NURSES' PERCEIVED COMPETENCE TO RECOGNIZE RISK FACTORS ASSOCIATED WITH ACUTE KIDNEY INJURY IN INTENSIVE CARE UNIT AT CENTRE HOSPITALIER UNIVERSITAIRE DE KIGALI (CHUK), RWANDA

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Master of Science in Nursing (Nephrology)

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By

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Submitted in partial fulfilment of the Requirements of the degree of Master of Science in Nursing (Nephrology)

In the College of medicine and health sciences

Supervisor: DR. CHIRONDA Geldine

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DECLARATION

I declare that the research project is my original work and does not include work containing part of research project presented successfully elsewhere.

I declare that this research project presents my own work except where referenced to others.

Signed by:

Josiane Nibagwire

……

DEDICATION

To the Almighty God

To my beloved husband and daughter

To my beloved mother and mother in low, sister and brother

To the rest of my loved ones

ACKNOWLEDGEMENTS

Thank you Lord for making this possible and for all blessings on me may you name always be praised you have been faithful to me.

I would like to express my deepest thanks to my supervisor Dr Geldine Chironde for accepting the ideas of this research project and for profound supervision and guidance accorded to me throughout its course, for her humblessses availability and advisers, she has not been only a supervisor but also a role model to me.

As ever my most sincere thanks are also due to GASORE ERIC and ISHEJA GALIA DAVILLA and I would like to express my most thanks full my deceased father and my lovely mother, my deepest appreciation goes to my brother and sister their tender heartedness to word my studies, I am proud of them. I will simply never be able to thanks them enough.

I cordially extend my recognition to my beloved colleagues who eventually become my sisters and brothers, my sisters in low and my brother in low for their support and encouragement compassion, foresight, openness and their love.

God bless you all.

JOSIANE NIBAGWIRE

ABSTRACT

Background: In intensive care unit patients' conditions can rapidly change to guarantee immediate attention. One such situation is the development of acute kidney injury which is a comparatively severe complication of major surgeries that occur among patients admitted in intensive care unit. Nurses' competencies impacts on patient outcomes. There is need to understand how healthcare professionals, and especially nurses perceive themselves competent in identifying patients at risk, and their ability to institute appropriate interventions.

Aim: This study explored nurses' perceived competencies to recognize risk factors associated with acute kidney injury among patients admitted in intensive care units at CHUK.

Methodology: The study employed a qualitative approach, using an in-depth interview technique to collect data. Data were transcribed verbatim before being analysed thematically. Ethical approval was received and participants provided written informed consent.

Results: Three main findings emerged from the data. These included: perceived competences in recognizing acute kidney injury associated risk factors; perceived barriers to nurses' competences to recognize acute kidney injury associated risk factors, and perceived motivators to nurses' competences in recognizing acute kidney injury associated risk factors. Nurses perceived themselves as being well trained, experienced and competent in managing intensive care unit patients in general. However, they perceived themselves as lacking the competencies related to the recognition of acute kidney injury risk factors. The main barriers to their competency mainly included a lack of specific acute kidney injury training, inability to carry out independent tasks, and inadequate resources. Nurses felt that teamwork and previous experience enhanced their competencies in recognising acute kidney injury risks.

Conclusions: To improve nurses' competencies in recognising acute kidney injury risk factors, it is important to increase specialised training in acute kidney injury, and to empower nurses to work more independently. Increasing resources is very key in the overall identification and management of patients with risk factors of acute kidney injury. Further research on a larger sample and from diverse settings is required.

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LIST OFSYMBOLS AND ABREVIATIONS

ACE: Angiotensin converting enzyme

ADQI: Acute Dialysis Quality Initiative

AKI: Acute kidney injury

ANA: American Nurses Association

ARB: Angiotensin receptor blockers

BUN: Blood urea nitrogen

CHUK: Centre Hospitalier Universitaire de Kigali

CKD: Chronic kidney injury

GFR: Glomerular filtration rate

ICU: Intensive care unit

KDIGO: Kidney Disease: Improving Global Outcomes

NCEPOD: National confidential Enquiry into Patient outcome and Death

NSAID: Non-steroidal anti-inflammatory drugs

RIFLE: Risk of renal dysfunction, injury to the kidney, failure of kidney function, loss of kidney function, and end-stage kidney disease

UO: Urine output.

WHO: Word Health Organization

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CHAPTER 1: INTRODUCTION

This chapter introduces the research by providing an overall background to the study, a problem statement and rationale for the study, and discussing the study objectives, significance and definition of operation wards. The chapter ends by providing a lay out of the dissertation.

1.1 Background of the study

In intensive care units (ICU), patients' conditions can rapidly change which calls for immediate attention. One such situation is the development of acute kidney injury (AKI) which is a comparatively severe complication of major surgeries that occur among patients admitted in ICU (Lewington, Cerdá, and Mehta., 2013; Lafrance, Miller, 2010; Chertow et al., 2005). The condition is typified by a brisk fall in glomerular filtration rate resulting from various causes, and associated with high mortality rate, increased health care costs and long hospital stay(Lewington, Cerdá, and Mehta., 2013; Lafrance, Miller, 2010; Chertow., et al, 2005). In intensive care units (ICU), the incidence of AKI can reach 20%, with 50% to 70% of the patients needing renal replacement therapy (Lombardi., et al, 2014; Bernardina., et al, 2008; Lameire, Biesen, Vanholder, 2006; Van Berendoncks, Elseviers, andLins, 2010).

In addition to patients who have undergone a major surgeries, other groups at greater risk for AKI include people with fluid volume depletion or dehydration, the elderly, use of renin-angiotensin aldosterone inhibitors and nephrotoxic drugs, ethnicity with blacks carrying a greater risk, contrast, people with chronic conditions like cancer, hypertension, diabetes and those with chronic kidney disease (CKD) (KDIGO Acute Kidney Injury Work Group, 2012; Pannu, 2011). Nurses being at the fore-front are expected to recognize and effectively respond to such changes (Camerini, 2008). To do this however, nurses need adequate competences to be able to identify those at potential risks, and to correctly decide on apposite intervention. Nurses' self-awareness of own competency while intervening in such situations is very important and most critical priority area in nursing (Mota. et al, 2010).

The need for timely recognition and provision apposite intervention to patients with AKI, and the prioritization of AKI in a form of routine practice, research and policy concern has been indicated in the literature (Lameire., et al, 2013; National Service Framework for Renal Services, 2005). And of course, concerns for competences in nursing practice have for long

been reported in the literature and practice settings (Del Bueno, 2001; Flanagan, Baldwin and Clark, 2000).

Nurses' competencies impacts not only patient outcomes, but also the development of leadership skills, improved quality, accountability, patient and healthcare professionals' satisfaction among others (Alspach, 2000; Del Bueno, 2001; Maynard, 1996). Nurses are accountable for the delivery of the highest quality care to patients aspect of significance necessary that is demonstrated in their ability to recognize and respond to even slightest indicators and variations in patient's health status (ANA, 2004).

Acute kidney injury (AKI) is a sudden fall in renal function that manifests itself in form of acute increase in nitrogen waste products observed over the course of hours to weeks (Roy, et al., 2013). AKI clinically manifests itself with a quick decrease in kidney functioning that result into an inability to maintain the homoeostasis of fluid, electrolyte, and acid-base in the body (Kellum, 2008). AKI is diagnosed if any of the following exists. A rise in serum creatinine ≥26μmol/L within 48hours, Serum creatinine rising ≥1.5times from the known value of reference, urine output of<0.5ml/kg/hr for >6 consecutive hours or Kidney injury suspected to have occurred within one week (Roy, et al., 2013). The AKI RIFLE definition and staging system have been accepted as gold standard (Venkataraman, and Kellum, 2005).Acute kidney injury (AKI) is a common and severe condition, affecting approximately 2–20% of all hospitalized patients (Wonnacott, et al. 2014, Lafranceand Miller, 2010). Notably, AKI is even associated increased patient mortality (Uchino, et al., 2014); with those surviving the acute phase standing increased risk of progressively developing chronic kidney disease (Talabani, et al 2014).

The risk factors for AKI have been widely studied (Borthwick, Ferguson, 2010; Mehta, et al., 2002), but translating this knowledge into practice has remained basically limited.
Based on several study results, a range of risk assessment tools have been specifically developed for different clinical settings like intensive care units (de Mendonca, et al., 2000) cardiac surgery (Brown, et al., 2012) general surgery (Kheterpal, et al., 2009) as well as those to undergo clinical tests involving intravenous contrast (Wi., et al 2013).In their study, Metcalfe and colleagues (2002) found that no less than 1/3 of patients CKD superimposed AKI (Metcalfe., et al, 2002). Similar findings were noted by Uniacke and colleagues that AKI increases the incidence of CKD by reducing renal function among patients irrespective of

their CKD history, and that the condition can be recurrent (Uniacke, Lewis, Harris, and Roderick, 2012).

According to Stevens and colleagues (2009), a sizeable fraction of AKI cases are associated with patient treatment and with approximately 20% of cases preventable. Other study into AKI-related mortality acknowledges the significance of improved care of patients admitted as a matter of urgency (Stewart. et al, 2009). Potential areas of care indicated that need attention include initial assessment of patient hydration status and urine out-put, radiographic work to view the urinary tract, electrolyte testing, avoidance of nephrotoxic drugs and ruling out potential obstruction (Stewart. et al, 2009). Most of these aspects of care are associated with core nursing roles. Competence is an essential element of nursing care that ensures that the delivery of patient care is safe (Benner, 1994). As well, efficient recognition and accurate recording are equally areas of concern. For example, a study carried out on hospital admissions found that AKI and associated risks were recorded in about 2% of all in Hospital case episodic statistics, while estimates from laboratory data suggested a correct prevalence above 14% during the same period (Kerr, Bedford, Matthews, andO'Donoghue , 2014).

In hospitals, AKI has become a critical complication especially when it is associated with various and severe co morbidities possessed by the patients (Himmelfarb, Ikizler., 2007). Recognition of risk factors associated with AKI and its poor prognosis is therefore paramount for development of preventive, early diagnosis and apposite management approaches that are fundamental for reduced patients' mortality (Kerr, Bedford, Matthews, andO'Donoghue, 2014). Nurses are always in contact with patients, and this together with their role in ensuring safety to patients, their ability to identify patient risk factors is key to positive patient outcomes.

