JMGCB

ISSN: 3033-1085

https://doi.org/10.61796/jmgcb.v1i1.109

Perception of Medical Error Among Resident Doctors at the University College Hospital (Uch), Ibadan

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Received: Mar 06, 2023; Accepted: Apr 07, 2023; Published: May 08, 2023;

Abstract: To enhance the standard of patient care, it is necessary to look into the complex issue of resident doctors' perceptions of medical error at tertiary hospitals. To foster a culture of safety in medical practice, medical mistake must be addressed in Nigeria, where it is a major contributor to patient mortality and morbidity. Therefore, this study aimed to determine the perception of medical error among resident doctors in the University College Hospital, Ibadan.

In order to choose a sample of 302 resident doctors from a pool of 515 at the University College Hospital (UCH), a two-stage sampling approach was used. The research methodology used in this study was a cross-sectional survey employing a pretested self-administered semi-structured questionnaire. At the 0.05 level of significance, data were analyzed using descriptive statistics as well as inferential statistics like chi-square

228 (75.5%) of the responders were men, and 74 (24.5%) were women. Approximately 33.4% of the respondents were pre-part 1, 64.9% of resident doctors were post-part 1, and 1.7% were post-part 2 of their fellowship tests. The majority of responders (82.1%) had between one and three years of resident doctor experience. A majority (70.2%) of the respondents reported that misdiagnosis generally often occur in a medical setting. About 40.4% of the respondents said that delayed diagnosis is the most common type of medical error in the institution. There was a statistical significant association between the frequency of occurrence of delayed diagnosis and the departments of the resident doctors (X^2=16.892, P<0.001). A majority (62.3%) of respondents reported that high work load, ill-equipped facility, work environment, patient factor and institutional factors influence their daily medical practice. Most (88.1%) of the respondents believed prevention of medical error is very crucial in the healthcare system. About 31.5% of the respondents indicated that continuous education on preventing and managing medical error was not adequately provided for resident medical doctors.

The institution needs to invest in better-equipped facilities that will support high-quality patient care, continue medical education to advance medical knowledge and skills related to medical error, deploy more medical personnel to lessen the burdensome workload on current staff members, and establish proactive error avoidance strategies for the management of medical malpractice. This will thus improve the quality of healthcare delivery and reinforce possible standards of care that are evidence- based against medical error.

Keywords: Medical error, Patient safety, Continuing medical education.

Background

According to Gallagher et al. (2003), a health care provider deviates from the established standard of medical practice by using the incorrect plan to accomplish a goal, which constitutes a medical error. Patient safety is at risk due to medical errors, which are a severe public health issue. It is referred as as departures from the standard of care that might or might not affect the patient (Peason, 2001). There are several occasions when patients are harmed as a result of treatment for an ailment or absence of their treatment. Medicine is a noble profession but there is also growing anxiety both within the medical profession and in the community regarding increasing trends of complaints and lawsuits against doctors on medical error which is a form of medical malpractice.

The patient will suffer harm or damage if a doctor does not exercise the same level of skill and care as would be reasonably expected of a practitioner with similar experience and status. Before recent years, when a shocking number of patients were reported to be injured or killed as a result of medical mistakes in numerous nations, the frequency and scale of preventable adverse patient events were not well understood (Palmieri et al., 2008). Recognizing that health care errors impact 1 in every 10 patients around the world, the World Health Organization calls patient safety an endemic concern (WHO, 2008).

We must not disregard the substantial psychological impact that errors can have on the health care workers who make them, especially in light of the growing public concern over the effects of medical errors on patient populations (Bates et al., 1997). According to Mizrahi (1984), the term "medical error" contains a stigma that may cause people to feel guilty, outraged, inadequate, and depressed. The threat of legal action compounds such feelings. Some authors have maintained that the term error is excessively negative and antagonistic, and perpetuates a culture of blame (Shanafelt, 2002 and Engel, 2006). Facing medical errors is unfortunately a common experience for doctors-in-training such as residents. By definition, they are at higher risk of committing errors during the stage of first developing medical competences (Brennan et al, 1991). Residents deserve particular attention because behaviors learnt early in the practice are likely to persist later in professional life (Chaudhry et al., 2003). A residents' experience with an error is shaped by three primary elements; the individual profile of the resident, the nature of the error, and the context in which the resident works (Hobgood, 2005). However, a comprehensive approach to errors during residency should include the role played by the residents' individual profile.

Because a doctor has a professional obligation to provide competent care once he or she agrees to treat a patient, medical professionals and physicians owe a duty of care to individuals who seek treatment from them (Hickson et al., 1994). The first step in creating a policy to lessen harm and enhance patient safety in the healthcare industry is understanding the nature of medical error.

Medical errors have received increased attention since 1999, when the Institute of Medicine reported that up to 100 000 United State patients die each year because of preventable adverse events (Kohn, 2000). The proportion of hospitalized patients affected by medical errors annually has been estimated to be 5% to 10% of the total population in the United States (Graft, 2005).

According to Aladelokun and Chiedozie (2006), medical mistakes are a significant factor in patient morbidity and mortality in Nigeria. One in ten patients experience medical misconduct, which is why the WHO described it as an endemic problem (WHO, 2008). There is a huge presumption that these are avoidable medical mistakes and that these people would have lived if they had received the proper medical attention.

In 2006, there was a case of a child who became HIV infected through blood transfusion in a Nigerian teaching hospital even though both parents are negative (Aladelokun and Chiedozie, 2006). Similarly, a drug manufacturing company was charged for medical malpractice for testing a drug on Nigerian Children in 1996 that resulted to injuries, disabilities and deaths (Jegede,

2007). In Nigeria, medical malpractice is one of the most important causes of patient morbidity and mortality (Oyebode, 2006).

Medical malpractice had led many patients into their early grave, many who has a hope of a better health condition on visiting health facilities got worse conditions than their present state, there will be more deaths annually attributed to medical error if this issue is not tackled.

The nation's leading healthcare rating organization found that medicare patients who experienced malpractice incident have a one in five chance of dying as a result (Daniel, 2010). Researchers at the Harvard School of Medicine have found that 18 percent of patients in hospitals are injured during the course of their care and that many of those injuries are life-threatening or even fatal (Christopher, 2010).

Yet despite these numbers the medical institutions remain unaware of how pervasive this problem is. Despite the healthcare systems best efforts, people are injured due to an unorganized and overwhelmed healthcare system Healthcare facilities should create a sense of trustworthiness and safety.

In general, given the problem statement above, there has been a rise in medical mistake, which needs to be addressed to foster a culture of safety in medical practice (Gallagher et al., 2003). No study in Nigeria had being conducted on medical error among resident doctors. There is a great need to deliver safe, high-quality health care to patients in the clinical settings. Despite all the recommendations from previous studies to mitigate medical error, factors that influence the occurrence of medical error had not been looked into in Nigeria.

