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EVALUATION OF POST ANAESTHESIA CARE AFTER GENERAL ANAESTHESIA AT EASTERN REGIONAL HOSPITAL

BY

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DECLARATION

I declare that this dissertation is a result of my own work done under the supervision of Dr. Paulina Tindana. Acknowledgement has been made to the work of others duly. I also declare that this work has not been accepted for the award of another degree nor being submitted for the award of any other degree.

03/05/2023

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Linda Sarfoa Kissi Date

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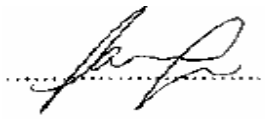

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Dr. Paulina Tindana Date

(Supervisor)

DEDICATION

This study is dedicated to my dear husband Dr. Kwaku Owusu and my lovely children Nana Akua Korkor Owusu, Stephanie Owusu, and Yasmine Adobea Owusu for their love, patience, and encouragement through this study period.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION

AANA	AMERICAN ASSOCIATION OF NURSE ANAESTHESIOLOGY
CPSP	CHRONIC POSTSURGICAL PAIN
CRO	CLIENTS-REPORTED OUTCOME
GES	GENERAL ELECTIVE SURGERY
PACU	POSTANAESTHESIA CARE UNIT
PADS	POST ANAESTHETIC DISCHARGE SCORING SYSTEM
PAC	POST ANAESTHESIA CARE

OPERATIONAL DEFINITION OF TERMS

Anaesthetist: A person who is trained to provides anaesthesia care

Client: An adult who have undergone elective general surgery and is currently on recovery

ABSTRACT

Background: Good management of post-operative anaesthesia care has resulted in greater client care and surgeon satisfaction. The concept of "continuity of care", that is, preanaesthesia evaluation, the performance of anaesthesia and post-operative care by the same anaesthetist are difficult to practice in many health facilities. Moreover, there are no established protocols for post-operative anaesthesia care. The main objective of the study was to evaluate post anaesthesia care after general elective surgery at the Eastern Regional Hospital in Ghana.

Methods: A mixed-method research design was employed to evaluate post anaesthesia care after general elective surgery at the Eastern Regional Hospital. The study population was made up of patients who have undergone general elective surgery, anaesthetists and post anaesthesia care unit (PACU) nurses of the Eastern Regional Hospital, Koforidua. Secondary data from patients' anaesthesia protocol and PACU observational chart to evaluate post anaesthesia care of clients after general elective surgery. Convenience sampling technique was used to select 94 patients' anaesthesia protocol and PACU observation chart and 12 anaesthetists and PACU nurses were selected for in-depth interviews. Purposive sampling was used to select the anaesthetists and PACU nurses for the in-depth interviews. In addition, health facility inventory questionnaire was used to collect data on equipment's and drugs used at Eastern Regional Hospital, Koforidua. Quantitative data gathered were entered into the STATA version 16 software for analysis. The qualitative data were transcribed verbatim after data collection and thematic content analysis was conducted manually. This allowed the researcher to explore emerging issues deeper in subsequent interviews.

Results: The study found that PACU lacked essential equipment such as ECG, capnograph, bispectral index and narcotrend monitors. All patients were received and cared for postoperatively

at PACU and transported with an anesthesia team member, with 67% continuously evaluated during transport. The importance of discharge assessment was emphasized in the study, with participants sharing experiences and highlighting the importance of patient communication in assessing pain accurately. Some participants admitted to not being aware of post-anesthesia care standards, indicating a need for better adherence to guidelines.

Conclusion: Some healthcare workers at the hospital are not aware of post-anesthesia care standards, indicating a need for better adherence to protocols. In addition, it is recommended that the Eastern Regional Hospital address the issue of the lack of functional post-anaesthetic machines in the PACU. Finally, at the PACU, vitals such as oxygen saturation, pulse rate, blood pressure, temperature, and level of consciousness, pain was not always continuously monitored for all patients.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Post anaesthesia care refers to the period from the completion of anesthesia and procedure until the client is discharged from the hospital. In other words, it is the management of a client after anaesthesia and surgery. This includes care given during the immediate postoperative period, both in the theater and post anaesthesia care unit (PACU) as well as days following the procedure (Perry, Potter & Ostendorf, 2014). The purpose of post anaesthesia care is to prevent complications such as infection, promote healing of the surgical incision, and to return the client to a state of health, and decreasing length of hospitalization, and thus prevent nosocomial infection. The primary causes of early complications and death after major procedure are acute pulmonary, cardiovascular, and fluid derangements.

Post anaesthesia recovery starts immediately after the surgery and anaesthesia. When recovering from anaesthesia in the post anaesthesia care unit (PACU), the clients commonly progress along a continuum from dependence to independence. The client becomes vulnerable during this process, and therefore will be in need of support. Dahlberg (2018) has suggested that there are three phases of recovery. Phase one of recovery starts when the client leaves the operation room. During this period, the client is monitored in the PACU until fully awake from anaesthesia and motor functions as well as protective reflexes are regained. Numeric systems are often used for assessing the client's recovery from anaesthesia. During the second phase of recovery, the client is still cared for but not monitored as closely as in the first phase. During this phase, post anaesthetic discharge scoring system (PADS) is widely used to assess client's recovery. This includes: activity level, vital indicators, pain, surgical bleeding, nausea and vomiting. The third phase starts when the client

is discharged from the unit after usual function is gained. At this stage, self-care is a central part of recovery. The client is expected to manage his/her recovery by himself/herself or trusted relative.

Recovery can last within the range of few days to several months (Ahlsson, 2008). Hence, it can be a time-consuming process to the extent that the client may be surprised at how much his/her physical and psychological status has been affected after the surgery (Parihar, 2008). During postoperative recovery, clients may experience several different surgical and anaesthesia-related symptoms such as nausea, vomiting, drowsiness, dizziness, fatigue, sore throat, back pain, headache, coldness/shivering, urinary retention, postoperative cognitive dysfunction and postoperative pain (Parihar, 2008).

In the process of providing post anaesthesia care (PAC), there is the need for anaesthetists to receive the right preoperative and intraoperative information on clients. Loss of information can occur during the phases of care (Holly-May, 2015). This can lead to an increase in sentinel events, medication errors and poor client outcomes (Effken, Carley, & Gephart, 2011). King, Battle & Baker (2013) estimates that 80% of medical errors are due to communication failure during the handoff process. For this reason, teamwork is required to ensure that clients receive the right quality of PAC (Hyder, Bohman, Kor & Montori, 2016).

Client satisfaction is widely used as an indicator to monitor the quality of PAC. It enables the evaluation of clients' PAC experience which is based on their own perceptions, values and interactions with the healthcare environment. It can therefore provide unique feedback which can improve the quality of PAC (AANA, 2019).

Clients-reported outcome (CRO) is an assessment performed by themselves regarding their functional status and wellbeing. It measures healthcare in general or can be associated with specific

conditions. It is a suitable way of collecting data about clients when they are not under observation. This is because clients are their own expert on data about their health status, symptoms and response to healthcare. A valid and reliable data collection instrument is of great importance in improving the quality of PAC.

The PACU plays a crucial role in ensuring the safety of patients by serving as a specialized observation area aimed at reducing the risk of adverse events following surgery and anesthesia procedures. Patients with pre-existing medical conditions may experience worsened health outcomes after exposure to surgical interventions and anesthesia, necessitating medical and nursing interventions to restore them to their pre-procedure state. Research has indicated that approximately 20% of all admissions to the PACU require some form of anesthesia intervention (Seglenieks & Painter, 2014).

A systematic and well defined post anaesthesia care helps anaesthetists and recovery ward nurses to administer directed postoperative care and avoids delays in recognition of post anaesthesia/surgical complications (Ateleanu & Laurent, 2013). The early recognition of deterioration and the starting of therapy in PACU can prevent post general anaesthesia complications or reduce their severity. This can only be achieved if an effective post anaesthesia care system is in place at PACU. Studies have shown that delay in recognizing and errors in initiating management for clients at PACU compromise client safety and may increase staff frustration due to inefficiency (Braaf & Manias, 2011).

Inadequate post anaesthesia care is attributed to high incidence of acute changes and deteriorating condition experienced by patients in most hospitals in Ghana (Awube et al., 2018). Most complications that occur at PACU during post anaesthesia care of clients can be prevented if proper monitoring system and PACU protocols are adhered to. (Andersen et al., 2016). Several authors

have documented the factors that impedes on protocol use in Ghana. These include leadership perceptions of protocols (Nkrumah & Abekah-Nkrumah, 2019), lack of clear goals and strategies for their use (Grol et al., 2013), communication barriers (Nkrumah & Abekah-Nkrumah, 2019), ownership type of health facilities (public or private) (Amissah et al., 2018), centralization of decision-making (Grol et al., 2013), financial constraints (Amissah et al., 2018), workload and staff shortages (Nkrumah & Abekah-Nkrumah, 2019), low motivation and incentives (Amissah et al., 2018), resistance to change (Grol et al., 2013), lack of evidence or relevance of protocols (Grol et al., 2013), and patient preferences and expectations (Grol et al., 2013). These factors affect how protocols are perceived, developed, disseminated, implemented, and evaluated in the healthcare system. They also influence the willingness and ability of health workers to adhere to and promote protocols in their practice, and the responsiveness of patients to protocol recommendations.

There are documented evidence pointing to the fact that post anaesthesia care practices varies from hospital to hospital in both advanced and developing countries of which Ghana is no exception (Schittek et al., 2020). Also, there are reports of numerous challenges with post anaesthesia care of clients at PACU that is more profound in developing countries (Adjei et al., 2018). However, there are limited studies that have evaluated post anaesthesia care especially in Ghana. It is against this context that this study seeks to evaluate post anaesthesia care after general elective surgery at New Juaben Municipality. Findings will be used to implement measures, policies and programs that will enhance post anaesthesia care.

1.2 Statement of the Problem

The concept of "continuity of care", that is, pre anaesthesia evaluation, the performance of anaesthesia and post-operative care by the same anaesthetist are difficult to practice in many health facilities. Moreover, the practice of post-operative visits by anaesthetists is not universally

followed and there are no established protocols for post-operative anaesthesia care. Adequate post-operative anaesthesia care results in greater client care and surgeon satisfaction (Schittek et al., 2020). On the other hand, inadequate post operative care of clients after general surgery can lead to undesirable post operative complications such as obstructive sleep apnoea, cardiac arrest, laryngospasm and aspiration (Cook, 2017). In addition, inadequate management of post-operative complications can result in chronic post-surgical pain and fatal outcomes which can lead to high morbidity and mortality rate (Rodríguez-Betancourt et al. 2014). Across the world, studies have estimated that 10-30% of clients develop post anaesthesia complications after surgery (Cook, 2017). Post anaesthesia complications can be attributed to patient, surgical and anaesthesia factors (Agbamu & Menkiti, 2017). Also, complications during post anaesthesia care of clients are associated with inadequate knowledge of staff, poor pain assessment, lapses in post anaesthesia care and fear of analgesic-related complications (Anjani, 2017). In Ghana, a number of studies have been conducted in the field of pre-anaesthesia and intra-anaesthesia care. Unfortunately, studies within the context of post anaesthesia care are scanty. A recent study was conducted by Asams, Varaei & Jalalinia (2020) to investigate nurses' knowledge and attitude toward postoperative pain management in Ghana. While the finding provided useful information, it was only restricted to postoperative pain and perception of nurses. It did not evaluate post anaesthesia care after general elective surgery. It did not identify the measures that are put in place to ensure client safety during post anaesthesia care and it did not provide clients' evaluation of post anaesthesia care. At the Eastern regional hospital in Ghana, postoperatively, clients are nursed at the post anaesthesia care unit (PACU) or recovery ward till full recovery from anaesthesia before transfer to the surgical ward or intensive care unit for further management. Some of the clients develop post -operative complications like obstructive sleep apnoea, cardiac arrest and aspiration

after general anaesthesia while being nursed at PACU which may lead to death if not properly managed. Evidence from studies have demonstrated that the performance of adequate post - anaesthesia care may improve patient satisfaction and physician recognition (Fink et al., 2016). To improve perioperative quality control, studies have suggested the implementation of an interdisciplinary post-anaesthesia care (Cook, 2017). Currently, it is unknown how client safety is ensured during post anaesthesia care. No data is available on the standard protocol used or valued by anaesthetists in post anaesthesia care of clients after general elective surgery at Eastern regional hospital. More so, no previous study has evaluated the practice of post anaesthesia care and factors that influence adequate post anaesthesia care of clients after general elective surgery at Eastern regional hospital. This study therefore aims to evaluate post anaesthesia care after general elective surgery at Eastern Regional Hospital to determine how client safety is ensured during post anaesthesia care, adherence to the use of standard protocol in post anaesthesia care and also to identify factors that hinder operationalization of post operative care of clients after general elective surgery.

1.3 Research Questions

1. What measures are put in place to ensure client safety during post anaesthesia care?
2. Do health professionals adhere to the use of the protocol in post anaesthesia care of clients after general elective surgery?
3. What factors hinder operationalization of post operative care of clients after general elective surgery?

1.4 General Objective

The main objective of the study is to evaluate post anaesthesia care after general elective surgery at the Eastern Regional Hospital in Ghana.

1.5 Specific Objectives

The following are the specific objectives:

1. To assess the measures in place to ensure client safety during post anaesthesia care.
2. To assess adherence to the use of the protocol in post anaesthesia care of clients after general elective surgery
3. To determine factors that hinder operationalization of post operative care of clients after general elective surgery

1.6 Justification

There was the need to conduct this study for several reasons. First, by exploring the measures put in place to ensure client safety during post-anaesthesia care, the study seeks to understand the extent of the safeguards and protocols in place. This is particularly important given the vulnerability of patients during the post-anaesthesia period. In the second place, the study aims to uncover the barriers and challenges in providing effective post-operative care by identifying the factors that hinder operationalization of post-operative care of clients after general elective surgery, This will provide insights for improving the systems and practices in place to optimize patient outcomes. In the third place, it will inform anaesthetists about the best practices in PAC.

Finally, it will serve as a source of literature for future case studies, baseline studies and academic discussion.

1.7 Outline of Thesis

This thesis is structured into six (6) main chapters. This first chapter has described background information on the research topic, the problem statement, research questions and research objectives as well as the justification for the study. The next chapter, Chapter two will present a review of relevant literature on the topic from a global, regional and national perspective. Chapter three will describe the study design, study area, population and data collection methods and ethical consideration. Chapter four will report on the key results of the research. Chapter five will discuss the results of the study in relation to existing literature. The final chapter, Chapter six will present a summary of the study, the main conclusions of the study and key recommendations to inform policy, practice and research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviewed relevant literature on the concept of post anaesthesia care, the concept of general elective surgery, post anaesthesia care after general elective surgery, post anaesthesia care monitoring and evaluation and conceptual framework.

2.1 The Concept of Post Anaesthesia Care

Post anaesthesia care refers to the period from the completion of anaesthesia and procedure until the client is discharged from the hospital. In other words, it is the management of a client after anaesthesia and surgery. This includes care given during the immediate postoperative period, both in the theater and PACU, as well as days following the procedure (Perry, Potter & Ostendorf, 2014). McQuoid-Mason (2016) pointed out that post anaesthesia care includes the time when the client is in theatre, in the recovery room, in an intensive care unit, in a surgical ward, and may even continue after the client has been discharged from hospital. It is associated with restoration of normal physiological functions, healing of tissues from the surgical trauma and a gradual return of physical strength (Saad, 2010). The level of post anaesthesia care required will depend on the client's preoperative condition and the nature and consequences of the procedure.

The purpose of post anaesthesia care is to prevent complications such as infection, promote healing of the surgical incision, and to return the client to a state of health, and decreasing length of hospitalization, and thus prevent nosocomial infection. The primary causes of early complications and death after major procedure are acute pulmonary, cardiovascular, and fluid derangements. Good post anaesthesia care ensures a smooth and quick recovery from procedure. Therefore, efforts should be made towards achieving its purpose by focusing on each individual's

circumstances with attention to the particular needs of every client. Standardization of care can be implemented, but should be utilized with a degree of flexibility to allow the individualization of post anaesthesia care.

The immediate postoperative period covers the first 24 hours after procedure and entails the time in which the client remains in the PACU. This period is associated with physiological changes that are basically unconsciousness in clients, requiring continuous observation and specific care (Serra et al. 2015). The primary urgent issues that require attention are managing pain, protecting the airway, monitoring mental status, and facilitating wound healing. Additionally, it is crucial to prevent urinary retention, deep venous thrombosis (DVT), constipation, and blood pressure fluctuations. In the case of diabetic patients, close monitoring of blood glucose levels through fingerstick testing every 1 to 4 hours is necessary until they are awake and eating, as better glycemic control leads to improved outcomes. Depending on the type of procedure, there are many potential complications that can arise. For instance, many procedures put clients at risk of infection, bleeding at the theater, and blood clots caused by inactivity. Prolonged inactivity can also cause loss of some muscle strength, cardiovascular complications, and respiratory complications.