In Africa, the trend of AKI occurrence has been worrying, this being blamed on the rise of infectious diseases such as HIV, Malaria, and diarrhoeal diseases (Saraladevi, Omar and Mohamed, 2008). However, there is a general lack of epidemiological studies to verify the extent of the problem in most African countries. Report by WHO (2014), established that death due to kidney disease in Rwanda reached 955 equivalent to 1.39% of total deaths, and ranking Rwanda number 52 in the world. Despite a dearth of empirical studies in the Rwandan context, this trend is worrying and demands attention. Evidence drawn from some

low-income settings has identified a challenge in healthcare in general, in regard to recognising and managing AKI risk factors. For example, a study from Ethiopia by Phillips et al. (2013) reported that there was great variation in the extent to which doctors recognised the presence of risk factors for the development of AKI in three hospitals. This trend was feared to result into delays in identifying patients at risk of developing AKI and subsequently could result in delayed or poor management.

1.2 Problem statement

Acute kidney injury (AKI) is known to affect many diverse categories of patients and a common complication of major surgery (Wonnacott, et al. 2014, Lafranceand Miller., 2010). It is associated with increased healthcare costs, longer periods of hospital stay, and high rates of mortality and morbidity (Uchino, et al., 2014). AKI following major surgery is a key condition to be targeted because of its clinical importance, standards of identification, and management methods. As well, many patients with AKI present with other diagnoses, making early detection of risk factors essential for quick intervention.

In consideration of such high death rates associated with the existence of kidney diseases, the ability to detect risk factors and apply preventive measures that mitigate the development is fundamental (Uchino et al., 2014). Healthcare providers competencies in recognizing risk factors, and nurses in particular, are vital for early identification and subsequent intervention (Camerini, and Cruz., 2008).The lack of competencies may delay the detection, effective interventions, and referral to facilities with specialized services, resulting into worst outcomes(Lewington , Cerdá , and Mehta, 2013; Challiner , 2014).

With increased incidence of AKI (Hsu, et al. 2007; Hsu, et al. 2013) identifying individuals vulnerable to develop AKI remains a priority avenue if a timely preventative treatment is to occur. Several sources have pointed out care deficiencies for patients with AKI demonstrating the predictability and potential for prevention (Kerr, et al., 2014; Meran, et al., 2014). Similar studies have singled out gaps at all levels of patient care with suggestions ‘preliminary systematic AKI risk assessment of all patients with emergency conditions (NCEPOD, 2009).

Despite of the existing understanding about risk factors that predispose patients to the development of AKI, (Borthwick, Ferguson, 2010; Mehta, et al., 2002), there is need to

understand how healthcare professionals, and especially nurses perceive themselves competent in identifying patients at risk, and their ability to institute appropriate intervention. Given the relevance of their professional tasks to the needed attention on AKI risk factors, nurses' competences in early identification and efficient performance of procedures are important. This study sought to bridge the existing knowledge gaps.

1.3 Objectives

Main objective: This study hopes to explore nurses' perceived competencies to recognize AKI associated risk factors among patients admitted on ICU.

Specific Objectives

1. To describe the perceived competences of nurses in recognizing AKI associated risk factors
2. To identify the barriers to nurses competences to recognize AKI associated risk factors
3. To establish the motivators of nurses' competences in recognizing AKI associated risk factors.

1.4 Research questions

1. How do nurses perceive their competences in recognizing AKI associated risk factors?
2. What are the barriers to nurses' competences to recognize AKI associated risk factors?
3. What are the motivators of nurses' competences in recognizing AKI associated risk factors?

1.5 Significance of the study

The results of this study are critical to patient care since assessing nurses' perceptions of their competence offers a chance for them to reflect on their own actions as they care for the patients. Importantly, the results of this study will help in identifying areas of practice that will require improvement relevant to nurses' roles and with regards to patients' assessment. Information obtained from this study may assist in singling out professional development gaps that would form a basis for professional reforms especially those that impact on nursing service management, training and other capacity development initiatives. As well, the study will provide information regarding the level of competency in skills, attitude and knowledge that will an additional knowledge for nurse researchers to base on in the future.

Taking into account the high prevalence of AKI and its associated poor prognosis, understanding nurses' self awareness of their competences provides basis for educators to

develop evidence based curriculum, guidelines and protocols to improve nursing competences. Importantly, if programs are to be designed accurately it is imperative that nurses provide information about their perceived level of competency. The study will offer information about nurses' perceptions of their own competence while providing care.

1.6 Subdivisions of the project

This report is composed of six main chapters. The first chapter sets the background of the study, provides the rationale and explains the research objectives. The second chapter provides a review of literature relevant to the current study and provides a theoretical and conceptual framework. The third chapter explains the methodology adopted in this research. Chapter four is the results chapter and provides the findings of the study. Chapter five discusses the main findings of the current study in light of other literature in a similar field. The last chapter provides a conclusion and the key recommendations of this research.

1.7 Operational definitions

Acute Kidney Injury (AKI): Acute kidney injury (AKI) is condition characterized by a rapid fall in glomerular filtration rate, accompanied or not by nitrogen product retention and water electrolyte disturbances (Bellomo, et al 2004). In this study, Acute Kidney injury is the disease being studied by the researcher. The researcher will evaluate nurses' perceived competencies in recognizing this disease.

Competency: is the intended outcome of any educational and professional development program (Alspach, 2000). For the purpose of this study competency will be used in the context of the extent to which nurses are capable to recognize risk factors associated to AKI.

Nurses Perceived Competence: Feeling of one's ability to perform a task at the expected level of knowledge acquisition. With regards to this study, nurses perceived competence will be used to mean what level nurses believe are able to recognize AKI.

Perception: Perception is awareness, comprehension or an understanding of something (Your dictionary, 2016). In this study, perception relate to ability nurses working in ICU to recognize and manage risk factors associated with Acute Kidney Injury (AKI).

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Literature review helps the researcher to learn about the current state of knowledge regarding a particular issue as a means of improving practice or identifying potential solutions to problems (Polit and Hungler, 1999). Understanding of how people acquire knowledge and skills, and how they are able to achieve the highest level of performance as a result of continuous application of knowledge and skills is the focus of this proposed study. This chapter examines different literature with intention to find to identify those aspects of the literature that informs the current study and or identify gaps that need to be narrowed. Various databases including Pubmed, Ebsco, Google Scholar, and Google web were searched to identify related literature to the study subject. Grey literature was also searched from others sources such as Rwanda ministry of health and WHO websites. The identified articles were analysed and reviewed according to the study area, and also according to the objectives of the study. Literature was categorised under four major sections. The first section reports the theoretical literature, the second section reports the empirical literature, and the third section reports the main strengths and gaps identified in the reviewed literature. The last section presents the conceptual framework used in the study.

2.2 Theoretical literature

Several resources have defined Acute kidney injury (AKI) as a rapid fall in the glomerular filtration rate (GFR) with resultant retention of nitrogenous waste products (blood urea nitrogen and creatinine) (Schrier, 2004). Molzahn and Butera (2006) echoed the same sentments and defined AKI as a rapid decline in glomerular filtration rate (GFR) of greater than 50% reduction) causing oliguria or anuria, consequently causing accumulation of metabolic wastes in the blood.Filtration and excretion of nitrogenous wastes from the body is the most critical function of the kidney (MolzahnandButera, 2006) in blood urea nitrogen (BUN) and creatinine are an important indicator of renal dysfunction. Consequently, the diagnosis is reached on a series of measurements over time These measurements however may not to serve as GFR markers due to their lack of accuracy (Edelstein, 2008) and instead reliable methods for evaluating GFR are advocated for in practice (Coca., et al., 2008).In practice, three etiologies of AKI have been indicated, incuding prerenal, renal, and postrenal(Thadhani, Pascual, and Bonventre, 1996).

The Acute Dialysis Quality Initiative group has proposed a classification for AKI to provide a more standard definition and categorize severities of AKI (ADQI, 2013). In addition, changes in urine output and serum creatinine have been widely based on as the entry criteria for RIFLE which is *r*isk of renal dysfunction, *i*njury to the kidney, *f*ailure of kidney function, *l*oss of kidney function, and *e*nd-stage kidney disease (Bellomo., et al., 2004).

Table 1: RIFLE Criteria

Category	**GFR Criteria**	**Urine Output Criteria**
Risk	Increased creatinine ×1.5GFR decrease >25%	UO < 0.5 mL/kg/h × 6 hr
Injury	Increased creatinine ×2GFR decrease >50%	UO < 0.5 mL/kg/h × 12 hr
Failure	Increase creatinine ×3GFR decrease >75%	UO < 0.3 mL/kg/h × 24 anuria × 12 hr
Loss	Persistent ARF = complete loss of kidney function >4 weeks	
ESKD	End-stage kidney disease (>3 months)	

AKI, acute kidney injury; GFR, glomerular filtration rate; RIFLE, *r*isk of renal dysfunction, *i*njury to the kidney, *f*ailure of kidney function, *l*oss of kidney function, and *e*nd-stage kidney disease; UO, urine output (Bellomo., et al., 2004).

2.3 Empirical literature

Acute kidney injury (AKI) has been indicated to have an incidence of 1% in all types of surgery, with exceptionally higher frequency at a 10-30% incidence after intra-abdominal, vascular, and cardiac surgeries (De Santo., et al, 2010). Available evidence indicate that AKI associated risk factors include surgery type, co-morbidities, non-modifiable factors like age, and modifiable risk factors such as pre-and post-operative medication use, exposure to contrast diagnostic agents, hypo-perfusion, and intravascular volume depletion (Borthwick

and Ferguson, 2010). There are also various post-operative drugs frequently used in the post-operative period that are associated with increased risk of AKI (Borthwick, andFerguson, 2010). These include diuretics, angio-tensin converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), non-steroidal anti-inflammatory drugs (NSAIDs), and amino glycoside antibiotics (Borthwick and Ferguson, 2010; Mehta, et al., 2002).

Guidelines for AKI diagnostic criteria, apposite monitoring, strategies to ensure opportune recognition of AKI, and recommendations for identification of at high risk patients have been recently established (Ftouh, Thomas, 2013; Kellum, 2012). Notwithstanding these developments, shortages in clinical practice and knowledge for the prevention, timely recognition, and management of AKI have been a common research finding (Stewart, et al, 2009; Muniraju, et al 2012).

The prevention of AKI in essence depends on how best sufficient renal perfusion have been maintained (Rudnick, et al. 2008). The significance of hydration in the reduction of patient's risk of developing AKI is well known **(**Rudnick, et al. 2008**).** Nevertheless, the role hypotension plays is critical and needs belligerent intervention to ensure adequate renal perfusion and henceforth preserving its function (Bahar, et al. 2005). The author further emphasized that routine interventions frequently used to control certain risk factors among postoperative patients who are known to be at high risk, the incidence of renal dysfunction remains high. Given the high rates of mortality and morbidity associated with AKI (Lewington, Cerdá and Mehta., 2013), prevention and mitigation strategies are essential. The carefulness and ability to evaluate patients at high risk for developing AKI, particularly those admitted in ICU would allow early recognition with the possibility of instituting urgent and appropriate interventions to achieve desirable outcomes (Bahar., et al. 2005).