Also, proactive error avoidance strategies in terms of managerial aspect of medical error have not been dealt with, the likelihood of achieving the aim of patient safety and improved quality of health care will be impossible if it's not being looked in at the institutional, administrative and managerial level. Keeping the above in mind, the intrinsic to patient protection are strategies to prevent medical error especially among physicians in training (resident doctors). This study will provides a great need for the prevention of medical error, place an emphasis on the threat of medical error to the health care system, factors that influences it and how it can be managed in tertiary institution. This will thus improve the quality of health care delivery by medical practitioners and reinforce possible standards of care that are evidence-based against medical error. Many reports on medical errors have focused on the rate at which errors affect patients. Less commonly addressed the proportion of the occurrence of this error and influencing factors for the occurrence of physicians who commit errors.

Studies have being carried out within and outside Africa on medical errors among physician residents. But most of this studies (Jansma and Wagner, 2011, Mohammed et al., 2011, Jasuma et al., 2013, Kuan-Yu et al., 2013) did not use large sample size and the result obtained may be limited due to lack of precision. Larger sample size more closely approximate the population and generally lead to increased precision and this can also help to reduce the margin of error that might occur in a study. Hence, this study used a larger sample size to keep the margin of error at an accepted level of confidence.

General objective

The general objective is to examine the perception of medical error among resident doctors at the University College Hospital, Ibadan.

Specific objectives

1. To access the reported medical error among resident doctors at the University College Hospital, Ibadan.
2. To determine the factors influencing the occurrence of medical error among resident doctors at the University College Hospital, Ibadan.

3. To examine the management of medical error among resident doctors at the University College Hospital, Ibadan.

Research Questions

The study for this research answered the following questions

1. What types of medical errors reported in the respondent's department, the facility, and the overall medical environment?
2. What factors that influence the occurrence of medical error among the respondents?
3. What is the institution's resident doctors' level of medical error management?

Research Hypothesis

Ho- There is no relationship between selected socio-demographic variables and occurrence of medical error

Ho- There is no relationship between Occurrence of misdiagnosis error and Department of respondents

Ho- There is no relationship between Characteristics of respondent and reaction to work load

Materials and Methods

Description of study area

This study was carried out in University College Hospital (UCH), Ibadan, Oyo State. The University College Hospital (UCH), Ibadan is a university teaching hospital providing mainly tertiary healthcare services in Oyo State. It was established by an Act of Parliament in November 1952 in response to the need for the training of medical personnel and other healthcare professionals for the country and the West African Sub- Region.

The University College Hospital (UCH) provides for Postgraduate Residency Training programme in different specialties in the following departments Anaesthesia, Child and Adolescent Psychiatry, Child and Oral Dentistry,Community Medicine, Family Medicine,General Dental Practice, Haematology, Internal Medicine,General Medical Practice,Medical Microbiology, Neurological Surgery, Nuclear Medicine, Obstetrics and Gynaecology, Otorhinolaryngology, Ophthalmology, Orthopaedics and Trauma, Paediatrics, Pathology, Periodontology, Radiology, Radiotherapy, Restorative Dentistry, Psychiatry, Surgery. There are total numbers of 24 departments that accommodate physician in training in UCH. The hospital is a tertiary institution with appendages of community based outreach activities at Igbo- Ora, Abedo, Okuku, Sepeteri, Elesu and Jago where it offers primary and secondary health care services (www.uch-ibadan.org.ng).

Study design

The study adopted a cross-sectional study design. This was used to access the perception of medical error among resident doctors at the University College Hospital.

Study population

The study was conducted among 385 eligible resident doctors currently undergoing training in UCH in 22 departments of the hospital.

Sample size determination

The sample size in the study was determined based on the formula for estimating a single proportion (Kish, 1965). where N is the total population of resident doctors at the University College Hospital which is 515, n is the sample size and p is the maximum variability, d is the level of precision and $Z\infty$ which is the confidence interval. For this study d is 0.05

$$n = \frac{Z\infty^2 pq}{d^2}$$

Where;

$Z\infty = 1.96$ (confidence interval of 95%)

P= proportion of resident doctors who had being involved in medical malpractice (set as 0.5).

d= level of precision (0.05)

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

385 respondents

The total sample size for this research is 385.

Sampling techniques

The respondents were chosen using a two-stage sampling procedure. At stage one, departments were used to stratify a total of 515 resident doctors. The total sample size of 385 was computed using the sampling frame. The study was included in the second stage for all resident doctors in each stratum who met the eligibility requirements and indicated their willingness to take part.

Table Showing Selected Resident Doctors in UCH

DEPARTMENT	TOTAL SAMPLE	SAMPLE FRAME	STUDY PARTICIPANT
Anaesthesia	20	15	14
Child and Adolescent Psychiatry	3	2	1
Child and Oral Dentistry	39	29	26
Community Medicine	50	36	26
Family Medicine	13	10	10
General Dental Practice	8	6	5
Haematology	40	30	27
Internal Medicine	35	26	25
Medicine	11	9	9
Medical Microbiology	36	26	0
Neurological Surgery	2	1	1
Nuclear Medicine	3	2	1
Obstetrics and Gynaecology	22	17	11
Ophthalmology	21	16	14
Orthopaedics and Trauma	20	15	18
Otorhinolaryngology	32	24	20
Paediatrics	14	10	11
Pathology	22	17	10
Periodontology	10	8	8
Radiology	12	9	8
Radiotherapy	10	8	7
Restorative Dentistry	12	9	9
Psychiatry	34	26	0
Surgery	46	34	41
Total	**515**	**385**	**302**

