"DO NOT RESUSCITATE" ORDERS: CURRENT PRACTICE AND FACTORS INFLUENCING DECISION MAKING IN KENYATTA NATIONAL HOSPITAL

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE OF MASTERS OF MEDICINE IN GENERAL SURGERY, UNIVERSITY OF NAIROBI

DECLARATION

I, **Dr. Mina Uchi Mumba**, do hereby declare that this dissertation is my own original work and has not been submitted for publication or award of a degree in any other institution.

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DEDICATION

I dedicate this work to my ever supportive husband George Saruni Lenaiyasa, whose backing has been essential to its successful completion, also to my young daughter Josie Namaiyan Lenaiyasa who exercised untold patience, and Winnie Chizi Samson who stepped in to babysit. To my larger family: parents, siblings, your support has been and always is a pillar and a stepping stone, ever encouraging me to reach for greater heights.

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LIST OF ABBREVIATIONS

AD – Advance Directive

CPR – Cardiopulmonary Resuscitation

DNR – Do Not Resuscitate

DNAR – Do Not Attempt Resuscitation

ILCOR – International Liaison Committee on Resuscitation

KEHPCA – Kenya Hospices and Palliative Care Association

KNH – Kenyatta National Hospital

DEFINITIONS OF TERMS

Do Not Resuscitate Orders: Instructions placed by a doctor in a patient's medical record informing medical staff that cardiopulmonary resuscitation should not be initiated in the event of cardiac arrest, including electrical shocks and respiratory support.

Advance Directive: A document that legally stipulates an individual's health care choices, made when they are fully competent to make decisions for themselves, and can be used in the event they become incapacitated. These include: do not resuscitate orders, living will, limitation of care order, or appointment of a surrogate.

Cardiac Arrest: The sudden cessation of effective heart function, resulting in failure of perfusion.

Cardiopulmonary Resuscitation: Use of chest compressions, electric shocks, medications and artificial ventilation to maintain circulatory flow and oxygenation during cardiorespiratory arrest.

Vital Signs: Measurements of the body's most basic functions, namely, pulse rate, respiratory rate, body temperature and blood pressure.

ABSTRACT

Background: Do Not Resuscitate (DNR) orders are not commonly in use in the Kenyan health care system and decision making surrounding these orders may be complicated by cultural, religious and societal influences. There is currently no clear policy framework or law in existence in Kenya on DNR. The decisions may be influenced by the health care provider's personal experience, relative's or next of kin's wishes, availability of resources or even knowledge of the options available. The use of such orders is important for equitable use of limited resources. The lack of specific guidelines also exposes physicians to litigation, and may fail to take into account the patient's rights and express wishes.

Study Objective: To describe the current DNR practice and factors influencing the care provider's decisions at Kenyatta National Hospital.

Methodology: Study setting: Kenyatta National Hospital accident and emergency unit, inpatient wards, critical care units and theatres.

Study Design: A descriptive, cross-sectional study.

Study Population: Medical doctors involved in medical and surgical care, anaesthetists and anaesthesiology residents, surgeons and surgical residents.

Data Collection: A structured self-administered questionnaire consisting of close-ended questions, and including participants' bio data, awareness about existing international resuscitation protocols such as those used jointly by the International Liaison Committee on Resuscitation (ILCOR) and use of these protocols in patient care.

Data Analysis: Statistical analysis was done only on fully completed questionnaires. Descriptive statistics such as frequencies and percentages were used to describe the prevalence, knowledge level and practices of DNR orders. Simple correlation analysis such as Fischer's exact and chi-square tests were used to describe associations between independent variables and outcome variables. Level of statistical significance was set at a P-value of <0.05 for a 95% confidence interval.

Study Utility: The purpose of conducting this study was to establish the current practice as regards DNR orders, while assessing the basis of this practice, with the aim of influencing any future efforts towards formulation of specific guidelines that serve to protect patient's rights and create a common practice within the institution.

