The chairman
KNH/UON Ethics, Research and Standards Committee
Kenyatta National Hospital
23rd August, 2012

Through,
Internal Supervisor,
DR. REGINA MUTAVE.

External Supervisor,
DR. EUNICE KIHARA

Dear Sir/Madam

RE: RE-SUBMISSION FOR ETHICAL REVIEW

I hereby wish to re-submit my proposal for a study on "Audit of imaging request forms at the university of Nairobi Dental Hospital" for ethical review.

I have made the suggested corrections.

The research project proposal is submitted in Partial fulfillment of the requirements for the award leading to a Bachelor of Dental Surgery degree from the University of Nairobi, 2012.

Yours sincerely,

KIMUTAI BARSANG
AUDIT OF IMAGING REQUEST FORMS AT THE UNIVERSITY OF
NAIROBI DENTAL HOSPITAL, UNDH

INVESTIGATOR: KIMUTAI BARSANG-B.D.S III

V28/2726/2009

A RESEARCH PROPOSAL SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE BACHELOR OF DENTAL SURGERY OF THE
UNIVERSITY OF NAIROBI -2012
DECLARATION

I, Kimutai Barsang, a third year BDS student at the University of Nairobi, declare that this is my original work and has not been submitted elsewhere for the award of any degree or for any other purpose.

Signed: .................................. Date: 23/8/12
APPROVAL

I, Kimutai Barsang, is submitting this proposal to the Research, Ethics and Standards Committee, Kenyatta National Hospital (KNH) and university of Nairobi (UON).

This proposal has been submitted with approval of my supervisors;

DR.REGINA MUTAVE, BDS (NBI), MRes (St. Andrews)
Department of Periodontology, Community and Preventive Dentistry
University of Nairobi
Signed.......................... Date 23/8/2012

DR.EUNICE KIHARA, B.D.S (NBI)
Department of Oral and Maxillofacial Surgery
University of Nairobi
Signed.......................... Date 24/8/12
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ABBREVIATIONS

B.D.S  - Bachelor of Dental Surgery

UON  - University of Nairobi

MRes  - Masters in Research

UNDH  - University of Nairobi Dental Hospital

LMP  - Last Menstrual Period
ABSTRACT

Background: Imaging request forms are essential communication tools used by doctors referring patients for radiological investigations. Therefore, filling the request forms adequately and in details is paramount in making concise radiological diagnosis.

Objective: To carry out an audit on completion of imaging request forms currently in use at the UNDH

Study design: A retrospective descriptive study will be used to assess the compliance of referring clinicians in adequate completion of the imaging request forms.

Setting: The study will be conducted at the university of Nairobi Dental Hospital

Data collection method: Imaging request Forms will be accessed and assessed after processing at the booking desk. Each form will be assessed for completeness of the fields.

Study benefits: The study results will be used to sensitize clinicians on the importance of complete filling of imaging request forms and will assist in partial fulfillment of requirements for the award of Bachelor of Dental Surgery in the University of Nairobi.
CHAPTER ONE

INTRODUCTION

Imaging is the technique and process used to create images of parts or whole of human body for clinical purpose like seeking to reveal, diagnose or examine disease.

Imaging request form is a specially designed form filled by clinicians before imaging is done.

Imaging is widely used in the medical field. In dentistry, it is one of the major diagnostic aids. For example, it is used to show presence of pathologies like caries, cysts and tumors, show the state of restorations, monitor disease progression, detect fractures, monitor progress of treatment, localize foreign bodies, gross examination of maxilla and mandible, examine the degree of bone loss or even to localize impacted, unerupted or supernumerary teeth.

The decision to carry out any investigation should be based on: correct assessment of the indications, the total expected yield, the way in which the results are likely to influence diagnosis and the clinician having adequate knowledge of the physical and biological properties of ionizing radiation. The patients should also have a full understanding of the risks involved and give their consent.

In addition, a framework of written procedures should be provided and should include information on; patient identification, clinical summary, exposure justification, identification of referrers and identification of pregnant patients. All these details are contained in imaging request forms.

At UNDH, various radiographic examinations are performed which include intraoral and extraoral radiographs. These comprise; bilateral bitewings, intraoral periapical views, occlusal views, orthopantomogram (OPG), cephalometry, skull projections and siologram. They are all indicated for different conditions.

These are requested using imaging request forms which contain the following fields; name of patient, age, gender, file, number, and last menstrual period, previous history of x-rays clinical summary and signature of approval (appendix 1). Forms filled by students require to be countersigned by supervising tutor.
All these details are critical in the management of the patient. They also form part of the selection criteria that is used to justify radiographic examination. Therefore, filling the request form adequately and in details is paramount in making concise radiological diagnosis. Thus, filling of the request forms adequately cannot be overemphasized as it reduces the number of unhelpful radiographic examinations and aids concise radiological diagnosis.