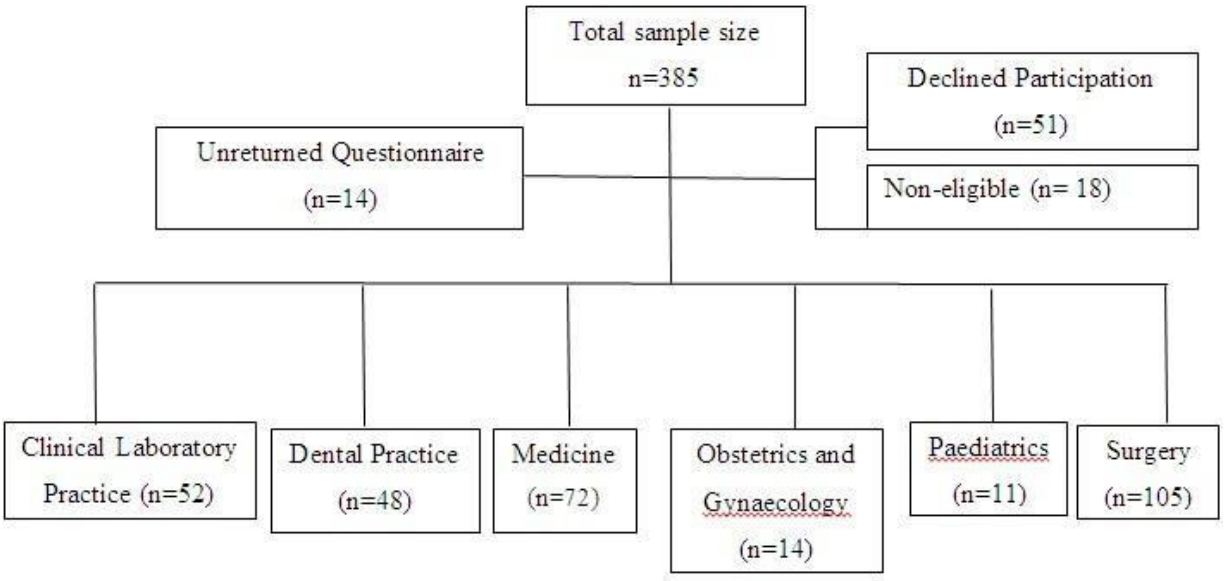

Figure Showing Respondents' Recruitment Summary

Reliability of instrument and Validity

A pretest of the survey instrument was carried out before the onset of this research. This tool was pilot tested for validation at Adeoyo Hospital, Ibadan on 10 resident doctors. This measurement instrument was reviewed by the supervisor and was presented to experts to test the validity of the questionnaire.

Data collection and analysis

Data collected were entered, coded, cleaned and analyzed using Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics such as frequencies and percentages were used. Inferential statistics such as Chi-square test was used to determine the association between some selected independents and dependents variables at p-value < 0.05.

Ethical considerations

Ethical approval to conduct the study was obtained from the Ethical Review Committee, University of Ibadan / University College Hospital (UI/UCH), Ibadan before the commencement of the study.

Confidentiality of data: The data collected from the respondents were used solely for the purpose of this research. The questionnaires were identified with numbers, locked away safely and protected from any third party not connected to the research study.

Beneficence to participants: The interview was conducted in a friendly manner that enabled the participants to communicate freely. The findings from this study will be published and can be used to develop interventions that will promote a pleasant environment for medical practice.

Non-maleficence to participants: The research posed no harm to the respondents, as no new procedure or medication was being tested.

Voluntariness: The participants were free to decide whether or not to take part in the study. A voluntary consent form was attached to the questionnaire. Respondents participated based on informed consent. There was no penalty attached to those who do not want to take part in the study

RESULT

4.1 Socio-demographic characteristics

The age of the respondents were between 27 and 43 years old. About 33.5% of the respondents

were between 27 and 32 years and 54.0% were between 33. The mean age of the respondents was 33.98±0.187. Most of the respondents 228 (75.8%) were males and 74 (24.5%) were females. Most of the respondents 71 (23.5%) were single, 229 (75.8%) were married and 2 (0.7%) were divorced.

A majority of the respondents 272 (90.1%) were Christians and 30 (9.9%) were Muslims. About 33.4% of the respondents were pre- part 1, 64.9% were post-part and 1.7% were post-part 2. Most of the respondents (82.1%) had between one and three years of experience as a resident doctor in the institution. Most of the respondents 257 (85%) had less than 5 years' work experience in the hospital.

Table 4.1: Demographic characteristics of the respondents (N=302)

	N	%
Sex		
Male	228	75.5
Female	74	24.5
Age		
27-32	101	
33-38	163	33.4
39-44	24	53.9
Missing data	14	7.9
		4.6
Religion		
Christianity	272	
		90.1
Islam	30	9.9
Marital Status		
Single	71	23.5
Married	229	75.8
Divorced	2	0.7
Level of training		
Pre-Part 1	*101*	33.4
Post-Part 1	*196*	64.9
Post-Part 2	*5*	1.7
Years of experience as a resident doctor		
1-3	*248*	82.1
4-6	*54*	17.9
Years since graduation as a medical doctor		
0-4	*27*	8.9
5-9	*197*	65.2
10-14	*72*	23.8
>15	*6*	1.99
Years of work in the hospital		
1-5	*257*	85.1
6-10	*43*	14.2
11-15	*2*	0.7

4.2: Departments of Respondents

Table 4.2 showed the distribution of the 22 departments of the respondents into six sub-groups. About a quarter 105 (34.9%) of the respondents were from Surgery and 72 (23.8%) were from Medicine, the others were 48 (15.9%) from Dental Practice, 52 (17.2%) from Laboratory Practice, 14 (4.6%) from Obstetrics and Gynaecology and 11 (3.6%) were in Paediatrics.

Table 4.2: Distribution of respondents according to department

Group	Sub-groups	N	%
Medicine	Internal medicine	**25**	**8.3**
	Medicine	**9**	**3.0**
	Family medicine	**10**	**3.3**
	Nuclear medicine	**1**	**0.3**
	Child and adolescent psychiatry	**1**	**0.3**
	Community medicine	**26**	**8.6**
Total		72	23.8
Dental practice	Child and oral dentistry	**26**	**8.6**
	General dental practice	**5**	**1.7**
	Restorative dentistry	**9**	**3.0**
	Periodontology	**8**	**2.6**
Total		48	15.9
Surgery	Surgery	**41**	**13.6**
	Orthopaedics and trauma	**18**	**6.0**
	Otorhinolaryngology	**20**	**6.8**
	Neurological surgery	**1**	**0.3**
	Ophthalmology	**14**	**4.6**
	Anaesthesia	**11**	**3.6**
Total		105	34.9
Laboratory practice	Haematology	**27**	**8.9**
	Pathology	**10**	**3.3**
	Radiology	**8**	**2.6**
	Radiotherapy	**7**	**2.3**
Total		52	17.2
Obstetrics and Gynaecology	Obstetrics and gynaecology	14	4.6
Paediatrics	Paediatrics	11	3.6
Grand Total		302	100.0

4.2 Types of reported medical error

This study identified seven categories of medical malpractice as follows; misdiagnosis error, medication error, patient misconduct, prescription error, anaesthesia error, surgical error, delayed diagnosis and ethical violation.

4.2.1 Respondents' perception about ethical issues

Table 4.3 showed the perception of the respondents on ethical issues. Most of the respondents (99%) stated that ethical violation is regarded as a form of medical malpractice. In addition,

98.7% of the respondents reported that it is pertinent to always obtain consent from patients before administering treatment.

Table 4.3: Respondents' perception about ethical issues (N=302)

Perception about ethical issues	Yes (%)	Undecided (%)	No (%)	%Total
Ethical violation is regarded as a form of medical malpractice	**299(99.0)**	**1(0.3)**	**2(0.7)**	**100.0**
It is pertinent to always obtain consent from patients before administering treatment	**298(98.7)**	**2(0.6)**	**2(0.7)**	**100.0**
Lying to patients about treatment in other to impress them is sometimes allowed in medical practice	**10(3.3)**	**9(3.0)**	**283(93.7)**	**100.0**

4.2.2 Perception of respondents on misdiagnosis, medication error and patient misconduct

A majority of the respondents (70.2%) were of the opinion that misdiagnosis often occur in a medical setting**.** More of the respondents (56%) said misdiagnosis accounts for larger percentage of medical malpractice complaint. About (42.1%) of the respondents said medication error accounts for larger percentage of medical malpractice complaint. In addition, more of the respondents (57.6%) are of the view that medical malpractice occurs as a result of patient misconduct.