Results: The study demonstrated a low prevalence of DNR orders (21%), with those in the anaesthesiology field, and those in practice for more than 10 years, more likely to initiate these orders. The factors most considered in decision making included patient's diagnosis, disease severity and performance status, with lack of a legal framework being the biggest barrier to initiation of DNR orders.

Conclusion: This study has demonstrated that most physicians practicing within KNH are not carrying out DNR orders, citing a lack of legal framework and guidelines as the main hindrance to initiating and executing these orders.

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 History of DNR Orders

Advancements in medical technology and improvements in cardiopulmonary resuscitation have created the need to determine how these advances will be used while preserving the individual's rights and assessing the long-term benefits[(1)] John Hopkins Medical Centre devised a method of external cardiac massage with artificial respiration in 1960, mainly to sustain life in patients experiencing anaesthetic complications, and thus the concept of CPR came into being and has evolved over the years to include not only hospitalized patients, but any individual who has the desire to avoid CPR in the event of a cardiac arrest. The practice has now also spread worldwide, including countries that may not have the same socioeconomic characteristics as the United States(2).

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In many countries, physicians make daily decisions on whether or not to attempt cardiopulmonary resuscitation in the case of cardiac arrest, or absence of vital signs i.e. spontaneous pulse and respiration. These decisions are ideally guided by specific policies and guidelines entrenched in law. In Kenya, however, these decisions tend to be blurred by factors such as the physician's personal experience, relative's wishes and possibly, availability of resources, among other factors. Cultural taboos also exist surrounding discussions about death and illness. These decisions are heavily influenced by traditional beliefs and cultural norms(3–5).

1.2 Current Global Practices Relating to Resuscitation Orders

A DNR is a set of instructions made by a patient or individual prior to an emergency occurring. It instructs the healthcare provider on whether or not to carry out cardiopulmonary resuscitation in the event the individual's cardiac activity or spontaneous respiration stops. The order does not involve other medical interventions or treatments apart from cardiopulmonary resuscitation(6–8).

Cardiopulmonary resuscitation involves:

- Ventilatory support ranging from simple mouth to mouth breathing to bag-mask ventilation, to intubation.
- Electric defibrillation
- Medications that support cardiac activity(8)

An initiator of DNR orders would be the individual that introduces the conversation about DNR orders, this may be the attending physician, the informed patient, the patient's surrogate or medical power of attorney, or any attending healthcare provider such as a palliative care nurse. The administrator of DNR orders is the individual tasked with carrying out the orders or ensuring the orders are executed.(9)

Minimal studies have been carried out in Kenya on DNR orders. A retrospective study done at a tertiary hospital (the Aga Khan University Hospital) in Nairobi between July 2010 and December 2015, found a prevalence of 41.2% completion of DNR orders amongst terminally ill patients. This was quite a significant proportion of patients, indicating the presence of a need for streamlined policy, guidelines and education for initiation and execution of these orders(10).

Greater strides have been made in the field of palliative and end-of-life care in Kenya and Africa at large. In Kenya, the focus is mainly on the care of terminally ill patients, guided by organisations such as the Kenya Hospices and Palliative care Association (KEHPCA), which adopts policies from the World Health Organization (WHO)(11). However this does not address the scenario of DNR orders especially in the emergency setting. This care carries resource implications and still requires streamlining to cater for the specific needs of the African population.(12) There is still a marked paucity of data within Kenya and Africa at large on individual preferences and factors influencing health service providers' choices on DNR orders.

The current resuscitation protocols used in Kenya rely heavily on cancer-related 'End of Life' care(12,13), leaving out cases such as severe trauma and other sudden unexpected adverse events. This creates situations in which patients who may not benefit from critical care end up utilising resources that would have benefitted another individual. The discussion of resuscitation protocols in a resource limited setting in itself poses a dilemma, however an argument can be made that the few available resources would need to be directed to those that will benefit most from them. The Kenya National Patients' Rights Charter, developed in 2013, addresses the rights and responsibilities of patients based on their constitutional rights and other enabling legislation relevant to health. Although there is no explicit reference to DNR orders, several rights create room for discussion and uptake of these orders, namely [(7)]:

- The right to refuse treatment – this is however limited by the caveat that such refusal should not pose an immediate threat to the patient.