Current trends in nursing education and nursing management are challenged with how to design and implement programs that can effectively uphold and support efforts to produce competent nurses. For example Benner (1984) identified diagnostic and monitoring functions that describe different nursing roles being accustomed to changes in patients that may be understated. With increasing appreciation of the expanded roles of nurses where they are expected to correctly recognize patient's deteriorating condition and institute appropriate interventions in a timely manner, it is important that nurses possess adequate knowledge and skills and be aware of indicators that signify and physiological malfunction (Camerini, 2008).

According to a study by Leach, Mayo and O'Rourke (2010) nurses depend on their understanding of the physiological and vital signs parameters to make decisions about their patients.

2.3.1 Perceived competencies in recognizing AKI associated risk factors

Early identification of AKI risk factors is fundamental in the overall patient management, associated with improved patient outcomes and better quality of life (Bahar, 2005; Lewington et al., 2013). Hulseand Davies (2015) comment that nurses play a vital role in the diagnosis and management of AKI risk factors which can contribute to the overall patient outcomes, such as reduction in mortality and morbidity of the patients and contributing to the overall quality of life of the patients. However, research has shown that there are relatively poor competencies in the identification of AKI risk factors among health care workers. For example, a study by Jones and Devonald (2013) which assessed how acute kidney injury was investigated and managed in UK intensive care units found out that despite recognising this area as very essential, few ICUs followed the recommended guidelines, which implied poor compliance. In another study, James et al. (2014) reported that a lack of adequate knowledge is a significant barrier in the identification and management of AKI risk factors. In this study, the knowledge gap was mainly cited in the area of how to identify most at-risk patients and how to recognise the symptoms of a patient developing AKI (James et al., 2014).

According to Leach, Mayo and O'Rourke (2010), nurses depend on their understanding of the physiological and vital parameters to make decisions about their patients. This means that nurses' competences in identifying associated characteristics of AKI drive their intervention and decision making in caring for affected patients. This conclusion is supported by the Benner model (1984) where it is asserted that the nurse, in the competent stage, has confidence in managing the prioritization necessary in a clinical assignment. Notwithstanding, this confidence is likely to arise from nurses perceiving that they are competent for the role.

2.3.2 Perceived barriers to nurses' competences in recognizing AKI associated risk factors

It has been reported in literature that nurses' competencies in recognition of deteriorating conditions in acute care settings is low. A study by Clint et al. (2014) which aimed to assess

factors associated with nurses' assessment practices established that lack of independency, time constraints, lack of confidence, and heavy workload are some important influencing factors to poor assessment practices among nurses. The authors recommended that nurses working in acute care settings should be supported by targeting the identified barriers.

Another study by Bhagwanani et al. (2014) which reported on the improvement of managing AKI in a district hospital in the UK established the identification and care of people at risk of AKI was still inadequate. The authors recommended more education for those involved I the care of at risk patients. Similarly, in a study done in the UK by Jennifer et al (2015)emphasized on the need to incorporate AKI education into the curriculum at the medical school, targeting potential factors which may have an influence to delayed recognition and failure to apply the required care. In additional the Guidelines for AKI diagnostic criteria, appropriate monitoring, and strategies to ensure opportune recognition of AKI, and recommendations for identification of at high risk patients have been recently established (Ftouh, et al., 2012). Prescott et al. (2012) also recommends working together with patients and other healthcare providers as a helpful strategy in limiting the barriers to assessment/care of patients at risk of AKI. Nevertheless, literature on this subject is still lacking in the Rwandan context.

2.3.3 Perceived motivators to nurses' competences to recognize risk factors associate with AK

Although literature on specific motivators to nurses' competencies in recognising AKI risk factors appear to be limited, authors have identified some relevant factors which play a role in motivating nurses and other healthcare workers in improving their competencies in recognising risk factors of complications within acute care settings, AKI inclusive. For example, knowledge of past experiences has been associated with improvement in clinical practice (Benner, 1982), while a motivation to change clinical practice has also been pinpointed as a key influence (Benner, 1984).

James et al. (2014) in a study conducted in Canada about recognizing and improving prevention, early recognition and management of AKI after major surgery, established that, teamwork was an important factor in motivating healthcare providers in the recognition and care of patients with AKI risk factors.

2.4 Strengths and gaps identified in the reviewed literature

The reviewed literature has revealed several helpful insights into the study subject, and helped in understanding the study objectives. Existing literature showed that AKI risk factors are a major concern in healthcare which called for the need for healthcare staff to be competent in identifying the associated risk factors and being able to take appropriate actions when these are identified. The literature has showed that although it is important for healthcare staff to identify early the AKI risk factors, gaps in practice still existed, and these required to be bridged. Thus the reviewed literature exposed the need to provide support to healthcare workers to improve their competencies in identifying AKI risk factors and being able to take appropriate actions.

Nevertheless, there are still gaps from the reviewed literature. For example, the literature reviewed mainly focused on healthcare staff in general, with very few studies focusing specifically on nurses' perceived competencies. Moreover, much of the literature was in high income settings, with very limited studies in low income settings, and none from the Rwandan context. Hence, the need for the researcher to undertake the current study, to identify the perceived competencies of nurses in identifying AKI risk factors in the Rwandan context.

2.5 Conceptual framework

This proposed study will be guided by Benner's Novice Expert model (Benner, 1984). In nursing competent practice is fundamental and its acquisition is more of a progressive journey, from novice to expert level of practice (Benner, 1984). Underlying assumptions of Benner's Novice to Expert Model are that, first when confronted with a particular situation in his or her skill domain, an individual will typically approach it first in the manner of the novice, then of the advanced beginner, and so on through the five stages, (novice, advanced beginner, competent, proficient, and expert) (Benner, 1984) Similar views are held by others researchers who demonstrated competency gaps among graduate nurses who by virtue of their completion of training are expected to meet all patient needs safely (Berkow, et al; 2008). Second assumption is that the most talented individuals have a thinking that is characterized by a certain level of performance above the novice (Dreyfus and Dreyfus,

1986). The third assumption is that competency acquisition advances from detached observer to involved performer (Benner, 1984).

The Benner model (1984) describes concepts of how individuals acquire expertise. It describes the impact of experience on clinical practice. In addition, the model offers strategies to enhance the development of expertise based on the level of proficiency of the nurse (Benner, 1984).

From the perspective of Benner's model, and with the complex nature of nursing practice and the competency required to deliver safe care, it is critical that nursing knowledge and skill acquisition be understood (Benner, 1984). In addition to Benner model (1984), there is the most significance of the Dreyfus model to this study and its endeavor to account for relationship between skilled performance, experience and education (Dreyfus, 2004). The Dreyfus model (2004) also provides a basis for clinical knowledge development and career progression in clinical nursing.

Through a deductive process that is generalizable to new graduate nurses as well as experienced nurses in new clinical situations or specialties, the theory presents overriding principles that describe a process and stages that the learner progresses through with outcomes for each stage (Dreyfus, 2004). The Benner framework (1982) explains how exposure increases the level of proficiency as one progress from one level to the other. At this stage the nurse is expected to be knowledgeable about recurring components that have meaning. With continued exposure to similar situations should afford the nurse the ability to assign meaning to these aspects, as opposed to following context-free procedures of the novice stage (Benner, 1982). For two to three years of experience is the nurse should be able to evaluate the importance of aspects of the situation and establish a plan “based on considerable, abstract, analytic contemplation of the problem” (Benner, 1982). The nurse in the competent stage has confidence in managing the prioritization necessary in a clinical assignment according to Benner (1984). In the proficient stage, the nurse is expected to comprehensively handle all as aspects of the situation and but not in part as is at lower levels with the ability to recognize aspects that are different than what would normally be expected. Here the nurse has worked with a similar population for a lot of time (Benner, 1982). This translates into a broader view with strong analytical capabilities that facilitates decision making and relevant judgment variations in particular patient conditions as indicated by Benner (1984). At this level, the nurse applies past experiences to guide practice (Benner,

1982). The nurse at the proficient stage has a keen awareness to changes in patient condition before evident signs become clear (Benner, 1984).

Experience is the major element of causation in Benner's model, with increases in the level of proficiency being the outcome. At this time the nurse, through self evaluation, is expected to evaluate his or level of competence (Benner, 1984).