Table 4.4: Respondents' perception about the occurrence of medical error

Occurrence of medical error	**Yes**	**%**	**No**	**%**	**Not sure**	**%**
Misdiagnosis often occur in a medical settling	212	70.2	27	8.9	63	20.9
Misdiagnosis error account for larger percentage of medical error complaint	169	56	49	16.2	84	27.8
Medication error account for larger percentage of medical malpractice	127	42.1	83	27.5	92	30.5
Sometimes medication error occurs in the prescription of drug to the patient	142	47	60	19.9	100	33.1
Medical error can occur as a result of patient misconduct	180	59.6	69	22.8	52	17.2

4.2.3 The common reported types of medical error in the respondents' departments.

Cross tabulation was used to display the relationship between the two categorical variables; department of respondents (independent variable) and types of medical malpractice (dependent variable). Also chi-square (X^2) was used to test the statistical significance between the variables

at 95% confidence interval with the level of significance of 0.05.

4.2.3.1 Perception on the occurrence of misdiagnosis in respondents' department

Table 4.5 showed the frequency of occurrence of misdiagnosis in the different departments of the respondents. Most of resident doctors in Dental Practice (52.1%), Laboratory Practice (53.9%), Medicine (66.7%), Obstetrics and Gynaecology (85.7%) and Surgery (66.7%) responded that misdiagnosis was not a common medical error in their various departments. But, a majority of the resident doctors in Paediatrics (54.5%) responded that misdiagnosis is a common type of medical error in their department. There was no statistically significant association between the frequency of occurrence of misdiagnosis and the departments of the resident doctors (X^2=9.744, P-value=0.08).

Table 4.5: Perception on the occurrence of misdiagnosis in respondents' department

	Occurrence of misdiagnosis error			
	Yes (%)	No (%)	X^2	P-value
Department of respondents			**9.744**	**0.080**
Dental Practice	23(47.9)	25(52.1)		
Laboratory practice	24(46.1)	28(53.9)		
Medicine Obstetrics & Gynaecology	24(33.3) 2(14.3)	48(66.7) 12(85.7)		
Paediatrics Surgery	6(54.5) 35(33.3)	5(45.5) 70(66.7)		

4.2.3.2: Perception on the occurrence of medication error in respondents' department

A majority of respondents in Dental Practice (72.9%), Laboratory Practice (92.3%), Medicine (88.9%), Obstetrics and Gynaecology (92.9%), Paediatrics (81.9%) and Surgery (85.7%) responded that misdiagnosis was not a common medical malpractice in their various departments as showed in table 4.6. There was no statistically significant association between the frequency of occurrence of medication error and the departments of the resident doctors (X^2=9.605, P-value=0.06).

Table 4.6: Perception on the occurrence of medication error in respondents' department

	Occurrence of medication error			
	Yes (%)	No (%)	X^2	P-value
Department of respondents			**9.605**	**0.060**
Dental Practice	13(27.1)	35(72.9)		
Laboratory practice	4(7.7)	48(92.3)		
Medicine Obstetrics & Gynaecology	8(11.1) 1(7.1)	64(88.9) 13(92.9)		
Paediatrics Surgery	2(18.1) 15(14.3)	9(81.9) 90(85.7)		

4.2.3.3 Perception on the occurrence of anaesthesia error in respondents' department

All the respondents in Paediatrics and Obstetrics & Gynaecology said anaesthesia error does not occur in their departments. But few respondents in Dental Practice (2.1%), Laboratory Practice (3.9%), Medicine (0.1%) and Surgery (5.7%) are of the view that anaesthesia error occur in their various departments showed in table 4.7. There was no statistically significant association between the frequency of occurrence of anaesthesia and the departments of the resident doctors (X^2=2.327, P-value=0.820).

Table 4.7: Perception on the occurrence of anaesthesia error in respondents' department

	Occurrence of anaesthesia error			
	Yes (%)	No (%)	X^2	P-value
Department of respondents			**2.327**	**0.820**
Dental Practice	1(2.1)	47(97.9)		
Laboratory practice	2(3.9)	50(96.1)		
Medicine Obstetrics & Gynaecology	3(0.1) 0(0.0)	69(99.9) 14(100.0)		
Paediatrics Surgery	0(0.0) 6(5.7)	11(100.0) 99(94.3)		

4.2.3.4 Perception on the occurrence of delayed diagnosis in respondents' department

More of the respondents from Laboratory Practice (53.8%), Medicine (52.8%), Obstetrics & Gynaecology (57.1%) said delayed diagnosis is the most common type of medical malpractice that occur in their various departments as shown in table 4.8. There was a statistical significant association between the frequency of occurrence of delayed diagnosis and the departments of the resident doctors (X^2=16.892, p<0.001).

Table 4.8: Perception on the occurrence of delayed diagnosis in respondents' department

	Occurrence of delayed diagnosis			
	Yes (%)	No (%)	X^2	P-value
Department of respondents			**16.892**	**<0.001**
Dental Practice	11(22.9)	37(77.1)		
Laboratory practice	28(53.8)	24(46.2)		
Medicine Obstetrics & Gynaecology	38(52.8) 8(57.1)	34(47.2) 6(42.9)		
Paediatrics Surgery	2(18.1) 47(44.8)	9(81.9) 58(55.2)		

4.2.3.5: Perception on the occurrence of prescription error in respondents' department

Table 4.9 showed the frequency of occurrence of prescription error in the different departments of the respondents. Most of resident doctors in Dental Practice (93.8%), Laboratory Practice (88.4%), Medicine (86.1%), Obstetrics and Gynaecology (92.9%) and Surgery (93.3%) responded that prescription error was not a common medical malpractice in their various departments. In addition, a majority of the resident doctors in Paediatrics (63.3%) responded that prescription error is a common type of medical malpractice in their department. There is a statistically significant association between the frequency of occurrence of prescription error and the departments of the resident doctors (X^2=11.716, P-value=0.04).

Table 4.9: Perception on the occurrence of prescription error in respondents' department

	Occurrence of prescription error			
	Yes (%)	No (%)	X^2	P-value
Department of respondents			**11.716**	**0.040**
Dental Practice	3(6.2)	45(93.8)		
Laboratory practice	6(11.6)	46(88.4)		
Medicine Obstetrics & Gynaecology	10(13.9) 1(7.1)	62(86.1) 13(92.9)		
Paediatrics Surgery	7(63.6) 7(6.7)	4(36.4) 98(93.3)		

4.2.3.6: Perception on the occurrence of surgical error in respondents' department

Table 4.10 showed the frequency of occurrence of surgical error in the different departments of the respondents. Most of resident doctors in Dental Practice (97.9%), Medicine (95.8%), Obstetrics & Gynaecology (92.9%) and Surgery (93.3%) responded that prescription error was not a common medical malpractice in their various departments. No respondents from Paediatrics and Laboratory Practice said surgical error occur in their departments. There is no statistically significant association between the frequency of occurrence of surgical error and the departments of the resident doctors (X^2=9.892, P-value=0.07).