Recovery after procedure includes gaining control of physical, psychological, social, and habitual functions. Postoperative recovery starts immediately after the surgery and anaesthesia. When recovering from anaesthesia, the clients commonly progress along a continuum from dependence to independence. The client is at risk and vulnerable during this process, and therefore will be in need of support. This requires constant awareness and assessment that can only be achieved with effective communication between the anaesthesia provider and the PACU nurses (Manser et al., 2013). It also requires systematic and documented care and highly qualified PACU health

personnel. It also includes the assistance of physiotherapists, dieticians, pharmacists, and microbiologists. This assistance will ensure the safety of clients.

Dahlberg (2018) indicated that there are three phases of recovery. He indicated that phase one of recovery starts when the client leaves the theater. During this period, the client is monitored in the PACU until fully awake from anaesthesia and motor functions as well as protective reflexes are regained. Numeric systems are often used for assessing the client's recovery from anaesthesia. During the second phase of recovery, the client is still cared for but not monitored as closely as in the first phase. During this phase, post anaesthetic discharge scoring system (PADS) is widely used to assess client's recovery. This includes: activity level, vital indicators, pain and surgical bleeding nausea and vomiting. The third phase starts when the client is discharged from the unit after usual function is gained. At this stage, self-care is a central part of recovery. The client is supposed to manage his/her recovery by himself/herself or trusted relative (Serra et al. 2015).

Saad (2010) also indicated that most clients in their first few hours of recovery from the anaesthesia, gradually regain their respiratory, cardiovascular and neurological functions, and establishes homeostasis. Within a period of 1-3 days, recovery of the gastrointestinal tract and mobilization occur after uncomplicated surgery. Within a period of 1-6 weeks, healing of tissues and return of full physical strength continue after discharge from hospital. While most complications from procedure occur in the early postoperative phase, they can still occur after discharge from the hospital. There is therefore the need to stakeholder in postoperative to support the client whilst at home and to manage late adverse complications.

Nursing Care Systematization (NCS) is a methodology of nursing care that is often considered a best practice. The NCS helps to identify health and illness situations and prescribe specific actions for promoting, preventing, recovering, and rehabilitating client health. However, due to the high

turnover of clients in the PACU, the NCS may not always be fully utilized. It is important to prioritize reviewing nursing care in the immediate postoperative period and focus on detecting, preventing, and treating any complications that may arise.

The hospitalization period in the PACU is critical for preventing potential complications, which is why the use of NCS in the immediate postoperative period is highly relevant for facilitating dynamic, organized, and systematic care provided by PACU nurses (Serra et al. 2015). Handoff, which is the transfer of information from one healthcare provider to another, plays a crucial role in ensuring client safety in post anaesthesia care. It enables health personnel to gain a wider knowledge of client management priorities, thus promoting better client outcomes. In an ideal scenario, the postoperative handover between anesthetists and PACU nurses facilitates the exchange of critical client information, creates a platform for mutual information sharing, and ensures efficient transfer of client care and responsibilities while adhering to organizational safety standards (Rose & Newman, 2016).

In the PACU, anesthetists generally exercise responsibility for cardiopulmonary function. The client can be discharged from the recovery room when pulmonary, cardiovascular, and neurologic functions have returned to baseline. Clients who require continuing circulatory or ventilatory support, or who have other conditions that require frequent monitoring, are referred to an intensive care unit (ICU). Monitoring equipment are available to enable early detection of cardiorespiratory derangements.

2.2 The Concept of General Elective Surgery

Elective surgery is a procedure that a surgeon considers necessary but that can be delayed by at least 24 hours (BHI, 2013). It includes hip replacements, cataract extraction and ligament, refractive surgery, gynecological surgery, ACL reconstruction, Anaphylactic shock, Bariatric

surgery, tubal ligation, vasectomy, hysterectomy, exploratory or diagnostic surgery, cardiovascular surgery, nonemergency, musculoskeletal system surgery, donation of a kidney by a living donor, and ACL reconstruction. It includes all optional procedures performed for non-medical reasons. For instance, cosmetic procedures, such as a rhytidectomy, abdominoplasty, breast implants, liposuction, breast reduction, and rhinoplasty. Cosmetic procedures, may not be medically indicated, but they may benefit the client in terms of raising self-esteem. A procedure, such as cataract surgery improve functional quality of life.

Some procedures are necessary to clients' health and well-being. This includes procedures like hernia surgery, angioplasty, kidney stones surgery, hip replacements, and breast cancer surgery (Rusciano, 2020). Unlike emergency surgery that requires immediate attention, elective procedures can be scheduled at the convenience of both the client and surgeon. The National Center for Health Statistics of the U.S. Centers for Disease Control and Prevention (CDC) reported that in 2005, over 44 million elective procedures were carried out in the United States, with heart disease and Cesarean section being the most common types. In certain instances, insurance providers may necessitate a second opinion before granting payment for elective procedures.

The process allows clients to collaborate with the health team, giving them ample time to conduct the necessary clinical assessments before scheduling the procedure on an appropriate date and time. The postponement of the intended intervention can heighten the psychological and emotional effects experienced by the client following admission for the procedure (Kajja & Sibinga, 2014).

In less developed nations, delays in performing procedures are predominantly caused by inadequacies in the essential components of the healthcare system, such as insufficient

infrastructure like hospital beds, operating theaters, diagnostic equipment, and intensive care units. Furthermore, a shortage of dedicated, highly trained, and motivated healthcare professionals contributes to the delay. The inconsistent supply of vital resources such as surgical supplies and medication also hinders the timely execution of elective surgical procedures. Depending on the severity of the condition, a postponed procedure may result in increased morbidity and mortality for the client and may also incur high hospital costs due to extended hospital stays (Kajja & Sibinga, 2014).

The optimal process for a surgical journey commences with a referral of the client to a surgical clinic. A preoperative assessment is carried out to aid the surgical team in organizing the procedure. The preoperative evaluation typically involves a comprehensive medical history, physical examination, and laboratory tests. Specific preoperative measures may vary depending on the nature of the procedure. In cases where general anesthesia is required, the client may be instructed to adhere to dietary restrictions prior to the procedure, as per Queensland Health guidelines (2017).

A major benefit of general elective surgery is the days or weeks clients could use to improve their health before their procedure. The procedure can be a physically demanding experience, and thus the best time for clients to improve their overall health is prior to procedure. Health improvements before procedure include: avoiding smoking, losing weight, eating healthier foods, and exercising more. Increased smoking and having diabetes can prevent healing and can result in wound complications after procedure. Reducing these risk factors offers clients the best chance of a successful procedure (Rusciano, 2020).

The procedure required an entire team effort. Once a client is scheduled for procedure, an entire team of doctors and health care professionals are expected to be in constant contact with each other

to coordinate care and deliver the best outcomes. The team must include surgeon, anesthetist, nurses, laboratory technicians, and operating room staff. The teams may also include a pathologist, radiologist, and nutritionist. The goal is to give the client the best possible healthcare outcome (Rusciano, 2020).

General elective surgeries is typically performed by a surgeon at the theater. The type of procedure will mandate the qualifications and background of the surgeon who performs it. For instance, the removal of a mole is performed by a dermatologist, while gastric bypass procedure is performed by a bariatric surgeon. Autologous donation is required in most cases before commencement of procedure.

The recovery time and postoperative care after a procedure may vary depending on the nature of the procedure performed. Prior to returning home after surgery, patients are provided with comprehensive written instructions for post-anaesthesia care, which are fully explained to them by the responsible surgical staff.

The risks associated with a procedure are dependent on the specific type of procedure performed. In general, most surgeries carry the risk of complications such as bleeding, infection, and circulatory problems, such as shock or thrombosis. Additionally, there may be risks associated with the anaesthesia used during the procedure.

The ultimate outcomes of a procedure are contingent on the type of procedure performed. The healthcare team will discuss the optimal results for the procedure with the patient before the procedure takes place. In some instances, the results of a surgery may be temporary, while in other cases, they may be lifelong. For example, a facelift may necessitate a subsequent procedure as the patient ages, whereas a tubal ligation will produce permanent results.

The treatment alternatives available for a given procedure will depend on the purpose of the procedure. For example, other methods of birth control may be an alternative to any procedure used for sterilization. In some cases, there may be no alternative treatments available other than foregoing the procedure and living with the medical consequences. As part of the informed consent process, the surgeon should review all possible treatment options before scheduling the procedure (ACS, 2008).

2.3 Post Anaesthesia Care after General Elective Surgery

The post anaesthesia period provides a transition from the procedure period to assess and manage the clients towards optimal recovery. Timely identification and management of complications immediately after procedure may be life-saving. The probability that a specific complication will emanate for a given client hinges on the preoperative medical assessment, nature of the procedure, anesthetic techniques adopted, client's comorbidities, and optimization (ASA, 2013).

It is fundamental practice for clients who receive anaesthesia to be monitored in a PACU, prior to discharge from the hospital. The exception to this practice is clients in critical condition, who may bypass the PACU and be recovered directly in an intensive care unit (ICU). A surgeon is responsible for the discharge of the client from the PACU. The PACU must be a uniquely staffed and equipped area for client safety. In most PACUs, medical oversight of clients is the responsibility of the anaesthetists and PACU nurses (AANA, 2019).

When a client is taken to the PACU, it is necessary for an anesthesia care team member who has knowledge about the client's health history, physiologic condition, diagnostic tests performed, and procedures carried out to accompany them. The client's condition should be continuously monitored and treated during transportation. Prior to transportation, the anesthesia professional

and procedure team evaluate the client's response to anesthesia and procedure-related factors so that complete perioperative information can be conveyed to the receiving team. The circulating nurse or appropriate staff member contacts the PACU, nursing unit, or ICU to confirm their readiness to accept the client. Before transportation, the need for client oxygenation, monitoring, ventilation, medication, and additional equipment is taken into account. Furthermore, preparation for client care during transportation and on arrival at the PACU is considered. When the client arrives, they must be reassessed, and the accompanying anesthetist must report to the PACU nurse in charge. These guidelines were stated by the American Society of Anesthesiologists (2013).

Continuous assessment of the client's condition through appropriate methods is required in the PACU. This assessment includes monitoring the client's blood pressure, heart rate/rhythm, airway patency, oxygen saturation and circulation, ventilatory rate/character, temperature, level of pain, and level of consciousness and/or sedation, which should be documented. In the initial phase of recovery, a quantitative method for assessing oxygenation, such as pulse, should be used. After the initial client assessment, a handoff is conducted to transfer professional responsibility, critical and essential client information, and accountability from the theater team to the PACU team. Both healthcare providers should be actively engaged in the communication during the handoff, which should take place in an interruption-free environment with an open communication platform, including the opportunity to ask and answer questions. A standardized handoff checklist focuses on the vital points to be addressed for a complete handoff and aims to decrease the duration of the verbal report.

The elements of the handoff include Client, Procedure, Health History, Anaesthesia Medication, and PACU. The Client section contains information about the client's name, age, gender/identified gender, level of consciousness/orientation, weight (for pediatric clients), vital signs and assessment

findings, allergies/reactions, airway status, procedures performed, relevant client medical and surgical/procedural history, physical limitations, and intraoperative course (including unanticipated intraoperative events) and considerations for management of similar issues in the PACU/ICU. The Procedure section includes information about the client's positioning (if other than supine), vascular access/lines/catheters, type and difficulty of airway management, crystalloid colloid/blood products, status of dressings and surgical/procedural site, fluids/losses (including drainage tubes), urine output, and estimated blood loss. The Health History section contains information such as preoperative vital signs, preoperative cognitive function, pertinent health and medication history, physical status score, and extremity restrictions and preoperative level of activity. The Anaesthesia and Medications section includes information about the type of anesthesia delivered, vital signs and monitoring trends (CV, respiratory, neuromuscular function), airway management concerns, relevant lab values, current medications/administration/dose/timing, client-specific procedure and hemodynamic considerations, antiemetics, time of last and next dose of antibiotic, analgesia management plan, other intraoperative medications (steroids, antibiotics, antihypertensives, etc.), and regional anesthetic (for postoperative pain). The PACU section includes information such as medications due during PACU, pain and comfort management plan, and PACU orders.

The post-anesthesia period is divided into three levels of care: Phase I, Phase II, and Phase III. Each phase of recovery may occur in one PACU or in multiple locations. During Phase I care, the focus is on the client's recovery from anesthesia and the return to baseline vital signs. The procedure, client comorbidities, anesthesia care, and the client's physical status are taken into consideration to recognize and manage any complications. Hemodynamic and respiratory changes are managed, and the effects of the procedure and the necessary analgesia and antiemetics are

provided. The priorities of this phase include maintaining a stable airway with adequate ventilation and oxygenation, managing analgesia and PONV, discontinuing or adapting IV (enhanced recovery protocol), oral intake, and hemodynamic stability. Possible complications include airway compromise, cardiovascular depression, pain, side effects, nausea, vomiting, delirium, and procedure-specific considerations. Prevention of complications includes encouraging early mobilization, such as active daily exercise, deep breathing and coughing, muscular strengthening, joint range of motion, and walking with aids

Once phase one conditions are met, a client is transitioned to Phase II care. In Phase II care the goal is to prepare the client to be transferred home or to an extended care facility. The frequency of assessing vital signs is often facility-specific. It begins on arrival and ends at discharge. During this phase the client is able to take nutrition, ambulate, and receive education and instructions necessary for self-management of care at home. The priorities of this phase include mobility, oral intake, adequate analgesia, education for discharge, and prescriptions. Possible complications include pain, nausea, and vomiting (Kellner et al. 2018). The condition for discharge from this phase includes adequate pain relief and comfort; hemodynamic stability; nausea addressed; takes fluids; ambulates; understands discharge instructions, medications and management of any issues; and safe transportation from the facility (AANA, 2019).

Phase III, otherwise known as extended care. This phase is for clients who have met criteria to leave Phase I, but are not able to go to another location. For instance, in a situation where there are no available inpatient beds. These clients are assessed and treated as inpatient (AANA, 2019).

2.4 Standards for Post Anaesthesia Care after General Elective Surgery

The standards for post-anaesthesia care ensure proper management of patients after surgery or anaesthesia, with the aim of improving their outcomes. These guidelines are individualized to meet

each patient's specific needs. The American Society of Anaesthesiologists (ASA) has established five standards for post-anaesthesia care.

The first standard requires that all patients who receive general, regional, or monitored anaesthesia care must receive appropriate post-anaesthesia management. A Post Anaesthesia Care Unit (PACU) or equivalent area must be available to receive patients after anaesthesia care. Patients should only be discharged from the PACU upon the specific order of their anesthesiologist. The medical aspects of care in the PACU should follow approved policies and procedures, and the PACU's design, equipment, and staffing should meet accrediting and licensing requirements.

The second standard mandates that a member of the anaesthesia care team accompany a patient during transport to the PACU and continually evaluate and treat them according to their condition.

The third standard requires that upon arrival in the PACU, the patient should be re-evaluated and their condition verbally reported to the responsible PACU nurse. The patient's status upon arrival in the PACU should be documented, and relevant information about their preoperative condition and surgical/anaesthetic course transmitted to the PACU nurse.

The fourth standard specifies that the patient's condition should be continually evaluated in the PACU with monitoring appropriate to their medical condition. Particular attention should be given to monitoring oxygenation, ventilation, circulation, level of consciousness, and temperature. The use of a quantitative method for assessing oxygenation, such as pulse oximetry, is encouraged in the initial phase of recovery from all anesthetics except those used for obstetrical patients in labor and vaginal delivery. An accurate written report of the PACU period should be maintained, and an anesthesiologist should be responsible for general medical supervision and coordination of patient care in the PACU.

The fifth standard states that a physician is responsible for discharging the patient from the PACU. The discharge criteria should be approved by the Department of Anesthesiology and the medical staff, and the patient's destination after discharge (hospital room, Intensive Care Unit, short stay unit, or home) may affect these criteria. If the physician responsible for discharge is absent, the PACU nurse should determine that the patient meets the discharge criteria and note the name of the physician accepting responsibility for discharge on the record.