Figure 1 : Conceptual framework

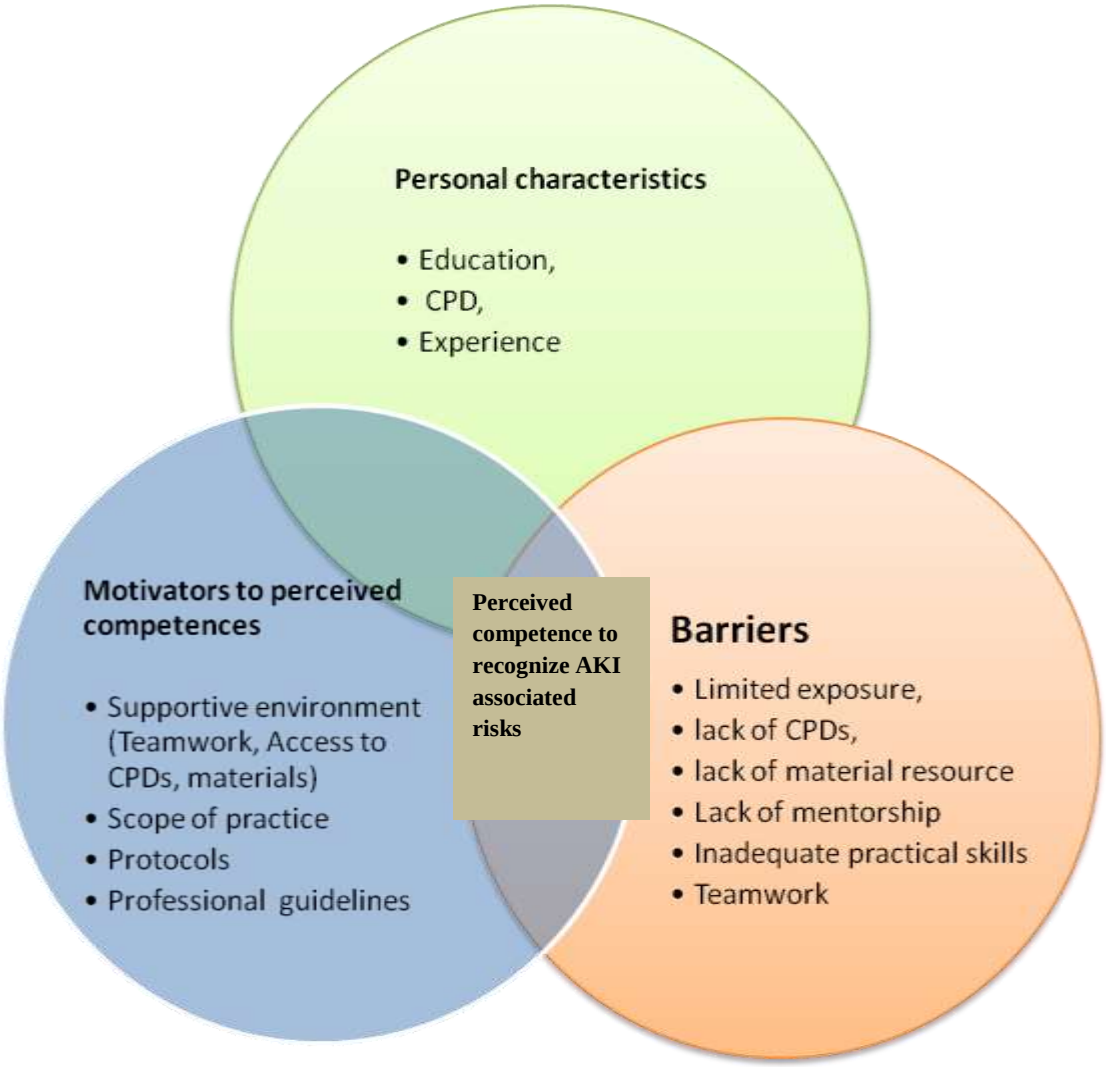

Fig1. Variables that interact to shape ones perceived competence to recognize AKI related risks as explained by Benner (1984) and Dreyfers (2004)

CHAPTER 3: METHODOLOGY

3.1 Introduction

Burns and Grove (2009) defined research methodology as the application of all the steps, strategies and procedures for gathering and analysing data in research investigation in a logical and systemic way. In this chapter the researcher describes the methods which were used while carrying out the study. These include the study setting, design, population, sample selection, data collection, data analysis and ethical considerations.

3.2 Research setting

The current study was carried out in a referral hospital of Centre Hospitalier Universitaire de Kigali (CHUK), in Kigali Rwanda. The hospital is located in Kigali city center and is the largest referral hospital in Rwanda. The hospital receives patients from all over the country and from neighbouring countries. In addition, the facility offers care in all specialties. The setting was selected because of the high number of patients' population at risk in intensive care, the number of patients received in emergency unit and number of surgeries carried out. The hospital is approximately a 240 bed capacity, with approximately 11 beds in ICU for 31 nurses.

3.3 Study design

This research employed a qualitative approach. Qualitative approaches help the researcher to explore perspectives, behaviours, feelings, and experiences (Burns and Grove, 2009). They provide in depth understanding, generate quality data, and explain complex situations using a comprehensive framework (Holloway and Wheeler 2002). Burns and Grove (2009) describe qualitative research as a systematic and subjective method to explore life experiences and provide their inherent meaning. In this study, the researcher used a qualitative approach to explore the perceptions of nurses regarding the identification of risk factors of Acute Kidney Injury (AKI).

According to Parahoo (2006), study design chosen for research should be that one most suitable to answer the research question. For the purpose of the study a descriptive qualitative research design was deemed suitable to explore nurses' perceived competencies in

recognizing risk factors associated with development of acute kidney injury. Descriptive designs are commonly used to describe the key findings in a way that minimises and distortion (Brabury-Jones et al. 2010). Thus the researcher chose this design for the study as it facilitates the precise actions the researcher aimed to achieve.

3.4. Study population

Population is the total number of units from which data can potentially be collected (Parahoo, 2006). The population for this study is explained in terms of entire population, target population and accessible population. The entire population for this study was nurses working in intensive care at the hospitals in Rwanda. It is from the entire population that the target population was formed.Target population is defined as a group of individuals who meet the sampling criteria and to which the study findings will be generalised (Grove et al., 2013). Target population were all nurses working in intensive care unit at a referral hospital (study site) in Rwanda. Polit and Beck (2012) defined accessible population as people available for a particular study, often a non-random subset of the target population. The accessible population were nurses working in intensive care unit available at the time of the study at the study site.

Inclusion criteria

Nurses working in intensive care for at least 3 months were included in this research.

Exclusion criteria

Nurses working outside the intensive care unit

Nurses with less than 3months experience on the unit.

3.4 Study sample

Qualitative researchers are expected to use a small population selective sample which will give in-depth nature of inquiry and methods of data analysis (Cormack, 2000). This being a descriptive qualitative design, the sample was determined by data saturation. Data saturation refers to a situation where the researcher finds no new information (Polit and Beck, 2012). All nurses who met the inclusion criteria were targeted as participants in the study. Working with samples rather than with large populations offers a more cost-effective and practical strategy in research as elaborated by Polit and Beck (2010).

3.5 Sampling strategy

A census sampling strategy was adopted for this study. The method is also called as a Complete Enumeration Survey Method where in each and every item in the universe is selected for the data collection. The universe might constitute a particular place, a group of people or any specific locality which is the complete set of items and which is of interest in any particular situation (Barnett, 2002; Groves., et al., 2004). This approach is recommended where all subjects have to participate or the population is too small. This approach was chosen for this study, given the limited number of nurses working in Intensive care unit. Therefore, all staff that met the criteria was targeted to participate.

3.6 Data Collection methods and procedures

3.6.1 Data collection instruments

The researcher used semi structured open-ended interviews (Appendix C). Semi Structured open ended interviews allowed study participants to express their perceptions and competencies regarding the identification of risk factors of Acute Kidney Injury. Polit and Beck (2008) emphasizes the use of a topic guide with a number of questions to be covered with each participant since this enables the researcher to collect the required information from the participants.

The instrument for this study was adopted from the Nurse Competence Scale (NCS) (Meretoja et al., 2004). The NCS is also based on Benner's Novice to Expert model (Benner, 1984). The NCS (Benner, 1984) is made up of 73 items for nurses to assess the competences of staff members. Managing Situations, Diagnostic Functions, The Helping Role, Teaching-Coaching, Ensuring Quality, Therapeutic Interventions, Work Role (Meretoja, IsoahoandLeino-Kilpi, 2004) are the components of the competencies addressed in Nursing Competence Skill (Benner, 1984). The interview guide was adapted to the NCS by structuring the questions related to Nurses' competencies in identifying AKI risk factors, such as how nurses' felt they were fit to perform their role, the challenges they experienced and how they felt motivated to undertake their role.

To ensure the appropriateness of the data collection instruments, a pilot study was undertaken. A pilot study is important as it contributes to further development of a larger study. It is also used to assess the suitability of the tools, estimate outcome variables, and test

study measures among others (Arain et al. 2010). This is beneficial since it assists to identify any weaknesses in the data collection instrument, hence opportunity for amendments. Quite often, a sample size of about 10% of the overall study sample is recommended for a pilot study, nevertheless, this being a qualitative study, 4 participants were used in the pilot study.

3.6.2 Data collection process

After receiving permission from CHUK hospital management, nurses working in ICU were individually approached. In-depth interviews were conducted with individual participants after explaining the purpose and other relevant information about the study and after the participant provided a written informed consent. With permission from the participants, all interviews were recorded using an audio recorder. Interviews lasted approximately 30 minutes and the entire data collection process lasted for two weeks.

3.7 Data Analysis

Data analysis involved manual data checking, cleaning, and transcribing of all collected data. Recorded information's were transcribed and important statements identified and extracted. Data from transcribed verbatim were checked for consistency and completeness. Thematic analysis was employed, where statements/words were grouped according to similarity in meaning into meaningful labels (codes). These labels were eventually grouped into themes, and finally into categories. The researcher immersed in data and the analysis was an ongoing activity done daily at the end of each day's sessions. In line with the qualitative approach, data collection was stopped once the researcher was convinced that no further new insights emerged from the data.

Trustworthiness of qualitative data

Credibility as an element of validity of qualitative research denotes the extent to which the research approach and findings remain in sync with generally accepted natural laws and phenomenon, standards, and observations (Polit and Beck, 2012). In this study, the researcher made sure that the findings of the study are corresponding with the objectives. The researcher also spent time with study participants during data collection. Furthermore, the researcher presented the findings of the study to colleagues and other academics in the research field for peer analysis.

Transferability is the same as External validity in quantitative research and it is the extent to which the same methodology applied to another set of sample works in a similar way and produce similar results. In qualitative research, transferability is the ability to generalize, or the extent to which the results of the research apply to other contexts or settings (Zakiya, 2008).To achieve transferability in this study, the researcher gave a detailed description of the research design, setting, data collection procedures and the data analysis plan. This allowed any other researcher in the filed to assess for applicability of the research process to other research settings outside the Rwandan context.

Dependability refers to the criteria used in evaluating the integrity of qualitative studies where there is stability of data over time and conditions (Politand Beck, 2012). In this study, transcripts were checked regularly during data transcription to eliminate unnecessary mistakes. Further, the codes generated during data analysis were checked by the supervisors to achieve investigator triangulation.

Conformability is the degree to which others agree or corroborate with the research findings (Murphy et al., 1988).In this study, this was achieved by giving clear procedures of rechecking the data collected. The researcher also did not allow her knowledge of Acute Kidney Injury to disturb the responses given during the data collection. Moreover, verification of the data collected was done with the study participants to confirm if the data was the same as the participants expected. The researcher undertook interviews until data saturation was achieved. This was achieved with 10 participants.

3.8 Problems and limitations of the study

Problems

The researcher encountered some challenges in the course of the study. These included limited costs to carry out the study, and accessing participants who were very busy at the ICU.

Limitations

The sample size from whom data was collected was limited which minimises the ability of generalisation of the research findings.

3.9 Ethical Consideration

Permission to carry out the study was sought and received from the University of Rwanda, School of Nursing, the College of Medicine and Health Sciences Research committee, and CHUK management.

Patient's rights were respected in this study. These included right to self-determination, right to privacy, right to confidentiality and anonymity, right to fair treatment and right to protection from discomfort and harm. In addition, informed consent and participant authorization were sought. Participants were approached, explained about the study and study objectives, as well as the role they are expected to play if they consented to participate. Participants were given as much time to consider their participation as possible. Explanation was made on their freedom of choice of whether to participate or not.

All collected data was kept on a secure computer with a password to protect it from being exposed to an authorised individual for 5 years. To preserve the confidentiality of the participants, their names were not included on the interview transcripts and instead other labels (abbreviations) were used to identify the participants.