Table 4.10: Perception on the occurrence of surgical error in respondents' department

	Occurrence of surgical error			
	Yes (%)	No (%)	X^2	P-value
Department of respondents			**9.892**	**0.070**
Dental Practice	1(2.1)	47(97.9)		
Laboratory practice	0(0.0)	52(100.0)		
Medicine Obstetrics & Gynaecology	3(4.2) 1(7.1)	69(95.8) 13(92.9)		
Paediatrics Surgery	0(0.0) 12(11.4)	11(100.0) 93(88.6)		

4.2.3.7: Perception on the occurrence of ethical violation in respondents' department

Majority of respondents from Dental Practice (54.2%), Laboratory Practice (61.5%), Medicine (62.5%), Obstetrics & Gynaecology (64.3%) and Surgery (66.7%) said ethical violation does not occur in their department. But more respondents (54.5%) from Paediatrics said ethical violation is paramount in their department as shown in table 4.11. There is no statistically significant association between the frequency of occurrence of surgical error and the departments of the resident doctors (X^2=3.539, P-value=0.650).

Table 4.11: Occurrence of ethical violation in respondents' department

	Occurrence of ethical violation			
	Yes (%)	No (%)	X^2	P-value
Department of respondents			**3.539**	**0.650**
Dental Practice	22(45.8)	26(54.2)		
Laboratory practice	20(38.5)	32(61.5)		
Medicine Obstetrics & Gynaecology	27(37.5) 5(35.7)	45(62.5) 9(64.3)		
Paediatrics Surgery	6(54.5) 35(33.3)	5(45.5) 70(66.7)		

4.2.4 Types of reported medical error in the institution

About (40.4%) of the respondents said delayed diagnosis is the most common types of medical error in the institution which is highest percentage rating of the type of medical error that occur in the institution. The result is summarized in figure 4.1 below;

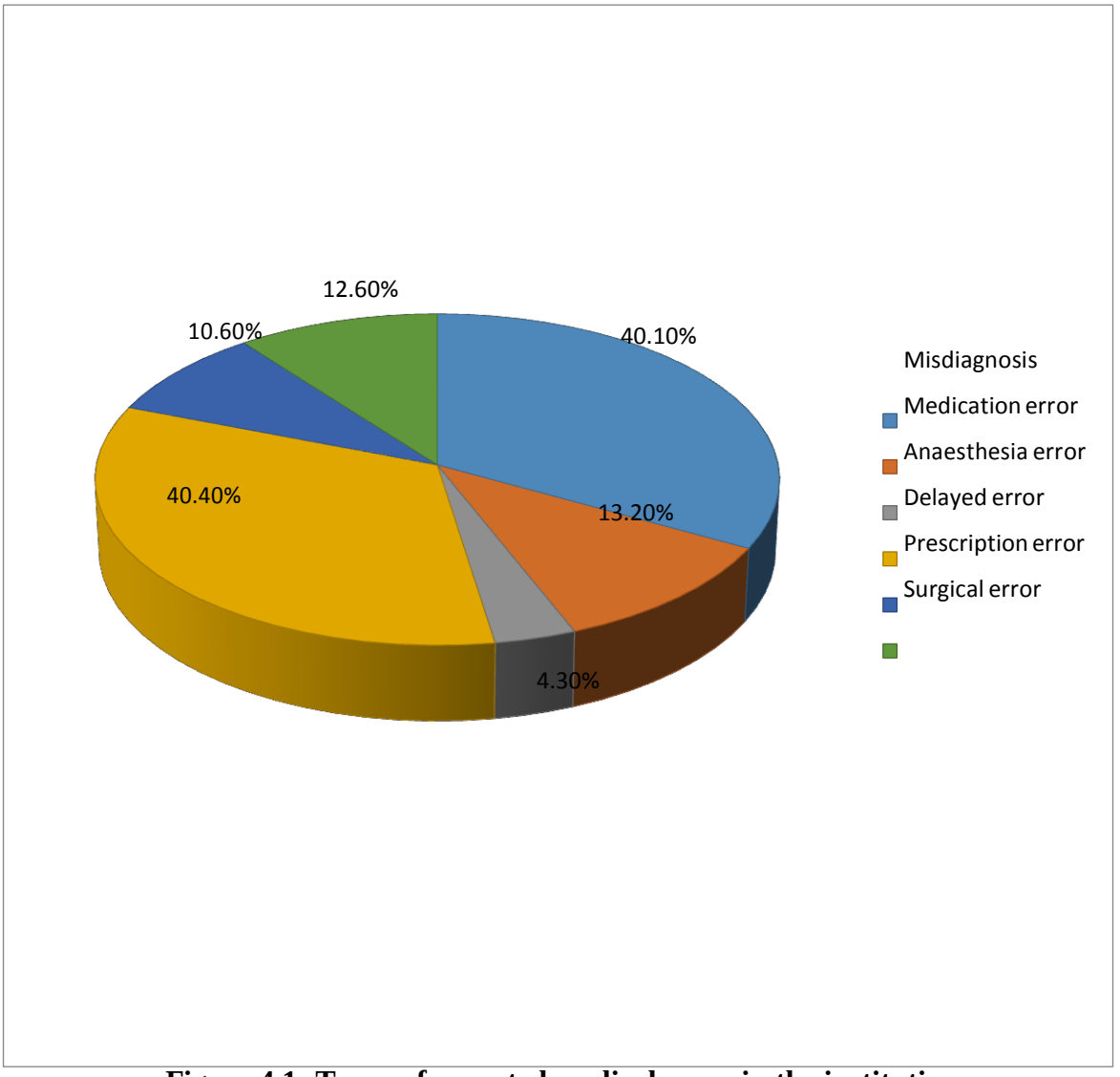

Figure 4.1: Types of reported medical error in the institution

4.3 Factors influencing the occurrence of medical error

4.3.1: Respondents perception about work load

A majority of the respondents (72.5%) are of the view that high level of work load is common in their department. In addition, 63.7% of the respondents said their performance is impaired when work load becomes excessive. Most of the respondents (70.9%) are less effective when fatigued and about (38.4%) felt they are working too hard on their jobs. The respondents' reaction to work load is summarized in Table 4.12.

