assessing Health Quality: the
case for Tracers.”
The new England Journal of medicine 288:4 (Jan 1973) PP 189
29. Locker D and Dunt, D: Theoretical and methodological issues in
sociological studies of consumer satisfaction with medical care.
Social science and Medicine 12:4 (1978) PP 289

30. William Lore: Informed consent.

Health, Law and Ethics PP 25-30

31. The code of professional conduct and discipline, 3rd edition pp 28-29.
(A ministry of Health Publication)

APPENDIX

DATA COLLECTION SHEET

This questionnaire is in two parts. Section 1/part I of it is to be completed by the patient while part 2 of the same is to be filled/completed by the researcher.

Please read before answering the questions.

Do not indicate your name on this form.

The information given shall be treated as private and confidential.

No victimization or preferential treatment shall be given as a result of participating or refusal to participate in the study.

Tick or circle the appropriate response(s).

PART A (GENERAL SECTION TO BE COMPLETED BY THE PATIENT)

X-ray no.....Source of referral.....Age.....Sex.....
Type of investigation.....
Date of referral.....Date of booking.....
Date when the investigation is done.....

1. Who escorted you to the X-ray department?
 - a) Self
 - b) A relative
 - c) Nurse
 - d) Porter
2. How do you find the sign posting in the X-ray department?
 - a) Easy to follow
 - b) Insufficient and you need help
 - c) Difficult.
3. For how long did you wait at the X-ray reception?
 - a) Did not wait
 - b) Waited less than 5 minutes
 - c) Waited between 5- 10 minutes
 - d) Waited more than 10 minutes
 - e) Others (specify).....
4. How did you find the reception staff?
 - a) Helpful and friendly
 - b) Approachable and considerate
 - c) Brisk and unhelpful
 - d) Others
(specify).....
- 5.(i) Were you made to wait longer than necessary at the waiting area?
 - a) Yes
 - b) No

(ii) If yes, what were the reasons?

 - a) Attending staff not available
 - b) Queue not followed by staff
 - c) Too many patients ahead
 - d) No explanation was given for the delay

6. How do you find the waiting area?

- a) Comfortable and clean
- b) Hot and stuffy
- c) Crowded and boring
- d) Inadequate

7. How do you rate the level of cleanliness in the X-ray department?

- a) Very high
- b) Acceptable
- c) Unacceptable

8. (i) Did you use the lavatories/toilets?

- a) Yes
- b) No

(ii) If yes, how do you rate the level of cleanliness?

- a) Very high
- b) Acceptable
- c) Unacceptable

(iii) How do you find the location of the toilets?

- a) Difficult to locate
- b) Easy to locate

9. How do you find the changing rooms?

- a) Satisfactory
- b) Give sufficient privacy
- c) Too small
- d) Do not give sufficient privacy

10. (i) Did you use the X-ray gowns?

- a) Yes
- b) No

(ii) If yes, how did you find them?

- a) Too small
- b) Are in good repair and fitted well.
- c) Oversize
- d) They need attention

11. (i) Were you booked for the examinations

- a) Yes
- b) No

(ii) Was the examination done?

- a) Yes
- b) No

(iii) If no, why? Specify.....

.....

12. What would you consider to be appropriate waiting time with regard to booking for the examination you have undergone?

- a) Between 7-14 days
- b) Less than 7 days
- c) More than 21 days but less than a month
- d) Don't know

13. (i) Did the radiographer/staff in the X-ray department explain the details or requirements for the examinations you were to undergo?

- a) Yes
- b) No

(ii) If yes, how did you find them?

- a) Easy to follow
- b) Slightly confusing
- c) Very confusing and needed help

14. (i) During the X-ray/imaging procedure, did the attending staff give you the instructions you were to follow?

- a) Yes
- b) No

(ii) If yes, how did you feel about the instructions given?

- a) They made you more relaxed
- b) They were very detailed and no opportunity given to ask questions
- c) Difficult to understand

15. (i) Have you undergone a similar X-ray investigation in another health facility before? do you know of someone who has undergone a similar examination at any other health facility before?