Dissemination

Results of this study will be shared with CHUK hospital authorities through an organized meeting and a hard copy of the results. Also a workshop within the department of nursing will be organized to share the findings of this study.

The copy of final thesis will be submitted to the library of UR, CMHS for future readers and researchers in the related field of study.

The researcher will also publish the findings for the benefit of a wider population.

CHAPTER 4: RESULTS

This chapter presents the results of the study, regarding the perceived competencies to recognize Acute Kidney Injury associated risk factors among patients admitted in ICU. The findings are presented in two main sections. The first section presents the demographic characteristics of included participants, and the second part presents the main findings of the study. The main findings of the present study are presented in a narrative form as themes, and are supported by quotes from the research participants.

4.1 Socio-demographic characteristics

Ten participants were included in the study. Participants ranged between 27 and 47 years of age, with the majority (60%) being in the age range of 30-37. The majority of participants (60%) were female, representing the trends of the nursing profession which is dominated by the nursing profession. All included participants were A1 general nurses and 70% of these were married. The religious background of the participants varied and comprised of 7th Day Adventists (50%), Protestants (40%), and Catholics (10%). A half (50%) of the participants had 10 years or more of working experience as A 1 Nurses, while the majority of the participants (70%) had worked in ICU for less than 10 years. Table 2 represents the demographic characteristics of included participants.

Table 2: Demographic characteristics of participants

#	Participant	Age	Gender	Level of education	Marital status	Religion	Experience in practice	Experience in ICU
1	**Participant 1**	40	Female	A 1 general nursing	Married	7th day Adventist	10 years	10 years
2	**Participant 2**	40	Female	A 1 general nursing	Married	7th day Adventist	19 years	10 years
3	**Participant 3**	30	Male	A 1 general nursing	Single	7th day Adventist	6 years	2 years
4	**Participant 4**	33	Male	A 1 general nursing	Married	7th day Adventist	6 years	2 years
5	**Participant 5**	34	Male	A 1 general nursing	Married	Protestant	10 years	7 years
6	**Participant 6**	31	Female	A 1 general nursing	Married	Protestant	9 years	2 years
7	**Participant**	27	Female	A 1	Single	Protestant	5 years	4 years

	7			general nursing				
8	**Participant 8**	30	Female	A 1 general nursing	Single	Protestant	4 years	3 years
9	**Participant 9**	47	Male	A 1 general nursing	Married	7th day Adventist	20 years	16 years
10	**Participant 10**	37	Female	A1 general nursing	Married	Catholic	10 years	5 years

4.2 Main findings of the study

This research aimed to establish the perceived competencies of nurses in the recognition of risk factors of Acute Kidney Injury among patients admitted in ICU. The data were thematically analysed and presented as themes, supported with quotes from the narratives of the study participants. Three main themes were identified from the data, which corresponded with the specific objectives of the study. Specific themes were identified which corresponded to the main categories. These are summarised in table 3 below and explained in the following sections.

Table 3: Summary of the research findings

#	Key themes	Main categories
1.	Perceived competences in recognizing AKI associated risk factors	Feeling competent for the role
		Perceived roles in determining action
		Receiving relevant training
2.	Perceived barriers to nurses' competences to recognize AKI associated risk factors	Lack of specialised training
		Lack of independence
		Lack of adequate resources
		Heavy workload
		Varying patient needs
3.	Perceived motivators to nurses' competences in recognizing AKI associated risk factors	Team work (and multidisciplinary collaboration)
		Using experience
		Clear communication and documentation
		Opportunity for practice improvement

4.2.1 Perceived competencies

Respondents expressed varying views regarding their competency in the recognition of AKI risk factors among ICU patients. Their views were mainly expressed in three aspects, including: how they felt they were or were not competent in recognising AKI risk factors among ICU patients, how they considered their training to be adequate in facilitating their

role, and how they perceived their role contributed to decision making regarding actions to be taken among patients with AKI risk factors.

Feeling competent for the role

Seven nurses felt competent about their general role in the ICU unit. Although some admitted inquiring from more experienced staff on particular roles, the majority expressed how they carried out their duties with confidence and were satisfied about their work.

> *For new prescription I may ask clarification from doctor or other nurses but most drugs I am familiar with. (Part 2)*
>
> *I can say that I am well equipped, because I am used to manage my client well and do not request for help most of the time but I am used to offer help to my colleagues and orient the student in intensive care unit. (Part 1)*
>
> *I seek for clarification when I am not sure, but most of activities done here are common, so no need of clarification. (Part 9)*

Five nurses also expressed that they felt competent in regard to recognising the risk factors associated with AKI and demonstrated this by providing specific examples of the risk factors as shown in the following quotes.

> *They are some key elements for identification of risks factors associated with AKI for the patient admitted in ICU like, olgulia, monitoring dieresis of 24hrs, the records of fluid balance for input and output. (Part 2)*
>
> *Yes, I check urine colour and amount in the urine bag. Also I do patient assessment and measure the output compare to intake, if the patient presents a sign of fluid over load I may stop the fluid intake and inform the doctor for management. (Part 4)*

Receiving relevant training

Nurses commented about their training regarding their role in proving care to patients in ICU. This training appeared to be general to the care of patients as to oppose to the specific training about identifying risk factors of AKI. Some expressed the need for specific training in AKI.

> *For my professional preparation I am A1 in General nursing, and I managed to attend many trainings like infection control, basic life support, medical wastes segregation and management given here by different hospital personal, the session*

related to AKI are not done here but because we have hemodyalisis unit may be the session are done in that unit only, which may be not good because we need that knowledge also. Based on my experience in ICU and on the time we spend taking care for patient at risks of AKI more training and guidance are much needed. Personally I feel that I am skilled as critical care nurse but need more training in some domain like that one of caring for a patient at risk of AKI. (Part 9)

Perceived roles in determining action

All (10) nurses felt that they play some role in identifying the risk factors associated with AKI. The majority however expressed how their role was limited due to their scope of practice which required most of these to be undertaken by more senior personnel or physicians. Although some expressed their ability to undertake some of the required roles, they felt their hands were tied, and had to wait for authorisation from others as the quotes below show.

For me it is fine because when the patients have olgulia or anuria I start thinking about renal problem and I immediately inform the doctor in charge, most of the time we give Lasix to the patient in order to stimulate the diuresis and the treating the renal problem, but in other hand the doctor may request blood test or ultrasound for confirmation or exclusion of renal problem, in that situation my big role is to collect the requested test and to send them to laboratory. (Part 1)

Taking decision depends on patient condition or doctor in charge of the patient, for examples if my patient presents signs of fluid over load I may stop the fluid intake then inform the doctor for other management. (Part 4)

4.2.2 Perceived barriers

Regarding their role/competencies in identifying risk factors to AKI among ICU patients, nurses reported some barriers that hindered/were perceived to hinder their role in attending to ICU patients, and particularly in identifying the risk factors to AKI. The main barriers included: lack of specialised training, lack of independency, inadequate resources, heavy workload and varying patient needs. These issues are explained in details below.

Lack of specialised training

Although nurses expressed having received training in the management of patients in ICU, this training was mainly considered general to ICU care. Six nurses expressed a concern

regarding training specifically in AKI, and more so in identifying the risk factors of the patients.

> *But for the professional development we do in service education session on different topics related on our daily activities of patient care in general and we do not focus on the acute kidney injury. (Part 1)*

Another nurse noted her lack of training in AKI and how her skill had been acquired from experience instead of from training.

> *I am not trained in management of AKI, the skill I have is from experience and exposure, and I do not think that all doctors are well trained also. (Part 6)*

Nurses acknowledged the absence of AKI in their continuing medical education as the nurse below noted.

> *The AKI requires special skill and more training like those who work in hemodyalysis, I think for me it is easy to identify the signs and symptoms for the patient I am caring for but the problem is how to manage a patient with risks of AKI. (Part 7)*

Lack of independency

Six nurses expressed how it was difficult to perform certain tasks regarding the assessment and management of risk factors to AKI among ICU patients. This was especially related to their scope of practice which limited their ability to perform the particular tasks. For example, making a prescription was perceived to be outside the nurses' scope of practice and as such nurses could not undertake this task as the quotes below indicate.

> *When the action is prescribed is easy to be done, but when is necessary and requires medical prescription it may take longer seeking for doctor to prescribe. In this time the nurse's action is primary identification of the patient needs, then advocacy. (Part 7)*

> *My task is to assess, record the finding, to inform the doctor on the abnormal findings and to execute the prescription of the doctor on duty who is in charge of the patient with AKI and I think that I fulfil it as required. Remember that nurses spend more time with the patient and we do health assessment, so I can identify the patient with AKI before the doctor but I do not have the right of taking action to manage the patient with AKI, what I can do in that situation is to communicate to the members of the treating team in verbal and writing in the patient files and waiting for doctors instruction. (Part 2)*

Nurses explained that being dependent on other healthcare professionals was sometimes risky for patients who may be at risk of serious complications. To save the lives of patients, some nurses engaged into activities beyond their scope.

…because the hospital has a service in charge of hemodyalysis and these services take care of them, the problem raise up when the patient present the signs during night, we continuous with general nursing care until the patient will be transferred at hemodyalysis…. It is stressful because I may spend the night or day without management of the patient condition, only waiting for interventions from outside. (Part 7)

Yes, I do not wait for the doctor all the time, some time I intervene in order to save life and inform the doctor. Here in ICU the patient status does not allow us to wait for a long time because the patient may die while the nurse is waiting for the doctor. (Part 7)

Inadequate resources

Inadequate patient resources were a major hindrance for nurses to adequately engage in activities related to facilitating their assessment and recognising the risk factors of AKI. These resources related mainly to diagnostics which were required to test/confirm some of the risk factors of AKI.

On the perceived available resources I can say staff, hospital equipment and services which contribute to the care of patient like laboratory, radiology, social and other supportive services all of them contribute to the care of a patient but on a limited level because we receive critical ill patient with poor social economic status and the hospital is not able to pay or to give free services to the patient with AKI. (Part 1)

The hospital management tries to provide the material but the gap still is around because the hospital capacity does not respond to the patient needs, means that the patient incomes determine the care given because the patient pay for health care services in addition the availability of health insurances. Nothing can be done for free and the patients with renal problem need more attention than others, this requires more interaction and communication with other members of health care team. (*Part 5*)

In cases where the hospital fails to raise the required resources, patients may be required to pay for them. Nurses expressed the concern of many patients being unable to afford the costs for such services. Some nurses become frustrated when they feel they cannot be of support to such patients.

It is stressful work for us full of frustrations when the patient condition is deteriorating and nothing is done in your presence. (Part 1)

Heavy workload

Many nurses expressed that heavy workload was a barrier to their ability to adequately care for patients in the ICU. Particularly, nurses felt that caring for ICU patients required adequate time in order to adequately assess for and recognise AKI risk factors.