Table 4.12: Respondents' perception about work load

	Yes		No		Not sure		
	n	%	n	%	n	%	Mean (SD)
High level of work load are common in this department	219	72.5	70	23.2	13	4.3	1.32(0.551)

The level of staffing in this department are sufficient to handle the number of patients	192	63.6	94	31.1	16	5.3	1.42(0.592)
When my workload becomes excessive, my performance is impaired	204	63.7	79	26.2	19	6.3	1.39(0.604)
I feel I'm working too hard on my job	116	38.4	137	45.4	49	16.2	1.78(0.706)
I am less effective at work when fatigued	214	70.9	72	23.8	15	5.0	1.34(0.570)

4.3.2 Socio-demographic characteristics and work load

More of the respondents (55%) who are male were of the view that there is high work load in their departments and 54.3% of the respondents who are married were of the same view. High work load is also mostly common among respondents who are preparing for part 2 (31.9%). A majority (74.4%) of the respondents who had years of experience as resident doctor between 1 and 3 years said high work load is common in their department as shown in table 4.13.

Table 4.13: Characteristics of respondent and reaction to work load

	High work load is common		**High work load is not common**			
	n	%	n	%	X^2	P value
Gender					**0.081**	**0.960**
Male	166	55	52	17.2		
Female	53	17.5	18	6.0		
Marital Status					**3.430**	**0.360**
Single	53	17.5	13	4.3		
Married	164	54.3	57	18.9		
Divorced	2	0.7	0	0,0		
Level of training					**8.953**	**0.150**
Pre-part 1	67	22.7	30	9.9		
Post-part 1 Post-part 2	149 3	49.8 1.0	38 2	12.6 0.7		
Years of experience as resident doctor					**5.583**	**0.820**
1-3	176	74.4	61	20.2		
4-6	43	14.3	9	2.9		

4.3.3 Other factors that influence the occurrence of medical malpractice

Other variables impacting the likelihood of medical misconduct were displayed in Table table 4.14. The majority of participants (72.8%) believe that patients influence the occurrence of

medical malpractice by providing physicians with inaccurate information, and the majority of respondents (63.2%) believe that people are more likely to make mistakes in tense or angry situations.. Less than half (37.4%) said the physical environment is not conducive for patient safety and 42.1% of the respondents said the medical equipment in their department is not sufficient to handle number of patients. Less than one tenth (5.8%) of the respondents are not provided with adequate timely information that may affect their work

Table 4.14: Other factors influencing the occurrence of medical malpractice

	Yes		No		Not sure		
	n	%	n	%	n	%	Mean (SD)
Work environment							
I am more likely to make errors in tense or hostile situation	191	63.2	82	27.2	29	9.6	1.46(0.665)
Is the physical environment conducive for patient safety?	158	52.3	113	37.4	31	10.3	1.58(0.671)
Patient factor							
Patient themselves influence medical error by giving wrong information to physicians	220	72.8	61	20.2	21	7.0	1.34(0.604)
Team & institution I am provided with adequate timely information that might affect my work	174	57.6	108	35.8	20	6.6	1.49(0.619)
Ill- equipped facility The medical equipment in the department sufficient to handle number of patients?	159	52.6	127	42.1	16	5.3	1.53(0.597)

4.4 Management of medical error

The response of respondents on the management of medical error was displayed in the table below. A quarter of participants (31.5%) felt that medical trainees are not given enough ongoing education on reducing medical error. The majority of respondents (88.1%) thought that prevention of medical error is crucial in the medical system. Most of the respondents has good attitude to disclosure of error and decision making, 63.2% will disclosure error to patient if they get to know their patient had been a target of malpractice and 87.4% of them are willing to apologize for their error. More of the respondents (59.6%) are of the opinion that when malpractice cases occur in their department, they analyse it thoroughly. Less than half (40.4%) said there is no settling on medical liability by the institution on the occurrence of medical error.

Table 4.16: Management of medical error

Management of medical error	Yes (%)	No (%)	Not sure (%)
Decision making Will you disclose your error to the patient, if you get to know that your patient has been a target of malpractice?	188(62.3)	72(23.8)	42(13.9)
Prevention In this department, after a medical error has occurred, we think about how to prevent the same mistake in the future	215(71.2)	45(14.9)	42(13.9)
Analysis In this department, when a malpractice case occurs, we analyze it thoroughly	180(59.6)	69(22.8)	52(17.2)
Process Improvement Is there any proactive medical malpractice avoidance strategies provided by this institution?	146(48.3)	105(34.8)	51(16.9)
Settlement Is there any settling on medical liability by this institution on the occurrence of medical error?	92(30.5)	122(40.4)	85(28.1)
Mitigation Continuous education are adequately provided for medical trainee on mitigating medical error	192(63.6)	95(31.5)	15(5.0)

DISCUSSIONS, CONCLUSION AND RECOMMENDATION

Reported types of medical errors among respondents

Medical errors can take many different forms, and one study found that there are seven basic types: Misdiagnosis, drug error, anesthesia error, delayed diagnosis, prescription error, surgical error, and ethical breach.

In accordance with a study by Bates et al. from 1997, which found that six (6) out of ten (10) errors that happen in medical practice are misdiagnosis errors, the majority of respondents to this research study reported that misdiagnosis errors frequently occur generally in medical settings and account for a larger percentage of medical malpractice complaints overall. It occurs when there is a failure to diagnose correctly the patient's disease or ailment. When a doctor misdiagnoses a condition, the patient might miss the adequate treatment opportunities that could have prevented serious harm or even death. Misdiagnosis can occur as a result of various flaws within a health care system, a physician's lack of medical knowledge or failure to recognise disease pattern, failure to get updated on current trend of disease pattern and its diagnosis, not considering all related or similar disease symptoms, deformity in information processing and wrong laboratory test result (Bates et al., 1997). These flaws result in misdiagnosis and inappropriate treatment that can inflict harm on patients.

Helen and John in their 2010 study also showed that misdiagnosis accounted for more malpractice claims than medication error. The study found out that failure to order the appropriate diagnostic assessment occurred in 55% of the medical malpractice cases (Helen and John, 2010). This is similar to the study that was conducted at the University of Michigan (Schenkel et al., 1997), it was reported that 62% resident doctors said most medical malpractice cases that occur in medical setting are misdiagnosis errors. It is of interest to know that types of medical error are relatively specific to medical department of operation. Cross tabulation on types of medical error common in each department was done and chi square was used to test for association between the quantitative variables at 95% confidence interval with p-value of 0.05, there is a statistically significant association between the department of respondent and the common types of medical errors with lower and upper bound of 0.044 and 0.052 at 95% confidence interval (p-value of 0.045-< 0.05).

According to a research by Gordon et al., delayed diagnosis accounts for 56.8% of medical malpractice claims at the University of Illinois at Chicago Medical School (Gordon et al., 2004). This study also showed that about half of the respondents said delayed diagnosis is the most common type of medical error in this institution, which is in conformity with the fact derived from Gordon et al, 2004 study on diagnosing diagnosis errors. Gordon et al reported that delayed diagnosis is the most frequent error in medical settings and it occur as a result of delayed lab test result, ill equipped facility, non- availability of medical personnel on shift and other institutional or managerial factors. Failure to receive timely treatment can be the difference between life and death.

