DETERMINATION OF NURSES' PRACTICE IN ASSESSMENT AND INITIAL MANAGEMENT OF CARDIAC RELATED CHEST PAIN AMONG ADULT PATIENTS AT A&E, KNH

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DECLARATION

I Girishon Njoroge Chege, the undersigned, declare that this research dissertation is the result of my original work and that it has not been submitted either wholly or in part in any other institution for an academic award.

Sign……...Date……

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DEDICATION

I dedicate this work to my wife Monicah and my children: Tabitha, Austin and Timona. Thank you for the unwavering support and believing in me.

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First and foremost I wish to thank the almighty God for his sufficient grace, guidance and support throughout this study period.

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LIST OF ABBREVIATIONS AND ACRONYMS

A & E- Accident and Emergency

ACLS: Advanced Cardiac Life Support

ACS- Acute Coronary Syndrome

ATLS: Advanced Trauma Life Support

BLS: Basic Life Support

CAD- Coronary Artery Disease

CCN: Critical Care Nursing

CP- Chest Pain

ER- Emergency Room

GRASPIT: Global Recognition and Assessment of Sick Patients and Treatment

KNH- Kenyatta National Hospital

MI- Myocardial Infarction

NSTEMI- Non St Elevation Myocardial Infarction

PALS: Pediatric Advanced Life Support

SPSS- Statistical Package for Social Sciences

STEMI - St Elevation Myocardial Infarction

UA- Unstable Angina

UON- University of Nairobi

WHO- World Health Organization

DEFINITIONS OF TERMS

Assessment: Involves obtaining history, and clinical examination of the patient.

Cardiac related chest pain: Pain in the region of the chest caused by pathology in the heart

Chest pain: is a pain in the region of the chest.

Interpretation: Recognition or identification of changes from the normal parameters.

Intervention: Means specific action and or activity carried out in assessment and management of patient.

Knowledge: Is information and understanding about a subject which a person has.

Myocardial infarction: Is heart attack, due to the irreversible necrosis of the heart muscle secondary to prolonged ischemia.

Non ST elevation myocardial infarction: Is a type of myocardial infarction caused by severe narrowing of the artery but the artery is usually not completely blocked.

Nurses' ability: Refers to nurses' capability to assess, interpret assessment findings and manage cardiac related chest pain.

Nursing Practice: Refers to what, how and when of the action carried by a nurse in relation to assessment for and initial management of cardiac related chest pain.

ST Elevation: Means ST elevation above 1 mm above iso-electric line.

ABSTRACT

Background: Coronary artery disease (CAD) is the leading cause of global morbidity and mortality. CAD accounts for 15.9% of all deaths worldwide. Chest pain is the most common complaint and leading cause of emergency department visits in patients with CAD. Cardiac related chest pain is associated with fatal outcomes. Therefore, prompt identification and treatment of a CAD related chest pain is critical to the treatment outcomes. Failure to perform timely assessment and manage has been reported and often associated with adverse patients' outcome such as death. The aim of this study was to determine the nurses' practice in the assessment of patients with cardiac related chest pain and its initial management in the accident and emergency department, KNH

Material and Methods: A descriptive cross sectional study designs and mixed method of data collection was adopted. Target population consisted of nurses working in the emergency department. Using simple random sample size of 62 nurses was selected for quantitive study. A purposive sampling method was employed to select 4 in Key informants. Informed consent was obtained from the eligible participants after a verbal explanation. Approval for carrying out the study was obtained from KNH-UoN Research Ethics Committee. Quantitative data was collected using self-administered questionnaires and semi-structured observational check list. Qualitative data was collected using in-depth interview guide. Quantitive analyzed using SPSS version 21. Descriptive statistics was analyzed using frequency distribution and chi squire. Measurement of association was measures using logistical regression modeling and correlation Qualitative data was analyzed by use of Nvivo software version 11 into themes and verbatim reporting.

Result: Majority of participants were female (69%), with a mean age of 41.1 years. Majority were KRCHN (78%) ,62% trained A&E and CCN. 54% were not aware that there was a chest pain protocol in the department. 57% not trained on assessment and initial care of cardiac chest pain. An average of 47% of nurses always obtained all the relevant information, 27% very often, 18% sometimes. By acquiring higher qualification or specialisation, nurses are likely to perform better in obtaining relevant information and performing nursing role BScN ($P< 0.000$) A&E nursing 71 %(< 0.001 Critical 52 %($p<0.048$)

Conclusion: Nurses had varied approach to role performance both in assessment and initial management of cardiac related chest pain which is attributable to lack of training, lack policy guidelines and administrative support

Recommendations: Nurses should be trained on assessment and immediate care of cardiac related chest pain and electrocardiogram interpretation. They should also be encouraged to pursue an advanced or specialised training in order to improve their performance. There should also be administration support in care of chest pain patients in terms of provision of a policy guideline on care of chest pain patients in the department and availing working ECG machine throughout the year.

CHAPTER ONE: INTRODUCTION

1.1 Background

Coronary artery disease (CAD) is a group of heart disease that usually involves the partial narrowing or total blockage of the coronary arteries(Al-Khatib et al., 2017a). Globally CAD morbidity and mortality rates are alarming. CAD is the leading cause of global morbidity and mortality (Vedanthan et al., 2014), accounting for 15.9% of all death worldwide (Robson et al., 2015). In 2015 alone, CAD affected approximately 110 million people and caused 8.14 million deaths globally (Alrawi, 2017). The incidences of coronary artery disease are increasing in sub-Saharan Africa where their management remains a challenge (Kakou-Guikahue *et al.* 2016).

Chest pain is a common symptom in patients with CAD. Chest pain caused by CAD is common reason for emergency department (ED) admissions. Moreover, CAD related chest pain is associated with fatal outcomes and therefore require urgent attention. In the emergency department patients presenting with chest pain should be rapidly evaluated to determine if the symptoms are suggestive of acute ischemia or some other potentially life threatening illness (Dezman, Mattu, & Body, 2017).

The time for initial assessment, including ECG and preliminary management of a patient with possible acute coronary ischemia is ideally 10 minutes from presentation (Pelter, Carey, Stephens, Anderson, & Yang, 2016). Because of the urgency required in the identification and treatment of CAD Related Chest Pain, nursing assessment of patients experiencing chest pain is focused on three important areas or clues: firstly, the characterization of the chest discomfort or pain and physical examination; secondly the rapid and accurate interpretation of the ECG and thirdly the rise and fall of cardiac markers especially cardiac

troponin(Wireklint Sundström, Holmberg, Herlitz, Karlsson, & Andersson, 2016). Therefore, nurses are required to possess essential skills that enable her /him to initially characterize a cardiac related chest pain and assess ECGs for the abnormal characteristics associated with cardiac chest pain (Uri & Donilon, 2013). Research continue to suggest that nurses lack competence in recognizing cardiac related chest pain (Hernández-Padilla et al., 2017) and are often observed straggling with the assessment and management of patient with cardiac related chest pain in the emergency department(Rolskov Bojsen et al., 2015).

Since nurses are often the first clinicians to come in contacts with chest pain patients in the emergency department, their practice on initial nursing assessment and management of patients with chest pain may be an important modifiable factor influencing care outcomes for patients presenting with chest pain in the emergency department (Munroe, Curtis, Murphy, Strachan, & Buckley, 2015). Thus there is need to determine nursing capacity and practices in assessment and management of patients with CAD at the Emergency Department of KNH.

1.2 Problem Statement

CAD related chest pain is a common problem prompting patients to seek care in the emergency department. CAD related chest pain is often associated with fatal outcomes. Therefore, prompt identification of a CAD related chest pain is critical to the treatment outcomes (Wireklint Sundström et al., 2016). Failure to perform timely accurate assessment has been reported and often associated with adverse patients' outcome such as death (Basu & Sharma, 2016). For example elsewhere, it has also been established that the diagnostic performance of chest pain characteristics for suspected CAD is limited (Roffi et al., 2016).

Nurses are often the first health care providers to encounter patients presenting with chest pain(Hamm et al., 2011). Nurses are required to assess and initiate immediate intervention to all patients with chest pain during initial triage of patients in A&E (McDevitt-Petrovic,

Kirby, & Shevlin, 2017). There has been challenges in assessment of chest pain and recognizing features of life threatening cardiac related chest pain(Dezman et al., 2017).

Lack of chest pain protocol to guide assessment and management of patients with chest pain may affect early diagnosis and management of patients with CAD. At the Accident and Emergency Department of KNH, emergency nurses' were observed to have varied assessment approaches while assessing patients for cardiac related chest pains. This study was conducted with an aim to determine nurses' practice in the assessment and initial management of cardiac related chest pain at the accident and emergency department of KNH.

1.3 Research Questions

i. What assessment interventions are rendered by nurses on patients with acute chest pain?

ii. Are emergency nurses' able to interpret assessment findings indicative of CAD related chest pain?

iii. What are the nurses' initial management interventions given to patients with suspected CAD related chest pain?

iv. What challenges do emergency nurses encounter in the assessment and initial management of patients with cardiac related chest pains?

1.4 Research Objectives

1.4.1 Main Objective

To determine the nurse's practices in the assessment and initial management of cardiac related chest pain in the accident and emergency department, KNH.

1.4.2 Specific objectives

i. To determine the assessment interventions on patients with acute chest pain by nurses.
ii. To determine nurses' ability to interpret assessment findings indicative of myocardial ischemic chest pain.
iii. To assess nurses' initial management interventions on patients suspected with suspected cardiac chest pain.
iv. To determine challenges faced by nurses in the assessment and management of cardiac related chest pains.

1.5 Hypothesis

Null Hypothesis: Nurses' assessment interventions, their ability to interpret findings have no association with the identification and initial management of patients with cardiac chest pain.

1.6 Study Justification and Significance

Identification and management of cardiac related chest pain is an important public health concern that requires focused attention by nurses. Nurses' accurate assessment and initial interventions on chest pain patients is critical to the early reperfusion, recovery and prognosis of patients. Improving the nurses' ability to accurately assess patients for cardiac related chest pain could optimize care of patients who present to the emergency department care of chest pain patients. To the researcher's knowledge, no study had been carried out to evaluate the emergency nurses' practice in assessment and initial management of patients with cardiac related chest pain among adult patients at KNH, hence the need to conduct this study.

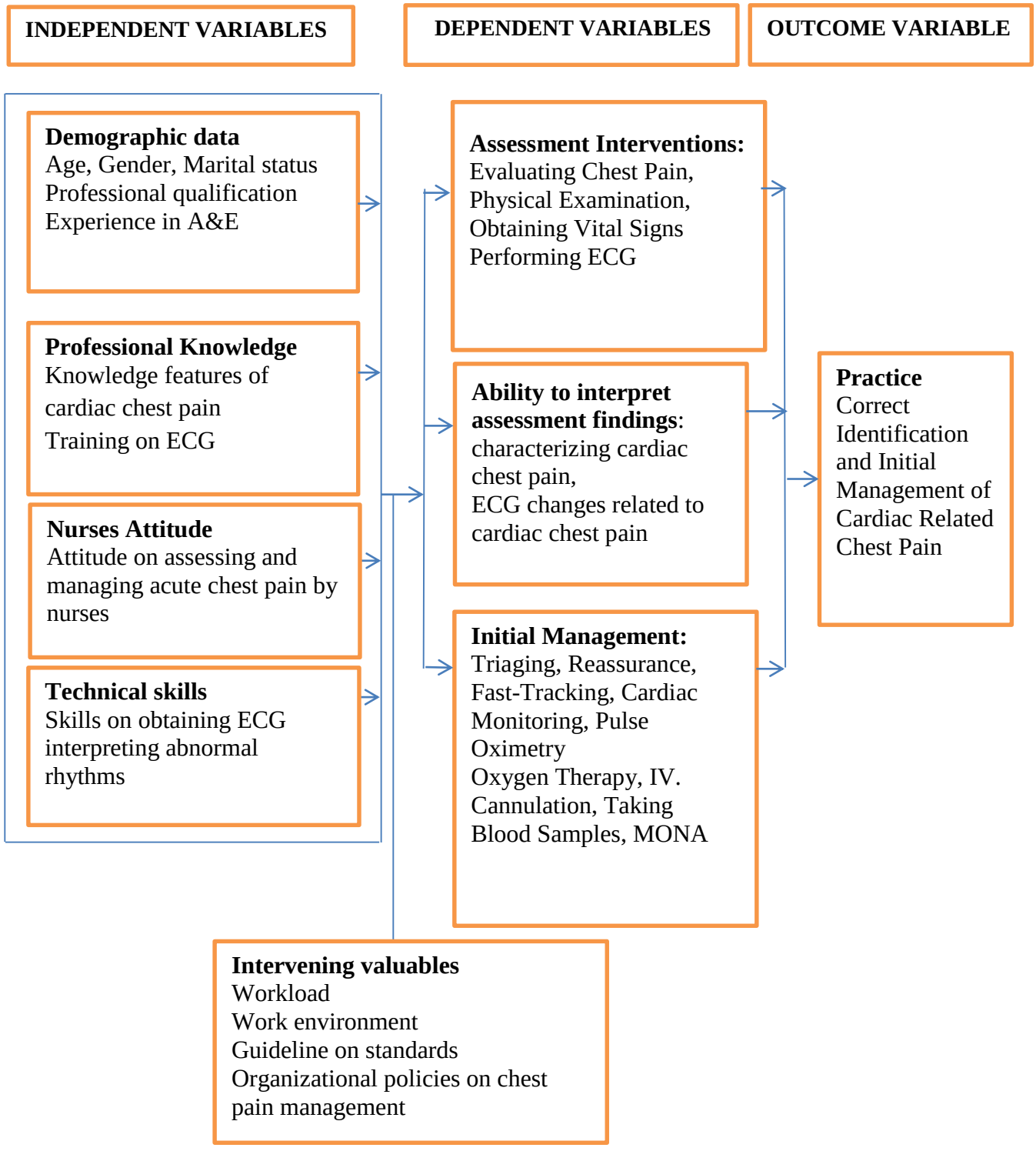
Carrying out this study provided new information and understanding in the area of emergency nursing practice particularly in assessment and initial management of cardiac related chest pain. This finding of this research therefore is expected to guide policy change with the aim of improving care and outcomes of patients suffering from cardiac related chest pain.