- The right to informed consent to treatment – the patient should be able to make decisions without any duress, based on information they have been given in a language they understand.
- The right to information – patients have a right to receive full and accurate information about their health and health care.

In Africa there is a paucity of studies done on the subject of "Do Not Resuscitate" orders or advanced directives with South Africa being the only country included in the International Liaison Committee on Resuscitation (ILCOR), a body formed in 1992 that brings together various countries' resuscitation organisations with the aim of creating uniform evidence based resuscitation protocols. Seven resuscitation bodies are currently members of ILCOR, namely: The American Heart Association, The European Resuscitation Council (ERC), the Heart and Stroke Foundation of Canada (HSFC), the Australian and New Zealand Committee on Resuscitation (ANZCOR), the Resuscitation Councils of Southern Africa (RCSA), the Inter American Heart Foundation (IAHF) and the Resuscitation Council of Asia (RCA). This body (ILCOR) regularly updates protocols on resuscitation worldwide[(1)]. ILCOR in collaboration with the American Heart Association formulated the first International CPR guidelines in the year 2000(14) and continues to meet regularly with the aim of keeping the resuscitation guidelines up to date. These guidelines provide the protocols that member bodies follow[(1)].

A study done by Stanford et al involving five focus groups in South Africa concluded that patients would appreciate the initiation of conversations regarding resuscitation and advance directives by their health care provider(15).

The Hippocratic Oath has also evolved over the years to accommodate the changing dynamics of modern medicine. A recent update was presented and approved by the World Medical Association at an annual General Assembly in Chicago in 2017. In this revision more emphasis is placed on patient autonomy and dignity, and the physician is obligated to share medical knowledge and advancements in healthcare with the patient(16,17).

CHAPTER TWO: LITERATURE REVIEW

2.1 Scope of DNR orders in Kenya, Africa and the World

In Kenya, few studies have been done on the subject of DNR orders. One retrospective study done by Omondi et al at the Aga Khan Hospital in Nairobi, and published in the BioMed Central (BMC) Journal in 2017, explored the factors that influenced advance directive completion among terminally ill patients. The practice at the Aga Khan Hospital is based on institutional policy that was formulated and enacted in 2012 which borrows heavily from End of Life care protocols as outlined by various oncologic groups. The study concluded that majority of eligible patients, that is, those with terminal illnesses, did not complete such directives; however those who did (41.2%) were influenced by discussion between the physician and the patient, and the patient's functional state. A multicentre study carried out by Gibbs et al surveyed doctors in 43 countries, with representation from all the continents, investigating the factors that they considered when initiating DNR orders. This study concluded that differing cultures, socioeconomic status, medical education on DNR orders and national policy impacted heavily on decision making. These influencing factors were found to be similar to those in majority Western countries(13,16,18).

2.2 Utility of DNR orders

It has been found that resuscitation is not always successful, thus a patient may not want it attempted when(19):

- The overall outcome is not likely to be medically beneficial to the patient
- The quality of life would be compromised, for instance if there is extensive damage to vital organs, or the patient is going to be dependent on machines to support life
- Death is inevitable or expected soon, for instance in patients with terminal illnesses or extensive organ damage. (19)

2.3 Controversies and Medico-Legal Implications

It has been found that even in countries with established legal frameworks guiding DNR orders, such as the United States Patient Self-determination Act of 1991, physician

compliance with the orders is still variable(20). Any verbal communication made by the patient at the time of resuscitation also supersedes any orders made in advance.

In tackling the legal risks of DNR orders, their benefits must also be acknowledged. These are thought to include: reducing futile resuscitation attempts(21), providing reassurance to patients and their relatives, resolving guilt, and giving additional time for acceptance of bad outcomes(20,22).