2.4.1 Adherence to PACU Protocols

Adherence to post-anaesthetic care unit (PACU) protocols is essential for ensuring the safety and quality of care of patients recovering from anaesthesia and surgery. PACU protocols are designed to provide guidance on the staffing, monitoring, handover, discharge and documentation of patients in the PACU, as well as the management of common postoperative complications such as nausea, vomiting, pain, bleeding and hypothermia. PACU protocols should be based on current best evidence and regularly updated by medical staff (Introduction to the post-anaesthetic care unit, 2013). According to the Royal College of Anaesthetists (2018), the PACU denotes any clinical area where patients recover from anaesthesia, including those referred to as 'recovery' or 'the recovery room' in many UK hospitals. The PACU is a high-risk area for life-threatening airway complications, as highlighted by several national audits and reports. Therefore, patients require a high standard of observation until recovery is complete. The RCoA and the Association of Anaesthetists recommend that PACU staffing and monitoring standards should be maintained in any area where anaesthesia is administered, such as labour wards, cardiology and radiology suites, dental, psychiatric and community hospitals.

According to a review by Simpson and Moonesinghe (2013), PACU protocols are essential for improving the outcomes of high-risk surgical patients, who are more prone to develop life-

threatening emergencies in the immediate postoperative period. The authors recommend that PACU protocols should be based on evidence-based practices and tailored to the local context and needs. They also suggest that PACU protocols should be audited and evaluated regularly to ensure their effectiveness and compliance. However, there is limited evidence on the implementation and adherence of PACU protocols in low- and middle-income countries (LMICs) such as Ghana. A study by Boney et al. (2014) found that PACU staffing and monitoring provision in Ghana was inadequate and inconsistent with international standards. The authors reported that PACU nurses were often untrained, overworked, and lacked essential equipment and supplies. They also noted that PACU monitoring was often limited to pulse oximetry and blood pressure, and that ECG, capnography, nerve stimulator, and glucometer were rarely available or used. Another study by Agyei-Baffour et al. (2019) examined the factors influencing the adherence to PACU protocols in Ghana. The authors used a mixed-methods approach to survey 120 PACU nurses and conduct 12 focus group discussions. They found that the adherence to PACU protocols was influenced by individual, organizational, and contextual factors. Some of the individual factors included knowledge, attitude, motivation, and experience of PACU nurses. Some of the organizational factors included leadership, supervision, feedback, teamwork, communication, and availability of resources. Some of the contextual factors included patient characteristics, workload, culture, and policy.

2.4.2 Factors Facilitating or Impeding the use of Protocols.

Protocols are defined as "systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances" (Field & Lohr, 1990, p. 38). Protocols can help improve the quality, efficiency and consistency of healthcare services, as well as reduce variations and errors in practice (Grol et al., 2013). However, the implementation

and adherence of protocols are influenced by various factors at the individual, organizational and system levels. In this section, we will review some of the factors that have been identified in the literature as facilitators or barriers of protocol use in Ghana, a lower middle-income country in West Africa.

Ghana has adopted a primary health care (PHC) approach to deliver essential community-based health services through the Community-based Health Planning and Services (CHPS) initiative. The CHPS initiative aims to improve access, equity and quality of healthcare by involving communities in planning, delivery and monitoring of health services (Awoonor-Williams et al., 2004). Protocols are an integral part of the PHC system, as they provide guidance and standards for community health officers (CHOs) who are the frontline providers of clinical care, preventive and promotive services at the community level. However, the use of protocols by CHOs and other health workers in Ghana is not optimal, and several factors have been reported to affect their implementation and adherence. Some of the factors that facilitate protocol use in Ghana include leadership commitment and support, training and education, availability and accessibility of protocols, feedback and supervision, and community participation. Leadership commitment and support are crucial for creating a conducive environment and culture for protocol use, as well as providing adequate resources and incentives for health workers (Nkrumah & Abekah-Nkrumah, 2019). Training and education can enhance the knowledge, skills and attitudes of health workers towards protocol use, as well as increase their confidence and competence in applying them in practice (Amissah et al., 2018). Availability and accessibility of protocols refer to the extent to which protocols are present, visible and easy to use by health workers in their workplaces (Grol et al., 2013). Feedback and supervision can help monitor and evaluate the performance of health workers in relation to protocol use, as well as provide constructive criticism and reinforcement for

improvement (Nkrumah & Abekah-Nkrumah, 2019). Community participation can foster trust, collaboration and accountability between health workers and community members, as well as increase the demand and acceptability of protocol-based services (Awoonor-Williams et al., 2004).

Some of the factors that impede protocol use in Ghana include leadership conceptualization of protocol use, lack of goals and activities for protocol use, communication challenges, ownership type of health facilities, degree of centralization of decision making, financial constraints, workload and staff shortages, lack of motivation and incentives, resistance to change, lack of evidence and relevance of protocols, and patient preferences and expectations. Leadership conceptualization of protocol use refers to how leaders perceive and define protocol use in relation to their roles and responsibilities, as well as their level of involvement and support for protocol implementation (Nkrumah & Abekah-Nkrumah, 2019). Lack of goals and activities for protocol use means that there are no clear objectives, plans or strategies for promoting protocol use among health workers or evaluating its outcomes (Grol et al., 2013). Communication challenges refer to the difficulties or barriers in exchanging information or opinions about protocol use among health workers or between health workers and other stakeholders (Nkrumah & Abekah-Nkrumah, 2019). Ownership type of health facilities refers to whether the facilities are public or private, which may affect their governance structure, resource allocation,

accountability mechanisms and autonomy in decision making (Amissah et al., 2018). Degree of centralization of decision making refers to how much authority or discretion health workers have in applying protocols in their practice, which may vary depending on their level or position in the health system hierarchy (Grol et al., 2013). Financial constraints refer to the lack or insufficiency of funds or resources to support protocol development, dissemination or implementation (Amissah et al., 2018). Workload and staff shortages refer to the high demand for healthcare services that

exceeds the capacity or availability of health workers or facilities (Nkrumah & Abekah-Nkrumah, 2019). Lack of motivation and incentives refer to the low morale or satisfaction of health workers due to poor working conditions, low remuneration or recognition for their work (Amissah et al., 2018). Resistance to change refers to the reluctance or opposition of health workers to adopt new or revised protocols due to habit, tradition or fear of losing autonomy or authority (Grol et al., 2013). Lack of evidence and relevance of protocols refer to the perception or reality that protocols are not based on sound scientific research or local context, and therefore do not reflect the best or most appropriate practice for the patients or the setting (Grol et al., 2013). Patient preferences and expectations refer to the influence of patients' values, beliefs, attitudes or demands on the decisions and actions of health workers regarding protocol use, which may sometimes conflict with the recommendations or guidelines of protocols (Grol et al., 2013).

2.5 Post Anaesthesia Care Monitoring and Evaluation

In the delivery of post anaesthesia care, the anaesthetist provides medical services before and after the client is transported to the PACU. Before the post-operative period, an essential part of the anesthesiologist's work is to perform an initial evaluation. This is performed to assess risk and develop a post anaesthesia plan. By assessing risk, it uncovers hidden conditions that could cause complications during post anaesthesia care. Elements of the initial evaluation include: reviewing the client's medical history, pre anaesthesia data, intra anaesthesia data, and procedure data.

Monitoring is the process of observing and checking progress and quality of post anaesthesia over a period of time. Post anaesthetic monitoring is a vital requirement for client evaluation and the recognition of risks in post-operative clients (Ahmed et al. 2013). It includes clinical observation and measurement of applicable and relevant variables. These variables are recoded by automated computerized methods. In principle, post anaesthesia monitoring provides information and

feedback on the body's response to therapeutic interventions or changing clinical conditions. It is very important for ensuring the safety of the recovery process. It leads to the prevention of possible complications. These allows adjustment of management to achieve the best possible healthcare outcomes (ANZCA, 2017).

Monitoring is done by hearing, feeling, seeing, perceiving, asking, and by recording and analyzing data. All of this form one big picture to evaluate a client. Before monitoring is performed, the clients should be made as comfortable as possible. Minimizing the risk of complications is crucial for a client who has undergone surgery. Knowledge and understanding of the main areas of risk and local policies can help in reducing the likelihood of potential complications. Monitoring of the client's vital signs, such as pulse, respiratory rate, systolic blood pressure, temperature, and level of consciousness is essential. Other aspects of monitoring may involve evaluating the client's pain levels, capillary refill time, percentage of oxygen being administered, oxygen saturation, central venous pressure, infusion rates, and hourly urine output, as outlined in Ahmed et al. (2013).

The National Early Warning Score (NEWS) has been developed in some practices as a standardized method for monitoring and tracking acutely and critically ill patients. It consists of six physiological parameters, namely pulse rate, respiratory rate, oxygen saturation, systolic blood pressure, and level of consciousness. Additionally, a weighting score of two is assigned if the patient is receiving supplemental oxygen through a mask or nasal cannulas. When utilizing NEWS to monitor postoperative patients, it is crucial to observe for signs of shock, sepsis, hemorrhage, and the effects of anesthesia and analgesia. Patients who are receiving intravenous opiates are at risk of having their vital signs and consciousness levels compromised if the infusion rate is too high. As a result, effective pain management is essential to enable clear communication and cooperation with clinical staff during the postoperative period.

Conventional monitoring systems including, noninvasive blood pressure, electrocardiogram, capnography and end tidal anesthetic analyzer are valuable and should be used to help assessment of these clinical signs. Some effective monitoring equipment include Bispectral Index Monitor, Narcotrend Monitor, AEP Monitor/ 2, PSA 4000 Monitor, Cerebral State Monitor, Entropy Module, DGA Monitors, Oxygen Analyser, Pulse Oximeter, Ventilation, Carbon Dioxide Monitor, Continuous Invasive Blood Pressure Monitor, Inhalational Anaesthetic Agent Monitor, Temperature Monitor, and Neuromuscular Function Monitor (Somchai, 2012). In the ideal situation, the healthcare centre is responsible for proving monitoring tools. Equipment for monitoring must be used in line with careful clinical observation (ANZCA, 2017).

According to standards of The American Society of Anesthesiologist, post anaesthesia evaluation commences within 48 hours after procedure. The evaluation is not performed until the client is sufficiently recovered from anaesthesia. This enables the client to participate in answering questions appropriately, and performing simple tasks. The evaluation is conducted by an anaesthetist. While the evaluation has to commence at PACU, it may be completed after the client is moved to another inpatient location, if State law and hospital policy permits, after the client is discharged, as long as it is completed within 48 hours. The main component of the evaluation may include: respiratory function; cardiovascular function; mental status; temperature; pain; presence of nausea and/or vomiting; and post-operative hydration. Depending on the procedure performed, additional evaluation may be necessary. For a client who is unable to participate in the post anaesthesia evaluation, a post anaesthesia evaluation should be completed and documented within 48 hours with the report that the client was unable to participate. The American Society of Anesthesiologist indicated that evaluation for clients is based on criteria established by the medical staff based on State law and professional organizations recommended practices (ASA, 2019).

Discharge assessments are conducted on client based on criteria established by the medical staff (ASA, 2019).

In 2012, Kaur et al. developed a template form based on the post-anaesthesia evaluation standard set up by Medicare and Medicaid Services CMS and The Joint Commission. The form included all necessary elements of the evaluation and was added to the patient's medical record. Additionally, the authors modified the discharge process from the PACU by adding post-anaesthesia evaluation to the discharge criteria. They used a visual clue on the clients' stretchers and a systems-based team approach involving Anaethetists and PACU nurses to implement the template across all three campuses of UMass Memorial Medical Center and University of Massachusetts Medical School. The compliance with CMS revised guidelines was evaluated through random monthly chart audits by the Quality Department, and the report showed that the medical center achieved an average compliance rate of 82 to 93%.

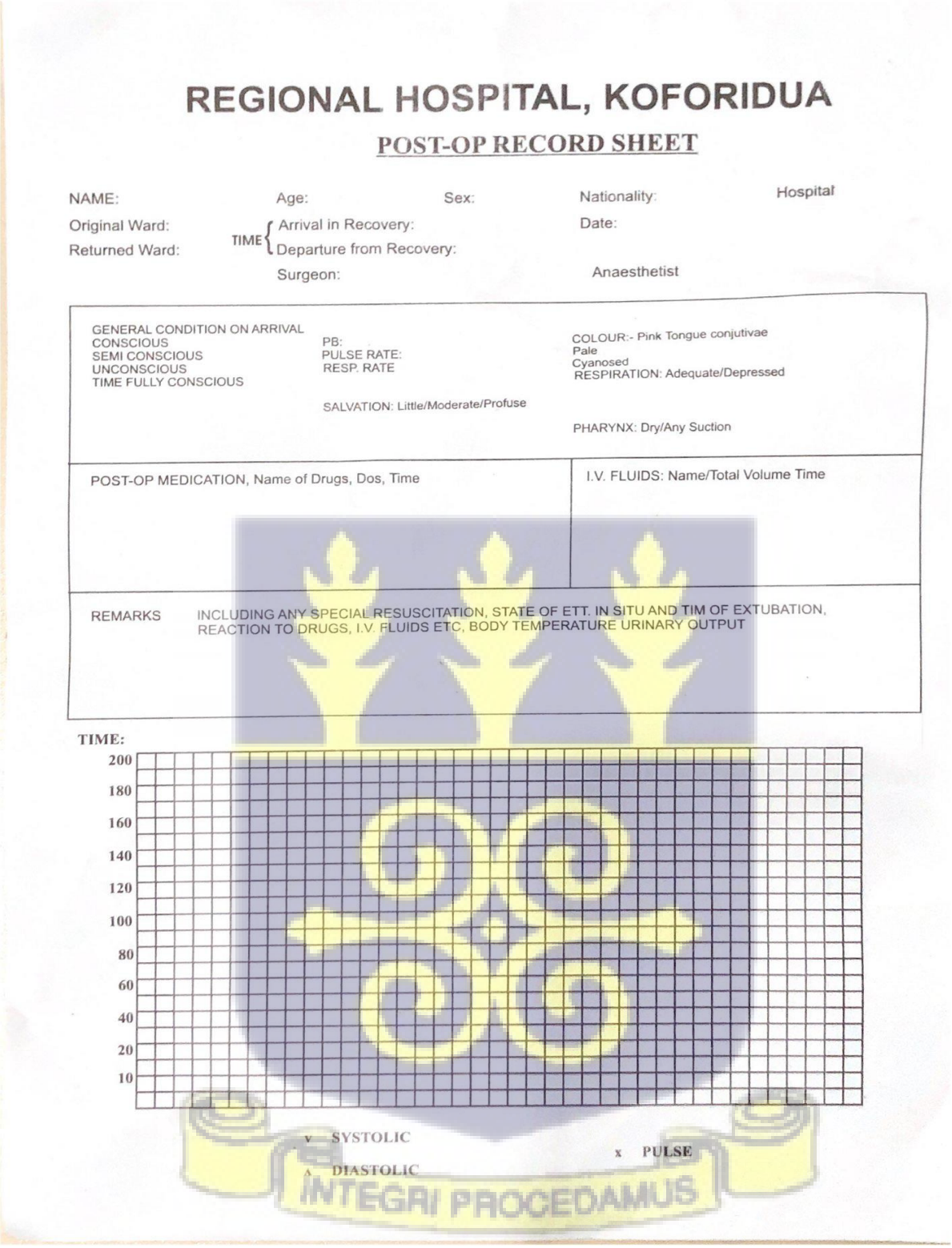
Post anaesthesia care is a critical phase of perioperative nursing that requires specialized knowledge and skills to ensure patient safety and recovery. However, there is limited evidence on the current state of post anaesthesia care in Ghana and the challenges faced by nurses in this area. One of the key studies conducted in Ghana is by Agyeman-Duah et al. (2018), which explored the knowledge and practices of nurses regarding post anaesthesia care in a tertiary hospital. The study highlighted the need for continuous education and training of nurses to enhance their skills in monitoring and evaluating patients after anaesthesia. Agyeman-Duah et al. (2018) used a descriptive cross-sectional design to collect data from 120 nurses working in the post anaesthesia care unit (PACU) of a tertiary hospital in Ghana. The data included demographic information, knowledge assessment, and self-reported practices of post anaesthesia care. The results showed

that the majority of the nurses had inadequate knowledge and suboptimal practices of post anaesthesia care, which could compromise patient outcomes. The study also identified some factors that influenced the knowledge and practices of nurses, such as lack of standardized protocols, inadequate staffing, insufficient equipment, and poor supervision. The study recommended that the hospital should develop and implement evidence-based guidelines and policies for post anaesthesia care, provide regular in-service training and workshops for nurses, improve the staffing and equipment situation in the PACU, and establish a quality assurance system to monitor and evaluate the quality of post anaesthesia care.