1.7 Theoretical Framework

This study was based on Ida jean Orlando's deliberate nursing process theory which posits that patients have their own meanings and interpretations of situations and therefore nurses must validate their inferences and analyses with patients before drawing conclusion. This theory explains that the role of the nurse is to find out and meet the patients' needs for help. Through these the nurses job is to find out the nature of the patients distress and provide the help he/ she needs. Ida indicates that any observation shared and observed with the patient is immediately helpful in ascertaining and meeting his/her need, or finding out that he or she is not in need at that time. Orlando described her model as resolving around five major interrelated concepts: function of professional nursing, presenting behavior, immediate reaction, nursing process discipline and improvement.

1.8 Conceptual Framework

Figure 2.1: Conceptual Framework



CHAPTER TWO: LITERATURE REVIEW

2.1: Introduction

The epidemiological patterns of coronary artery disease differ greatly between developed nations and Africa. As the coronary artery disease death rate decrease in developed countries(Zühlke, Mirabel, & Marijon, 2013), the incidences of coronary artery disease are increasing in sub-Saharan Africa where their management remains a challenge. For example, in Dakar, hospital prevalence of acute coronary syndrome in the cardiology departments has increased from 5%- 12 % over the past two decades. Limited data are available from sub-Saharan Africa regarding management and outcomes of patients with ACS. In Kenya, there is paucity of literature on coronary artery disease (Kakou-Guikahue et al., 2016).

2.2: Nurses Practice in the Assessment of Cardiac related Chest Pain

A coronary artery disease is a dynamic progressive process that transition from deposition of plaque in the coronary artery (atherosclerosis) which causes partial vessel occlusion to complete occlusion (Vedanthan, Seligman, & Fuster, 2014).

An individual's risk of developing CAD is either genetic and lifestyle factors which include high blood pressure, smoking, alcohol, depression, obesity, diabetes, poor diet, high blood triglycerides, lipoproteins and cholesterol, family history and lack of exercise. A study carried out among 20,000 Swedish twins showed increased risk for CAD among close relatives and estimated a hereditability of approximately 50% for fatal CAD (Alrawi, 2017)

Chest pain is a common symptom. It is estimated that up to 40% of general population experience chest pain at some points in their lives (Thampy, 2013). Chest pain is also the commonest symptoms that patients present with in the emergency department, accounting

for approximately up to 10% of all medical emergency room admissions (Wireklint Sundström et al., 2016).

It is estimated that in Europe, up to 38% of men aged 40-49 attending general practice clinics report a history of chest pain (Tavella, 2011) while in the united states, about six million people are admitted in the emergency department admissions per year for chest pain at a cost of approximately US dollar 8 billion(Tavella, 2011).

Chest pain is a symptom of many etiologies, some of which have high morbidity and mortality (Roche, Gardner, & Lewis, 2015). Before chest pain is adequately treated the actual underlying cause needs to be identified. Broadly the causes of chest pain are differentiated by whether the pain is thought to be cardiac or non-cardiac in origin(Al-Khatib et al., 2017b). The cardiac causes can be coronary artery related pathologies and cardiac structure or functional pathologies. The coronary artery related conditions include angina pectoris, unstable angina or myocardial infarction. The heart structural and functional pathologies that can cause chest pain include pericarditis, pulmonary embolism, mitral valve prolapse; aortic stenosis, aortic regurgitation and cardiomyopathy. The non-cardiac conditions that can cause chest pain include gastroesophageal causes, musculoskeletal conditions, and psychiatric (Cayley, 2014)

Chest pain caused by coronary ischemia can be classified into two: typical and atypical chest pain. The typical chest pain of ischemia is characterized by a retrosternal sensation of pressure or heaviness, radiating to the left arm, neck or jaw. This pain may be intermittent or persistent. The typical chest pain may have associated symptoms such as epigastric pain,

indigestion-like symptoms and isolated dyspnea (Sanchis-Gomar, Perez-Quilis, Leischik, & Lucia, 2016).

In making a diagnosis of coronary ischemic chest pain, history and physical examination are never sufficient to distinguish between the many conditions that can cause acute chest pain syndrome. However high risk features of chest pain such as radiation to the left arm, substernal location and history of acute myocardial infarction are reliable in predicting acute coronary syndrome (Hollander *et al.*, 2016).

The Relief of symptoms after nitroglycerine administration is not specific for anginal pain as previously thought because it is also reported in other causes of chest pain(Roffi et al., 2016). It has also been established that the diagnostic performance of chest pain characteristics for suspected myocardial infarction is limited (Roffi *et al*., 2016).

Nursing assessment may be an important modifiable factor influencing time to treatment for patients presenting with chest pain in the emergency department. Emergency nurses are required to be highly skilled at performing accurate and timely patient assessment. When patients present to the accident and emergency department, the emergency nurses performs a brief assessment and allocates a triage category indicating the level of urgency (how long the patient can wait to be seen by a medical officer) of the presenting problem after which the patients are located to a treatment area (Munroe et al., 2015).

Emergency nurses ability to perform an accurate initial assessment is imperative to recognize the urgency and treatment needs of patients and to develop baseline data from which any changes in in the condition of patient may be measured against. Failure to perform timely

accurate assessment has been reported to result in adverse patients' outcome such as death (Basu & Sharma, 2016)

2.2.1: Obtaining history of chest pain and characterization of cardiac related symptoms

Pain is a sensory and emotional experience almost any structure in the chest can cause chest pain. Although the many causes of chest pain need to be considered during the assessment of chest pain(Basu & Sharma, 2016) the nurses greater concern should be whether the chest pain is signaling a heart attack (Tavella, 2011).

In the initial assessment, the nurse should examine all patients with chest pain and recognize features that most correlate with life threatening cardiac causes in undifferentiated emergency department patients with chest pain (Dezman et al., 2017). All patients with chest pain must be evaluated in the same fashion until the risks of AMI or UA can be determined and appropriate treatment initiated(Poldervaart et al., 2017).Nurses should obtain the patients' pertinent medical history, perform clinical examination and perform ECG(Wireklint Sundström et al., 2016).

The assessment of the patient's experiencing chest discomfort centers around the assessment categories or "clues". The first assessment "clue" is focused around the characteristics of the chest discomfort (or pain) and the physical examination. The second assessment "clue" is the rapid and accurate interpretation of the 12 ECG. The third assessment "clue" is the rise and fall of cardiac markers especially cardiac troponins(Wireklint Sundström et al., 2016).

History taking, is essentially the first stage of nursing assessment and a core ingredient of the nursing process. Nurses often begin assessment by enquiring about the chief complain which

is the main reason for patient to seek medical attention in the emergency department(Maglanque, 2017). When patients chief complaint is the chest pain, nurses are expected to focus and evaluate the chest pain with the intention of ruling in or ruling out the life threatening condition associated with acute chest pain such as acute coronary syndrome(Ayerbe et al., 2016).

In the assessment, nurses have traditionally used various mnemonics such as OLD CAT(for Onset, Location, Duration, Characteristics, Aggravating or Relieving Factors, Relating Symptoms, Treatment and Severity), PQRST(for Provocation/Palliation , Quality and Quantity, Region and Radiation, Severity Scale , Time) and SOCRATES (Site , Onset, Character, Radiation, Associations, Time Course, Exacerbating/ Relieving Factors and Severity) approaches to the collect patient history (Munroe et al., 2015). This mnemonics help to guide nurses to focus on evaluation of the chest pain.

In taking history of present illness, the emergency nurses should most importantly evaluate patient for typical(severe and acute onset chest pain, most often left sided and provoked by effort and companied by anxiety, shortness of breath and chocking sensation) and atypical symptoms (Dezman et al., 2017). However ,studies have shown that nurses have difficult assessing pain and this causes delay in initiating treatment of patients (Ayerbe et al., 2016).
When the patient has chest pain the nurse need to use her /his assessment skills to determine whether the patient is having an acute MI or some other life threatening illness(Maglanque, 2017).

By knowing the signs and symptoms of various causes of chest pain the nurse can quickly assess and determine whether the patient has a life threatening condition and provide appropriate and possible lifesaving care(Carlton, Than, Cullen, Khattab, & Greaves, 2015). In

the emergency department, Nurses assessment of patients with chest pain take place in triage room. The emergency nurse is expected to decide whether a patient with chest pain has a life threatening condition that would require fast tracking(Carlton et al., 2015).

To do this, chest pain symptoms evaluation is of utmost important. Assessment of chest pain in general involves obtaining history of the patient, obtaining vital signs, characterization of the chest pain, brief physical examination and performing and ECG and interpreting its abnormalities to rule in or rule out myocardial infarction(Maglanque, 2017).

Acute chest pain is associated with acute life threatening conditions and high mortality(Maglanque, 2017). Because of the urgency required in the treatment of life threatening conditions such as acute coronary syndrome, assessment of chest pain is focused on three important procedures: obtaining brief suggestive history of chest pain. History taking involve asking pertinent questions regarding the type of pain the patient is experiencing, performing thorough objective exam and obtaining the appropriate diagnostic tests helps lead to correct diagnosis in the initial evaluation of patients with chest pain(Maglanque, 2017).

The nurse is required to explore the characteristics of chest pain first which include quality, location, duration, intensity, accompanying symptoms, aggravating and alleviating factors as well as the relationship between any type of exertion and pain experience. (Carlton et al., 2015)

Additionally to help rule out an ischemic cause of chest pain the nurses should ask any history (self or family) of angina or MI: the patient's age since coronary artery disease is more common with age; an additional risk factors such as smoking hypertension, hyperlipidemia or diabetes. Noting about the patients' gender is because it plays a role in

chest pain complaint as MI is common in men over the age of 40 and in women over the age of 50 (Maglanque, 2017).

Although findings from history of present illness and physical examination is not enough to make an accurate diagnosis of acute myocardial infarction, clinician knowledge and gestalt(a clinician accumulation of experience combined with data gathering during patient encounter) is still reliable to suspect an acute coronary syndrome (Dezman, Mattu, and Body, 2017).

2.2.2: Physical Assessment

Determining the cause of chest pain depends on the patient's history and objective data from the physical exam and to a greater extend diagnostic tests. The nurse uses his/ her assessment skills to obtain pertinent history and perform quick but thorough physical assessment. However, research has also established that physical examination seldom is useful for distinguishing patients with ACS from those with non-cardiac chest pain (Maglanque, 2017).

Although some physical findings are common for the various causes of the chest pain, a patient with chest pain may not have all of these signs, and some patients may not have any signs at all. Some of the findings include hypotension, bradycardia or tachycardia jugular venous distension diaphoresis, and anxious appearance, and low grade fever.(Parsonage, Cullen, & Younger, 2013)

2.2.3: Obtaining vital signs

Obtaining vital signs is an importance procedure for the nurse in the diagnoses and management of the cardiac chest pain patients. Obtaining vital signs help nurses to assess the hemodynamic status, determine the clinical severity of the patient condition and prioritizing the treatment for the patient and not necessarily in diagnosis of cardiac related chest pain. (Hollander, Than, & Mueller, 2016).

2.3: Nurses' Interpretation of ECG Changes among Patients Suspected to Have Cardiac Chest Pain

ECG is regarded as a powerful and most frequently used non-invasive diagnostic procedures used in health care. Clinicians (including nurses) use ECG to records the electrical activity of the heart which can reveal cardiac abnormalities such as myocardial ischemia and arrhythmias. ECG is therefore regarded to be of great importance for patient management and all nurses who make clinical assessment based on ECGs should master this skills(Rolskov Bojsen et al., 2015).