- a) Yes
- b) No

(ii) If yes, how do you find the charges for the radiological investigation/examination at KNH in comparison with the other health facility?

- a) Too high
- b) Reasonable
- c) Too low

16. Which areas in the X-ray department did you find/experience difficulties?

- a) Reception
- b) Waiting area
- c) Examination room
- d) All of the above
- e) Others specify.....

17. How do you find the general attitude of the X-ray staff to you?

- a) Approachable and helpful
- b) Considerate and kind
- c) Brisk and unhelpful
- d) Others specify.....

18. Generally, how do you find the care delivered to you in the X-ray department?

- a) Just as you had expected
- b) Better than expected
- c) Worse than anticipated

19. What would you recommend for the improvement of care within the X-ray department?

Specify.....

APPENDIX

DATA COLLECTION SHEET PART B
(TECHNICAL SECTION TO BE FILLED BY THE
RESEARCHER)

Patient number.....

Type of investigation.....

1. Did both name and the type of investigation he/she was to undergo countercheck to identify the patient?

A) Yes.....1

B) No.....0

2. Did the staff establish good rapport with the patient and /or patients' escort?

A) Yes.....1

B) No.....0

3. Was the patient given elaborate instructions to follow during the imaging procedure?

A) Yes.....1

B) No.....0

4. How was the general staff attitude during the imaging procedure?

A) Considerate and kind.....1

B) Brisk and unhelpful.....0

5. Was basic hygiene observed before and during the imaging procedure?

A) Yes.....1

B) No.....0

6. How was the general level of cleanliness in the imaging room?

A) Clean.....1

B) Dirty.....0

7. Was the patient adequately covered/draped to expose only the part of the body to be imaged?

A) Yes.....1

B) No.....0

8. Were the doors and/or curtains to the imaging room closed during the procedure?

A) Yes.....1

B) No.....0

9. How many people were present in the room?

A) Less than 5.....1

B) More than 5.....0

MEDICAL LIBRARY
UNIVERSITY OF NAIROBI

APPENDIX

DATA COLLECTION SHEET PART B
(TECHNICAL SECTION TO BE FILLED BY THE
RESEARCHER)

Patient number.....

Type of investigation.....

1. Did both name and the type of investigation he/she was to undergo countercheck to identify the patient?

A) Yes.....1

B) No.....0

2. Did the staff establish good rapport with the patient and /or patients' escort?

A) Yes.....1

B) No.....0

3. Was the patient given elaborate instructions to follow during the imaging procedure?

A) Yes.....1

B) No.....0

4. How was the general staff attitude during the imaging procedure?

A) Considerate and kind.....1

B) Brisk and unhelpful.....0

5. Was basic hygiene observed before and during the imaging procedure?

A) Yes.....1

B) No.....0

6. How was the general level of cleanliness in the imaging room?

A) Clean.....1

B) Dirty.....0

7. Was the patient adequately covered/draped to expose only the part of the body to be imaged?

A) Yes.....1

B) No.....0

8. Were the doors and/or curtains to the imaging room closed during the procedure?

A) Yes.....1

B) No.....0

9. How many people were present in the room?

A) Less than 5.....1

B) More than 5.....0

MEDICAL LIBRARY
UNIVERSITY OF NAIROBI

10. Were the patient and/or the accompanying escort in the room offered radiation protection measures?

A) Yes.....1

B) No.....0

11. What was the outcome of the examination procedure?

A) Examination done.....2

B) Rebook examination.....1

C) Repeat examination.....0

12. Any additional comments

.....
.....

KEY

TOTAL SCORE _____ 12 (max)

GRADING 10-12 excellent optimal care
 8-9 Satisfactory/acceptable care
 <8 Sub-optimal care.

Type of investigation codes

Pediatric plain radiography	1
Ultrasound	2
CT Scan	3
Barium meal	4
Barium swallows	5
Barium Enema	6
MCU (Micturating CystoUrethrogram)	7
IVU (Intravenous urography)	8
HSG (Hysterosalpingography)	9
Radiculogram	10
Angiographies	11
Vasogram	12
Interventional Radiology	13
Others (Specify).....	14