One of the recent studies that highlight the need for improving post-operative care in low-resource settings is the one conducted by Mensah et al. (2020). The authors implemented a post anaesthesia care unit (PACU) in a tertiary hospital in Ghana and evaluated its effects on various outcomes. They compared the data from 300 patients who received PACU care with 300 patients who did not, and found significant differences in several aspects. The PACU group had better monitoring of vital signs, oxygen saturation, and pain scores, as well as lower rates of post-operative complications, such as nausea, vomiting, hypothermia, and hypoxia. Moreover, the PACU group had shorter recovery times and length of hospital stay than the non-PACU group. The authors concluded that the introduction of a PACU facility in a low-resource setting can improve the quality and safety of post-operative care, and reduce the burden on the health system. This study demonstrates the importance of dedicated PACU facilities in enhancing post-operative care, and provides evidence to support the implementation of similar interventions in other settings.

Furthermore, Amponsah et al. (2019) conducted a qualitative investigation on the difficulties encountered by healthcare professionals in post anaesthesia care units. The study revealed that the quality and safety of postoperative care were compromised by several factors, such as insufficient

staff, inadequate equipment, and lack of uniform guidelines. These factors hindered the ability of healthcare professionals to monitor and evaluate the patients' recovery and respond to any complications that might arise.



REGIONAL HOSPITAL, KOFORIDUA

POST-OP RECORD SHEET

NAME: Age: Sex: Nationality: Hospital

Original Ward: TIME { Arrival in Recovery: Date:

Returned Ward: Departure from Recovery:

Surgeon: Anaesthetist

GENERAL CONDITION ON ARRIVAL
CONSCIOUS
SEMI CONSCIOUS
UNCONSCIOUS
TIME FULLY CONSCIOUS

PB:
PULSE RATE:
RESP. RATE

COLOUR:- Pink Tongue conjutivae
Pale
Cyanosed
RESPIRATION: Adequate/Depressed

SALVATION: Little/Moderate/Profuse

PHARYNX: Dry/Any Suction

POST-OP MEDICATION, Name of Drugs, Dos, Time

I.V. FLUIDS: Name/Total Volume Time

REMARKS INCLUDING ANY SPECIAL RESUSCITATION, STATE OF ETT. IN SITU AND TIM OF EXTUBATION, REACTION TO DRUGS, I.V. FLUIDS ETC, BODY TEMPERATURE URINARY OUTPUT

TIME:

200
180
160
140
120
100
80
60
40
20
10

v SYSTOLIC

x PULSE

^ DIASTOLIC

Figure 2.1: Eastern Regional hospital Anaesthesia protocol sheet

2.6 Conceptual Framework

In line with existing literature, it can be deduced that PACU is governed by policy to achieve the goal of delivering post-operative anaesthesia services. The policy is directed towards the ability of the unit to prevent post-operative pain. It is also set out to ensure that the service delivery does not cause harm to the client. Therefore, the policy provides a set of activities which are planned for, and implemented in a systematic and continuously manner to achieve this goal. In this case, the policy is set out to deliver a service which prevents the feeling of pain, throughout the recovery process (Bardiau, Taviaux, Albert, Boogaerts & Stadler, 2003).

In the implementation process, the key areas the policy focuses on are management and monitoring of the clients. This requires inputs such as post-operative anaesthesia guidelines, facilities, and post-operative anaesthesia medication. Some of the facilities include: cardiac monitor, blood pressure cuff, oxygen, suction, pulse oximeter, and temperature monitor.

Management processes entails the various activities that the anaesthetist undertakes to prevent post-operative pain on the client under recovery (Breivik & Stubhaug, 2008). These activities include: pain management, consciousness management, movement management, circulatory management, renal management and vomiting and nausea management, and complication management. Post-operative pain is managed with analgesics.

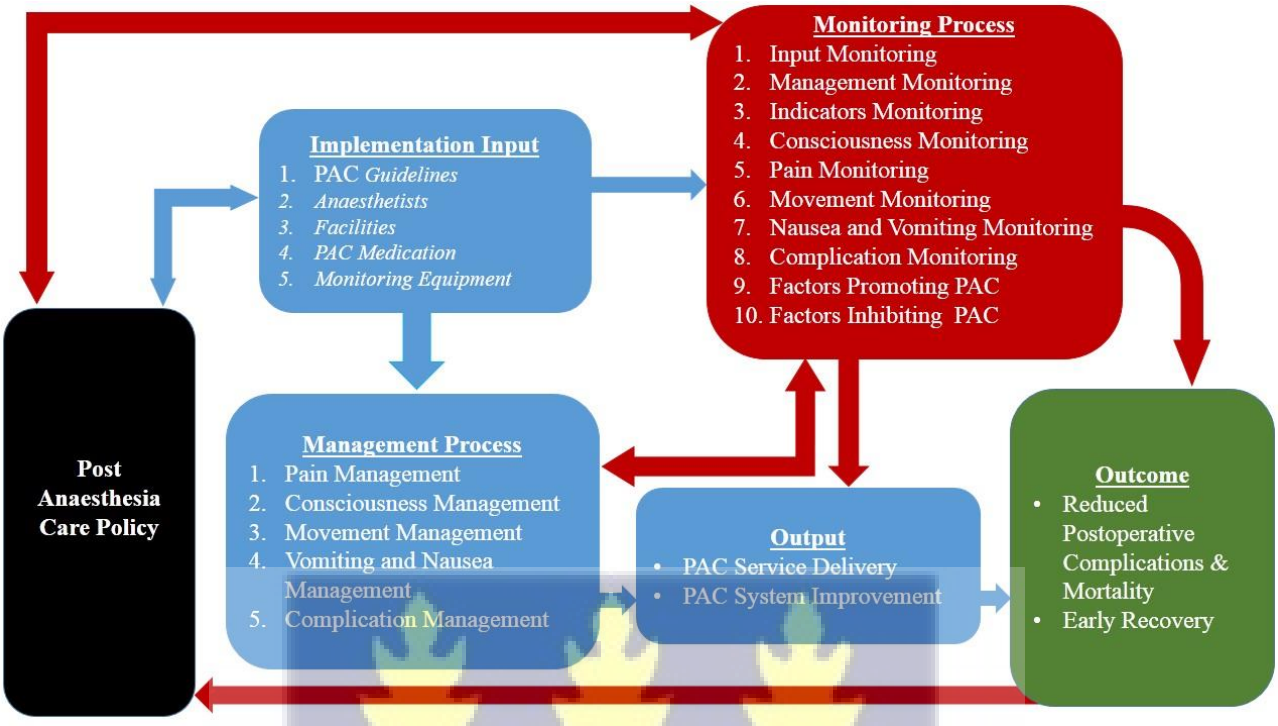


Figure 2.2 : Conceptual Framework on PACU

Surgery and anaesthesia cause the clients vital indicators to change, therefore monitoring is an essential part of post-operative anaesthesia care. It leads to prevention, early recognition and treatment of possible complications. Through monitoring, feedbacks are also provided which re-inform the policy and improve the management and monitoring processes. The monitoring process includes: input monitoring, management monitoring, indicators (blood pressure, oxygen saturation, heart rate, temperature and electrocardiogram) monitoring, consciousness monitoring, pain monitoring, renal monitoring, movement monitoring, vomiting and nausea monitoring, complication monitoring, factors promoting PAC, and factors inhibiting PAC (Hoogervorst-Schilp, Boekel, Blok, Steegers, Spreeuwengerg & Wagner, 2016).

Proper management and monitory processes lead to the desired output, which in this case results in PAC service delivery. This ultimately results in the desired outcome, which means reduced postoperative complications & mortality, and early recovery. A client who feels well throughout the recovery period is guaranteed to be satisfied.

Finally, the findings of the monitoring serves as a basis for evaluation. This determines the extent to which the PAC policy achieved it desired outcome. The conceptual framework is presented in the figure below.

2.7 Summary of Literature Review

Literature review for this study comprised of the concept of post anaesthesia care, the concept of general elective surgery, post anaesthesia care after general elective surgery, post anaesthesia care monitoring and evaluation and conceptual framework. Post anaesthesia care refers to the period from the completion of anaesthesia and procedure until the client is discharged from the hospital. In other words, it is the management of a client after anaesthesia and surgery. This includes care given during the immediate postoperative period, both in the theater and PACU, as well as days following the procedure (Perry, Potter & Ostendorf, 2014).

At PACU, the client's condition must be continually assessed by appropriated methods. The assessment includes client's, systemic blood pressure, heart rate/rhythm, airway patency, oxygen saturation and circulation, ventilatory rate/character, temperature, level of pain, and level of consciousness and/or sedation and documents these elements of the PACU admission. The post anaesthesia period is separated into three levels of care: Phase I, Phase II, and Phase III. Each phase of recovery may occur in one PACU or in multiple locations.

Standards for post anaesthesia care refers to standards ensured during activities undertaken to manage the patient after completion of anaesthesia/surgical procedure and the concomitant

primary anaesthetic. The purpose of these guidelines is to improve postanaesthetic care outcomes for patients who have just had anaesthesia or sedation and analgesia care. It is expected that these standards will be individualized according to patient needs.

In the delivery of post anaesthesia care, the anaesthetist provides medical services before and after the client is transported to the PACU. Before the post-operative period, an essential part of the anesthesiologist's work is to perform an initial evaluation. This is performed to assess risk and develop a post anaesthesia plan. By assessing risk, it uncovers hidden conditions that could cause complications during post anaesthesia care. Elements of the initial evaluation include: reviewing the client's medical history, pre anaesthesia data, intra anaesthesia data, and procedure data. A postoperative client is at risk of complications, and it is vital that this is minimized. Knowledge and comprehension of the key areas of risk and local policies help to reduce potential complications. Monitoring includes checking for client's pulse, respiratory rate, systolic blood pressure, temperature, and level of consciousness. Additional monitoring may include pain assessment, capillary refill time, percentage of oxygen administered, oxygen saturation, central venous pressure, infusion rates and hourly urine output (Ahmed et al. 2013). In some practices, the National Early Warning Score (NEWS) has been developed to provide a national standard for monitoring, assessing, and tracking acutely and critically ill clients (Royal College of Physicians, 2012).

Conventional monitoring systems including, noninvasive blood pressure, electrocardiogram, capnography and end tidal anesthetic analyzer are valuable and should be used to help assessment of these clinical signs. Some effective monitoring equipment include Bispectral Index Monitor, Narcotrend Monitor, AEP Monitor/ 2, PSA 4000 Monitor, Cerebral State Monitor, Entropy Module, DGA Monitors, Oxygen Analyser, Pulse Oximeter, Ventilation, Carbon Dioxide Monitor,

Continuous Invasive Blood Pressure Monitor, Inhalational Anaesthetic Agent Monitor, Temperature Monitor, and Neuromuscular Function Monitor (Somchai, 2012).

According to standards of The American Society of Anesthesiologist, post anaesthesia evaluation commences within 48 hours after procedure. The evaluation is not performed until the client is sufficiently recovered from anaesthesia. This enables the client to participate in answering questions appropriately, and performing simple tasks.

CHAPTER THREE

METHODS

3.0 Introduction

This chapter describes the research design, research setting, study population, sampling technique and sample size, method of data collection, data analysis, ethical consideration, and expected outcome.

3.1 Research Design

A mixed method study was conducted to evaluate post anaesthesia care after general elective surgery at Eastern Regional Hospital. This study type was chosen because it combines qualitative and quantitative research components in a single study (Schoonenboom & Johnson, 2017). This helps to expand and strengthen a study's conclusions and therefore contribute to the published literature (Schoonenboom & Johnson, 2017). This study relied on quantitative and qualitative data. A quantitative approach was used to evaluate post anaesthesia care of clients after general elective surgery. Secondary data from patients' anaesthesia protocol and PACU observational chart and used to evaluate post anaesthesia care of clients after general elective surgery.

A qualitative approach was used to assess adherence to the use of standard protocol in post anaesthesia care of clients after general elective surgery and factors that hinder operationalization of post operative care of clients after general elective surgery. This is a study which analyzed the current situation to identify the starting point of a policy, programme or project.

The Explanatory sequential design was the type of mixed method design employed in this study. This involved collecting and analyzing the quantitative data first, followed by qualitative data to explain and contextualize the quantitative findings. According to Schoonenboom and Johnson (2017), This design is useful when the researcher wants to explore the reasons or mechanisms

behind the quantitative results, or when the quantitative data alone is not sufficient to answer the research question.

3.2 Research Setting

The study was carried out at the Eastern Regional Hospital in Koforidua within New Juaben Municipality. Koforidua is the capital City of the Eastern Region of Ghana. It is made up of neighborhoods and settlements which includes Effiduase, Asokore, Oyoko, Jumapo, Suhyen, Dansuagya, Betom, and Srodae. It serves as a commercial center and the home of many Government Ministries, Departments, and Agencies at the Regional level.

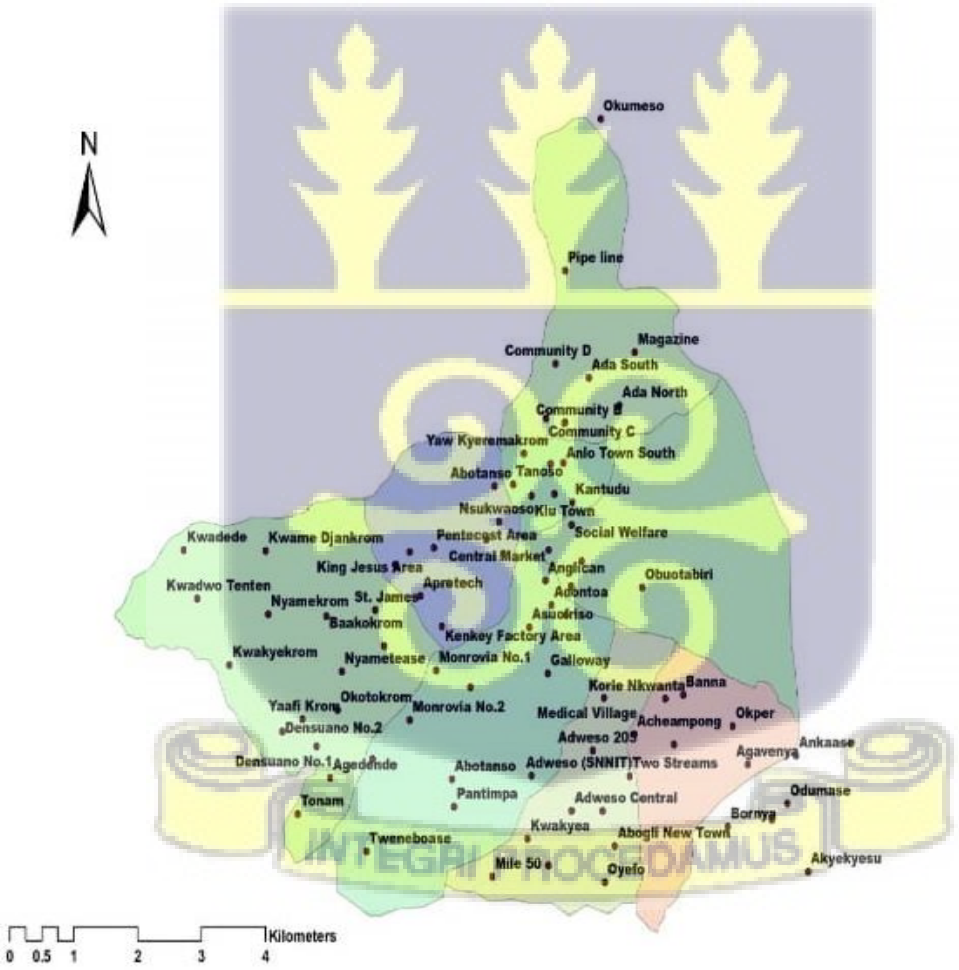


Figure 3.1: Map of New Juaben South Municipal

The Eastern Regional Hospital was established in 1926. It operates under the Ghana health Service as the largest Hospital in the Eastern Region, and the main referral point. As a 340-bed facility hospital, it provides wide range of service in the area of Pediatrics, Obstetrics and Gynecology, Neonatology, Dermatology, Venereology, Anti-Retroviral Therapy, Surgery, Medicine, Dentistry, Ophthalmology, Physiotherapy, Ear, Nose and Throat, Pharmacy, Laboratory, X-ray, Ultrasound, Catering and Hospitality, Laundry and Primary Healthcare Services.

The hospital also serves as an academic center for training interns, house officers, and residents as well as allied health students.