The ECG may provide the most valuable clue to whether a patient is having an ischemic event(Parsonage et al., 2013) Electrocardiogram is easy to perform, relatively cheap, and its results are readily available.The12 lead electrocardiogram is a major initial tool used to differentiate ischemic heart disease from other etiologies (Chabot, Mandry, Gomez, Chaouat, & Régent, 2010) and is considered the first line diagnostic tool in the assessment of patients with suspected ACS (Dezman et al., 2017).

Studies have demonstrated association between rapid and accurate interpretation of cardiac arrhythmias by nurses with safe practice and positive patient outcome (Roffi *et al.,* 2016). However, interpretation of ECGs needs expertise and knowledge (Rolskov Bojsen et al., 2015). In interpreting ECG it is important to differentiate between normal and abnormal ECGs first and then try to correlate the findings with clinical presentation of the patient (Pérez-Riera, Barbosa-Barros, & Shenasa, 2018).

Since emergency nurses often take care of patients who need ECG monitoring they are therefore required to perform, recognize and interpret electrocardiogram rhythms. However,

research continue to suggest that nurses lack competence in recognizing cardiac rhythms (Hernández-Padilla et al., 2017) and are often observed straggling with interpretation of ECG rhythms(Rolskov Bojsen et al., 2015).

Research indicates that baseline knowledge of nurses regarding interpretation of 12 lead ECGs displaying both STEMI) ST segment myocardial infarction and non-ST segment myocardial infarction is lacking. While in one study, 79 % of nurses were able to correctly identify 12 lead ECGs with a STEMI pattern, none were able to fix the correct leads, identify the anatomical location or identify the amplitude of ST elevation (Pelter et al., 2016).

The ability to assess ECGs for the characteristics is an essential skill that nurses caring for patients with chest pain should possess. Nurse, being often the first clinicians to assess patients requiring an ECG monitoring, they are placed at a critical position for obtaining, interpreting and communicating 12 lead ECG finding and therefore must be skilled at performing this function (Pelter et al., 2016). Therefore, ensuring nurses' competence in recognizing and managing patients with life threatening arrhythmias is a major priority (Uri & Donilon, 2013).

Evaluation of ECG of patients with chest pain include recognition of unstable angina, ST elevation myocardial infarction and non- ST elevation myocardial infarction. Unstable angina is defined as myocardial ischemia at rest or minimal exertion in the absence of cardiomyocyte necrosis and has a substantially lower risk of death compared to the NSTEMI patients (Roffi *et al*., 2016).

In the interpretation of ECG, a presence of a Q waves indicates myocardial cellular necrosis and cell death especially in old infarction of the myocardium. An ST segment elevation and T wave inversion are present during episodes of acute ischemia and represent cellular injury while the ST segment depressions may indicate sub-endocardia ischemia and require further evaluation with cardiac troponin to rule in or rule out non ST elevation myocardial infarction(Chabot et al., 2010).

The world health organization diagnosis of myocardial infarction is based on the presence of at least two of the following three criteria; a clinical history of ischemic type chest discomfort or pain, change on serially obtained electrocardiographic tracings, a rise and fall in serum cardiac markers particularly troponins (Roffi *et al*., 2016).

2.4 Nursing Practices in the Initial Management of Patient with Suspected Cardiac Chest Pain

Reviewed literature suggested that nurses in the acute setting perform five different roles in the care of people with NSTACS: educator, comforter, risk rater, data conduit and decision maker.(Tierney et al., 2012)

In the emergency department patients presenting with chest pain should be rapidly evaluated to determine if the symptoms are suggestive of acute ischemia or some other potentially life threatening illness. The institutions specific chest pain protocol should be implemented if the history or symptoms are suggestive of acute ischemia(Dezman et al., 2017)..

The time for initial assessment, including ECG and preliminary management of a patient with possible acute coronary ischemia is ideally 10 minutes for presentation. Studies have also

established that acquisition is frequently delayed and that women are significantly less likely to give ECG s performed within the recommended 10 minutes(Pelter et al., 2016).

The initial assessment phase the following stepwise interventions are initiated for any patients at significant risk for acute coronary syndrome: assessment of airway breathing and circulation; taking preliminary history and examination,12 lead ECG interpretation ECG equipment brought to the bed side; cardiac monitor is attached to the patient; oxygen 2-4 liters via nasal prong ; Intravenous line accessed and blood works(cardiac troponin, CKMB, Hemogram, urea-electrolyte and creatinine) is obtained, aspirin 162-325mg given and nitrate and morphine are also given according to need unless contraindicated(Roffi *et al*., 2016).

2.5: Challenges faced by nurses in the assessment and management of cardiac ischemic chest pain

Research continue to suggest that nurses lack competence in recognizing cardiac rhythms (Hernández-Padilla et al., 2017) and are often observed straggling with interpretation of ECG rhythms(Rolskov Bojsen et al., 2015). Pelter et al,. (2016) adds that the baseline knowledge of nurses regarding interpretation of 12 lead ECGs displaying both STEMI) ST segment myocardial infarction and non-ST segment myocardial infarction is lacking.

A study done in Uganda showed that , 79 % of nurses were able to correctly identify 12 lead ECGs with a STEMI pattern, none were able to fix the correct leads, identify the anatomical location or identify the amplitude of ST elevation (Pelter et al., 2016). Barriers to pain assessment included; nursing workload (84.1%), lack of availability of assessment tools (74.1%), lack of education on assessment tools (82.4%) , lack of familiarity with tools (78.2%) , lack of protocols and guidelines on pain assessment and management (74.1%)(Kizza, 2012)

CHAPTER THREE- MATERIALS AND METHODS

3.1 Study Design

This was a descriptive cross-sectional study utilizing both mixed methods to determine the nurses' practice in assessment and management of cardiac related chest pain at Kenyatta National Hospital. Quantitative and qualitative approaches were used to collect, analyze and interpret the results.

3.2 Study area

The study was carried out at Accident and Emergency department of Kenyatta National Hospital (KNH), the largest teaching and referral hospital in East and Central Africa. KNH is located at the upper hill area along hospital road off Ngong road, about 4 km from Nairobi city Centre. It has a bed capacity of 2000 patients. KNH mandate to offer specialized medical services, facilitate medical training, conduct research in collaboration with University of Nairobi and participate in national policy development in the country. KNH continues to provide specialized medical and surgical services in neurosurgery cardiac surgery, critical care and general surgery.

The Accident and Emergency (A&E) Department is located on the ground floor of the main hospital. It receives about 200 patients per day from the forty seven counties and the neighboring countries including Tanzania, Uganda, Burundi, Rwanda, Southern Sudan and Somalia. Accident and emergency department receive patients suffering from varied diseases including, medical, and trauma, obstetric and gynecological patients. Patients with cardiac diseases requiring admission are admitted in cardiology wards and critical care depending on care needs of the patient.

3.3 Study Population

The study population comprised nurses who had worked in the accident and emergency department for at least 3months since they had not finished their orientation in the department.

3.4 Variables

3.4.1. Independent Variable

Nurses Demographic Factors:

- Age,
- Gender,
- Professional qualification,
- Experience in years ED

Professional Knowledge

- Nurses' knowledge on classical characteristics of cardiac chest pain
- Knowledge on ECG

Technical factors

- Skills on obtaining ECG and its interpretation
- Guideline on standards on assessment and management of acute chest pain

3.4.2 Dependent Variables:

- Assessment interventions
- Interpretation of assessment findings (from history, physical exam and ECG findings
- Initial management intervention
- Challenges for assessment and recognition intervention

3.4.3 Intervening Variables

- Workload
- Work environment
- Organizational policies on chest pain management

3.4.4 Outcome Variable

- Timeliness in physician review
- Timeliness in Reperfusion
- Improved clinical status-vitals and chest pain

3.5 Inclusion criteria

- Qualified nurses who had worked in A&E department for more than three months
- Nurses who were willing to consent and participate in the study.

3.6 Exclusion criteria

- Nurses on sick, annual and maternity leave
- Those not willing to participate in the study
- Nurses on locums and those who had not finished three months in the department

3.7 Sample size determination

The desired sample size was determined using the Fisher et al. (2003) formulae;-

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

n= the desired sample size (when population is greater than 10,000)

Z= the standard normal deviate, set at 1.96 which corresponds to 95% confidence level.

P= the proportion of the target population estimated to have a particular characteristic of interest estimated at 50% which is equal to 0.5

q=1.0—p=0.5

d= degree of accuracy desired, here set at 0.05 corresponding to the 1.96 Z statistic used in the numerator.

Thus;- $n = \frac{1.96^2 x 0.5(1-0.5)}{0.05^2} = 384$

For populations <10,000, the following finite correction factor formula is used to calculate the required sample size (Mugenda & Mugenda, 2003)

nf= n/ 1+ (n/N) where,

nf= the desired sample size (when the population is less than 10,000)

n= the desired sample size (when the population is more than 10,000)

N=the estimate of the population.

Thus;

$$nf = \frac{384}{1 + \frac{(384)}{74}}$$

nf=62.04366812227074

The sample size was 62 nurses.

3.8 Sampling Method

The researcher used both simple random sampling and purposeful methods to get sample size. From the list of nurses working in the A&E department, the researcher removed all nurses who were not eligible to participate in the study. From this list of 77 eligible nurses, he purposefully selected four key informants for the study. The four participants were selected on the ground that they hold key information regarding the chest pain assessment practices. The key informants were certified emergency nurses who were basic and advanced cardiac life support provider and trainers of trainers in the same. They also had long experience in both clinical care and instruction in the accident and emergency department. Each of the

remaining 73 nurses was assigned a code numbers each. Each of the code numbers was then written in a separate piece of paper. These papers were then folded to ensure that the codes were not visible unless unfolded. All these pieces of paper bearing the code numbers were placed in a bowl. Eyes closed, the research assistant was then asked to pick the folded papers one at a time. The researcher then read the code number loudly and the name corresponding to the code number was identified in the sampling frame. This process was repeated until when the sample size of 62 participants was reached.

3.9 Data Collection Instrument

To collect quantitative data, a self- administered questionnaire containing both closed-ended and open ended questions. The questionnaire was divided into four sections, section A (containing demographic data, section B (containing questions on nurses' ability to interpret assessment findings, section C (containing questions on nurses assessment interventions) and section D (containing questions on initial management interventions); and an observational check list was used. A semi structured in-depth interview guide was used to collect qualitative data.

3.10 Validity and Reliability

Pretesting of the data collection tools was carried out in the cardiology department using six questionnaires, six observational checklists and one interview guide was used. The aim was to identify inconsistencies and lack of clarity in the questions. The tools were then revised and improved on the bases of the pretest results. Research assistant was also thoroughly trained before data collection. Accurate and careful phrasing of each question to avoid ambiguity was done to ensure study instrument reliability. To ensure face and contextual Validity, the instruments were given to independent nurse experts and statisticians to evaluate for conceptual and investigative bias. The study also employed mixed method to collect

quantitative and qualitative data which enabled triangulation and informed the results from different angles

An observational checklist was used to observe individual nurses while carrying out assessment of patients with chest pain at the triage area three times on different patients' .Data was collected for a period of one month

3.11 Training of Research Assistance

One research assistant was trained for a week; He is a Bachelor of Science degree holder and also specialized in emergency nursing and trainer of trainers in basic and advanced cardiac life support. He was also rich in knowledge and experience in assessment and management of cardiac chest pain.

3.12 Data Collection

3.12.1 Recruitment Process

Eligible participants were the permanently employed nurses who accepted to participate in the study and had worked in the emergency department for at least three month. Those who had worked for less than three months were recruited since they were still on orientation.

3.12.2 Consenting Procedure

Upon contact with the nurse, the researcher/research assistant introduced himself, showed evidence of approval to undertake the study to the nurse and explained the purpose of the study. He then issued invitation to the participant to participate in the study and gave information pertaining to their participation in the study in order to make informed consent. Upon acceptance, they were give consent forms to sign.

3.12.3. Data collection procedure

Data was collected by the principal researcher and one research assistant within a period of four weeks. Before embarking on data collection the principal researcher or research assistant gave full explanation of the purposes and benefits of the study to each individual nurse. They were then requested to participate in the study and those who agreed to participate were given an informed consent to sign. To collect quantitive data, firstly, self-administered questionnaires were issued to eligible respondents who had consented to participate in the study. The respondents were given enough time to fill the questionnaire. After completion, the questionnaires were collected. In case of any difficulty in filling the questionnaire, the researcher or research assistants assisted in clarifying the difficult part for ease of understanding. The data collection tool has been attached as an appendix to this thesis.

The study assumed that the respondents are proficient in English and would comprehend the questions well and would be open and honest in responding to the questions. The second step that collecting quantitive data in this study was by observing how the respondents assessed the patients with chest pain at the triage area. The researcher or research assistant joined and worked with the participants at triage room. The researcher/research assistant would then observe the nurses as they assess patient's chest pain and then fill the chest pain assessment observational check-list accordingly. This was carried out in the third and fourth weeks from the time they consented to participate in the study with a believe that they would have gone back to their usual practice in case they had changed their practice after learning that they are being studied or watched.