> *Ok sometimes I may think about the case and evaluate what happens but most of the time we do not because of a lot of work and fatigue. (Part 1)*

> *OK, caring for a patient with AKI, should be beneficial for skills development but as we are working in shift and in stressful condition it is not easy at all, for example we do not have nephrologists doctor or nurses to learn from them or as role model then I do not have much time for reading about AKI and look for more information related on causes, identification and management of AKI. (Part 2)*

Varying patient needs

Nurses felt that the varying patient care needs meant that they had to adapt themselves to individual patients while caring for them. This implied that nurses required having the relevant skills of assessing and recognising the risk factors associated with AKI while putting into consideration individual patient variations.

> *The patient are different and the management are different also, may be strategies used to manage one case can help to manager a new case but our patient are different and the management differ also. (Part 1)*

> *Each case is different from another, and each time of an exposure to that case helps to develop new skills of problem solving and case management to the coming day. (Part 5)*

4.2.3 Perceived motivators

Nurses identified some factors which motivated/enhanced their ability/competence in recognising the risk factors of AKI among ICU patients. These included: team work among nurses and multidisciplinary collaboration, using experience in identifying AKI risk factors, clear communication and documentation among workers, and the opportunity of improving their practice. These motivating factors are explained in more details below.

Team work

Working together emerged as one of the main strengths for nurses to engage in activities related to recognising and managing AKI risk factors among ICU patients. Six nurses stated

that although sometimes they felt inappropriately prepared for this task, working as a team with fellow nurses and other relevant stakeholders improved their ability in recognising AKI risk factors. Nurses reported that when they felt incompetent, they consulted their senior colleagues and the advice usually was helpful.

> *Nothing can be done without open and clear communication, especially in ICU. The patient care involves multidisciplinary team like social work, radiologist, physiotherapist, and other like supporting staff like cleaner, so for me I communicate with them based on my patient need and the type of intervention they provide in order to accomplish my task of patient care. (Part 1)*

> *The nurses do not take action to manage the patient situation, but with good communication skills and the team work sprit from both sides can influence the action to be taken. (Part 2)*

Using experience

Although some nurses reported that each patient was relatively different from another, they acknowledged that previous experience was fundamental in approaching subsequent cases. For example, nurses explained that some of the risk factors were common to many patients and manifested in a similar manner, and as such, they could apply their previous experiences in identifying AKI risk factors among patients manifesting in a similar pattern.

> *Ok, when I received similar case to the previous one, I refer myself on the way I managed the previous one. (Part 2)*

> *Of course, even if the patients are different but experience is helpful to manager some cases. Well the patients are different and the management is different, but some strategies used to manage one case can help to manager a new case. (Part 4)*

Clear communication and documentation

One nurse pointed out that clear communication and appropriate documentation is helpful in enabling nurses to improve their competency in AKI risk factor identification. This would be helpful for example, where a patient had previous concerns/manifestations which required following up.

> *As routine, the hospital policy and nursing care depend on documentation, the 12 hrs spend with a patient in department need to be documented with clear intervention and the outcome, I evaluate my patient before end of the shift. (Part 5)*

Opportunity for practice improvement

Nurses felt that engaging in activities aimed at recognising AKI risk factors was a motivation as this improved their professional development. They felt that skills acquired through attending to certain cases were an opportunity for continued learning on the condition and this helped them to continuously improve their practice.

> *Caring a case gives me new skills, as each case brings the new challenges I learn every day and this help me in the career development. (Part 4)*

> *Yes, I increase my knowledge and skills from reflection on the process applied to manage the patient situation and some time when the time is available I read on that issue for development of clinical skills. (Part 7)*

CHAPTER 5: DISCUSSION

This research aimed to establish the perceived competencies of nurses in the recognition of risk factors of Acute Kidney Injury among patients admitted in ICU. Three main categories were identified from the data, which corresponded with the specific objectives of the study. These included: perceived competences in recognizing AKI associated risk factors, perceived barriers to nurses' competences to recognize AKI associated risk factors, and perceived motivators to nurses' competences in recognizing AKI associated risk factors. This section presents a discussion of the findings of this study, which is presented in three sub-sections.

5.1 Perceived competencies in recognizing AKI associated risk factors

Respondents expressed varying views regarding their competency in the recognition of AKI risk factors among ICU patients.

Overall, nurses appeared to perceive that they were competent with their role in ICU, a finding similar to the conclusion of Istomina et al. (2011), where nurses were considered to have a perception of high competence in their role. Although nurses raised concerns regarding their competence in identifying AKI risk factors, the majority were contented about their ability to recognise these risk factors. The majority also felt that they were not adequately trained to effectively assess for these factors and they recommended being trained in recognition of AKI specific factors. These findings appear to resonate with the survey done by Jones and Devonald (2013), which concluded that few ICU staff had adequate knowledge on assessing/managing AKI risk factors in ICUs.

Due to their limited authority, nurses felt their role in assessing and managing AKI risk factors were limited which they feared sometimes could affect patient outcomes. Empowering nurses to undertake independent roles in recognising AKI risk factors would be appropriate in overcoming some of the barriers related to practicing within limited resources.

5.2 Perceived barriers to nurses' competences in recognizing AKI associated risk factors

Nurses in the current study identified a number of barriers that hindered or were perceived to hinder their role in attending to ICU patients, and particularly in identifying the risk factors to AKI. Barriers for recognition of AKI risk factors among healthcare workers have been reported and attributed to various factors. In the current study, lack of specialised training, lack of independency, inadequate resources, heavy workload and varying patient needs were key barriers identified. Similar to the findings of the current study, other authors (Kes, and Jukic, 2010; Lewington, et al., 2013; James et al., 2014) observed that a lack of knowledge is a key barrier to recognising AKI risk factors.

To address training related barriers, nurses felt it was necessary to receive specialised training in AKI risk factor identification, as the majority felt this information was essential to their role as critical care nurses. Similar to this recommendation, James et al. (2014) suggested that improving the knowledge of healthcare staff was a useful strategy for improving the recognition/management of AKI risk factors.

The findings also showed that the majority of nurse could not make independent decisions even where patient's lives were at stake, but instead had to rely on other professionals. In their study, Clint et al. (2014) also identified working under others (lack of independency) as one of the barriers affecting nurse's competencies in assessment practices. It would be important if ICU nurses were empowered to undertake independent roles, to enable timely and more quality management of patients at risk of AKI.

Inadequate resources and heavy workload were identified as major hindrances towards inadequate identification and management of AKI risk factors among ICU patients, findings observed in other studies (Kes, and Jukic, 2010; James et al., 2014). Although this is a common concern to most hospital units in low income settings such as Rwanda, being an ICU requires that patients are given immediate care. Thus consideration for ICU units in terms providing resources and manpower would be much needed. Clint et al. (2014) recommend a more comprehensive approach targeting all the possible barriers to assessment practise of nurses in acute care settings.

5.3 Perceived motivators to nurses' competences in recognizing AKI associated risk factors

Nurses in the current study identified some factors which motivated/enhanced their ability/competence in recognising the risk factors of AKI among ICU patients. These factors included team work among nurses, multidisciplinary collaboration, using experience in identifying AKI risk factors, clear communication and documentation among workers, and seeing an opportunity of improving their practice when they engaged in ICU activities. Nurses felt that team work and use of previous experience were particularly helpful in enhancing their capabilities in recognising AKI risk factors. Similar to these recommendations, Lunyera, et al. (2016) observed that team work and collaboration among healthcare staff was a useful strategy in increasing identification of AKI risk factors particularly in the low income settings. On the other hand, James et al. (2014) recommended that improving education and providing management support are essential in improving the capacity of workers in identifying and managing risk factors associated to AKI in ICUs.

CHAPTER 6: CONCLUSION AND RECOMMNDATIONS

6.1 Conclusion

The current research demonstrated key perceptions regarding nurse's competencies in recognising AKI risk factors among ICU patients and CHUK. Nurses perceived themselves as being well trained, experienced and competent in managing ICU patients in general. However, they perceived themselves as lacking the competencies related to the recognition of AKI risk factors.

The main barriers associated to their inadequate competency were mainly associated to lack of specific AKI training, inability to carry out independent tasks, and inadequate resources. Nurses felt that working together as a team among themselves and with other medical persons in the recognition/care of AKI risk factors, and relying on previous experience enhanced their competencies in recognising AKI risk factors. Although limited research exists on the perceptions of nurses in particular on this topic, the findings of the current research appear to agree with those of other researchers in the medical field. More research targeting nurses would then be fundamental to improve literature in the field of study as recommended by Joslin, et al. (2015).

6.2 Recommendations

To the government

The government should ensure that hospitals are appropriately staffed, and that adequate resources are provided especially to intensive care units. The insurance policy needs to be reinforced to ensure that all citizens are insured for their health.

There is need for nurses working in ICU to be trained in specific issues regarding recognition and management of AKI risk factors to enable timely and appropriate management of ICU patients at risk of AKI. This can be done through the Ministry of Health organising induction and refresher trainings for all ICU nurses on AKI risk factors.

Nurses working in ICU units should be equipped with adequate knowledge and given more mandate to work independently in recognition and management of AKI risk factors.

To CHUK hospital management

The hospital should ensure a culture of continued medical education to impart more knowledge and skills among nurses working in ICU regarding recognition of AKI risk factors.

Recommendations for further research

Being a qualitative research that involved a limited number of participants, this research could be conducted quantitatively on a larger sample of participants to verify the findings of the current research. In addition, since only one hospital was included, it could be of advantage to include more hospitals in a similar study to increase generalisability of the research findings.

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APPENDICES

APPENDIX A: CONSENT FORM

FOR ENGLESH USERS

My name is JOSIANE NIBAGWIRE, I am a master's student in nephrology at the CMHS /UR, I am carrying out research as a requirement for the program, it is in this regard that I am carrying out a study to establish **nurses' perceived competencies to recognize AKI associated risk factors among patients admitted in ICU.**

Participation is voluntary and with draw is possible during the period of data collection

No names will be written on the interview guide; the answers will only be used in this study and will be kept confidentially.

Signature of participant: ……..

IKINYARWANDA

Uburengazirabwogukoraubushakakashatsi

Nitwa NIBAGWIRE JOSIANE,**ndi umunyeshuri muri kaminuza y'Urwanda mu ishuriy'ubuvuzi,ndimo gukora ubushakashatsi k**'uburyo abaforomo babona ubumenyi nu ubuhanga bwabo mugusuzuma ibishobora gutera impyiko abarwayi bari mu inzu yi indembe.