Factors influencing the occurrence of medical error

Inexperienced clinicians, complex or urgent care, poor communication, inadequate documentation, unclear handwriting, and work load are characteristics that Weingart et al. (2003) identified as influencing the occurrence of medical misconduct among resident doctors. Medical malpractice risk variables were researched by Jansma and Wagner from Foreest Medical School, and they were categorized as; patient factors, task and technological factors, team factors, work environment factors, institutional context factors, organizational and managerial factors (Jansma and Wagner, 2011). This study distinguishes five main factors that affect the occurrence of medical error as; high workload, ill-equipped and technology factor, team and institutional factor, patient factor and work environment factor.

A study by Issa et al. in 2009 found that 94.5% of residents thought their residency programs were stressful because of the high workload, and a study at the German Hospital Institute in Dusseldorf found that 80.3% of residents experience high workloads in hospital practice, which affects their daily work and increases stress. It is interesting to note that the majority of respondents in this study stated that high workloads are common in their departments. It was found out in the study that about 3% of resident doctors said patient factors influence their medical practice which is widely different from the 72.8% that what was found in this study. Jansma and Wagner 2011 also reported that less than half of residents (35%) said their daily medical practice is linked to work-environment factors which is similar to what was gotten from this study. This shows that the number of staff doesn't commensurate with the work load in the medical facility, mistakes are more liable to occur by physicians when plagued by fatigue.

The study by Kerfoot et al. in 2007 revealed that there is a weak communication channel between doctors and other healthcare professionals, which is significantly lower than what was discovered in this study. The study also revealed that doctors are not well informed about information that will aid their medical practice. In this study, about a quarter (35.8%) of the respondents are not provided with adequate timely information that might affect their work which is better than what Kerfoot et al found out. Information is key and must be strengthened between physician to other health personnel, non-technical staff, management and patient.

The findings from this study showed that a majority of the respondents said patient themselves

influence the occurrence of medical malpractice by giving wrong information to physicians, sometimes patient failed to mitigate their own harm and even make it worse. Important information on patient state of health, history and other background should be disclose to physicians to avoid misdiagnosis and prescription error on the part of the physicians,

Jansma and Wagner also found out that (35%) of residents errors are linked to the work environment, this finding is a bit lower to what was obtained from this study. Most of the respondents from this study said they are more likely to make error in hostile or tense situation and more than half said the physical environment is not conducive for patient safety. It is the obligation of the institution to provide good environmental condition that will support patient safety and effective health care delivery in institution.

Management of medical malpractice by respondents and institution

The majority of respondents to this study agreed with Sakuma's 1995 study that awareness of medical malpractice prevention is crucial and the first step in mitigating error in the medical field. As a result, they felt that this was the best way to manage medical malpractice. Analysis of prior malpractice cases is the first step in prevention to identify areas for improvement. Coyle et al., 2005 demonstrated that patient safety education had more impact if residents doctors are exposed to multiple continuous educational session but this study showed more than a quarter (31.5%) of the participants were of the view that continuous education is not adequately provided for medical trainee on mitigating medical error in the institution. Most of the respondents has good attitude to disclosure of error and decision making, Majority of the respondents will disclosure error to patient if they get to know their patient had being a target of malpractice in different to with Wu et al study that showed that 54% of respondents report their errors only to attending physicians but never to patients. Residents may fear that it might result to loss of reputation, professional stigma with subsequent loss of autonomy and limit future opportunities of treatment (Wu et al., 1997). Patient disclosure is important in the medical error process; the current standard of practice is to disclose errors to patients when it occurs (Kaldjian et al, 2007). Medical error is managed by making good decision best for practice even at the occurrence of deviation from the standard of care according to Orley et al, 1991.

Vulmir 2004 demonstrated that it is pertinent to review medical error cases, analyse thoroughly to know how it occurred, what led to the occurrence and how to prevent such error from re-occurring. This study showed that more than half of the respondents are of the opinion that when malpractice cases occur in their department, they analyse it thoroughly. Less than half of the respondents said there is no proactive medical error avoidance strategies provided by the institution and few aren't aware if there is any malpractice avoidance strategies by the institution. Miyake 2001 did a study on risk management system of preventing medical malpractice that there must be some proactive medical malpractice avoidance strategies in medical institutions to prevent and mitigate the occurrence of medical error.

CONCLUSION AND RECOMMENDATIONS

Conclusion

According to this study, delayed diagnosis is the most frequently reported form of medical error in the facility. It typically results from a delayed laboratory test result, a poorly equipped facility, the absence of medical staff during shifts, as well as other institutional or management issues. Physicians are faced with inadequacies within the institution that affect quality delivery in medical service in their daily practices. Most of the respondents (72.5%) said high work load is common in their department; performance is impaired when work load become excessive, this study also found out that errors are liable to be made in tense or hostile situation. The medical equipment's in most departments are not adequate for the treatment of patients.

There is a good attitude to disclosure of error to patients who had being a victim of medical malpractice and physicians are willing to apologize for their error if need be, medical trainees are

not aware of no settling on medical liability by the institution on the occurrence of medical malpractice.

Medical errors represent an important public health problem and pose a serious threat to patient safety. The growing awareness of the frequency and causes of medical error in medicine reinforces is vital to improve our understanding of the problem and to devise workable solutions and prevention strategies. There is a need for continuous education to improve medical knowledge and skills with regards to medical error in the institution, deployment of more medical staff to reduce excessive work load on existing workers, provision of more friendly facility that will promote quality delivery of health care to patients and establishment of proactive error avoidance strategies by the institution for an effective management of medical error.

Recommendations

Based on the results of this investigation, the following are suggested.

1. There should be established a medical error evaluation committee made up of doctors, preferably consultants, with the duty of reviewing error incident reports, medical technique, working conditions, identifying areas of intervention in the medical setting that will improve the quality of healthcare delivery, strengthening staff communication, and developing a manual for the prevention of medical errors that will include manner and behavior.
2. Careful consideration must be given to patient education that will improve their understanding of the importance of constantly giving their doctors all pertinent information relevant to their symptoms and recent medical history.
3. Providing medical students with sufficient ongoing education and proactive error prevention techniques to ensure their knowledge and abilities are appropriate to offer patients with the best care possible. The increasing pace of scientific, technological and policy innovation in medicine highlights the importance of structures which allow for postgraduate education and training to maintain and develop existing knowledge and skills as well as acquire new competences which enshrine the most recent evidence-based for practice.
4. There is need to pay attention to the paucity of medical staff to minimize work load on the available staff. The institution should develop strategies to strengthen capacity, structures and systems for responsive human resource planning which is essential to reduce over-worked of staff which must be done by establishing and support appropriate human resource for health strategic plan structures for residency training, recruitment of more health personnel, availability of motivations to avoid brain drain of existing staff.