Regarding collection of qualitative data an In-depth face to face interview was conducted by the researcher on four purposely selected key informants using a semi-structured interview guide after consenting to participate in the study. All the conversation was tape recorded in order to get all the details of the interview.

3.13 Data Management

After collection of questionnaires, the principal researcher verified them for accuracy and completeness. Information captured in the questionnaires was entered into the Microsoft excel program. Data cleaning was validated periodically and then all the data was merged to one complete data base. Two backup copies were maintained. The errors identified during validation exercise were confirmed by checking on the hand copy questionnaire. All the filled questionnaires were stored in a lockable cabinet by the researcher and access to it was restricted to authorized person only.

3.14 Data Analysis and Presentation

Quantitive data was entered and analyzed using SPSS version 21. Quantitative data was analyzed by use of correlation and regression of variables results. Inferential statistics, such as test of significance and coefficient correlations, was used in bivariate analysis. Qualitative data was cleaned and then analyzed using Nvivo software into themes and verbatim reporting. Data was presented by use of tables, graphs, and charts. To ensure anonymity and confidentiality the data electronic data was secured by use of password only known to the researcher and for the hard copies of data collected, they were kept in a safe under lock and key.

3.15 Ethical Considerations

Approval to conduct the study was sought from the Kenyatta National Hospital/ University Of Nairobi Ethics And Research Committee. Permission to access and carry out the study at Kenyatta National Hospital, Accident and Emergency department was granted by KNH research and program department. An informed consent was obtained from each and every respondent before data collection and only those who consented participated in the study. No participant was coerced or forced to participate in the study. All information obtained during the study was kept private and confidential since anonymity was observed. In addition, no

names or any other personal identification was used. Participants were allocated code numbers which was used throughout the study. The researcher/research assistant ensured that participants' individual responses were not linked to their names. That is, coded numbers ware used instead of names in the questionnaires. There was no direct benefit for those who participated in the study, either monetary or materially. There were no risks or harm involved in the study. Password was used to secure electronic data. Hand copies of collected data were kept under lock and key.

3.16 Study Limitations

This study cannot be generalized to other nurses working in accident and emergency departments in Kenya, but rather to only nurses working at the A& E, KNH.

3.17 Dissemination Plan

Report of the research findings was compiled, written and presented to the relevant stakeholders; UoN School of Nursing for examination purposes; International peer reviewed journal for publication; Kenyatta National Hospital management to inform and influence policy change and KNH/UoN Ethics Review Committee as an executive summary of research work.

CHAPTER FOUR: RESULTS

4.1 Introduction

The purpose of this study was to determine the nurse's practices in assessment and initial management of cardiac related chest pain among adult patients in the accident and emergency department at Kenyatta National Hospital. To achieve this, the researcher broke down the study into four key objectives: to determine assessment interventions on patients with acute chest pain by nurses; to determine nurses' ability to interpret assessment findings indicative of myocardial ischemic chest pain; to assess nurses' initial management interventions on patients suspected to have cardiac chest pain and finally to determine challenges faced by nurses in the assessment and management of cardiac related chest pains.

This chapter focuses on the analysis of data collected, its presentation and interpretation by the researcher and is organised around the four objectives. The raw data was analysed using Excel Spreadsheets and SPSS statistical software version 21.0. The results of this analysis have been summarised and presented in the form of charts and tables. Interpretation of the data makes use of both descriptive and inferential statistics.

4.2 Response Rate

The study targeted nurses working in the accident and emergency department at Kenyatta National Hospital. The sample size chosen was sixty two for the quantitative study and four for qualitative study. The 62 nurses were randomly chosen from a population of 73 nurses. From 62 targeted nurses, feedback was received from fifty eight (58) nurses, resulting in a response rate of 94%. Data from four (4) respondents was not received, forming 6% of the target group.

4.3 Demographical Data

This section is concern with outlining and presenting the findings obtained from the questionnaires distributed to and received back from the respondents. The analysis relied on the information from the respondents so as to classify the different results according to their knowledge and responses.

Of the respondents, 41 %(n=24) were aged between 41-50 years, followed by 31 %(n=18) aged between 31-40 years, those aged more than 50 at 19%(n=11) and finally those aged 20-30 years at 9%(n=5). The respondents were comprised of 40, (69%) female nurses and 18, (31%) male nurses.

The majority, 78 %(n=45) of the respondents were the Kenya Registered Community Health Nurses (KRCHNs), 19% (n=11) Bachelor of Science in nursing holders and 3 %(n=2) Enrolled Nurses.

A large proportion (80%) of the nurses had practiced for over 10 years; 9% (n=5) for 1-5 years, 12 % (n=7) 6-10 years, 21% (n=12), 26% (n=15) and 33% (n=19) between 11-15 years, 16-20 years and above 20 years respectively. Majority, 79%, had worked in the accident and emergency department for less than 10 years, with 45 % (n=26) having worked for between 1-5 years and 34% (n=20) between 6-10 years. Nine 9% (n=5), 7% (n=4), and 5% (n=3) had worked between 11-15 years, 16-20 years and > 20 years respectively.

Majority (62% (n=36) of the respondents had specialised qualifications while 38% (n=22) did not have specialised qualifications. Of the specialised nurses, thirty (30) had specialised in accident and emergency nursing, 5 critical care nursing and 1 stoma wound care and continence management nursing. Majority (91 %(n=53) of the respondents had undergone training on basic life support, 69% (n=40) advanced life support, and 43 %(n=25) advanced trauma life support, 38% (n=22) GRASPIT and 28% (n=16) paediatric advanced life support.

Table 4.1: Demographic Characteristics of the Respondents

DEMOGRAPHIC VARIABLES	FREQUENCIES	PERCENTAGE
Age (in years)		
20-30	5	9%
31-40	18	31%
41-50	24	41%
Above 50	11	19%
Gender		
Male	18	31%
Female	40	69%
Professional qualification		
Enrolled Nurse	2	3%
KRCHN	45	78%
BSCN	11	19%
Masters In Nursing	0	0%
PHD	0	0%
Years of practice as a nurse		
1-5 years	5	9%
6-10 years	7	12%
11-15 years	12	21%
16-20 years	15	26%
Above 20 years	19	33%
Years of worked in the A& E department		
1-5 yrs.	26	45%
6-10 yrs.	20	34%
11-15 yrs.	5	9%
16-20 yrs.	4	7%
Above 20 yrs.	3	5%
Specialized qualification		
Yes	36	62%
No	22	38%
Type of Specialized Qualifications		
A & E Nursing	30	83%
Critical Care Nursing	5	14%
Other (stoma wound care)	1	3%
Have life support course		
Yes	56	97%
No	0	0%
Type of Life Support Course		
Basic Life Support	53	91%
Advanced Cardiac Life Support	40	69%
Advanced Trauma Life Support	25	43%
Pediatric Advanced Life Support	16	28%
GRASPIT	22	38%

4.4. Encounter with Chest Pain Patients

Majority (57%, n=33) of respondents had encountered patients' with chest pain very often; 12% (n=7) always and 28% (n=18) sometimes.

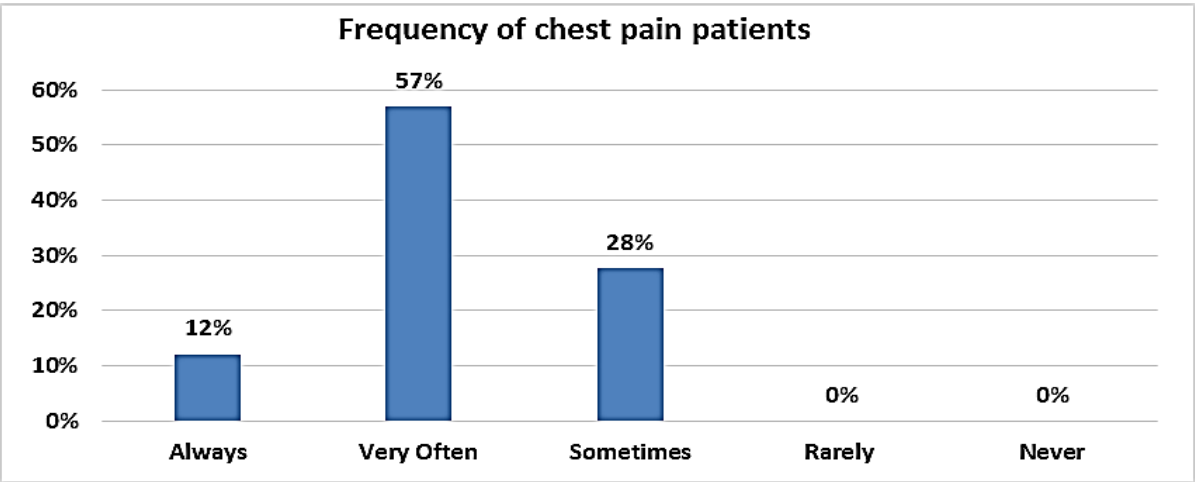


Figure 4.1: Report (Frequency) of Chest pain patients

4.5: Availability of Chest Pain Protocol

Of the respondents, 46% (n=27) reported that there was a chest pain protocol in the department, 38% (n= 22) reported that there was no protocol while 16% (n=9) said that they did not know.

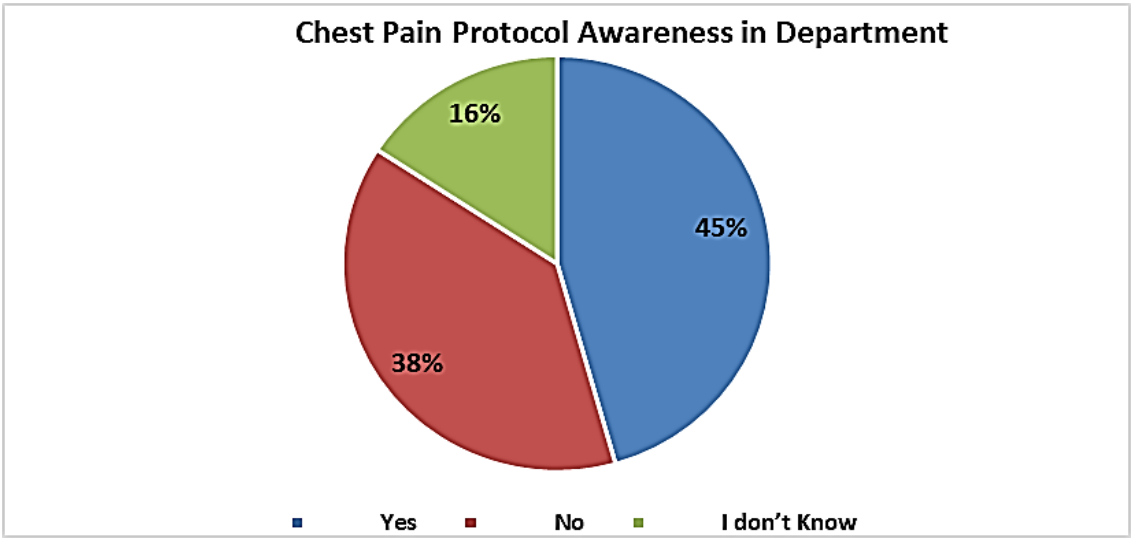


Figure 4.2: Availability of Chest Pain Protocol

4.6: Training on Assessment and Immediate Care of Chest pain Patients

Of respondents majority (57% n=33), had not undertaken training on assessment and immediate care of cardiac chest pain while (43% n=25) had undertaken the same training in the previous 2 years.

Table 4.2: Training on Assessment and Immediate Care of Cardiac Chest Pain

Training on Assessment and Immediate Care of chest pain	Frequency	Percentage
Trained	33	57%
Not Trained	25	43%

4.7: Obtaining Relevant Information Related to Acute Chest Pain

An average of 47% (n=27) of nurses reported that they always obtained all the relevant information, 27% (n=16) very often, 18% (n=10) sometimes, 7% (n=4) rarely and, 1% (n=1) never.

Table 4.3: Frequencies of obtaining relevant information

Information on Chest Pain	Frequency					Percentage				
	Always	Very Often	Sometimes	Rarely	Never	Always	Very Often	Sometimes	Rarely	Never
Location of pain	37	16	4	1	0	64%	28%	7%	2%	0%
Onset of chest pain	36	15	7	0	0	62%	26%	12%	0%	0%
Any Treatment given or by self	30	18	6	2	2	52%	31%	10%	3%	3%
Severity of chest pain	32	16	6	3	0	55%	28%	10%	5%	0%
Duration of pain	34	12	11	1	0	59%	21%	19%	2%	0%
Characteristics of chest pain	31	14	9	4	0	53%	24%	16%	7%	0%
Relating(associated) Symptoms	20	20	15	3	0	34%	34%	26%	5%	0%
Relieving Factors	20	16	14	8	0	34%	28%	24%	14%	0%
Aggravating factors	22	11	20	5	0	38%	19%	34%	9%	0%
Risk factors of CAD	12	19	14	12	1	21%	33%	24%	21%	2%
Average Scores						**47%**	**27%**	**18%**	**7%**	**1%**

4.8: Actions (Roles) Carried Out by Nurses' Once Cardiac Chest Pain Is Suspected

Nurses reported to have always been carrying out two roles: obtaining vital signs and fast tracking patients, with weighted average score of 4.7 and 4.6 respectively.