Gusubiza ibibazo biri kuri uyu mugereka ni ubushake ,nta amazina yandikwa kuru uru rupapapuro ,umuntu afite uburenganzira bwoguhagarika kugira uruhare muri ububushashatsi

Kandi ibisubizo byanyu bizakoreshwa muri ubushakashatsi gusa ,bizabikwaneza

Umukono wusubiza muri ububushakashatsi

……..

APPENDIX B: PROPOSAL SUBMISSION FORM

THE FORM FOR SUBMISSION OF THE DISSERTATION PROPOSAL

UR-COLLEGE OF MEDICINE AND HEALTH SCIENCES
P.O.BOX 3286 KIGALI

DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION PROPOSAL

Surname and First Name of the Student

JOSIANE NIBAGWIRE

Title of the project:

NURSES' PERCEIVED COMPETENCE TO RECOGNIZE RISK FACTORS ASSOCIATED WITH ACUTE KIDNEY INJURY (AKI) IN SELECTED INTENSIVE CARE UNIT, RWANDA

a. *Declaration by the Student*

"I do hereby declare that this dissertation proposal submitted for protocol review in the Institutional Review Board/College of Medicine and Health Sciences is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Date and Signature of the Student

JOSIANE NIBAGWIRE 19/12/2016

b. *Authority to Submit the Project* (proposal/dissertation/thesis)

Surname and First Name of the Supervisor

CHIRONDA GELDINE

In my capacity as a Supervisor, I do hereby authorize the student to submit her dissertation proposal to the Institutional Review Board/College of Medicine and Health Sciences for Ethical Clearance application.

Date and Signature of the Supervisor/Co-Supervisor

19 December 2016 Chironda

APPENDIX C: DATA COLLECTION INSTRUMENT

SEMI STRUCTURED INTERVIEW SCHEDULE

Nurses Perceptions of their Competence in recognizing AKI associated risk factors.

1. **Demographic data**
   i. Age:
   ii. Gender:
   iii. Level of education:
   iv. Marital status :
   v. Religion :

2. **Working experience**

Please tell me about your experience of working in the ICU

Probing questions

1. How long you have been practicing nursing
2. What is your speciality training?
3. How long have you worked in your current specialty?
4. What special courses have you attended that are related to your current tasks?
5. In how many specialties have you trained?
6. What is your level of training in advanced life support training

3. Questions related to the study specific objectives

1. Please can you tell me how you perceive your competence with regards to recognizing signs and symptoms of deterioration in patient's clinical condition that are associated with AKI?
2. What do you consider as the main barriers to recognizing signs and symptoms of deterioration in patient's clinical condition that are associated with AKI?
3. What to you consider as the major motivations (enablers) to recognizing signs and symptoms of deterioration in patient's clinical condition that are associated with AKI?

Thanks for your participation and for the helpful information provided

1. <u>UMWIRONDORO</u>

vi. Imyaka:

vii. Igitsina:

viii. Amashuri wize:

ix. Indangamimerere:

x. Iyobokamana :

2. <u>UBURAMBE</u>

Mbwira uburambe ufite mugukora munzu yi indembe.

IBINDI BIBAZO BISHAMIKIYEHO

7. Umaze imyaka ingahe?
8. Ni uwuhe mwihariko ufite?
9. Ni igihe kingana gute umaze muruwo mwihariko?
10. Ni ayahe masomo wahawe utegurirwa uwo mwihariko?
11. Ni imyihariko ingahe wahawemo amasomo cyangwa amahugurwa?
12. Ni kukigero kingana gute wigishijwe ku ibijyanye nubutabazi buhanitse?

<u>3. IBIBAZO BIREBANA NI INTEGO ZIHARIYE ZU BUSHAKASHATSI</u>

3. Mbwira uko ubona ubumenyi bwawe mu gutahura ibimenyetso bigaragaza kwangirika kwi impyiko ku umurwayi uri munzu wi indembe?
4. Ni ibiki ubona nki inzitizi kuri wowe zituma itabasha kumenya ibimenyetso bigaragaza ukwangirika kwi impyiko ku umurwayi uri munzu yi indembe?
5. Ni ibi ki ubona bigushishikariza gutahura ibimenyetso bigaragaza ukwangirika kwi impyiko ku umurwayi uri munzu yi indembe?

Murakoze kugira uruhare muri ubu bushaka shatsi

APPENDIX D: WORK PLAN

		PERIOD (months)													
		2016		2017											
Activity	Personnel	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Proposal and tools development and Ethical Clearance	1														
Recruit and train assistants	1														
Pilot Study	2														
Recruit participants	2														
Data collection	3														
Data analysis	2														
Report writing Dissemination of findings	2														

APPENDIC E: PROJECT BUDGET ESTIMATES

Item	Number	Unit Cost Rwfr	Total Rwfr
Project Personnel			
Principal Investigator,	1	0	0
Research Assistant,	4	300000	1200000
Statistician	1	500000	500000
SUBTOTAL 1			**1700000**
Equipment, supplies and services			
Laptop computer	1	300000	300000
Printer	1	150000	150000
Papers	10	5000	50000
Printing (ink etc)		25000	25000
Other writing materials (Note Books, pens, markers, flipcharts etc)		15000	15000
SUBTOTAL 2			**540000**
Travel			
Local Travel@25000rwfr/per day	30	25000	750000
Report writing and Dissemination		300000	300000
SUBTOTAL 3			**1050000**
GRAND TOTAL			**3290000**

APPENDIX F: APPLICATION FOR PERMISSION TO CARRY OUT RESEARCH

NIBAGWIRE JOSIANE

MSCN NEPHROLOGY

TEL 0788529331

Email: nijosiane2030@yahoo.fr

THE DEAN OF THE SONM

CMHS/UR

RE: APPLICATION FOR PERMISSION TO CARRY OUT DISERTATION

I am a master's student in the nephrology nursing; I would like to carry out my dissertation entitled the **NURSES' PERCEIVED COMPETENCE TO RECOGNIZE RISK FACTORS ASSOCIATED WITH ACUTE KIDNEY INJURY (AKI) IN SELECTED INTENSIVE CARE UNIT, RWANDA**

As a requirement for the progress of the study and for data collection, I request for this permission

I appreciate the consideration of my request

Yours,

NIBAGWIRE JOSIANE

NIBAGWIRE JOSIANE

MSCN NEPHROLOGY

CMHS/UNIVERSITY OF RWANDA

TEL 0788529331

Email:nijosiane2030@yahoo.fr

THE C.O of CHUK

RE: APPLICATION TO COLLECT DATA IN INTENSIVE CARE UNITY AT CHUK

I am a master's student in the nephrology nursing; I would like to carry out my dissertation entitled the **Nurses' perceived competence to recognize risk factors associated with acute kidney injury (AKI) in selected intensive care unit, Rwanda**

I would like to request permission to collect data at the CHUK in Intensive care unit from the 3rd January to 15th march 2017.

I appreciate the consideration of my request

Yours,

JOSIANE NIBAGWIRE

APPNDIX G: CURRICULUM VITAE

A Structured Curriculum Vitae /Resume

1. PERSONAL DETAILS

First name: Josiane

Surname : NIBAGWIRE

Date of birth: 25/05/1980

Nationality: Rwandan

Marital status: Married

E-mail : nijosiane2030@yahoo.fr

Cell phones: +250 788529331

+250 728529331

2. EDUCATION AND QUALIFICATIONS

A. Academic qualifications

2009_ 2011: Bachelor Degree of Nursing Education

2004_ 2006: Advanced Diploma in General Nursing

1996_ 2002: Advance level certificated in general nursing at Lycee de Kicukiro APADE

1987_ 1996: Primary leaving certificate at primary school of Munyiginya

B.PROFESSIONAL QUALIFICATION

October 2014: certificate in Advance Trauma life Support

April 2014: Certificate in Advanced in Cardiovascular Life Support (ACLS) program

April 2014: Certificate in Basic Life Support (BLS)

January 2013: Certificate in The Trauma Team Training course

July 2012: Certificate in the tuberculosis control (TB, TB/HIV, MDR_ TB)

June 2010: Certificate in Quality Customer Service

November 2009: Certificate on Fire fighting and prevention measures Held at King Faisal hospital, Kigali.

April 2009: Certificate on The role of Nurse in Cardiac Assessment and The Assessment and Management of pain.

February 2009: Certificate on the Care of the Open Heart patient Focus on; Recognizing and Treating Cardiac Rhythm and Arrhythmias.

October 28.2008: Certificate on Basic life Support

October 07.2008: Certificate on Neonetal Basic Life Support

March 2007: Certificate on Assurance Qualité

November 2006: Certificate on Management des ėtablissement de Sante

3. WORK EXPERIENCE

June, 2012 up to date: Tutorial assistant at Rwamagana School of Nursing and Midwifery

My responsibilities, I Work in academic affairsas tutorial assistant. My daily activities include but not limited to:

In classroom.

I preparer and offer the Module of Human Anatomy and Physiology to the Fist year E_ Learning and Full time program, including the formative and summative evaluations.

I preparer and offer the unity of Medical Pathology for the Module of Medical Surgical to Second year Full time program including the formative and summative evaluations.

Facilitate in the Module of Specialized Nursing care for the Unity of Geriatric and Palliative care to 3rd year Full time and E_ Learning including the formative and summative evaluations.

To offer supervision and guidance of students projects of research.

In skills Lab.

I offer education and guidance to the Nurse Students in different nursing procedures, including formative and summative evaluations.

In clinical and community settings.

I offer education and guidance to the Nurse and Midwives students of all levels in both program at different hospitals, Health centers and Community settings.

From September 2007: Registered Nurse at King Fail Hospital, Kigali.

Responsibilities: I work at Accident and Emergency department**.**

Daily activities include but not limited to:

In triage room

I offer health services to in coming clients by assessing their health status, to classify them into categories of emergency and orient them to the other services.

In emergency room

To check and replace medicines and materials of reanimation in the Emergency Trolley, report and replace non working machines for maintenance in collaboration with medical bio medical technicians' staff. I offer nursing care for critical patients come at A/E with different diseases.

Shift leader.

I offer nursing care for patient come in A/E with different diseases according to their categories, as classified by the triage nurse. Facilitate the day activities in the team work by providing necessary material for staff in their allocations for patient care.

In quality improvement and other hospital activities

I conducted clinical documentation audit.

I participated in Patient Waiting Time Project.

Report the incidences occur in department

Implementation of different hospital polices procedures and clinical guidelines.

From 200 to 2006: Professional practices.