3.3 Study Population

The study population was made up of all anaesthetists and PACU nurses at the Eastern Regional Hospital as well as patients who underwent general elective surgery in the last six months at the Eastern Regional Hospital.

3.3.1 Inclusion Criteria

1. All permanent anaesthetists and PACU nurses at the Eastern Regional Hospital.
2. Anaesthesia protocol and PACU observation chart of patients (18 years and above) who have undergone general elective surgery at Eastern Regional Hospital.

3.3.2 Exclusion Criteria

1. Anaesthetists who were not willing to participate in the study
2. PACU nurses who were not willing to participate in the study

3.4 Description of Study Variables

Study variables have been tabulated below.

3.4.1 Dependent variables

Table 3.1 Dependent variables

Variable	Type of variable	Operational Definition	Scale of Measurement
Protocol used at PAC, proper handoff, monitoring patient parameters, discharge measures at PACU	Categorical	Measures in place to ensure client safety during post anaesthesia care	Nominal
Adherence to Protocol in Post Anaesthesia Care	Categorical	The availability of standard protocol that guide PAC, its components and use for post anaesthesia care	Nominal
Factors That Hinder Operationalization of Post Operative Care	Categorical	Factors that prevent the use of standard protocol at PACU, policies governing the use of standard protocol for PAC and challenges encountered in the usage of the standard protocol for PAC.	Nominal

3.4.2 Independent variable

Table 3.2: Independent variable

Variable	Type of variable	Operational Definition	Scale of Measurement
PACU equipments	Categorical	The availability of medical equipments for ensuring client safety during post anaesthesia care	Nominal
PACU medications	Categorical	The availability of medications for ensuring client safety during post anaesthesia care	Nominal
Age	Categorical	Self-reported age	Nominal
Sex	Categorical (binary)	Self-reported sex	Nominal
Level of education	Categorical	Self-reported highest level of education attained	Ordinal
Residence or location	Categorical	Self-reported residence	Nominal
Occupation	Categorical	Self-reported occupation	Nominal
Marital status	Categorical	Self-reported Marital status	Nominal

3.5 Indicators for process evaluation of post-operative anaesthesia care.

Table 3.3: Indicators for process evaluation of post-operative anaesthesia care.

	DESCRIPTION	INDICATORS	MEANS OF VERIFICATION
OVERALL OBJECTIVE	The main objective of the study is to evaluate post anaesthesia care after general elective surgery at Eastern Regional Hospital.	1. Percentage of PACU patients who developed post anaesthesia complicatios 2. Proportion of post anasthesia patients who died as a result of post operative complications 3. Percentage of patients who had surgeries and were discharged home	1. PACU admission and discharge register 2. Daily state ward state 3. PACU death certificate register 4. Incidence book 5. Ward admission and discharge register
SPECIFIC OBJECTIVE	1. To assess the measures in place to ensure client safety during post anaesthesia care. 2. To assess adherence to the use of the protocol in post anaesthesia care of clients after general elective surgery	1. Availability of emergency drugs in the PACU 2. Availability and function PACU equipment 3. Percentage of PACU staff trained in critical care 1. Availability of postanaesthesia care protocol in the PACU	1. Physical check from PACU drug cabinet 2. Drug requisition book 3. Physical check of equipment 4. Form hospitals human resource records 1. Physical check of protocols in the PACU

		2. Availability of discharge criteria protocol in the theater 3. Percentage of patients that protocols were used for	2. Physical check from PACU 3. From patient's folder or documents
	3. To determine factors that hinder operationalization of post operative care of clients after general elective surgery	1. Number of nurses who do not like using the post operative care protocols 2. Factors that hinder post operative care	1. Response from nurses
EXPECTED RESULTS	The result of the study is expected to improve post anaesthesia care at PACU at the Eastern Regional Hospital.	Percentage of post anesthesia patient who recovered and was trans out to the ward Percentage of day care surgeries that were discharged home after surgery	1. PACU admission and discharge register 2. PACU admission and discharge register
ACTIVITIES	1. Proper verbal and written handoff of patients by anesthetist to the PACU nurses	2. Availability of written handoff sheet in patients document or folder	1. Presence of handoff sheet in patient's folder or documents
	2. Applying monitors to the patients and monitoring the patient 3. Monitor vital signs (Blood Pressure, pulse. Electrocardiogram, temperature etc) till patient recovers for anesthesia 4. Use post-anesthesia care protocol to care for the patient	3. Every patient received in the PACU attached to a monitor	2. From post-anaesthesia care protocol 3. Presence of filled post-anaesthesia care protocol in patient's folder or document 4. Patient's monitoring chart/ protocol

	5. Assess the patient for pain using pain monitoring scale and act when appropriate 6. Watch out for signs of developing complications such as hypotension, difficulty in breathing, unconsciousness, excessive bleeding from operation site etc.) and act promptly 7. Use discharge criteria protocol to discharge the patient from PAC	4. Percentage of patients with protocols in their documents 5. Percentage of patients who developed post anaesthesia complications 6. Percentage of patients discharged with discharge criteria in their documents / folder	5. Patients' folder/ documents 6. Admission and discharge register

3.5.1 Logical Framework

The logical framework outlines the inputs, activities, outputs, and outcomes of the study on the evaluation of post-anaesthesia care after general anaesthesia at Eastern Regional Hospital. The inputs include the study protocol, research team, data collection tools, and the PACU unit at the hospital.

The activities involve data collection from the PACU unit, analysis of collected data, report writing, and dissemination of findings. The outputs of the study include a report on the evaluation of post-anaesthesia care after general anaesthesia, recommendations for improvements in PACU equipment, drug availability, and patient transport procedures, as well as recommendations for improvements in the continuous monitoring of patient vital signs, including pain management.

The outcomes of the study are focused on the improvement of the quality of post-anaesthesia care at Eastern Regional Hospital, increased patient safety and satisfaction, enhanced efficiency and

effectiveness of PACU operations, and the potential for replication of the study in other hospitals to improve post-anaesthesia care nationwide.

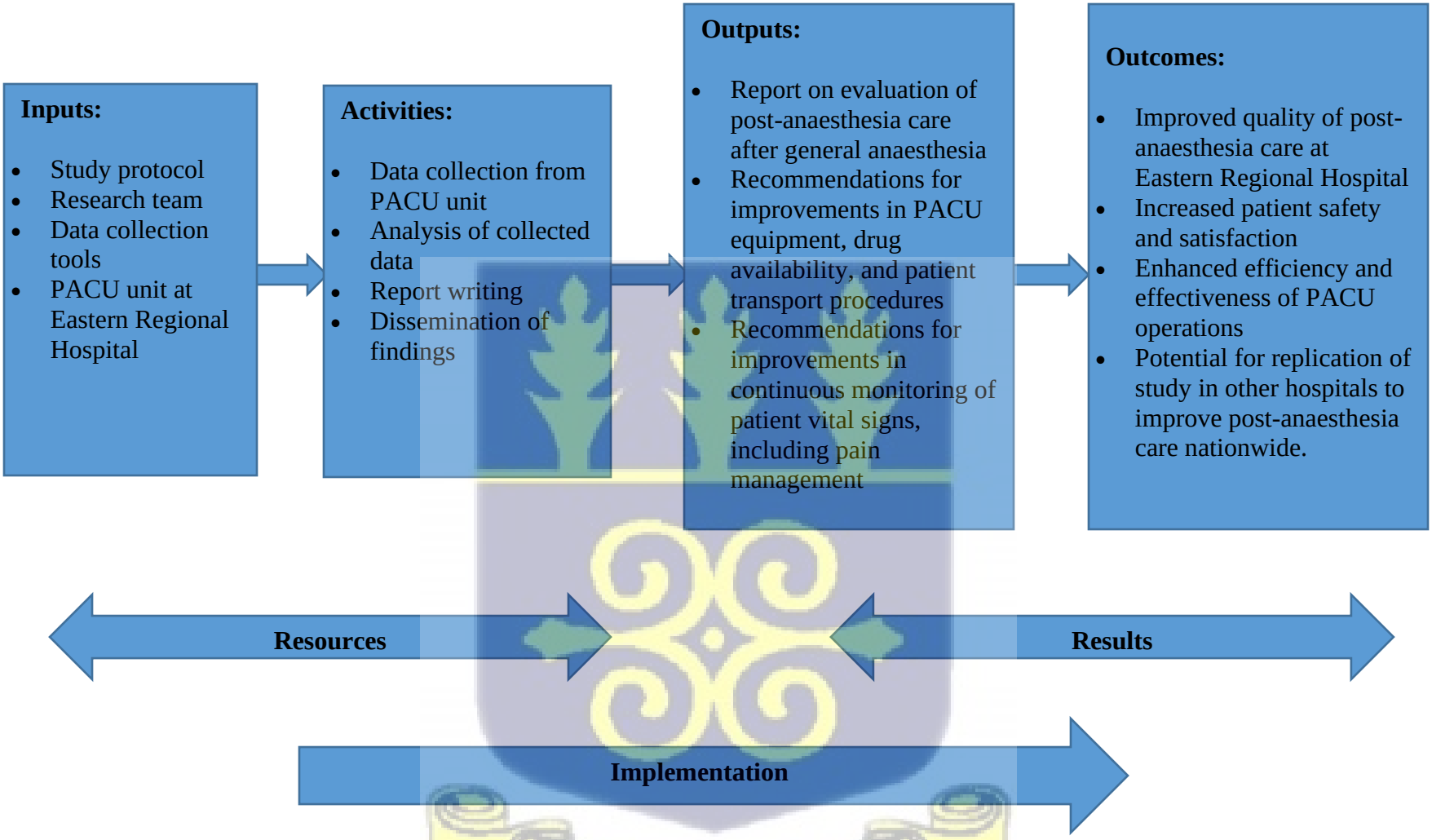


Figure 3.2: Logic Model

3.6 Sampling Technique and Sample Size

A purposive sampling technique was used to select anesthetists and PACU nurses based on the inclusion criteria. Purposive sampling is a non-probability sampling technique where the researcher relies on her own judgment when choosing members of the population. Purposive sampling is particularly useful in selecting major stakeholders in a case study. The purposive sampling was used because the anesthetists and PACU nurses are limited but they have significant data needed to achieve some of the objectives of the study.

A convenience sampling technique was used to select anaesthesia protocol and PACU observation chart of patients who have undergone general elective surgery Eastern Regional Hospital. The researcher also considers this technique as an effective way to gather in-depth data.

Sample size for selecting patients' anaesthesia protocol and PACU observation chart was determined by applying the formula developed by Yamane in 1967, which provides a simplified way of calculating sample size when dealing with proportions of a population.

$$n = \frac{N}{1 + N (e)^2}$$

In the above equation, n is the sample size, N is the population size and e is the level of precision. With a confidence level of 95%, the level of precision, e is estimated to be five (5) percent or 0.05. total number of elective general surgery in a month is 54, therefore an estimated total number of elective general surgery cases over a period of two months was 108. With a population size of 108 patients who undergo elective general surgery over a period of two months, the calculated sample size for the study was 85. However, a sample size of 94 was used for the study, after adding 10%

(9) non-response rate to a calculated sample size of 85. Therefore, 94 anaesthesia protocol and PACU observation chart of patients was selected for this study.

$$n = \frac{108}{1 + 108\,(0.05)^2} = 94$$

The population of anesthetists (19) and PACU nurses (20) at Eastern regional hospital is 39. However, 12 of these were purposively sampled.

For the qualitative aspect of the study, data saturation or thematic saturation were used among both categories of health professionals. Data saturation according to Hennik & Kaiser (2022) as an important principle that is used in qualitative research. Several authors have indicated that data saturation is that point in data collection when all important issues or insights are exhausted from data which gives an indication that the conceptual categories that comprises the theory are 'saturated', so that the emerging theory is comprehensive and well-grounded in data (Hennink & Kaiser 2022; Guest, Namey, Chen, 2020; Henink, Kaiser, Marconi, 2017)

3.7 Method of Data Collection

Formal permission was sought from the Clinical Director at the Eastern Regional Hospital. The formal permission was sought with an introductory letter from the researcher's university. In the process of seeking permission, the purpose of the study was explained. Once permission is granted, the head of the Anaesthesia Unit, and the head of PACU was contacted for access to participants. Once access is granted, the researcher proceeded to collect data. Both qualitative and quantitative data were collected for the study.

Quantitative data were collected through administering questionnaires. Secondary data were obtained from patient's anaesthesia protocol and PACU observational chart. A questionnaire is a research instrument consisting of a series of question for the purpose of gathering information from participants (Creswell, 2012). In addition, health facility inventory questionnaire was used to collect data on equipment's and drugs used at Eastern Regional Hospital, Koforidua. Facility anaesthesia inventory questionnaire was developed to collect data on equipment, drugs, personnel and local protocols. The researcher used one month to administer and retrieve the questionnaires.

Qualitative data were collected from anaesthetists and PACU nurses using a semi-structured in-depth interview guide. The interview guide was developed to gather data on adherence to the use of the protocol in post anaesthesia care of clients after general elective surgery and factors that hinder operationalization of post operative care of clients after general elective surgery. Interview guide was pretested for objectivity, reliability and validity. A face-to-face interview approach was used. The participants were interviewed at a location and time comfortable to them. The researcher probed during the interview to focus responses within the objectives of the study and also to get in- depth responses. Participants were allowed to validate key issues at the end of each interview. Privacy was ensured during the interview. An audio tape recorder was used to collect participant's responses on adherence to the use of the protocol in post anaesthesia care of clients after general elective surgery and factors that hinder operationalization of post operative care of clients after general elective surgery.

A pretesting was conducted using 10 for quantitative studies whereas 5 was used for the qualitative studies.

3.8 Quality Control Assurance

To assure the quality of the data obtained, before the commencement of the actual data collection, the research instruments were also shown to the research supervisor for needed corrections to be made and approved. Furthermore, the research instruments were pre-tested to confirm their validity and reliability.

3.9 Data Analysis

On a daily basis, all collected data were thoroughly checked for completeness and consistency and kept securely under lock and key in cabinets, accessible only to the researcher. Quantitative data were coded and imported into STATA version 16 software, which were then used to explore the features of the gathered data to obtain a general description of the responses provided by the respondents. Tables, graphs, and charts were utilized to represent these characteristics, with numerical data presented in means and standard deviation, and categorical variables are presented in frequencies and percentages.

For the qualitative data, they were transcribed verbatim and saved in a word document. Participants were assigned numbers (Participant A, B, C, D...L) based on their recruitment order into the study. Thematic content analysis conducted after data collection, which allowed the researcher to explore emerging issues more deeply during subsequent interviews. Different colors were utilized to represent the various themes, with the themes and sub-themes cut and pasted into a word document. Any remaining data that did not belong to any pre-existing themes or sub-themes was subjected to content analysis. During content analysis, each transcript was read multiple times to comprehend its meaning and patterns. The researcher searched for similar ideas, thoughts, and words, which were then labeled as codes. Similar codes were grouped to form sub-themes, which

were then categorized under themes. Quotes from participants were then used to support generated themes.

3.10 Ethical Considerations

The ethical principles concerning research on human participants were strictly followed to safeguard the rights of the individual and institutions

3.10.1 Ethical Approval and Permissions

Ethical approval was obtained from Ghana Health Service Ethics Review Committee before commencement of the study. Permission was obtained from the management of Eastern Regional Hospital through the regional health directorate prior to data collection.

The following are details of the ethical issues which were addressed in the study;

3.10.2 Consent Process

Consent was sought from study participants by the principal investigator and research assistant before their inclusion in the study. This was achieved by providing anaesthetists and PACU nurses with participant's information sheet to read and understand what the study entails, what was required of them and their rights as participants. Those who consent to partake in the study after reading the information sheet was given the consent form to voluntarily append their signatures as evidence for agreement to partake in the study.

3.10.3 Potential risks

Except for their time and the requirement to disclose some personal information, which may cause them some inconvenience, it was anticipated that there were be no direct risks associated with participants' participation in this study. Participants were assured that none of the personal information they provided would be disclosed to a third party. These were explicitly stated in the participant's information sheet: The study did not provide any direct individual benefits in terms of compensations in cash or in relation to job position. Regardless, participants were informed that the study aimed to evaluate post-anesthesia care following general elective surgery. The data collected would help the government and other stakeholders establish PAC policies to enhance patients' post-operative health and well-being.

3.10.4 Benefits of the study

There were no direct benefits to the participant in this study. However, it is hoped that the findings from this research may be used to identify the starting point of a policy, programme or project to improve post anaesthesia care of patients after general surgery.

3.10.5 Cost of participation

Participants were not required to pay any fees for taking part in the study.