Nurses also often performed seven roles: intravenous cannulation (4.3) reassuring patients (4.3) assigning patient to triage category (4.3), attaching patient on cardiac monitor (4.2), obtaining blood samples for cardiac enzymes and other baseline investigations (3.7).

Evaluating patients for risk factors, performing ECG procedure; interpreting electrocardiogram were sometimes performed with each role recording a weighted average score of 3.2 and 2.7 respectively.

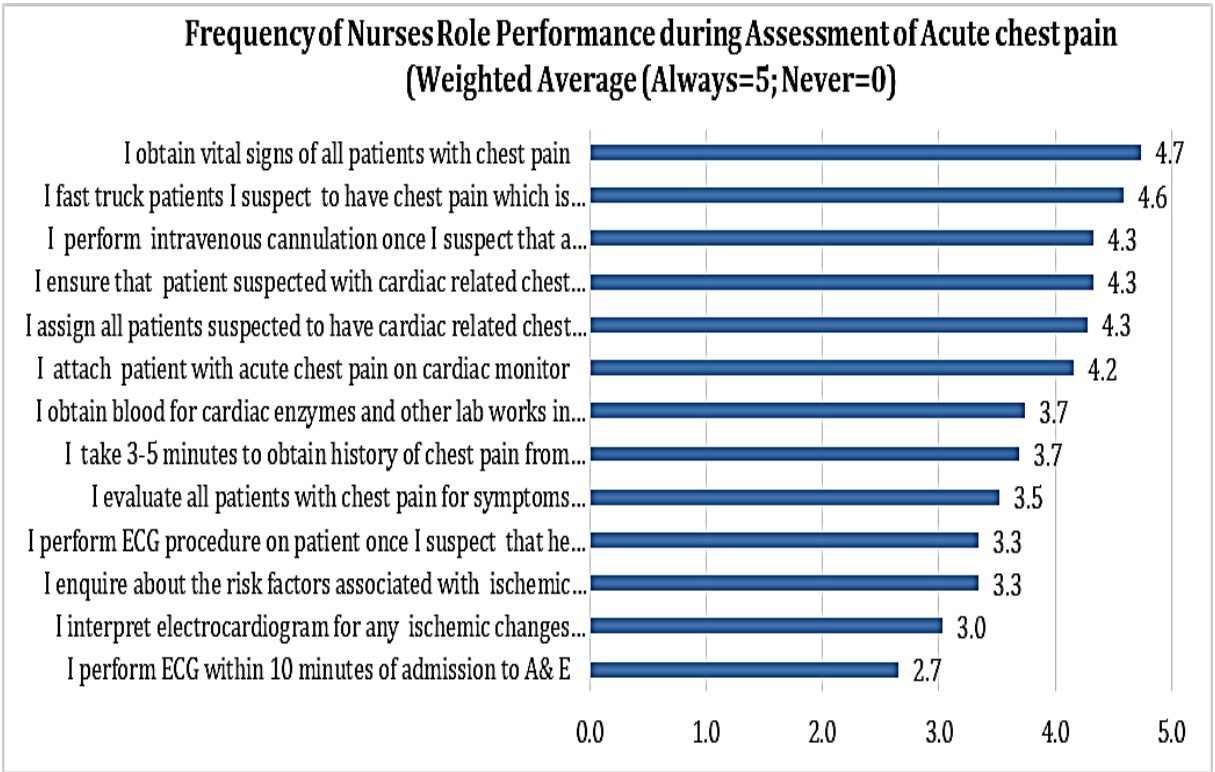


Figure 4.3: Weighted Average of Nurses Specific Actions (Roles) Undertaken after Suspecting Cardiac Chest pain in a Patient

4.9. Nurses' Ability to Interpret Assessment Findings in Patients' With Chest Pain.

4.9.1 Ability to Categorize Cardiac and Non Cardiac chest pain

Seven out of 10 cases of patients with chest pain were correctly interpreted as either cardiac or non-cardiac. Majority (83%) of respondents were able to correctly interpret 7 out of 10 cases of patients: three out of five cardiac cases and four out of five non-cardiac cases.

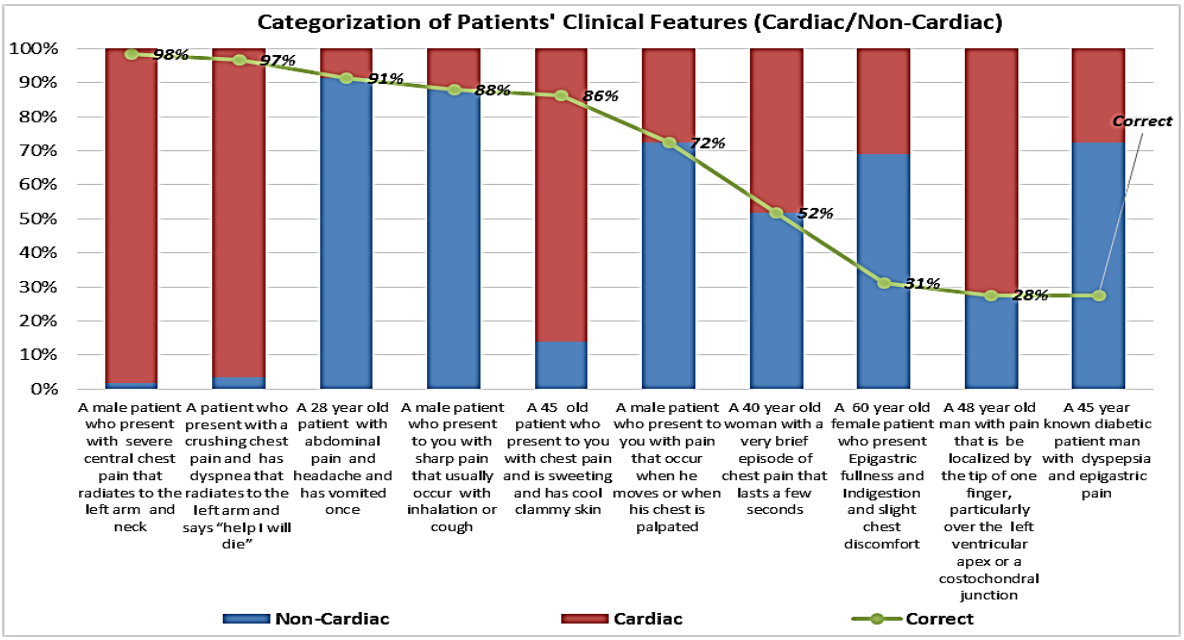


Figure 4.4: Categorization of Clinical Features into Cardiac and Non Cardiac

4.9.2: Ability in Determine Normal and Not-Normal ECGs

An average of 61% (n= 42) of the nurses identifies all the three ECGS correctly, while 39% (n=16) identified them incorrectly.

Table 4.4: Response rate on categorization of ECGs as Normal and Not-Normal

ECGs	Key Features	Correct	Incorrect
ECG1	ST Elevation	49 (84%)	9 (16%)
ECG2	Both ST Depression & T. wave inversion	42 (71%)	16 (28%)
ECG3	Normal Sinus Rhythm	34 (57%)	24 (42%)
Average Scores		**61%**	**39%**

4.9.3: Ability to Interpret the 12 Lead ECG Rhythm

An average of 61% (n=35) of nurses interpreted ECGs incorrectly while only an average of 39% ((n= 23) of nurses interpreted the ECGs correctly.

Table 4.5: The 12 lead ECG Rhythms Interpretation

ECGs	Key Features	Normal Sinus Rhythm	ST Elevation	ST Depression	T wave inversion	ST Dep. & T. wave Inv.	Correct	Incorrect
ECG1	ST Elevation	8 (14%)	32 (55%)	11 (19%)	2 (3%)	5 (9%)	32 (55%)	26 (45%)
ECG2	Both ST Depression & T. wave inversion	18 (33%)	5 (9%)	16 (26%)	11 (18%)	8 (14%)	8 (14%)	50 (86%)
ECG3	Normal Sinus Rhythm	28 (47%)	16 (28%)	3 (5%)	7 (12%)	4 (7%)	28 (47%)	30 (53%)
Average Scores							39%	61%

4.10: Association between Demographic Variables, Obtaining Relevant Information and Nursing interventions.

The regression table 4 shows that there is an association between years of practice as a nurse (p-value =0.005), and obtaining relevant information and performing the nursing role. There is negative association between years of work in A & E Department (p= 0.019) and obtaining relevant information and performing nursing intervention. Having BScN (P= 0.000) has association between obtaining relevant information and performing nursing interventions. Furthermore a higher diploma in A&E nursing (p= 0.001) and critical care nursing (p=0.048) is associated with obtaining relevant information and performing nursing interventions. Having Advanced Trauma Life Support course (p=0.022) has a negative association with obtaining relevant information and performing nursing roles while that of having paediatric advanced life support (p=0000 has a positive association with obtaining relevant information and nursing interventions.

Table 4.6: Regression Output table showing Association between demographic variables and obtaining information and Nursing Intervention

Variables	Coefficients(X^2)	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2.295	4.302	0.000	1.219	3.371
Age	-0.001	-0.046	0.963	-0.037	0.036
Gender (Female=1)	0.321	2.023	0.049	0.001	0.642
Years practice N.	0.127	2.990	0.005	0.042	0.213
Years worked AE	-0.078	-2.435	0.019	-0.142	-0.013
Enrolled Nurse	1.183	2.240	0.030	0.118	2.248
KRCHN	0.024	0.092	0.927	-0.500	0.548
BScN	1.413	3.890	0.000	0.681	2.146
A & E Nurse	0.711	3.732	0.001	0.327	1.095
CC Nursing	0.521	2.033	0.048	0.004	1.037
BLS	0.079	0.311	0.758	-0.436	0.595
ACLS	0.116	0.674	0.504	-0.231	0.463
ATLS	-0.470	-2.376	0.022	-0.868	-0.071
PALS	0.814	4.028	0.000	0.406	1.221

4.11 Association between Demographic Variables and Ability to Interpret ECG Rhythm

The regression results shows that there is no association between nurses demographic variables and their ability to interpret ECG rhythms (P >0.05).

Table 4.7: Regression Output Table showing Relationship between Nurses' Demographic Variables and Ability to Interpret ECG Rhythm.

	Ability to Interpret ECG Rhythm	
Variables	Coefficients	P-value
Intercept	1.3	0.4
Age	0.0	0.5
Gender (Female=1)	0.2	0.6
Years practice N.	0.2	0.1
Years worked AE	-0.1	0.2
Enrolled Nurse	0.2	0.9
KRCHN	-0.2	0.8
BScN	1.7	0.1
A & E Nurse	0.2	0.7
CC Nursing	-0.4	0.5
BLS	0.7	0.3
ACLS	0.1	0.9
ATLS	-0.1	0.8
PALS	-0.3	0.6

4.12: Association between Obtaining Relevant Information, Identification of Chest Pain and Ability Interpretation of ECG Rhythms

There is also an association between obtaining relevant information (0.022) and identification of cardiac and non-cardiac chest pain patients. There is no association between Nurses' assessment practice and correct interpretation of ECGs.

Table 4.8 Correlation Output Table Showing Association between Obtaining Relevant Information, and Identification of Cardiac Related Chest Pain and Interpreting ECG Rhythms

Variables	Obtaining Relevant Information	
	Coefficients	P-Value
Ident. (1) Cardiac Related Chest Pain	0.29947100	0.02238661
Ident. (2)Correct Rhythm Interpretation	0.12848482	0.33645063

4.13: Nurses' Practices Pattern in Managing Patients with Cardiac Chest Pain

Regarding the management practices all respondents (100%) reported that they immediately attached patients on cardiac monitor, obtained vital signs and reassured the patients and inform them of the care to expect. Of the respondents, 84% administered aspirin; nitroglycerin or morphine only after patient has been seen by the doctor and 79% fast tracked the patients to consult the doctor before doing the 12 lead ECG.

Majority (74%) of the respondent reported that they performed ECG only after the patient is seen by the doctor and ECG ordered, 73% connected the patients on oxygen when saturation levels fell below 93 %, 64% continued with monitoring of vital signs and obtaining ECG trace and 57% of the respondents and ensure that blood samples are taken to the laboratory after the patient is review by the doctor.