For example, the clinician has to include the biographic data because it is important for patient identification and for future reference. Failure to include the name makes the image invalid. This may lead to confusion during processing and increase chances of delivery to a wrong patient. It may result in wrong diagnosis and hence wrong treatment planning. It may also interfere with future referencing.

Age is also helpful for patient identification, in choosing appropriate radiographic exposure parameter and in predicting the risks of ionizing radiation on the body of the patient. X-rays are known to cause biologically damaging effects on the body notably cancer. A broad estimate of the magnitude of the risk of developing a fatal radiation induced cancer from various x ray examination was published in 1999 by National Radiation protection board in the United Kingdom in their booklet “Guidelines on Patient Dose to Promote Optimization of Protection for Diagnostic Medical Exposures”, This showed that the risk is age- dependent being highest for the young and lowest for the elderly. Children are actively growing and may interfere with such growth.2

Last menstrual period may help predict whether the female patient is pregnant or not. This information is important since it will help the radiographer to protect the patient during exposure.3

History of previous imaging is vital since it reveals the number of previous exposures. It also helps avoid unnecessary repetition of a recently done examination and in demonstrating whether the condition has changed or not 3. Thus patients are encouraged to come with images that have been done elsewhere.

Clinical summary include Signs and symptoms found in the patient history or clinical examination that suggest that a radiographic examination will be useful. it is also important in helping the clinician make an appropriate diagnosis by relating the radiological findings to the clinical summary. It also provides useful information to the radiographer that may help in appropriate positioning of the patient so as to capture targeted structures. From the clinical summary the radiologist will be able to advise the clinician on the best investigation to undertake3.
The signature of approval is important as it acts as a confirmation that the details that have been filled appropriately to enhance proper management of the patient and may also be used for medical-legal reasons.

Different hospitals have personalized designs of imaging request forms depending on the data they require. For example, some may include patient’s phone number, postal address, referring clinic and history of any previous surgery. They give biographic and clinical information of the patient.

Therefore, the aim of my project is to determine whether all the details in the imaging request forms currently in use in UNDH are filled based on the critical role they play in the holistic management of the patient and in reducing risks like misdiagnosis.
LITERATURE REVIEW

There has been no audit of x-ray request forms in the University of Nairobi in the recent past.

Studies have been done to assess the level of completion of imaging request forms and some studies have shown that up to 20% of radiographic exam are clinically unhelpful because they were wrong or not appropriate from the beginning especially during placement of request. Thus filling of request forms adequately and in details is paramount in helping the radiologist give less clinically unhelpful radiographic exam and concise radiological diagnosis. (Akinola et al 2010)4

Some studies have also revealed that all fields in imaging request forms are incompletely filled. For example, a study on radiological request forms in Lagos State University Teaching Hospital, Lagos Nigeria where 144 requests were audited showed that all forms were incompletely filled. Almost all had names of patients filled except 2(1.4%) where column for other names were not filled. Only 130(90.3%) had their ages filled through and 74(57%) did not indicate unit of measurement in terms of years, months or days. Out of the 6(4.2%) addresses filled, only 3 were fully filled while 138(95.8%) addresses were not filled at all. (Depasquale et al 2005)i

Some studies have also revealed existence of important omissions and poor compliance in filling of important requested data by referring clinicians. For example, an audit assessing local practice in St Luke’s Hospital Malta in 2004 revealed that only 4% of 200 request forms reviewed were completely filled. Percentages of different fields filled were; patient’s name 100%, full address 77%, age 29%, referring ward 95%, referring doctor’s signature 100%, referring doctor’s name and surname 34%. These were thus incomplete and unable to fulfill their purpose. (Agwu et al 2005)6

In an audit of radiological request forms at the university of Nigeria Teaching Hospital, Enugu, non-compliances were noted in the column of patients age and sex that though provided had no information supplied by clinician in 42% [n=3570] of the cases, parts of the body to be examined was not stated in 40% [n=3400] and the dates the request were not indicated in 30% [n=2550] (Oswal et al 2008)7
The results of the audit done by Oswal et al (2008) on adequacy of completion of radiology requests forms (RRF) in Radiology Academy, Leeds showed a number of inadequacies in completing the request forms. It was noted that this could have medical-legal implications and serious consequences on the quality of the overall service provided by radiology departments (Scott et al 1990). Some studies have also shown that a well-designed radiological request form will provide more information, increase compliance of clinicians in completing the forms (Philips et al 1990) and enable better assessment necessary for provision of good and reliable radiological services (Chang 1988).
CHAPTER TWO

STATEMENT OF RESEARCH PROBLEM

Radiological request forms are essential communication tools used by doctors referring patients for radiological investigations. However, its importance is often undermined making the radiographic examinations clinically unhelpful because they were either not properly filled or the request was wrong from the beginning. Filling of the request form adequately and in details is therefore paramount in making concise radiological diagnosis.