4. SKILLS

A. LANGUAGES SKILLS

Kinyarwanda: Excellent

French: very good

English: very good

B. COMPUTER SKILLS

MS WARD

MS EXCEL

POWER POINT

MS INTERNET EXPLORER

5. INTEREST AND HOBIES

I like gospel music and swimming

6. REFERENCES PERSONS

Sr. Epiphanie MUKABARANGA: Director of Rwamagana Campus

Cell phone: +250 788 4OO 410

Mrs. Evelyne NANKUNDWA: Assistant Lecturer at U.R/CMHS/Kigali Campus.

Cell phone: +250 788 528 683

Mr. NDATEBA INNOCENT: In charge of academic affairs at Rwamagana school of Nursing and Midwifery.

Cell phone: +250 788 520 514.

I hereby declare that particulars furnished above are true and correct to the best of my knowledge.

Done by Mrs. **Josiane NIBAGWIRE.**

CURRICULUM VITAE FOR GELDINE CHIKANYA

PERSONAL DETAILS:

Name	:	GeldineChironda
Date of Birth	:	22 February 1979
Nationality	:	Zimbabwean
Passport Number	:	EN567959
Marital Status	:	Married
Gender	:	Female
Contact Number	:	00250789924956/0027810461411
Email Address	:	gerrychironda@yahoo.co.uk

STRENGTH, SKILLS AND ABILITIES:

- A dedicated lady with theoretical and practical experience in clinical practice, education and research in health care.
- Ability to understand and adhering to medical ethics and delivery quality care to patients and families.
- Strong written and verbal communication skills, report writing skills and excellent track record of consistently meeting objectives and set deadlines.
- Ability to work with little or no supervision and as a team.
- Excellent competence in presentations, subordinate training and facilitation of skills

PROFESSIONAL QUALIFICATIONS

1: Postgraduate	:	PHD
Awarding Institution	:	University of KwaZulu-Natal
Department		College of Health Sciences School of Nursing and Public Health Howard Campus Desmond Clarence Building Durban South Africa
Duration	:	3 Years
Dates	:	February 2013 to December 2015
Thesis Title	:	Developing a framework for engagement of Chronic Kidney Disease (CKD) patients with their integrated management to improve quality of nephrology care
2: **Postgraduate**	:	Master of Science Degree in Nursing

Science

Awarding Institution	:	University of Zimbabwe Institute of Continuing Health Education, College of Health Sciences Zimbabwe
Duration	:	2 Years from January 2008 to December 2010
Degree Class	:	2.2 (Pass)

Research Title- Relationship between perceived physical health and adherence to Hemodialysis among end stage renal disease patients

3: **Undergraduate**	:	Bachelor of science Honors Degree in Nursing Science
Awarding Institution	:	University of Zimbabwe Institute of Continuing Health Education, College of Health Sciences Zimbabwe
Duration	:	4 Years from August 1999 to August 2003
Degree Class	:	2.1 (Pass)

Research Title - Lived experiences of parents with children born with congenital malformations.

HIGH SCHOOL EDUCATIONAL QUALIFICATIONS

1. Qualification	:	General Certificate of Education - Ordinary Level
School	:	Nagle House, Marondera, Zimbabwe
Duration	:	4 Years, from January 1993 to December 1996
Results	:	8 Ordinary Level Passes

2. Qualification	:	General Certificate of Education, Advanced Level
School	:	Nagle House, Marondera, Zimbabwe
Duration	:	2 Years, from January 1997 to December 1998
Results	:	4 Advanced Level Passes

PROFESSIONAL APPOINTMENTS

PRESENT POSITION:

Title		Training specialist for Mscprogramme Human Resources for Health (HRH)
Institution		1. New York University Rory Meyers College of Nursing New York, USA 2. University of Rwanda College of medicine and Health Sciences School of Nursing and Midwifery Kigali, Rwanda
Employer	:	University of New York, USA.
Area of specialty	:	Nephrology

PREVIOUS APPOINTMENTS

1.Department	:	Medical Surgical ward
Dates	:	October 2003 to January 2004
Institution	:	Parirenyatwa Group of Hospitals P.O. Box cy198 Causeway Harare Zimbabwe
Duties	:	1.Provision of Quality care to patients with medical and surgical conditions 2. HIV Counselling and Testing 3. Counselling of patients with chronic conditions such as diabetes and hypertension 4.Health Education 5.Ward Management and Supervision 6. Clinical Teaching of Students
2.Department	:	Renal , critical care
Dates	:	January 2004 to December2010
Institution	:	Parirenyatwa Group of Hospitals B6 Renal Unit P.O. Box cy198 Causeway Harare, Zimbabwe

Duties : 1.Heamodialysis
2. HIV Counselling and Testing
3. Counselling of patients with chronic conditions such as renal Failure
4. Clinical teaching of students
5.Ward Management and Supervision
6. Continuous ambulatory Peritoneal Dialysis

3. Department : Medical ward

Dates : August 2013 to December 2014

Institution : Laverna Private Hospital

Lenmed Health
1 Convent Road
P O Box 3940
Ladysmith, 3370
South Africa

Duties : 1- Team Leader
2- Ward management and supervision
3-Clinical teaching of students
4- Provision of quality care to patients
5- Health education
6- Ordering and stock control of Scheduled drugs (5, 6 and 7).
7- Counselling of patients

4.Department : **Part time Health Education officer for HIV/ Aids**

Dates : January 2011 to January 2013

Institution : Secondary schools and universities

Duties : To coordinate planning and monitoring of HIV and AIDS prevention, care and impact mitigation activities within the schools.

CONFERENCE PRESENTATIONS

Name of Conference - 11th Congress of the World Federation of Societies of Intensive and Critical Care Medicine, 2013. www.criticalcare2013.com
Title of the Research- Relationship between Perceived physical health and adherence to haemodialysis among End Stage Renal Disease (ESRD) at a local haemodialysiscentre in Harare, Zimbabwe.

PUBLICATIONS

1. **IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 3, Issue 1 Ver. V (Feb. 2014), PP 22-31 www.iosrjournals.org**

Research title - Perceived health status and adherence to haemodialysis by End Stage Renal Disease patients: A case of a Central hospital in Zimbabwe.
Authors
GeldineChironda[1], Ancia Manwere[2], Rudo. Nyamakura[3], TirivanhuChipfuwa[4] , Busisiwe Bhengu [5]

2. **Health Science Journal ISSN 1791-809X, iMedPub Journals http://journals.imedpub.com , 2015 Vol. 9 No. 4:3. Health Science Journal**

Research Title- Knowledge and Attitudes of Registered Nurses towards Pain Management of Adult Medical Patients: A Case of Bindura Hospital
Authors
Ancia Manwere1, Tirivanhu Chipfuwa[2], MacelineMutsa Mukwamba[3] and Geldine Chironda4

3. **Transactions of the Royal Society of South Africa, 2016 http://dx.doi.org/10.1080/0035919X.2016.1146928**

Research Title - Ethical, legal and cultural implications in the management of chronic kidney disease (CKD) patients: a critical review of literature
Authors
GeldineChirondaandBusisiwe Bhengu

4. **Health Science Journal ISSN 1791-809X, iMedPub Journals http://journals.imedpub.com, 2016**

Research Title - Engagement with Fluid and Dietary Restriction among Chronic Kidney Disease (CKD) Patients in Selected Public Hospitals of KwaZulu-Natal (KZN) Province, South Africa.
Authors
Chironda, G., and Bhengu, B. (2016).

5. **Medical and Clinical Reviews. 2016, 2:4. doi: 10.21767/2471-299X.1000038**

Research Title - Contributing Factors to Non-Adherence among Chronic Kidney Disease (CKD) Patients: A Systematic Review of Literature.

Authors

Chironda, G., and Bhengu, B. (2016)

CURRENT MASTERS RESEARCH SUPERVISION

1. FACTORS CONTRIBUTING TO MEDICATION ADMINISTRATION ERRORS AND BARRIERS TO SELF-REPORTING AMONG PEDIATRIC NURSES IN RWANDA.
2. FACTORS CONTRIBUTING TO LATE CONSULTATION (PRESENTATION) OF CANCER PATIENTS AT BUTARO HOSPITAL, RWANDA.
3. IMPACT OF DISTRIBUTION OF MALARIA INFORMATION MATERIALS ON KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS MALARIA SYMPTOMS, TRANSMISSION AND PREVENTION AMONG SCHOOL CHILDREN IN RWANDA.
4. KNOWLEDGE AND PERCEPTION OF PATIENTS TOWARDS INFORMED CONSENT IN SURGICAL PROCEDURES AT RWANDA MILITARY HOSPITAL
5. ADHERENCE TO HEMODIALYSIS AMONG END STAGE RENAL DISEASE PATIENTS (ESRD) IN SELECTED NEPHROLOGY UNITS IN RWANDA
6. RELATIONSHIP BETWEEN JOB SATISFACTION AND INTENTION TO TURNOVER AMONG NURSES IN RWANDA MILITARY HOSPITAL, KIGALI.
7. EXPLORING JOB SATISFACTION AMONG NURSES AT UNIVERSITY TEACHING HOSPITAL OF KIGALI, RWANDA.
8. NURSES' PERCEIVED COMPETENCE TO RECOGNIZE RISK FACTORS ASSOCIATED WITH ACUTE KIDNEY INJURY IN INTENSIVE CARE UNIT
9. ASSESSMENT OF KNOWLEDGE AND PRACTICE OF IMMEDIATE POST-OPERATIVE PAIN MANAGEMENT AMONG NURSES WORKING IN POST-ANEASTHESIA CARE UNIT/SURGICAL WARD IN RWANDAN REFERRAL HOSPITAL Case of RMH and KUTH

COMPUTER SKILLS:

High Level of Company Literacy. Able to use Microsoft Word, PowerPoint, Microsoft Excel, Internet, Email and Pastel, SPSS, EXCEL.

OTHER SKILLS:

Research proposal development, scientific writing of research articles, systematic literature reviews, quantitative and qualitative data analysis and report writing skills.

REFERENCES:

1. Professor B.R Bhengu : SANC Chairperson, Honorary Professor and Research Advisor
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2. **Professor Robin Toft KlarDNSc, RN** Clinical Assistant Professor
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3.**DR Madeleine MUKESHIMANA**, RN,MSc, PhD , University of KwaZulu Natal, SA.
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4. **Mrs. R. Nyamakura (RGN, BSC Nursing, MSc Nursing, MSC Clinical Epidemiology)** : Academic lecturer, Clinical and Research Advisor
University of Zimbabwe, College of health sciences, Medical school
Department of Nursing Science
Parirenyatwa Group of Hospitals
P O Box CY198
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5. Mrs. AnciaManwere (RGN, BSC Nursing ,MSc in medical surgical nursing and Education)	:	Lecturer University of Bindura College of Health Sciences Bindura Harare Zimbabwe
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