3.10.6 Source of funding

The study was in partial fulfilment of requirements for the award of a Master of Public Health (MPH) degree at the School of Public Health, College of Health Sciences, University of Ghana, Legon and was solely funded by the principal investigator.

3.10.7 Compensation

The principal investigator did not pay respondents any money for their participation.

3.10.8 Privacy and confidentiality

Participants received assurances on the privacy and security of their submitted information. Protecting all of the data supplied by the research participants was a top priority. The study team made sure that the results were kept confidential. Since there was no way to identify anyone on the questionnaires, all responses were treated as confidential information.

3.10.9 Data security and storage

Hard copies of all documents were kept in a sealed cabinet which can only be accessed by the principal investigator. All data files were saved on a personal computer and password protected.

3.10.10 Voluntary consent and withdrawal

Respondents were informed of the study's objectives before being offered the option to participate voluntarily. Participants were informed that they might leave the research whenever they felt the need to.

3.10.11 Conflict of interest

There are no conflicts of interest to the current study

CHAPTER FOUR

RESULTS

4.0 Introduction

In this chapter, results of the analysis are presented. Firstly, description of the health facility inventory is presented. After this, the socio-demographic characteristics of study participants (patients) are presented. Then, measures in place to ensure client safety during post anaesthesia care is presented. Following this, the socio-demographic characteristics of study participants (anaesthetists and PACU nurses) is presented. Next, adherence to the use of the protocol in post anaesthesia care of clients after general elective surgery is presented. Finally, factors that hinder operationalization of post operative care of clients after general elective surgery is presented.

4.1 Socio Demographic Characteristics of Respondents

Table 4.4 presents the socio-demographic characteristics of study participants (patient category) whose anaesthesia protocol sheet were retrieved. Respondents were aged from 1 month to 67 years. Majority (32%) of the respondents were within the age group of 30 to 39 years. Most (67%) of them were females who resided within Koforidua (65.9%). A greater proportion (29.7%) of them had completed senior high school education followed by tertiary education (29.7%). Beside this, most (32.9%) of them were traders, 26.6% were professionals while a few of them were farmers (9.5%). Also, over half (57.4%) of them were married whereas 35.1% were single.

Table 4. 1: Socio-Demographic Characteristics of the Patients

VARIABLE	FREQUENCY (n=94)	PERCENT (%)
Age category in years		
< 18	12	12.7
18 – 29	17	18.0
30 – 39	32	34.0

40 – 49	15	15.9
50 – 59	8	8.5
60 – 67	10	10.6
Sex		
Female	63	67.0
Male	31	32.9
Level of education		
Basic education	9	9.5
No formal education	27	28.7
Senior High School (SHS)	30	31.9
Tertiary	28	29.7
Residence cat		
Outside Koforidua	32	34.0
Within Koforidua	62	65.9
Occupation		
Farmer	9	9.5
Professional	25	26.6
Trader	18	19.1
Unemployed	31	32.9
Vocation	11	11.7
Marital status		
Married	54	57.4
Single	33	35.1
Widow	7	7.4

Table 4.2: The socio-demographic characteristics of the respondents (Anaesthetists and PACU nurses)

Participant	Age	Gender	Marital Status	Years of Service	Level of Education
1	36	Female	Single	8	Bachelor's Degree
2	48	Female	Married	19	Diploma
3	27	Female	Single	3	Bachelor's Degree
4	55	Male	Married	30	Diploma
5	41	Female	Divorced	15	Bachelor's Degree
6	33	Female	Married	7	Bachelor's Degree

7	44	Female	Married	22	Bachelor's Degree
8	29	Female	Single	5	Bachelor's Degree
9	50	Male	Married	26	Bachelor's Degree
10	31	Female	Single	4	Bachelor's Degree
11	39	Female	Divorced	11	Diploma
12	47	Male	Married	21	Bachelor's Degree

The health workers at Eastern Regional represent a diverse group of individuals in terms of their age, gender, marital status, years of service, and level of education. The majority of the participants (8 out of 12) were Female, while the remaining 4 were male. The age range was between 25 and 60 years old, with a median age of 38 years old. The participants had varying levels of education, ranging from high school to master's degree.

In terms of marital status, half of the participants were married, while the other half were either single or divorced. The years of service in the healthcare industry ranged from 2 to 25 years, with a median of 10 years. The participants had worked in various roles such as nurses, anesthesiologists, surgeons, and administrators, among others.

It is clear that the Eastern Regional health workers are a diverse group of individuals, with a range of experiences and perspectives in the healthcare industry. These demographic characteristics will likely influence their approach to using standards for post anesthesia care and may impact their opinions on the challenges associated with implementing these standards. Overall, their diversity and expertise will be valuable in providing insights into the best ways to overcome these challenges and improve patient outcomes in post anesthesia care.

4.2. Assess the measures in place to ensure client safety during post anaesthesia care.

4.2.1 Health Facility Inventory

Table 4.3 provides a brief status of the PACU at Eastern Regional Hospital. From the table, there is a functional PACU at the hospital and the PACU unit has a protocol for reporting critical incidence however, the PACU unit has no functional post anaesthetic machine.

Table 4.3: Status of PACU

Equipment	Availability
Functional post anaesthetic machine	No
Whether there is a functional PACU at the hospital	Yes
Whether the PACU unit have a protocol for reporting critical incidence	Yes

Table 4.4 depicts availability of equipment's at the PACU unit. Equipment's such as pulse oximeter, face mask, nasal prongs, ambu bag, suction machine, oropharyngeal airway, laryngoscope, T-piece, ET tube, defibrillator, continuous blood pressure monitor and temperature monitor were present or available and functioning at the PACU unit.

On the other hand, equipment's such as ECG monitor, capnograph and bispectral index monitor, narcotrend monitor, AEP monitor/ 2, PSA 4000 monitor, cerebral state monitor, DGA monitors, oxygen analyser, carbon dioxide monitor, inhalational anaesthetic agent monitor and neuromuscular function monitor were absent at the PACU unit.

Table 4. 4: Availability of Equipment's at the PACU

VARIABLE	Available
Pulse Oximeter	Present and Functioning
Face mask	Present and Functioning
Nasal prongs	Present and Functioning
Ambu bag	Present and Functioning
Suction machine	Present and Functioning
Oropharyngeal airway	Present and Functioning
Laryngoscope	Present and Functioning
T-piece	Present and Functioning
ET tube	Present and Functioning
ECG monitor	Absent
Capnograph	Absent
Defibrillator	Present and Functioning
Bispectral Index Monitor	Absent
Narcotrend Monitor	Absent
AEP Monitor/ 2	Absent
PSA 4000 Monitor	Absent
Cerebral State Monitor	Absent
DGA Monitors	Absent
Oxygen Analyser	Absent
Carbon Dioxide Monitor	Absent
Continuous Blood Pressure Monitor	Present and Functioning
Inhalational Anaesthetic Agent Monitor	Absent
Temperature Monitor	Present and Functioning
Neuromuscular Function Monitor	Absent

Table 4.5 displays drugs available at the PACU unit. Drug's such as oxygen, Antihistamines, Suxamethonium, 5-HT3 Antiemetics, Metoclopramide, Lidocaine, Ibuprofen, Acetaminophen, Ketamine, Propofol, Anticonvulsants, Fentanyl, Morphine, Pethidine, Hydralazine, Atropine, Dobutamine, Dopamine, Adrenaline, Nor adrenaline, Atenolol, Furosemide, Dexamethasone were always available at the PACU unit.

On the other hand, drug's such as Tranquilizers/Neuroleptics, Hyoscine, Plain Bupivacaine, Naproxen Sodium, Celecoxib, Ketorolac and Esmolol were never available at the PACU unit whereas Naloxone was sometimes available.

Table 4. 5: Availability of Drugs at the PACU

VARIABLE	Availability
Oxygen	Always available
Antihistamines	Always available
Suxamethonium	Always available
5-HT3 Antiemetics	Always available
Tranquilizers/Neuroleptics	Never available
Metoclopramide	Always available
Hyoscine	Never available
Naloxone	Sometimes available
Lidocaine	Always available
Plain Bupivacaine	Never available
Ibuprofen	Always available
Naproxen Sodium	Never available
Celecoxib	Never available
Ketorolac	Never available
Acetaminophen	Always available
Ketamine	Always available
Propofol	Always available
Anticonvulsants	Always available
Fentanyl	Always available
Morphine	Always available
Pethidine	Always available
Hydralazine	Always available
Atropine	Always available
Dobutamine	Always available
Dopamine	Always available
Adrenaline	Always available
Nor adrenaline	Always available
Esmolol	Never available
Atenolol	Always available
Furosemide	Always available
Dexamethasone	Always available

4.2.2 Surgical Procedures Patients underwent

Figure 4.1 illustrates surgical procedures respondents underwent. Majority (33%) of the respondents underwent caesarean section followed by hernia repair (22.3%) then excision biopsy whereas a few of them underwent above knee amputation (2.1%), mastectomy (2.1%) and thyroidectomy (2.1%).

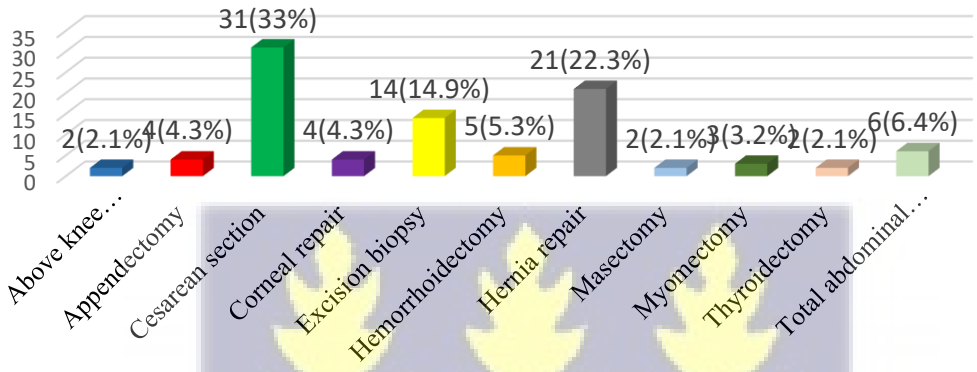


Figure 4. 1: Surgical Procedures patients underwent

Table 4.6 displays respondents transport to PACU. From the table, all (100%) respondents were received and cared for post operatively at the PACU. Beside this, all (100%) patients were brought to PACU in the company of a member of the anaesthesia team. Also, 67% of the patients were continuously evaluated and monitored during transport to the PACU whereas 33% were not continuously evaluated and monitored during transport to the PACU. More so, all (100%) patients were re-evaluated by the PACU nurse upon arrival at the PACU. In addition, a written report (100%) was provided to the PACU nurse by a member of the anaesthesia team who accompanied the patient upon arrival at the PACU. Above all, all (100%) patients' status on arrival in PACU was documented by the PACU nurse.

Table 4. 6: Respondents transport to PACU

VARIABLE	Yes	No
The patient was at the Post anaesthesia care unit after operation	94 (100)	0 (0.01)
Was the patient brought to PACU in the company of a member of the anaesthesia team?	94 (100)	0 (0.0)
Was the patient continuously evaluated and monitored during transport?	63 (67.0)	31 (33.0)
Upon arrival at PACU was the patient re-evaluated by the PACU nurse?	94 (100)	0(0.0)
Upon arrival at PACU was a written report provided to the PACU nurse?	94 (100)	0 (0.0)
Was patient status on arrival in PACU documented by the PACU nurse?	94 (100)	0 (0.0)

Table 4.7 depicts respondents' parameters that was continuously monitored at the PACU. Respondents' oxygen saturation (100%), blood pressure (84%), pulse rate (100%), temperature (100%) and level of consciousness (100%) were continuously monitored at the PACU. However, 68.1% of the patients had their pain being continuously monitored at the PACU while in 31.9% of the patients their pain was not continuously monitored at the PACU.

Table 4. 7: Parameters of patients

VARIABLE	Yes	No
Oxygen Saturation	94 (100)	0 (0.01)
Respiratory rate	39 (41.5)	55(58.5)
Blood pressure	79 (84.0)	15 (16.0)
Pulse rate	94 (100)	0(0.0)
Temperature	94 (100)	0 (0.0)
Level of consciousness	94 (100)	0 (0.0)

Pain	64 (68.1)	30 (31.9)

4.3 Adherence to the use of the protocol in post anaesthesia care of clients after general elective surgery

4.3.1 Post-Anesthesia Care Protocols and Standards:

Post-Anesthesia Care Protocols and Standards are crucial in ensuring safe and effective care for patients after surgery. The responses from the health workers highlight the importance of having these protocols in place, as they guide healthcare professionals on the appropriate steps to take when caring for patients in the post-anesthesia phase.

All participants agreed that their facilities have standard protocols for post-anesthesia care. However, some participants noted that they were not aware of the specific policies governing the use of these protocols. This suggests that there may be a need for increased awareness and education around the policies governing post-anesthesia care protocols.

The standards for post-anesthesia care protocol were described as vital to ensuring high-quality patient care. Participant two noted,

"It guides us on when to take care of a critically ill patient, what to do for the patient at the moment, especially when you're receiving the patients... it guides you on what to do when to do it and how to do it." This demonstrate that adherence to post-anesthesia care protocols is critical in providing optimal care to patients.

4.3.2 Referral to Standards

When asked about the frequency of referring to the standards for post-anesthesia care protocol, participants had varying responses. A participant mentioned that he did not refer to the protocols personally, while others stated that they referred to them every morning or any time during their shift. However, all participants agreed that the standards are essential and should be followed to ensure safe and effective care for patients.

Finally, participants highlighted some of the challenges that may prevent healthcare professionals from following the post-anesthesia care protocols. For example, one participant stated that heavy workload sometimes led to the oversight of certain protocols. It is essential to address these challenges and put measures in place to ensure that healthcare professionals can follow the protocols consistently.

4.3.3 Motivation for following standards

This was a common theme that emerged from the transcripts. Participants expressed that adhering to post-anesthesia care protocols and standards not only improves patient outcomes but also makes their work easier and instills confidence in caring for patients.

Participant Three stated, “It brings out the best of the patient's recovery and also speeds up your work. It makes you smart." Similarly, Participant Four mentioned, that it makes the work easier, and also it gives you the confidence to care for the patients" when asked what motivates her to follow the steps in the standards Focus anesthesia care protocol?

The use of standardized protocols and procedures provides a clear framework for providing care and facilitates decision-making in complex situations. Participant Two explained that standards

for post-anesthesia care protocols guide professionals on when to take care of a critically ill patient and what to do for the patient at the moment, especially when receiving the patient.

4.3.4 Discharge assessment

Discharge assessment is a critical aspect of patient care, especially in post-operative settings. It ensures that patients are fit to leave the hospital and have a safe and smooth transition to their homes. In this context, it is essential to use appropriate discharge criteria tool such as the Aldrete score to assess the patient if he all she is fit to either leave the PACU to the ward or to the house. It was worth noting that even though there is a discharge criteria protocol available at the PACU, most of the patients were being discharged due to the health professional's discretion. It was also realized most of the discharges to the ward were done by the PACU nurses and critically ill patients and those to the house were done by the doctor. Some heath care professionals used pain scale assessments to manage post-operative pain, and various participants shared their experiences during the interviews.

Participant three talked about the protocols and standards for post-anesthesia care, which guide their professional practice. They mentioned the HPT magnesium sulfates protocol and the water after birth protocol. They also discussed pain assessment tools used, including the verbal rating scale, the numeric rating scale, and the visual analog scale. However, they admitted to not having seen the standards for post-anesthesia care, which highlights the need for better awareness and adherence to guidelines.

Participant nine shared their experience of using diagrams with a scale of one to ten for pain visualization. She emphasized the importance of patient communication to assess pain levels accurately. The participant also discussed discharge assessment skills, which include a score that

considers the patient's level of consciousness, movement, vitals, and spo2. A score of eight over ten is considered good enough for a patient to be discharged.