Of the respondents, 45% reported that they performed and analyzed initial 12 lead ECGs before the patients are seen by the doctor, 43% fast tracked patients back for doctor's review, 36% interpreted ECG changes before taking the patients back to consult the doctor and 28% performed the intravenous cannulation to obtain blood samples.

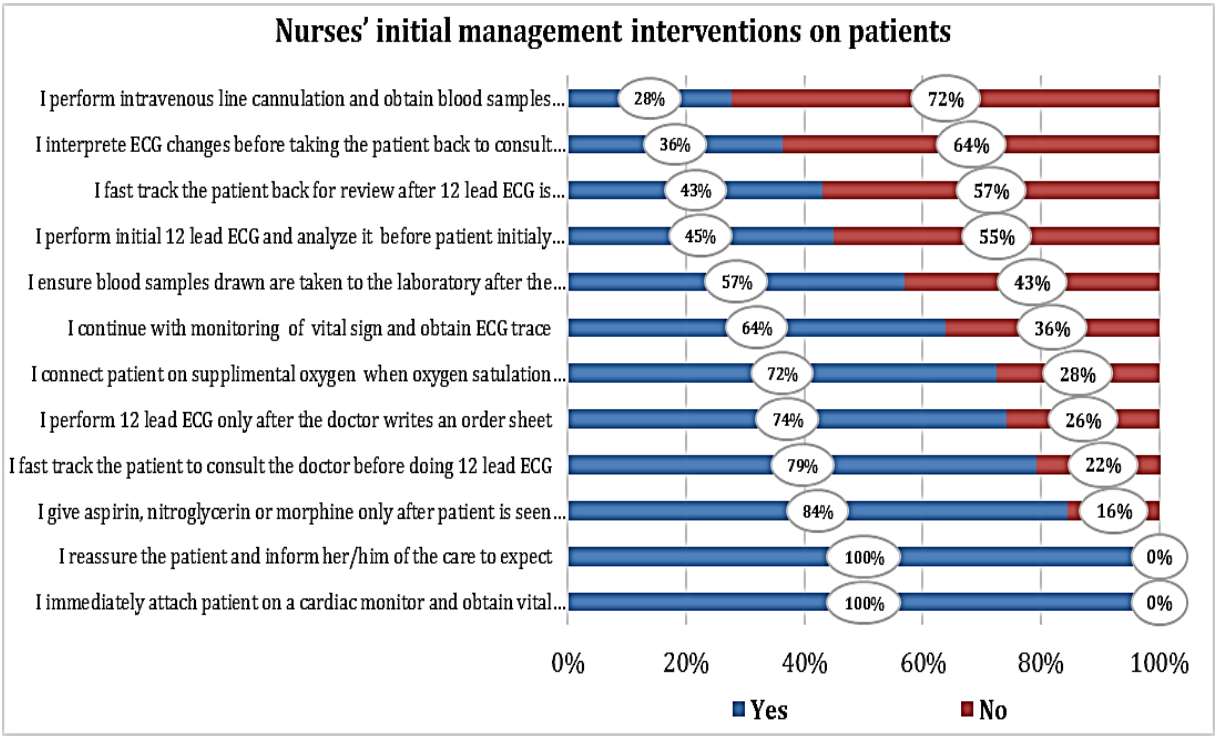


Figure 4.5: Frequencies of Nurses' Practice in Managing Patients with Cardiac Chest Pain

4.14. Qualitative Data Analysis Results

The fourth objective of this study was to determine the challenges encountered by nurses in the assessment and initial management of patients with acute chest pain. To achieve this objective the researcher conducted in-depth interview on four key informants. The interviews were guided by the following topical areas: experience with assessment for cardiac related chest pain; and the challenges encountered by nurses in assessment and initial management of adult.

4.14.1 Nurses Experience in Assessment of Cardiac Related Chest Pain.

Regarding assessment for cardiac chest pain, all the key informants indicated that the number of cardiac related chest pain patients is on the rise in the accident and emergency department.

“Nowadays we are seeing numbers that we have never seen before. Currently we are getting quite a significant numbers: the tread is changing” (Key informant no 3)

“We see many patients coming with chest pain nowadays although all of them are not cardiac related” (key informant 1)

4.14.2 Practice in Assessment of Cardiac related Chest Pain

When asked to describe on how nurses’ assess patients for cardiac chest pain, all the key informants reported that nurses were not consistent in their approach to the assessment.

“1 would say that the assessment is either done inconclusively or not done at all. Because at one time you will get a patient come and someone just does a formality to write chest pain, triage the patient and forward the patient to the next step which is registration, actually without taking detailed history of that particular pain. So even if that patient asks for may be describe for the description of pain he would ask one or two but in most circumstances they would just take that presenting symptoms which is chest pain and that is it forward than patient. So i feel it is not conclusively done” (Key informant 2)

The key informants were asked to describe the process they follow in order to determine that the patient has cardiac or non-cardiac related chest pain. They said that they use a tool called PQRST mnemonics as a guide to asking patient specific questions regarding the chest pain.

”so once they say they have chest pain, there are certain questions that you would want to ask about the kind of pain they have, whether its dull pain, what duration the pain has been there, where it is radiating to, “what they have done so far to take care of that pain” or whether it’s

something that it is new and whether they are on “any medication that may have been prescribed for managing that particular chest pain” (key informant 1).

4.14.3 Challenges Encountered by Nurses in Assessment and Initial Management of Adult Patients with cardiac related chest pain

When asked to describe the challenges that nurse encounter during assessment and management of patients with chest pains the key informants described the following major themes as outlined below:

a. Work load

Heavy workload was reported by one key informant to sometime overwhelm nurses at the triage area which caused nurses to deliberately avoid chest pain assessment and instead leave it to the doctor.

“Some other nurses are reluctant to evaluate chest pain, so they leave that role to someone else who is likely to be the doctor because sometimes when they are overwhelmed at the triage area and if they are to do this role then they may take a very long time” (Key informant 1)

“There is always pressure in the department. Patients are waiting for long and everyone wants to be seen very first so that one comes into play; and someone gives in to that pressure and just clears the queue while not doing exactly what they are supposed to do. (Key informant no 4)

b. Negative attitude towards ECG

All the informants reported that there was a negative attitude among nurses in the accident and emergency department. They held a belief that ECG interpretation is difficult and as consequence, these nurses could not even attempt to perform and interpret the ECG.

“Sometimes there is a feeling that ECG is a bit hard to interpret so that they may not be able to use some of this equipment like the ECG to be able to tell that this problem is cardiac in nature or not” (Key informant no 1)

“…….you know what is supposed to be done but you are simply not doing it .i think this is an attitude problem. Isn’t it?” (Key informant no 2)

c. Lack of knowledge and skills of performing and interpreting ECG

The other challenge that was mentioned by the key participant was lack of knowledge and skills on performing and interpreting ECG. All the key informants reported that some nurses do not have the knowledge of performing and interpreting the 12 lead ECG on patients with chest pain. They also reported that some nurses have neither trained in accident and emergency nursing nor advanced cardiac life support training or even any course on interpretation of ECGS.

“Some of them are not trained in accident and emergency nursing, so even being able to objectively judge that they should do a 12 lead ECG on patient who present with chest pain is a problem” (Key informant 3)

“They have not gone through advance cardiac life support training or training on how to interpret ECG reading. So that means that they do not have the capacity” (Key informant 4)

“Yes. They may not be able to use some of this equipment like the ECG to be able to tell that this problem is cardiac in nature or not” (Key informant 1)

d. Lack of policy guidelines or standard operating procedure on electrocardiogram

The other challenge that was reported by all key informants was lack of policy guidelines or standard operating procedure on performing ECG and interpreting them.

"There is nothing written in terms of, we need to do one,two,three; so it's not written any where.so we rely on knowledge we have from literature, books we have read or training we have undergone where we came from ,to do what we do" (Key informant 2)

"You know; there is no policy that is supposed to be followed. So, they don't know what they are supposed to do" (Key informant 1)

"I will put it this way; there is no any policy document that guide nursing care of chest pain patients so that nurses are aware of who does what this patients" (Key informant 4)

"As far as i know, there is no policy which is developed by the organization itself regarding care of chest pain patients. What could be there is from emergency medicine Kenya foundation that have algorithms on how chest pain should be managed and do not specify on area nurses should address. Because of the organization unique nature it need to develop its policy or sops on who does what in the care of chest pain patients" (Key informant 3)

e. Lack of administration support

All key informants reported lack support from administrators as one of the challenges affecting nurses in the department. They reported that the hospital has employed many locum nurses, who are not trained in emergency nursing. They also reported that when administrators are doing staff allocation at the triage area they don't factor in the nurses' ability to perform and interpret ECG

"You know, there is perception that any nurse can triage patients at the triage area. So they don't even consider whether the nurses is able to perform and interpret an ECG or not. They just allocate" (Key informant 3)

“But it is just because in terms of allocation it is not put into consideration by the administrators of the department that we require to have nurses who can be able to do twelve lead ecg reading interpretation at any point” (Key informant 4)

All the key informants reported that the department has only one electrocardiograph machine which breaks tend to break quite often. They reported that the administration take long time to have the machine repaired which compromise care of patients in need of ECG.

“We have one electrocardiogram machine in the department and what I have experience in the past is that “sometimes it breaks down; sometimes it does not have paper”. So these facilities should be availed adequately at the point of use so that nurses can be able to use them” (key informant 2)

CHAPTER FIVE: DISCUSSION, CONCLUSION & RECONMENDATIONS

5.1: Discussion

5.1.1: Social-demographic characteristics

In this study, majority of the respondents were female and about half were male. This is in line with the findings of a study on Kenya nursing workforce which showed that majority of Kenya nursing workforce is comprised of female(Martha Rogers, 2012). This imply that the views expressed in this findings are gender sensitive and can be taken as representative of both genders. Similarly most of nurses were aged 40 years and above with majority falling within age bracket of between 41 to 50 years.

In this study also, majority of nurses were the Kenya registered community health nurses, and those specialised in accident and emergency nursing diploma. However, a significant number of nurses lacked specialised qualification. This findings are comparable to a study done in Kenya which should that Kenya registered community health nurses comprise 57.8% of the Kenya nursing workforce while degree level nurses comprise 3.0% (Martha Rogers, 2012)

This study also revealed that majority of nurses working in A&E Department were adequately experienced both in nursing profession and in the accident and emergency department.

This study established that chest pain was often a common cause of patients visit in the accident and emergency department. Therefore nurses need to be prepared to handle this patient with need. This study found out that majority of nurse are trained on life support courses- basic life support and advanced life support. However, nurses working in the department were not trained specifically for assessment and management of cardiac chest

pain. Furthermore majority were not aware that a chest pain protocol existed in the department which they could use in managing chest pain in the department. Infact some reported that chest pain protocol never existed at all while others reported that they did not know.

5.1.2: Obtaining relevant information related to cardiac chest pain

The study on the nurses' practice on obtaining relevant information revealed that the process of obtaining relevant subjective information was varies among nurses. It therefore emerge that although most of the nurses do not always obtain all the relevant information, majority of them tend to always rely on information on location of chest pain, onset of chest pain, treatment administered, severity of chest pain, and duration of chest pain to decide whether chest pain patients have cardiac or non-cardiac chest pain.

5.1.3: Nurses' roles performance upon suspecting cardiac related chest pain.

This research also established that nurses had varied role performance when taking care of patients suspected to have cardiac related chest pain. However they were consistent in always performing two roles: obtaining vital signs and fast tracking patients. Other roles were performed often or sometimes.

5.1.4: Nurses ability to categorize cardiac or non-cardiac chest pain

In this study, nurses generally were able to categorize cardiac chest pain from non-cardiac chest pain using clinical features nurses were able to correctly identify seven (7) out of 10 cases of patients

5.1.5: Nurses ability to interpret ECG rhythms

This research established that most of the nurses working in the emergency department were generally able to correctly identify normal and not normal ECGs. However, majority of nurses were generally not able to interpret ECG rhythm correctly. This study findings is comparable to findings of a study where 79 % of nurses were able to correctly identify 12 lead ECGs with a STEMI pattern, but none were able to fix the correct leads, identify the anatomical location or identify the amplitude of ST elevation (Pelter et al., 2016). A study done separately in Denmark found out that nurses lacked competence in recognizing cardiac rhythms (Hernández-Padilla et al., 2017).

5.1.6: Nurses' practice on initial management interventions

The study on initial management intervention revealed that nurses have varied initial intervention approaches. All nurses reported that they always carried out three actions: attaching patients on cardiac monitor immediately, obtaining vital signs and reassuring and informing patients of what care to expect. Moreover, majority preferred to administer MONA only after patient is seen by the doctor, fast track the patient to be seen by the doctor before doing the 12 lead ECG and perform ECG only after the patient is seen by the doctor and ECG ordered, connect the patient on oxygen when saturation levels fall below 93 %, continue monitoring vital signs and to obtain ECG trace, and to ensure that blood samples are taken to the laboratory only after the patient is review by the doctor. This variation in interventional approaches to cardiac chest can be attributed to poor or lack of utilization of chest pain protocol. This findings are consistent with a study done in South Africa which revealed that nurses who did not use chest pain protocol had varied treatment approaches to patients with cardiac related chest pain (Pelter et al., 2016).