REFERENCES

1. Aladelokun D, Chiedozie, 2006. I. Government suspends four LUTH officials over baby infected with HIV. *The Punch*. June 21, pg 30.
2. Anny Nutt, 2009. Negative effects of medical malpractice; http://ezinearticles.com. Accessed on June 13, 2014.
3. Anon. 2013. Cases of medical malpractice in medical setting. *Nigeria Sun Newspaper* October 16: page 12.
4. Bates D.W., Spell N., Cullen D.J., Burdick E., &Laird N., 1997. The costs of adverse drug events in hospitalized patients. *The Journal of the American Medical Association* 277:307-311.
5. Bolan J.H., 1954. Legal standard of care in Medicine. *Universe Illinois Law Rev* 885-887.
6. Brad R., 2004. Ethics Summary Textbook. *The new and improved king ethics*, pg 3-6.

7. Christopher Landrigan, 2010. Temporal trends in rates of patient harm resulting from Medicare, *New England Journal of Medicine* 30(2): 250-251.
8. Code of medical ethics, 1990. Federal Republic of Nigeria. A book on Rules of professional conduct for Medical and Dental practitioners, pg 33-39.
9. Cooper J.B., Newbower R.S., Kitz R.J., 1984. An analysis of major errors and equipment failures in anaesthesia management. Considerations for prevention and detection. *Journal of Anesthesiology* 60(2):34- 42. .
10. Coyle Y., Mercer S., Murphy-Cullen C., 2005. Effectiveness of a graduate medical education program for improving medical event reporting attitude and behavior. *Quality Safe Health Care* 14: 383-388.
11. Degen C., Weigl M., Glaser J., Li Jian, Angerer P., 2014. The impact of training and working conditions on Junior doctors' intention to leave clinical practice. *British Medical Journal.* 14:199-201.
12. Engel K., Rosenthal M., Sutcliffe K., 2006. Residents' responses to medical error: coping, learning, and change. *Academic Medicine* .81:86-93.
13. Fred J.E., Li Y., Gross C.P., 2000. "Scope and impact of financial conflicts of interest in biomedical research: a systematic review". *The Journal of the American Medical Association* 289 (4): 454–65.
14. Gallagher, TH, Waterman AD, Ebers A., 2003. Patients' and physicians' attitudes regarding the disclosure of medical errors. *The Journal of American Medical Association.* 289(8):1001–7.
15. Graf J., Driesch A., Koch K., Janssens U., 2005. Identification and characterization of errors and incidents in a medical intensive care unit. *Acta Anaesthesiol Scandal*. 49:930-939
16. Godwin D, Markwell H., 2003. The duty to care of healthcare professionals: ethical issues and guidelines for policy development report: *Joint Center for Bioethics, University of Toronto.*
17. Gordon D.S., Seijeoung K., Richard A., Karen C., Bruce L., Arthur S.E., 2004. Diagnosing Diagnosis errors: Lessons from a multi-institutional collaborative project. *Advances in Patient Safety* Vol 2 pg 255-270.
18. Helen L., and John D., 2010. Sued for misdiagnosis? It could happen to you. *The Journal of family practice* 59(9)498-507.
19. Institute of Medicine,1996. Committee on Health Care in America. Crossing the quality chasm: a new health system for the 21st century, Washington. National Academy Press, 1996
20. Issa B.A., Yusuf A.D., Olanrewaju G.T., Oyewole A.O., 2009. Stress in Residency training as perceived by resident doctors in a Nigerian University Teaching Hospital. European *Journal of Scientific Research* 30 (2): 253-259.
21. James C., and Tom B., 2001. Principles of Biomedical Ethics. First steps in Research. (3rd). New York. Oxford University Press, 2001.
22. Jansma J.D., Wagner C.J., 2011. A patient safety curriculum for medical residents based on the perspectives of residents. *Journal of Patient Safety* 2(4): 56-58.
23. Jonathan T., 2010. Effect of medical malpractice. *Annals of Health law Advance Directive*, volume 19. Pg 314-315.
24. Kaldjian L.C., Jona E.W., Levi B.H., Rosenthal G.E., 2007. Disclosing medical errors to patients: Altitudes and practices of physicians and trainees. *Journal of Internal Medicine* 22 (7): 988-996.

25. Merrith W., 2013. Causes of medical malpractice. Available from, www.merrithwebb.com/practice-area/medical-malpractice-attorneys/causes-of-medical-malpractice/.

26. Mizrahi T., 1984. Managing medical mistakes: ideology, insularity, and accountability among internists-in-training. *Social Science Medicine*. 19:135-146

27. Miyake, S. 2000. Challenges for risk management in medicine, Standpoint of hospital. *Journal of Japan Medical Association* 123: 622– 628.

28. Orley H.., Ronald C. and Don H., 1991. *Medical malpractice risk management early warning systems* pg 26-27.

29. Osime C., Okojie O., Osadolor F., Mohammed S., 2004. Current practices and medico-legal aspect of preoperative consent. *East African Medical Journal* 81:331-333.

30. Oyebode F., 2006. Clinical errors and medical negligence. *Advanced Psychiatry Treatment* 12(3):221-7.

31. Palmieri, P., DeLucia P., Ottah, T., Peterson, L., and Green H., 2008."The anatomy and physiology of error in adverse healthcare events". *Advances in Health care Management* **7**: 33–68.

32. Penson R., Svendsen S., Chabner B., Lynch T., Levinson W., 2001. Medical mistakes: a workshop on personal perspectives. *Oncologist*. 6:92-99

33. Quill T., Brody H., 1996. Physician's recommendations and Patient's Autonomy. Finding a balance between physician power and patient choice. *Journal of International Medicine* 125: 763-9.

34. Roger G., John S. and Andy B., 2013. Super lawyers Medical malpractice types. *The Journal of American Medical association* 20910(301)589-2200.

35. Sadan B., 2001 Patient Data Confidentiality and Patient Rights. *International Journal of Medical Informatics.* 2001; 62:43-49.

36. Schenkel M., Khare R., Marilynn M., Elizabeth L., 2003. Residents Perceptions of Medical errors in the emergency department. *Academic Emergency Medicine* 10: 1318-1324.

37. Vukmir R., 2004. Medical malpractice; managing the risk. *Medical and Law Journal* 23:495-513.

38. Weiler P., Hiatt H., Newhouse J., Johnson W., Brennan T., and Leape L., 1993. A measure of malpractice: medical injury, malpractice litigation, and patient compensation. Cambridge, Mass.: Harvard University Press, 1993.

39. Wu A., Cavanaugh T., Phee M., 1997. To tell the truth; ethical and practical issues in disclosing medical mistakes to patients. *Journal General Internal medicine*. 12: 770-775.

40. Yeatch R., 2003. The Basics of Bioethics textbook, 2nd edition. Upper saddle River. N.J. Prentice Hall, pg 67-68.