4.4 Factors That Hinder Operationalization of Post Operative Care of Clients After General Elective Surgery

4.4.1 Lack of Standardization

One of the themes that emerged from the transcripts is the lack of standardization in post anesthesia care. Several participants discussed the challenges they face due to the lack of standardized practices and protocols. One participant said, *"We have different protocols for different patients, and sometimes it becomes difficult to manage them all. There is no uniformity in the way we handle patients' post-anesthesia."*

Another participant highlighted the issue of varying standards across different healthcare facilities, saying, *"The problem is that every hospital has its own set of standards, and there is no uniformity across the board. This creates confusion among healthcare providers and can compromise patient safety." P12*

The lack of standardization also impacts the training and education of healthcare professionals. As one participant stated, "There is no standardized training for post-anesthesia care. We have to rely on our own experiences and the knowledge we gain through trial and error. This can lead to inconsistent practices and can put patients at risk." P5

4.4.2 Resistance to change

One participant expressed their frustration with colleagues who were resistant to change, saying, "There's still some resistance out there to standardized protocols, and I don't understand it. It's like,

we have the evidence that shows it's effective and safe, but some people just don't want to change their ways."-P2

Another participant echoed this sentiment, stating, *"I think there's a fear of change, or maybe a belief that 'if it ain't broke, don't fix it.' But the truth is, we can always improve, and standardized protocols have been shown to improve patient outcomes."-P5*

Participants also noted the challenge of convincing others to adopt standardized practices. One participant stated, *"It's hard to convince everyone to adopt these practices when there's so much variability in how people do things. It takes a lot of effort to get everyone on the same page."-P2*

Another participant shared their experience with resistance to change within their organization, saying, *"We've tried to implement standardized protocols, but we've had some pushback from staff who are set in their ways. It's frustrating because we know it's the right thing to do, but it's hard to make everyone see that."-P7*

Thus, some healthcare professionals may be hesitant to adopt new protocols, despite evidence showing their effectiveness in improving patient outcomes. Overcoming this resistance may require convincing others of the benefits of standardized practices and addressing their concerns or fears about change.

4.4.3 Patient Factors

Patient factors are another challenge in implementing standards for post anesthesia care, as patients can have different needs and conditions that require tailored care. One participant noted, *"Patients have different levels of pain tolerance and different expectations for their recovery, which can make it difficult to standardize post anesthesia care."* Another participant added, *"Patients with*

comorbidities, such as heart or lung disease, may require different levels of monitoring and intervention during recovery, which can be difficult to standardize."

Furthermore, patient factors can also impact adherence to post anesthesia care standards. A participant stated, "*Patients may not follow the recommended post anesthesia care instructions due to cultural or language barriers, or simply because they do not fully understand the instructions."* Another participant added, *"Some patients may also have unrealistic expectations for their recovery and may push to be discharged earlier than recommended, which can be a challenge for healthcare providers to navigate."*

CHAPTER FIVE

DISCUSSION

5.0 Introduction

The present study aimed to evaluate post-anaesthesia care after general elective surgery at Eastern Regional Hospital. Three specific objectives were set to help achieve the goal of the study. The findings from this study are discussed below under each of the specific objective.

5.1 Measures in place to ensure client safety during post anaesthesia care.

First of all, the study examined on the average, the kind of operation common to the Eastern regional Hospital. The result indicate that a substantial proportion (33%) of patients underwent caesarean section, which is in contrast to the findings of Ferraz et al., (2018). They reported that gastrointestinal operations were the most common surgeries observed in the Post Anesthesia Care Unit (PACU) in their study assessing the quality of recovery and postoperative health status after elective surgery. The observed differences in the types of surgeries performed in the PACU may be attributed to differences in study populations, healthcare settings, and surgical practices across different regions.

Moreover, the findings from this study also revealed that although the PACU unit had a protocol for reporting critical incidence and equipment such as pulse oximeter, face mask, nasal prongs, ambu bag, suction machine, oropharyngeal airway, laryngoscope, T-piece, ET tube, defibrillator, continuous blood pressure monitor, and temperature monitor were present and functioning, the unit lacked some essential equipment such as ECG monitor, capnograph and bispectral index monitor, narcotrend monitor, AEP monitor/ 2, PSA 4000 monitor, cerebral state monitor, DGA monitors, oxygen analyzer, carbon dioxide monitor, inhalational anaesthetic agent monitor, and

neuromuscular function monitor. This finding is consistent with the study conducted by Ferraz et al. (2018) where they reported that although the PACU unit in their study had equipment such as pulse oximetry, ECG, and blood pressure monitoring, the unit lacked essential equipment such as capnography, neuromuscular monitoring, and bispectral index monitoring. Furthermore, another study by Raoof et al. (2018) found that the absence of capnography monitoring in the PACU was a significant concern as it could lead to delayed detection of respiratory depression, airway obstruction, or apnea.

The current study also found that drug's such as Tranquilizers/Neuroleptics, Hyoscine, Plain Bupivacaine, Naproxen Sodium, Celecoxib, Ketorolac, and Esmolol were never available at the PACU unit, while Naloxone was sometimes available. This finding is consistent with the study conducted by Ajenifuja et al. (2017) where they found that naloxone was not available in some of the PACUs they studied, which could lead to inadequate management of opioid-induced respiratory depression.

5.2 Adherence to the use of the protocol in post anaesthesia care of clients after general elective surgery

The second objective of this study was to assess adherence to the use of the protocol in post-anaesthesia care of clients after general elective surgery. The findings highlight the importance of post-anesthesia care protocols and standards in ensuring safe and effective care for patients after surgery. The participants agreed that adherence to these protocols is critical in providing optimal care to patients. However, some participants were not aware of the specific policies governing the use of these protocols, indicating the need for increased awareness and education. Similarly, there

was a lack of standardization across different healthcare facilities, which could compromise patient safety.

This result is consistent with existing literature that emphasizes the importance of standardized protocols and procedures in providing care and facilitating decision-making in complex situations. Studies have shown that adherence to guidelines and protocols leads to improved patient outcomes, reduced complications, and decreased healthcare costs (El-Sherif et al., 2020; McGuckin et al., 2017). In contrast, non-adherence to guidelines has been associated with increased morbidity and mortality rates (El-Sherif et al., 2020).

Result from the present study also highlight the importance of discharge assessment in post-operative care. Participants shared their experiences using various pain assessment tools, and they emphasized the importance of patient communication in assessing pain levels accurately. However, some participants admitted to not having seen the standards for post-anesthesia care, indicating the need for better awareness and adherence to guidelines.

In terms of patient monitoring, the current study found that all patients were cared for postoperatively at the PACU and brought to the unit in the company of a member of the anaesthesia team. Additionally, all patients were re-evaluated by the PACU nurse upon arrival at the unit, and a written report was provided to the PACU nurse by a member of the anaesthesia team who accompanied the patient upon arrival at the PACU. Lastly, all patients' status on arrival in PACU was documented by the PACU nurse.

This finding is consistent with the study conducted by Hovaguimian et al. (2016) where they found that effective postoperative monitoring of patients was critical to early identification of complications and improvement of patient outcomes. However, the current study found that only

68.1% of the patients had their pain being continuously monitored at the PACU while in 31.9% of the patients, their pain were not continuously monitored at the PACU. This finding is contrary to the study conducted by Zeng et al. (2019), where they found that pain assessment and management were adequately performed in the PACU to ensure patient comfort and satisfaction.

5.3 Factors that hinder operationalization of post operative care of clients after general elective surgery

Regarding the factors that hinder the operationalization of post-operative care of clients after general elective surgery, the findings of this study reveal several factors. One of the key factors is the lack of essential equipment in the postoperative care unit (PACU), such as ECG monitors, capnographs, bispectral index monitors, narcotrend monitors, AEP monitors/2, PSA 4000 monitors, cerebral state monitors, DGA monitors, oxygen analyzers, carbon dioxide monitors, inhalational anesthetic agent monitors, and neuromuscular function monitors. This lack of equipment can compromise patient safety and limit the ability of healthcare professionals to provide optimal care to patients.

The study also reveals that while several medications are always available at the PACU, several others are never available, which can limit the ability of healthcare professionals to manage postoperative pain and other complications effectively. The lack of standardization in post-anesthesia care practices and protocols is another factor that hinders the operationalization of postoperative care. This lack of standardization can lead to inconsistent practices that compromise patient safety and limit the ability of healthcare professionals to provide optimal care to patients.

Furthermore, the study revealed that challenges such as heavy workload and resistance to change could prevent healthcare professionals from following the post-anesthesia care protocols consistently

These findings are consistent with existing literature on postoperative care, which emphasizes the need for essential equipment, standardized protocols, and optimal medication management to ensure safe and effective care for patients after surgery (Eltorai et al., 2018; Tait et al., 2019). The literature also highlights the importance of discharge assessment in postoperative care, which ensures that patients are fit to leave the hospital and have a safe and smooth transition to their homes (Nasir et al., 2016).

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter comprises of two sections. The first section gives the conclusion of the study in relation to the characteristics of respondents' and the set objectives. The second section suggests recommendations based on the findings from the study

6.1 Conclusion

The study examined the postoperative care unit (PACU) at Eastern Regional Hospital. It was found that the PACU was functional and had a protocol in place for caring for post operative patients and also for reporting critical incidents. However, it was noted that the PACU lacked a functional post-anaesthetic machine.

In terms of equipment, a number of essential items were present and functioning at the PACU unit, including pulse oximeters, face masks, nasal prongs, ambu bags, suction machines, oropharyngeal airways, laryngoscopes, T-pieces, ET tubes, defibrillators, continuous blood pressure monitors, and temperature monitors. However, a range of other equipment items were absent, including ECG monitors, capnographs, bispectral index monitors, narcotrend monitors, AEP monitors/2, PSA 4000 monitors, cerebral state monitors, DGA monitors, oxygen analyzers, carbon dioxide monitors, inhalational anesthetic agent monitors, and neuromuscular function monitors.

In terms of drugs, a range of medications were always available at the PACU, including oxygen, antihistamines, suxamethonium, 5-HT3 antiemetics, metoclopramide, lidocaine, ibuprofen, acetaminophen, ketamine, propofol, anticonvulsants, fentanyl, morphine, pethidine, hydralazine, atropine, dobutamine, dopamine, adrenaline, noradrenaline, atenolol, furosemide, and

dexamethasone. However, several other drugs were never available, including tranquilizers/neuroleptics, hyoscine, plain bupivacaine, naproxen sodium, celecoxib, ketorolac, and esmolol. Naloxone was sometimes available.

Regarding the transport of patients to the PACU, all patients were received and cared for postoperatively at the PACU. They were brought to the PACU in the company of a member of the anesthesia team. While the majority of patients were continuously evaluated and monitored during transport to the PACU, a small percentage were not. Upon arrival at the PACU, all patients were re-evaluated by the PACU nurse and a written report was provided by a member of the anesthesia team who accompanied the patient. All patients' status upon arrival in the PACU were documented by the PACU nurse.

It was also found that while several vital signs of patients were continuously monitored at the PACU, such as oxygen saturation, pulse rate, blood pressure, temperature, and level of consciousness, pain was not always continuously monitored for all patients.

The findings from this study also suggest that post-anesthesia care protocols and standards are crucial in ensuring safe and effective care for patients after surgery. The study revealed that all participants were aware of the existence of standard protocols for post-anesthesia care in their facilities. However, some participants were not aware of the specific policies governing the use of these protocols, suggesting a need for increased awareness and education around the policies governing post-anesthesia care protocols.

The study also highlighted that adherence to post-anesthesia care protocols is critical in providing optimal care to patients. The use of standardized protocols and procedures provides a clear framework for providing care and facilitates decision-making in complex situations. The

participants agreed that the standards for post-anesthesia care protocol were vital to ensuring high-quality patient care.

Furthermore, the study revealed that challenges such as heavy workload and resistance to change could prevent healthcare professionals from following the post-anesthesia care protocols consistently. Addressing these challenges and putting measures in place to ensure that healthcare professionals can follow the protocols consistently is essential.

Regarding discharge assessment, the study revealed that it is a critical aspect of patient care, especially in post-operative settings. It ensures that patients are fit to leave the PACU to the ward or the hospital and have a safe and smooth transition to their homes. Participants shared their experiences using various pain scale assessments to manage post-operative pain. However, some participants admitted to not having seen the standards for post-anesthesia care, highlighting the need for better awareness and adherence to guidelines. Standard discharge crietria such as the Aldret score were not followed. Therefore, patients were discharged from the PACU based on the nurses or doctors' discretion.

One of the themes that emerged from the transcripts is the lack of standardization in post-anesthesia care. The lack of standardization impacts the training and education of healthcare professionals and can lead to inconsistent practices that compromise patient safety. The study highlighted the need for standardization of post-anesthesia care practices and protocols across healthcare facilities to ensure safe and effective patient care.

6.2 Recommendations

The following recommendations were addressed to the following organizations: The Eastern Regional Hospital and the Ministry of Health (MOH). Recommendations for future research are also presented:

6.2.1 Eastern Regional Hospital

Based on the study's findings, it is recommended that the Eastern Regional Hospital address the issue of the lack of functional post-anaesthetic machines in the PACU. This equipment is crucial in monitoring and managing patients' during the post-operative period, and its absence could compromise patient safety. Therefore, the hospital should prioritize acquiring functional post-anaesthetic machines to ensure the PACU is fully equipped to provide optimal care to patients.

Additionally, the hospital should consider expanding the range of equipment items available in the PACU to include those that were absent during the study, such as ECG monitors, capnographs, and oxygen analyzers. This would help ensure that patients receive comprehensive monitoring and appropriate management during the post-operative period.

The hospital should also review and strengthen its post-anesthesia care protocols and standards to ensure that healthcare professionals are aware of the policies governing the use of these protocols. The study revealed a need for increased awareness and education around these policies, and the hospital should take steps to address this gap.

To ensure consistent adherence to post-anesthesia care protocols, the hospital should address challenges such as heavy workload and resistance to change. This could be achieved by providing

additional resources or support to healthcare professionals and emphasizing the importance of following standardized protocols and procedures.

Finally, the hospital should prioritize standardizing its post-anesthesia care practices and protocols across healthcare facilities to ensure safe and effective patient care. This could involve collaboration with other healthcare facilities and regulatory bodies to establish best practices and guidelines for post-anesthesia care. By implementing these recommendations, the Eastern Regional Hospital can improve its post-operative care and ensure that patients receive high-quality, safe, and effective care during their recovery period

6.2.2 Ministry of Health (MOH)

Based on the findings of the study on postoperative care at the Eastern Regional Hospital, it is recommended that the Ghana Ministry of Health takes steps to ensure the availability of essential equipment and drugs in all postoperative care units across the country.

It is imperative that the Ministry takes action to provide functional post-anaesthetic machines, as this is critical in ensuring the proper monitoring of patients' vital signs postoperatively. Additionally, there is a need to ensure that all necessary equipment, such as ECG monitors, capnographs, and oxygen analyzers, are available to support the monitoring and care of patients.

The Ministry should also ensure that all required drugs are available in postoperative care units, including tranquilizers, hyoscine, plain bupivacaine, naproxen sodium, celecoxib, ketorolac, and esmolol. Naloxone should also be made readily available to address any opioid-induced respiratory depression.

Furthermore, the Ministry should consider implementing standardized protocols and procedures for postoperative care across all healthcare facilities in the country. This would help to ensure consistent practices and improve the quality of care provided to patients. The Ministry should also provide training and education for healthcare professionals to increase their awareness and adherence to postoperative care guidelines.

It is also important for the Ministry to address the challenges faced by healthcare professionals in adhering to postoperative care protocols. This may include addressing issues related to workload and resistance to change. Measures should be put in place to support healthcare professionals in following postoperative care protocols consistently.

Finally, the Ministry should prioritize discharge assessment as a critical aspect of patient care. There is a need to ensure that patients are fit to leave the hospital and have a safe and smooth transition to their homes. The Ministry should provide guidance and support to healthcare professionals in the use of pain scale assessments to manage postoperative pain and ensure that they have access to the standards for postoperative care.

6.2.3 Future research

Based on the findings, a larger-scale study to evaluate the impact of standardization of post-anesthesia care practices and protocols on patient outcomes is recommended. This study could involve multiple hospitals or healthcare facilities and could evaluate the effectiveness of implementing standardized protocols for post-anesthesia care in reducing complications, improving patient outcomes, and increasing adherence to protocols. The study could also investigate strategies to address the barriers to implementation and adherence to standardized protocols and identified in this study. Additionally, future research could explore the feasibility

and effectiveness of incorporating new technologies, such as ECG monitors, capnographs, and bispectral index monitors, into post-anesthesia care to improve patient safety and outcomes.

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APPENDIX A

HEALTH FACILITY INVENTORY QUESTIONNAIRE

UNIVERSITY OF GHANA

School of Public Health

This Research Instrument is designed to seek relevant primary data for the conduct of an academic study on the topic "Evaluation of Post Anaesthesia Care After General Anaesthesia: A Case at Eastern Regional Hospital". Your support and co-operation is very much appreciated and please be assured that your responses will be treated with utmost confidentiality.

HEALTH FACILITY INVENTORY QUESTIONNAIRE

Name of health facility ……

Name of data collector……

Date …….