Regression findings in this study revealed that nurses with more years of experience were more likely to perform better in obtaining relevant information and performing nursing roles. However, nurses who had worked more years in the accident and emergency department tended to perform poorly in obtaining relevant information and performing nursing roles

Nurses with degree in nursing, higher diploma in A&E nursing, higher diploma in critical care nursing, Paediatric Advanced Life Support, were likely to perform better in the practice of obtaining relevant information and performing nursing roles.

As regard study also established that challenges experience by nurses in assessment and management of cardiac chest pain as follows: Lack of knowledge and skills of performing and interpreting ECG, work load, negative attitude towards ECG, lack of administration support, and lack of policy guidelines or standard operating procedure on electrocardiogram

5.2 Conclusion

The results of the study show that nurses working in the emergency department very often encountered patients with acute chest pain. Although majority of nurses were able to evaluate and categorise chest pain as cardiac or non-cardiac using clinical features and identify a normal and not normal ECG, they were generally not able to correctly interpret the specific 12 ECG rhythms which could help confirm or rule out whether the chest pain is cardiac related or not.

The study also revealed that the more experienced the nurse was, the better they were in obtaining relevant information and performing the nursing roles. However, the more nurses stayed in accident and emergency department, the less likely they were to obtain all relevant information and all perform nursing roles. This shows that there need to rotate nurses to other units.

This study also found out that having a KRCHN qualification does not guarantee better performance in obtaining relevant information and performing nursing roles. However, having a BScN, higher diploma in accident and emergency nursing and higher diploma in critical care nursing does improves the performance of obtaining relevance information and perform nursing roles. This is comparable to a study carried out in Britain and established that nurses with higher professional qualification and those who and greater number of hours of practicing risk stratification gave better results in assessment and management of patients with cardiac chest pains (Rathod, Ward, & Farooqi, 2014). Therefore there is need to encourage the KRCHN, to pursue BScN, accident and emergency or critical care nursing.

Nurses with BScN qualification and accident and emergency nursing specialization or critical care should be the ones allocated at the assessment areas. The study also established that ACLS training has no statistically significant relationship regards obtaining relevant information and performing nursing roles. Therefore there is need to emphasize on application of acls skills in the clinical practice.

This research also demonstrated the need of training nurses on assessment and immediate care of cardiac related chest pain since majority had not received training in the last two years. Moreover, there is need to create awareness among nurses regarding the chest pain protocol in the department since majority of them were not aware that chest pain protocol existed.

This study also demonstrated varied role performance among nurses in the initial management of cardiac related chest pain. This could be due to lack of awareness of chest pain protocol and non-existence of policy guidelines that guide management of chest pain in the department.

5.3 Recommendation

Based on study findings the following recommendations are made as follows;

Nurses should be trained on assessment and immediate care of cardiac related chest pain particularly addressing interpretation of electrocardiogram.

There is need to rotate nurses working in the accident and emergency department to other department

Nurses should be sensitized on chest pain protocol in the accident and emergency department and trained on how to use them.

There is need to develop a policy guideline that will guide healthcare provider on management of chest pain

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APPENDICES

APPENDIX 1-INFORMATION SHEET AND CONSENT FORM

A: PARTICIPANT INFORMATION SHEET- A: CONSENT FOR PARTICIPATING IN RESEARCH (FILLING IN QUESTIONAIRE)

Introduction: My name is **Girishon Njoroge Chege**. I am a student at the School of Nursing Sciences, University of Nairobi pursuing a Master of Science Degree in Nursing. I am conducting a study titled: **Determination of Nurses' Practice in Assessment and Initial Management of Cardiac Related Chest Pain among Adult Patients, KNH.** The purpose of this information is to give you details pertaining to the study that will enable you make an informed decision regarding participation. You are free to ask questions to clarify any of the aspects we will discuss in this information and consent form. I will also ask you questions regarding the study before you sign the consent form to ascertain your comprehension of the information provided.

Background and objective: the purpose of this study is to determine the nurses' practice in assessment and initial management of cardiac related chest pain in the emergency department

Participation: Participation in the study will entail answering questions in the questionnaire.

Benefits: There is no direct monetary benefit in participating in this study. However, the results of the study will be useful in facilitating the understanding of the nursing practice in the assessment and initial management of the cardiac related chest pain in the accident and emergency department, KNH.

Risks: There are no economic or physical risks to participating in the study. However, you will take some time off your schedule approximately 10-20 minutes to respond self-administered questionnaire from the researcher.

Confidentiality: Confidentiality will be maintained and the information you provide will only be used for the intended purpose of the study. In addition, your name will not be required on any forms or used during publication of the final report thus ensuring your anonymity. All materials used during the study will be under lock and key and only the personnel involved in this study will have access to them. Electronic files will be saved on password and fire-wall protected computers.

Voluntary participation: Participation in this study is voluntary. Refusal to take part will not attract any penalty. You retain the right to withdraw from the study without any consequences. You are free not to answer any question in the questionnaire

Compensation: There is no compensation for participating in the study.

Conflict of interest: The researcher and the supervisors confirm that there is no conflict of interest amongst them.

B: PARTICIPANT INFORMATION SHEET: CONSENT FOR PARTICIPATING IN RESEARCH (INTERVIEW WITH AUDIOTAPING)

Title of the study: Determination of Nurses' Practice in Assessment and Initial Management of Cardiac Related Chest Pain among Adult Patients, KNH.

Introduction and purpose: My name is **Girishon Njoroge Chege.** I am a student at the School of Nursing Sciences, University of Nairobi pursuing a Master of Science Degree in Nursing. I would like to request you to participate in the research I am conducting entitled: **Determination of Nurses' Practice in Assessment and Initial Management of Cardiac Related Chest Pain among Adult Patients, KNH.** The goal of conducting this research is to help improve the quality of care of patients with cardiac related chest pain in the accident and emergency department.

Study Procedure: If you agree to participate in research, I will conduct an interview with you at a time and location of your choice. The interview will involve questions about Nurses' practice in assessment and initial management of cardiac related chest pain among adult patients at Kenyatta National Hospital. It should last about 20 minutes. With your permission, I will audiotape and take notes during the interview. The recording is to accurately record the information you provide, and will be used for transcription purposes only. If you choose not to be audiotaped, I will take notes instead. If you agree to be audiotaped but feel uncomfortable or change your mind for any reason during the interview, I can turn off the recorder at your request. Or if you don't wish to continue, you can stop the interview at any time.

Benefits: There is no direct monetary benefit in participating in this study. However, the results of the study will be useful in facilitating the understanding of the nursing practice in the assessment and initial management of the cardiac related chest pain in the accident and emergency department, KNH.

Risks: There are no economic or physical risks to participating in the study. However, you will take some time off your schedule approximately 10-20 minutes to respond to the interview questions from the researcher.

Confidentiality: Confidentiality will be maintained and the information you provide will only be used for the intended purpose of the study. In addition, your name will not be required on any forms or used during publication of the final report thus ensuring your anonymity. All materials used during the study will be under lock and key and only the personnel involved in this study will have access to them. Electronic files will be saved on password and fire-wall protected computers. Neither your name nor any other identifying information will be associated with the audiotape or the transcript. Only the researcher with be able to listen to the tapes. The tapes will be transcribed by the researcher and erased once

the transcriptions are checked for accuracy. Transcriptions of the interview may be reproduces in whole or in part for use in the presentations or written products that results from the study. Neither your name nor any other identifying information (such as your voice) will be used in presentations or in writing products resulting from the study.

Compensation: There is no compensation for participating in the study.

Conflict of interest: The researcher and the supervisors confirm that there is no conflict of interest amongst them.

Voluntary participation: Participation in this study is voluntary. Refusal to take part will not attract any penalty. You retain the right to withdraw from the study without any consequences. You are free not to answer any question during the interview. Immediately following the interview, you will be given opportunity to have the tapes erased if you wish to withdraw your consent to taping or participating in the study

Questions: If you have any questions about this research, please feel free to contact

Girishon Njoroge Chege

Researcher Mobile Number: 0722660759

Email: gerishon99@gmail.com

You may also contact

The Chairman,

University of Nairobi- Kenyatta National Hospital Ethics and Research Committee

C: CONSENT FORM

If you Consent to Participate in the study please sign below:

I hereby consent to participate in this study. I have been informed of the nature of the study being undertaken and potential risks explained to me. I also understand that my participation in the study is voluntary and the decision to participate or not to participate will not affect my employment status at this facility in any way whatsoever. I may also choose to discontinue my involvement in the study at any stage without any explanation or consequences. I have also been reassured that my personal details and the information I will relay will be kept confidential. I confirm that all my concerns about my participation in the study have been adequately addressed by the investigator and the investigator has asked me questions to ascertain my comprehension of the information provided.

Participant's Name_____

Participant's Signature_____Date_____

I confirm that I have clearly explained to the participant the nature of the study and the contents of this consent form in detail and the participant has decided to participate voluntarily without any coercion or undue pressure.

Investigator Signature……Date……...

P.O BOX 19676 Code 00202

Tel :(254-020)-2726300 Ext 44355

Email: uonknh_erc@uonbi.ac.ke

Thank you very much for your time.

APPENDIX 2: QUESTIONNAIRE

DETERMINATION OF NURSES' PRACTICE IN ASSESSMENT AND INITIAL MANAGEMENT OF CARDIAC RELATED CHEST PAIN AMONG ADULT PATIENTS AT KNH

QUESTIONAIRE NUMBER_____

INSTRUCTIONS

SECTION A: DEMOGRAPHIC DATA

Please answer all the following questions in the space provided or tick in the box provided at the end of each choice

1. Age (in years)
   A. 20-30 ☐
   B. 31-40 ☐
   C. 41-50 ☐
   D. >50 ☐

2. Gender (please tick your correct answer) Male ☐ Female ☐

3. Marital status
   A. Single ☐
   B. Married ☐
   C. Divorced ☐
   D. Others (please specify)_____

4. Professional qualification
   A. Enrolled Nurse ☐
   B. KRCHN ☐
   C. BSCN ☐
   D. Masters ☐
   E. PHD ☐

5. How long have you been in practice as a nurse?

A. 1-5 years. ☐
B. 6-10 years ☐
C. 11-15 years ☐
D. 16-20 years ☐
E. >20 years ☐

6. How long have you worked in the A& E department?
   A. 1-5 yrs. ☐
   B. 6-10 yrs. ☐
   C. 11-15 yrs. ☐
   D. 16-20 yrs. ☐
   E. >20 yrs. ☐

7. Do you have a specialized qualification Yes ☐ No ☐
   If yes, which one?
   Accident and Emergency Nursing ☐
   Critical Care Nursing ☐
   Any other others_____

8. Have you done any life support course? ☐ YES ☐ NO

If yes which one?

A. Basic Life Support (BLS) ☐
B. Advance Cardiac Life Support (ACLS) ☐
C. Advanced Trauma Life Support (ATLS) ☐
D. Pediatric Advanced Life Support (PALS) ☐
E. GRASPIT ☐

9. Do you have a chest pain protocol in your department?

YES ☐ NO ☐ I don't know ☐

10. How often do you encounter patients with chest pain?
    A. Always ☐

B. Very Often ☐
C. Sometimes ☐
D. Rarely Never ☐

11. Have you ever had any training on assessment and immediate care of cardiac chest pain in the last two years? YES ☐ NO ☐

SECTION B: ASSESSMENT INTERVENTIONS ON PATIENTS PRESENTING WITH CHEST PAIN BY NURSES.

12: In Your Honest Opinion Indicate How Often You Obtain The Following Information When Evaluating Each Patient For Cardiac Related Chest Pain.