JUSTIFICATION OF THE STUDY

Inadequate filling of radiological request forms is a worldwide problem and no audit has so far been done in the UNDH. The audit is thus aimed at determining the level of compliance in completion of x-ray request forms currently in use in this tertiary institution basing on the critical role played by each of the required data on the request form.

STUDY OBJECTIVES

General

-To carry out an audit on completion of imaging request forms currently in use at the UNDH

Specific

-To determine the level of completion of personal data in the imaging request form

-To determine the level of completion of the clinical summary of the patient

-To determine whether approvals for the requests are provided
HYPOTHESIS

All the required data on the imaging request form is completely provided in the request forms.

VARIABLES

Socio-demographic variables

Personal information - age

- gender

Independent variables

-date

-type of investigation

-clinical summary

-name of the lecturer and signature

-previous X-ray exposure

Dependent variable

-completeness of imaging request form
CHAPTER THREE

MATERIALS AND METHODS

STUDY AREA

The study will be conducted at the university of Nairobi Dental Hospital

STUDY POPULATION

The study covers request forms in patients' files at the UNDH Registry

STUDY DESIGN

It is a retrospective descriptive study designed to measure the compliance of referring clinicians in adequate completion of the imaging request forms.

SAMPLING METHOD AND SAMPLE SIZE

The sampling unit will consist of imaging request forms of cases seen in UNDH from January 2010 to December selected using simple random sampling.

A study done by Akinola et al in 2010 showed that 20% of radiology request forms were incompletely filled. Using this as prevalence and a confidence level of 95%, a sample size of was calculated as follows:

\[
\text{Sample size (n)} = \frac{Z^2P(1-P)}{C^2}
\]

\[
Z = Z \text{ value (1.96)}
\]

\[
P = \text{Prevalence (20%)}
\]

\[
C = 1 - \text{confidence level (1-0.95)}
\]

Therefore \( n = \frac{1.96^2 \times 0.2 \times 0.8}{(0.05)^2} \)

= 246
INCLUSION CRITERIA
- Any image request form for images taken in UNDH

EXCLUSION CRITERIA
- Any image request form not filled in UNDH
- Patient files that do not have image request forms

DATA COLLECTION METHOD
Forms will be accessed and assessed after processing at the booking desk. Each form will be assessed for completeness of the fields. A field is taken completed when something is written in the field. This is done to remove any subjective bias regarding appropriateness of what was written. A blank field will be assigned a 0 (zero) score while a completed field will be assigned a score of 1(one). Eleven fields will be assessed in each form. Thus each form will have a maximum score of 11. The data will be entered in a data collection sheet (Appendix 1) where the first image that was done within the study duration will be assigned number 1.

DATA ANALYSIS AND PRESENTATION
Each completed request form will be entered as a new record and all the data will be collected and analyzed using the statistical package for social science (SPSS version 12.0) for windows.

The measures to be computed in percentages and the information presented in form of graphs, tables and pie charts.

Data cleaning will be done by running frequencies and all missing data counter-checked and corrected where necessary from the original form to improve the validity of the results.
ETHICAL CONSIDERATIONS

Approval will be obtained from the Kenyatta National Hospital and the University of Nairobi Ethics, Research and Standards Committee and a copy given to the UNDH central records registry to facilitate perusal of patients’ files in strict confidentiality within the records department. All patients’ records will be reviewed in strict confidentiality within the institutions and promptly returned to the records clerks for filing to prevent their loss.

BENEFITS OF THE STUDY

-The study results will be used to sensitize clinicians on the importance of complete filling of imaging request forms

-This project will assist in partial fulfillment of requirements for the award of Bachelor of Dental Surgery in the University of Nairobi
CHAPTER FOUR

REFERENCES

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APPENDIX 2: IMAGING REQUEST FORM

UNIVERSITY OF NAIROBI
FACULTY OF DENTAL SCIENCES
X-RAY REQUEST FORM

NAME .......................................................... DATE ................................
AGE .............. SEX .............. LMP .................. NUMBER ..............
Any Previous X-Rays _____________________________________________

Type of Investigation ____________________________________________

Clinical Summary

Student's Name ________________ Signature _______________________

Doctor's Name ________________ Signature _______________________

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