1. Do you have a functional post anaesthetic machine?

   Yes ☐ NO ☐

2. Do you have a functional PACU at your hospital?

   Yes ☐ No ☐

3. Does the PACU unit have a protocol for reporting critical incidents/ complications?

   Yes ☐ No ☐

4. Equipment Do you have

	Present	Functioning	Absent
Pulse Oximeter			
Face mask			
Nasal prongs			
Ambu bag			
Suction machine			
Oropharyngeal airway			
Laryngoscope			
T-piece			
ET tube			
ECG monitor			
Capnograph			
Defibrillator			
Bispectral Index Monitor			
Narcotrend Monitor			
AEP Monitor/ 2			
PSA 4000 Monitor			
Cerebral State Monitor			
DGA Monitors			
Oxygen Analyser			
Carbon Dioxide Monitor			
Continuous Blood Pressure Monitor			

Inhalational Anaesthetic Agent Monitor			
Temperature Monitor			
Neuromuscular Function Monitor			

5. Drugs Do you have

	Always available	Sometimes available	Never available
Oxygen			
Antihistamines			
Suxamethonium			
5-HT3 Antiemetics			
Tranquilizers/Neuroleptics			
Metoclopramide			
Hyoscine			
Naloxone			
Lidocaine			
Plain Bupivacaine			
Ibuprofen			
Naproxen Sodium			
Celecoxib			
Ketorolac			
Acetaminophen			
Ketamine			
Propofol			
Anticonvulsants			
Fentanyl			
Morphine			

Pethidine			
Hydralazine			
Atropine			
Dobutamine			
Dopamine			
Adrenaline			
Nor adrenaline			
Esmolol			
Atenolol			
Furosemide			
Dexamethasone			

APPENDIX B

PATIENT QUESTIONNAIRE

UNIVERSITY OF GHANA

SCHOOL OF PUBLIC HEALTH

This Research Instrument is designed to seek relevant primary data for the conduct of an academic study on the topic "Evaluation of Post Anaesthesia Care After General Anaesthesia: A Case at Eastern Regional Hospital". This section will gather patient data. Data will be treated with utmost confidentiality.

Section A

1. Age ……
2. Sex

   Male ☐

   Female ☐
3. Level of education

   No formal education ☐

   Basic education ☐

   Senior High School (SHS) ☐

   Tertiary ☐
4. Residence or location

   ……
5. Occupation

   Professional ☐

   Vocation ☐

   Trader ☐

   Farmer ☐

   Housewife ☐

   Unemployed ☐

6. Marital status

Single ☐

Married ☐

Divorced ☐

Separated ☐

Widow

Section - Measures in Place to Ensure Client Safety During Post Anaesthesia Care After General Elective Surgery

7. Type of surgery done ……..
8. Where was patient received and cared for post operatively?

Surgical intensive care unit ☐

Post anaesthesia care unit ☐

Other specify ……..

9. Was the patient brought to PACU in the company of a member of the anaesthesia team?

Yes ☐ No ☐

10. Was the patient continuously evaluated and monitored during transport to PACU?

Yes ☐ No ☐

11. Upon arrival at PACU, was the patient re-evaluated by the PACU nurse?

Yes ☐ No ☐

12. Upon arrival at PACU, was a written report provided to the PACU nurse by a member of the anaesthesia care team who accompanied the patient?

Yes ☐ No ☐

13. Was patient status on arrival in PACU documented by the PACU nurse?

Yes ☐ No ☐

14. Which of the following patient parameters was continuously monitored at the PACU?

I. Oxygen Saturation Yes ☐ No ☐

II. Respiratory rate Yes ☐ No ☐

III. Blood pressure Yes ☐ No ☐

IV. Pulse rate Yes ☐ No ☐

V. Temperature Yes ☐ No ☐

VI. Level of consciousness Yes ☐ No ☐

VII. Pain Yes ☐ No ☐

15. How often were patient parameters such as oxygen saturation, respiratory rate, blood pressure, pulse rate, temperature level of consciousness and pain monitored and documented?

Every 15 minutes ☐

Every 10 minutes ☐

Every 15 minutes in first 1 hour then every 30 minutes in second hour ☐

Other specify ……..

16. Was an accurate written report for the patient maintained during his/her period at PACU?

Yes ☐ No ☐

APPENDIX C

INTERVIEW GUIDE

UNIVERSITY OF GHANA

School of Public Health

This Research Instrument is designed to seek relevant primary data for the conduct of an academic study on the topic "Evaluation of Post Anaesthesia Care After General Anaesthesia: A Case at Eastern Regional Hospital". Your support and co-operation is very much appreciated and please be assured that your responses will be treated with utmost confidentiality.

Section A

Highest Education: ……... Age: ……

Years of Service: …….. Sex: ……...

Marital Status: ……..

1. Indicate professional category.

   Certified Registered Anaesthetist (CRA) ☐

   PACU Nurse ☐

2. i. If CRA number of anaesthetists in the hospital ……...

   ii. If PACU nurse number of PACU nurses in the hospital……

3. Have you attended any refresher course over the past one year? Yes ☐ No ☐
4. Do you work under the supervision of a physician anaesthetist? Yes ☐ No ☐
5. Do you belong to any professional organization? Yes ☐ No ☐
6. If yes, what is the name of that organization? ……..

7. Do you have regular confidential discussion of appropriate topics and cases with multidisciplinary professional colleagues?

   Yes ☐ No ☐

8. Do you have protocols and standard operating procedures that guide your professional practice?

   Yes ☐ No ☐

9. If yes when was the last time it was reviewed?

   …….

10. How long have you been using the protocol?

    ……

11. Do you have an internal standard safety checklist? Yes ☐ No ☐

Section B - Adherence to The Use of The Protocol in Post Anaesthesia Care of Clients After General Elective Surgery

1. What standard protocol are you guided by in conducing your duty at this unit?

   ……

   ……

   ……

2. Have you heard of the standards for post anaesthesia care?

   ……

   ……

   ……

3. What are some of the main components of the standards for post anaesthesia care?

   ……

   ……

   ……

4. Do you provide care for patients after general surgery based on the standards for post anaesthesia care protocol?

   ……

   ……

   ……

5. Is the standards for post anaesthesia care protocol a vital tool?

   ……

   ……

   ……

6. How often do you refer to the standards for post anaesthesia care protocol?

   ……

   ……

   ……

7. What motivates you to follow the steps in the standards for post anaesthesia care protocol?

   ……

   ……

   ……

8. What information is provided to PACU nurses during handoff?

……

9. Which member of the anaesthesia team remains at PACU until the PACU nurse accepts responsibility for nursing care of the patient?

……..

10. What appropriate pain assessment scale is used to assess and manage post operative pain at the PACU?

……

11. What appropriate discharge assessment scale/ score is used to assess patient before discharge from the PACU?

……

12. Who oversees the general medical care and coordination of patient care in the PACU?

……

13. What policy at PACU unit ensure the availability of a physician in the facility capable of managing complications and providing cardiopulmonary resuscitation for patients at PACU?

……

14. Who approves discharge of patients at PACU to the hospital ward/room?

……

15. Who approves discharge of patients at PACU to the intensive care unit?

……

16. In the absence of the physician responsible for the discharge of patient from PACU, who determines that the patient meets discharge criteria for discharge per discussion with the physician? ……

Section C - Factors That Hinder Operationalization of Post Operative Care of Clients After General Elective Surgery

17. What factors prevent the use of the standards for post anaesthesia care protocol?

    ……

    ……

    ……

18. What measures do you put in place to ensure the use of the standards for post anaesthesia care protocol?

    ……

    ……

    ……

19. What are the policies governing the use of the standards for post anaesthesia care protocol?

    ……

    ……

    ……

20. What challenges are encountered in the usage of the standards for post anaesthesia care protocol?

    ……

    ……

    ……

APPENDIX D

INFORMATION SHEET

STUDY TITLE: EVALUATION OF POST ANAESTHESIA CARE AFTER GENERAL ANAESTHESIA: A CASE AT EASTERN REGIONAL HOSPITAL

INTRODUCTION: I am Linda Sarfoa Kissi, a student at the University of Ghana School of Public Health offering a Master's degree in Public Health Monitoring and Evaluation. I am conducting research on the topic "EVALUATION OF POST ANAESTHESIA CARE AFTER GENERAL ANAESTHESIA: A CASE AT EASTERN REGIONAL HOSPITAL" in partial fulfillment of the award of a Master's Degree. My contact details are as follows;

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E-mail: linkissowusu73@gmail.com

Location: University of Ghana Campus

BACKGROUND AND PURPOSE OF RESEARCH: Post anaesthesia care refers to the period from the completion of anesthesia and procedure until the client is discharged from the hospital. Good management of post-operative anaesthesia care has resulted in greater client care and surgeon satisfaction. However, postoperative period can be very stormy at times which can be attributed to both surgical and anaesthesia complications. Moreover, the practice of post-operative visits by anaesthetists is not universally followed and there are no established protocols for post-operative anaesthesia care. Post anaesthesia care is yet an area of little or no practice concerns and the generalizability is to almost all hospitals in Ghana. Evidence from studies have demonstrated

that the performance of adequate post - anaesthesia care may improve patient satisfaction and physician recognition (Fink et al., 2016). To improve perioperative quality control, studies have suggested the implementation of an interdisciplinary post-anaesthesia care (Cook, 2017). Currently, it is unknown how client safety is ensured during post anaesthesia care. No data is available on standard protocol used or valued by anaesthetists in post anaesthesia care of clients after general elective surgery at Eastern regional hospital. More so, no previous study has evaluated the practice of post anaesthesia care and factors that influence adequate post anaesthesia care of clients after general elective surgery at Eastern regional hospital. This study however intends to evaluate post anaesthesia care after general elective surgery at Eastern regional hospital with the aim of detecting how client safety is ensured during post anaesthesia care, adherence to the use of standard protocol in post anaesthesia care and also to identify factors that hinder operationalization of post operative care of clients after general elective surgery.

NATURE OF RESEARCH: This study is to evaluate post anaesthesia care after general elective surgery at Eastern Regional Hospital. This is a study which will analyze the current situation to identify the starting point of a policy, programme or project. This study will take place at Eastern Regional Hospital where 94 anaesthesia protocol and observation chart of patients who have undergone elective general surgery will be selected through conveniencec sampling technique and 35 anaesthetists and post anaesthesia care unit (PACU) nurses will be interviewed.

PARTICIPANTS INVOLVEMENT: A questionnaire will be used to gather data on patients who will undergo elective general surgery as they will be followed to PACU to observe post anaesthesia care that will be rendered to them after general elective surgery. In addition, an interview guide will be used to gather data from anaesthetists and PACU nurses regarding adherence to the use of standard protocol in post anaesthesia care of clients after general elective

surgery and factors that hinder operationalization of post operative care of clients after general elective surgery. Participants are reassured that their responses will not be used against them and it will be used solely for the purposes of the research.

BENEFITS: The research participant will not directly get anything from the study. Nonetheless is anticipated that the results of this study will help define the point at which a policy, programme, or project to enhance post-anesthesia care for patients after surgical procedures should begin.

RISK: Respondents will not be at any risk while participating in this study. Just a little bit of the time you spend for the interview.

COST: There will be no out-of-pocket expenses for those who take part in this study. Participants in the research will not receive any pay for their participation. Nevertheless, is anticipated that those involved will receive a token.

CONFIDENTIALITY: Participants will be identified by code numbers rather than by names, and all information gathered will be kept confidential and utilised only for research.

OPTIONAL PARTICIPATION/WITHDRAWAL: Participation in the study is entirely optional, and participants are free to refuse participation at any time without incurring any penalties or being required to provide a justification.

OUTCOME AND COMMENTS: The data gathered will be examined and analysed in order to further the study. A few months after the research is finished in its entirety, the data acquired will then be deleted. The study's findings will be published in publications so that everyone may learn what was discovered and apply it as existing research in subsequent studies.

INFORMATION ON FUNDING: This study will only be funded by the principal investigator.

Participants are informed that the data obtained will not be shared with any people or organisations and will only be utilised by the Principal Investigator for study.

PROVISION OF INFORMATION & CONSENT FOR PARTICIPANTS: A copy of the Information sheet and consent form will be given to you after it has been signed or thumb-printed to keep.

For further clarifications or questions, kindly contact the following;

Linda Sarfoa Kissi	Dr. Paulina Tindana
Prin. Investigator	Supervisor
0246617099	0544905490
linkissowusu73@gmail.com	ptindana@ug.edu.gh

APPENDIX E

CONSENT FORM FOR PATIENTS

STUDY TITLE: Evaluation of Post Anaesthesia Care After General Anaesthesia: A Case at Eastern Regional Hospital.

PARTICIPANTS INFORMATION

I certify that I have read the participant information sheet's objective and contents and that all of my concerns have been adequately answered in a language I can comprehend (English). I am fully aware of this form's contents, any possible ramifications, and my right to change my mind and, as a result, resign from the research, regardless of whether I have signed or thumb-printed it.

I willingly accept to participate in this study.

Respondent Initials……...

Signature: ……. Date…….

Signature of Principal investigator: …… Date…….

APPENDIX F

CONSENT FORM FOR ANAESTHETISTS AND PACU NURSES

STUDY TITLE: Evaluation of Post Anaesthesia Care After General Anaesthesia: A Case at Eastern Regional Hospital.

PARTICIPANTS INFORMATION

I certify that I have read the participant information sheet's objective and contents and that all of my concerns have been adequately answered in a language I can comprehend (English). I am fully aware of this form's contents, any possible ramifications, and my right to change my mind and, as a result, resign from the research, regardless of whether I have signed or thumb-printed it.

I willingly accept to participate in this study.

Respondent Initials……...

Signature: ……. Date…….

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the details of this study at large have been thoroughly explained to the participant and all questions and clarifications raised were duly attended to.

Researcher Name……

Signature…… Date……."

APPENDIX G

ETHICAL APPROVAL

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Digital Address: GA-050-3303
Mob: +233-50-3539896
Tel: +233-302-681109
Email: ethics.research@ghs.gov.gh

My Ref GHS-RDD ERC/Admin App 123/142
Your Ref No

3rd March, 2023

Linda Sarfoa Kissi
Eastern Regional Hospital
P. O. Box 201
Koforidua

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC: 030/01/23**
Study Title	Evaluation of Post Anaesthesia Care after General Anaesthesia: A case at Eastern Regional Hospital
Approval Date	3rd March, 2023
Expiry Date	2nd March, 2024
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of a yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

You are kindly advised to adhere to the national guidelines or protocols on the prevention of COVID -19

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
Dr. Naa-Korkor Allotey
(Ag. Head, Ethics & Research Management Department)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

APPENDIX H

APPROVAL LETTER FROM EASTERN REGIONAL HOSPITAL

In case of reply the number and the date of this letter should be quoted

GHANA HEALTH SERVICE
Your Health - Our Concern

EASTERN REGIONAL HOSPITAL
P.O. BOX 201
KOFORIDUA, E/R.
GHANA – WEST AFRICA.
TEL. # 03420- 23011
FAX # 03420- 25294
Website:www.erhk.org
Email:info@erhk.org/
eastern.rh@ghs.gov.gh

My Ref. No GHS/ ERHK /GF/ 037
Your Ref. No .....

5TH MARCH, 2023

THE HEAD OF DEPARTMENT
DEPARTMENT OF HEALTH POLICY, PLANNING AND MANAGEMENT
SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF GHANA
LEGON

APPROVAL TO CONDUCT RESEARCH AT THE EASTERN REGIONAL HOSPITAL, KOFORIDUA

Reference is made to your letter dated 30th November, 2022 in respect to the above subject matter.

This is to inform you that approval has been given to **Ms. Linda Sarfoa Kissi - 10934814** a MSc Public Health Monitoring and Evaluation student with the Department of Health Policy Planning and Management of School of Public Health, University of Ghana, to conduct a research at the Eastern Regional Hospital, Koforidua on the Topic **"Evaluation of Post Anaesthesia Care after General Anaesthesia; A case study at Eastern Regional Hospital."**

By copy of this letter, you (Ms. Linda Sarfoa Kissi) are therefore requested to submit a copy of the research report to the office of the Medical Director upon completion of the study or research.

Thank you

DR. FORSTER AMPONSAH-MANU
CLINICAL DIRECTOR
EASTERN REGIONAL HOSPITAL
KOFORIDUA

DR. FORSTER AMPONSAH-MANU (MD, FGCS)
CONSULTANT, GENERAL SURGEON
CLINICAL DIRECTOR

Cc: Ms. Linda Sarfoa Kissi

INTEGRI PROCEDAMUS