	Information	Always	Very Often	Sometimes	Rarely	Never
	Onset of chest pain					
	Location of pain					
	Duration of pain					
	Characteristics of chest pain					
	Aggravating factors					
	Relieving Factors					
	Relating(associated) Symptoms,					
	Any Treatment given or by self					
	Severity of chest pain					
	Risk factors of CAD					

13: **Indicate How Often You Perform the Following Nursing Roles on Each Patient with CAD Related Chest Pain during the Assessment Practice**

Nurses role performance during assessment of cardiac related chest pain	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**
I take 3-5 minutes to obtain history of chest pain from patient					
I enquire about the risk factors associated with ischemic heart disease when assessing patient for cardiac chest pain					

I evaluate all patients with chest pain for symptoms suggestive of acute coronary syndrome					
I obtain vital signs of all patients with chest pain					
I assign all patients suspected to have cardiac related chest pain an emergency triage category					
I attach patient with acute chest pain on cardiac monitor					
I ensure that patient suspected with cardiac related chest pain are attached on pulse oximetry					
I fast truck patients I suspect to have chest pain which is cardiac in nature to ensure immediate evaluation and treatment by the doctor					
I perform intravenous cannulation once I suspect that a patient has cardiac related chest pain					
I obtain blood for cardiac enzymes and other lab works in patients I suspect to have cardiac related chest pain					
I perform ECG procedure on patient once I suspect that he she/has cardiac chest pain					
I interpret electrocardiogram for any ischemic changes before patient is seen by the doctor					
I perform ECG within 10 minutes of admission to A& E					

SECTION C: NURSES' ABILITY TO INTERPRET CHEST PAIN ASSESSMENT FINDINGS INDICATIVE OF THAT IT'S CARDIAC IN ORIGIN

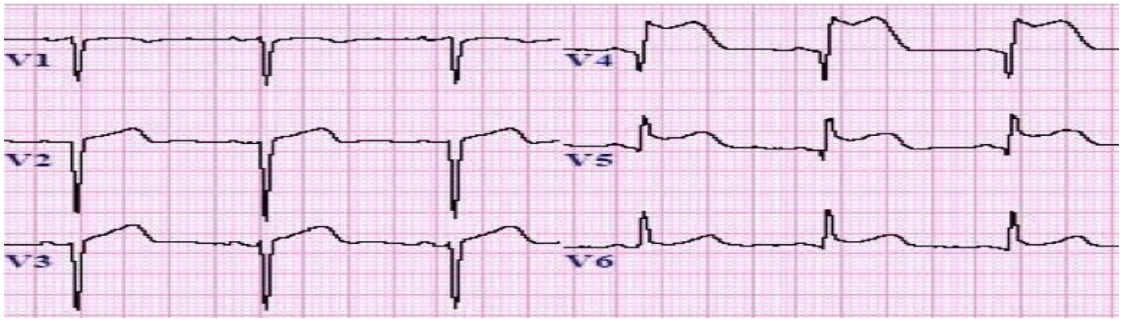
14 Indicate how you would categorize the following patients with chest pain when they present to you in the accident and emergency department. Indicate if the chest pain is cardiac or non-cardiac in origin.

Clinical Feature Of Acute Chest Pain	CARDIAC	NOT CARDIAC
a) A male patient who present to you with sharp pain that usually occur with inhalation or cough		

b) A male patient who present with severe central chest pain that radiates to the left arm and neck		
c) A 48 year old man with pain that is be localized by the tip of one finger, particularly over the left ventricular apex or a costochondral junction		
d) A 40 year old woman with a very brief episode of chest pain that lasts a few seconds		
e) A male patient who present to you with pain that occur when he moves or when his chest is palpated		
f) A patient who present with a crushing chest pain and has dyspnea that radiates to the left arm and says "help I will die"		
g) A 28 year old patient with abdominal pain and headache and has vomited once		
h) A 45 old patient who present to you with chest pain and is sweeting and has cool clammy skin		
i) A 60 year old female patient who present Epigastric fullness and Indigestion and slight chest discomfort		
j) A 45 year known diabetic patient man with dyspepsia and epigastric pain		

For questions number 15, 16 and 17, answer by indicating whether the 12 lead ECG is normal and identify the ECG

15. ECG LEAD 1



A. Is the ECG Normal? YES ☐ NO ☐

B. Which rhythm can you identify in lead V4, V5 and V6?

Normal Sinus Rhythm ☐

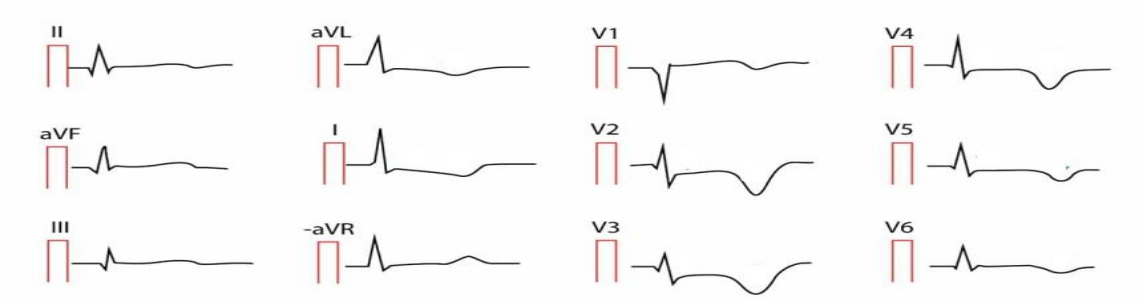
ST Elevation ☐

ST Depression ☐

T wave inversion ☐

Both ST depression and T wave inversion ☐

16. 12 LEAD ECG 2



A. **Is the ECG normal?** YES ☐ NO ☐

B. Which rhythm can you identify in lead VI to V6?

Normal Sinus Rhythm ☐

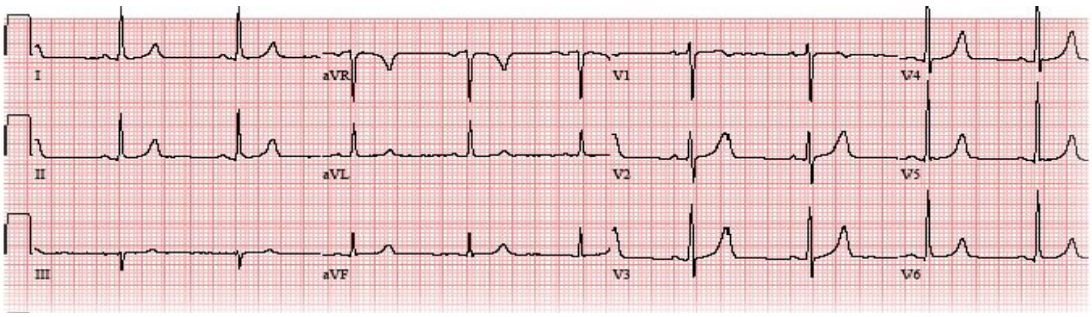
ST Elevation ☐

ST Depression ☐

T wave inversion ☐

Both ST depression and T wave inversion ☐

17. 12 ECG LEAD 3



A. Is the ECG normal? YES ☐ NO ☐

B. Which rhythm can you identify in lead VI to V6?

Normal Sinus Rhythm ☐

ST Elevation ☐

ST Depression ☐

T wave inversion ☐

Both ST depression and T wave inversion ☐

18. Indicate The Level Of Agreement With The Statements Below (Tick The Most Appropriate)

Opinion	**Strongly Agree**	**Agree**	**Undecided**	**Disagree**	**Strongly Disagree**
Nursing assessment of chest pain is very important					
Evaluation of chest pain is very technical and should be carried out by doctors					
Evaluation of chest pain is time consuming and should be done in the doctors room					
Performing emergency ECG procedure is nurses responsibility					
ECG interpretation is too technical for an emergency nurse					
Performing emergency ECG procedure should be done by the nurses					
ECG interpretation is the domain of the doctors					

SECTION D: ASSESSMENT OF NURSES' INITIAL MANAGEMENT INTERVENTIONS ON PATIENTS SUSPECTED TO HAVE CAD RELATED CHEST PAIN

19. Indicate by ticking YES or No the nursing intervention you give to a patient when you suspect he/she has CAD related chest pain before the patients is seen by the doctor.

	Intervention	**YES**	**NO**
	I immediately attach patient on a cardiac monitor and obtain vital signs		
	I reassure the patient and inform her/him of the care to expect		
	I continue with monitoring of vital sign and obtain ECG trace		
	I attack patient on oxygen for any patient suspected to have cardiac chest pain		
	I immediately perform intravenous line cannulation and obtain blood samples blood samples for cardiac troponins and other baseline investigations.		
	I take patient immediately to see the doctor before 12 lead ECG is done		
	I perform 12 lead ECG and analyze it before patient is seen by the doctor		
	I perform 12 lead ECG after its ordered for by the doctor		
	I take the ECG to the doctor for analysis after I have done it.		
	I fast track the patients before doing 12 lead ECG		
	I fast track the patient after performing and analyzing 12 ECG		
	I give aspirin, nitroglycerin or morphine before patient is seen by the doctor		
	I ensure blood samples are taken to the laboratory after the patient is seen by the doctor		

APPENDIX 3: OBSERVATIONAL CHECKLIST

ASSESSMENT AND INITIAL MANAGEMENT OF PATENTS SUSPECTED TO HAVE CHEST PAIN WHICH IS CARDIAC IN ORIGIN

	Interventions rendered by the Nurse to patients presenting with chest pain or chest discomfort in the emergency department	**YES**	**NO**
	Obtains the chief complaint (chest pain0		
	Assesses the chest pain for cardiac related chest pain in relation to:		
	Onset of chest pain		
	Location of pain		
	Duration of pain		
	Characteristics of chest pain		
	Aggravating factors		
	Relieving factors		
	Relating (associated) symptoms		
	Any treatment given or by self		
	Severity of chest pain		
	Risk factors of CAD		
	Suspects patients to have no cardiac related chest pain		
	Immediately attaches patient on a cardiac monitor and obtains vials		
	Checks on the ECG trace		
	Reassure the patients and inform her/him of the care to expect		
	Document findings		
	Assigns triage category		
	For patients suspected to have cardiac related chest	**YE S**	**NO**
	Suspects patients to have chest pain which is cardiac in origin		
	Reassure the patient and inform her/him of the care to expect		
	Continues with monitoring of vital sings and ECG tracing		

	Checks on oxygen saturation		
	Gives oxygen If saturation is < 93%		
	Immediately insert IV cannula and obtain blood for cardiac troponins and other blood works		
	Obtains 12 led ECG within 10minutes		
	Interprets the findings		
	Fast tracks the patient to be assessed by doctor within 10 minutes		
	Gives aspirin 300g		
	Gives clopidogrel		
	Gives sublingual nitroglycerine		
	Gives morphine to patient who has chest pain even with nitrates		
	Document the findings and takes the patient for doctors to review		

APPENDIX 4: INTERVIEW SCHEDULE

Introduction

Good morning / Afternoon

My name is **Girishon Chege**, a master's of science in nursing student in the University of Nairobi. This interview is being conducted to get your input about nurses' assessment and management of cardiac related chest pain in the accident and emergency department which you have been conducting/ involved in. is especially interested in the challenges you have faced or are aware of and recommendation you have. The interviews will take about 20 minutes. This conversation is part of the research that you have been enrolled into and that you agreed to participate by the consent you signed. If you need any clarification at this point you are still welcome and I will address any concerns you have before we begin. Feel free to ask any questions during this brief interview session.

1. Kindly tell me about your experience in assessing patients with chest pain. Describe to me how you evaluate a patient so that you can conclude that his/her chest pain is cardiac or non-cardiac in nature. What specific information do you look for in a patient in order to conclude that a patient has possible ACS?
2. Kindly tell me about the challenges you nurses encounter in assessment of patients with chest pain. What concerns do you have regarding performing and interpretation ECG among nurses? What do you think are the causes of these challenges? How can these challenges are addressed.
3. What are the challenges you confronts in the management of patients with chest pain? What concerns do you have regarding availability equipment and drugs to treat cardiac chest pain? Do you have concerns with nurses' knowledge issues? What about nurses' attitude issues. How do you think these challenges can be addressed?
4. Is there any other information about assessment and management of chest pain patients you think would be useful for me to know?

Thank you for sparing your time for this interview

APPENDIX 5: STUDY BUDGET

Item	Unit cost	Quantity	Cost	Total cost
HUMAN RESOURCE				
Principal Researcher	3000	2*3000	6000	
Principle research transport and up keep	2,000	20,000	40,000	
Sub total				46,000
MATERIALS AND RESOURCES				
Biro pens (2 dozen)	180	180*2	360	
Pencils (2 dozen)	60	60*2	120	
Rubbers (6)	10	10*6	60	
Folders (3)	100	100*3	300	
Field books	65	65*2*3	390	
Flash disks	2	2*600	1200	
Sub-total				2430
PROPOSAL AND THESIS				
Proposal typing and printing (69 pages)	3	3*65	195	
Photocopying final report (3copies)	2	2*610	1220	
Proposal paper binding	4	4*65	260	
Ethics committee fee	1	1*2000	2000	
DATA ANALYSIS AND PRESENTATION	1	1*5000	5000	
Data processing and analysis	30,000	1	30,000	
Research book binding	15000	1	15,000	
Sub-total				53,000
TOTAL				108,000

APPENDIX 6: WORK PLAN

Duration in Weeks / Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Problem Identification	■															
Proposal Writing		■														
Seeking consent from Ethical committees			■	■												
Recruitment and training of research assistants					■											
Pre-testing of study tools						■										
Administration of tools							■	■	■	■						
Data cleaning and entry											■					
Data analysis												■	■			
Report writing and presentation														■	■	
Compilation of final report and dissemination																■

APPENDIX 7: DIRECTION OF KNH FROM NAIROBI CENTRAL BUSINESS DISTRICT