Challenging scenarios exist, such as:

Foregoing resuscitation in incapacitated patients requires evidence that this was the patient's actual wish, and this may be difficult to prove in the absence of written orders.

Withholding or withdrawing life sustaining treatment such as nutrition and fluids from terminally ill patients is deemed to be illegal.

There may be need to consult an ethics committee or legal counsel prior to making end-of-life decisions, thus such frameworks must be in place. For particular institutions, advance directives must comply with specific forms, are not transferable and they guide all future decisions regarding that patient's care. Thus, oral orders are not enforceable(20).

2.4 DNR Orders and Emergency Medical/Surgical Care

DNR orders in the emergency setting pose a special set of challenges, a compilation of case reports carried out in the emergency department of The University of Texas MD Anderson cancer centre demonstrated the difficulties faced by the healthcare service providers. In all cases reported, patients had filled out DNR orders in advance, however at the time of cardiac arrest the patient relatives/next of kin insisted on resuscitation being attempted, thereby going against the wishes of the patients(23).

This study found that in the emergency setting, DNR orders are difficult to initiate and subject to future misinterpretation especially when family members are involved. It however concluded that advance planning improved patient satisfaction and helped healthcare providers make decisions that would otherwise be difficult(24).

A systematic literature review across several databases on factors influencing uptake and execution of advance directives found that service providers still hesitated to follow through with the instructions because they were not confident of the legal framework to back up their decisions. This was found even in countries that have established laws addressing advance directives and DNR orders, such as Australia and the United States(23).

2.5 Factors Influencing Decisions on Initiation and Execution of DNR Orders

Several studies have been carried out globally to examine various aspects of the decision making involved in DNR orders, ranging from the perspectives of the patients themselves, surrogates and the attending physician or health service provider. A similar study to this proposed research was carried out by Chen et al involving 1859 patients over a period of three years (2011-2013) and examined the likelihood that particular physicians would initiate DNR orders, this study found that different physicians had different likelihoods of initiating the orders based on factors such as severity of the patient's illness, length of ICU stay and the patient's diagnosis. Some physicians were also found to be more likely to initiate these orders than others, however the particular reasons were not delineated.(25)

Madadin et al carried out a prospective cross-sectional study at the King Fahd Hospital in Saudi Arabia involving 42 physicians in the medical and surgical intensive care units, where structured, self-administered questionnaires were used to collect data on the various factors that these physicians took into account while making decisions on initiating DNR orders. 36 out of the 42 physicians responded and it was found that certain diagnoses were likely to increase the likelihood of issuing DNR orders, along with other factors such as presence of comorbidities, age, previous ICU admissions and previous resuscitation. Factors such as lack of palliative care within the hospital, physician's gender and religious beliefs were found to be less likely to have an impact on decision making.(26)

Gibbs et al carried out a global investigation into the factors impacting on physician's decision making regarding DNR orders. They sent out questionnaires to doctors across all 7 continents, capturing responses from 78 doctors in 43 countries. This study demonstrated heterogeneity in the approaches to decisions surrounding DNR orders, influenced by differing societal, economic, cultural and educational backgrounds(18).

A study done in a tertiary hospital in Kenya found that the factors influencing uptake of DNR orders or completion of advance directives amongst terminally ill patients were quite similar to those in developed countries. These included advanced age, a diagnosis of malignancy, a patient's previous hospital experience involving critical care, poor prognosis, provision of adequate health information, and ethnicity and culture (thought to be influenced by literacy levels)(10,23). Other studies also found that factors such as taboo surrounding discussion on death, desire of the patient to maintain control when incapacitated, religious beliefs, level of education, social relationships e.g. having dependants, and misconceptions regarding filling DNR orders (the concern that other aspects of care would be withdrawn such as pain management), had an impact on a patient's decision to fill DNR orders(4,5,27–29).

From the health service provider's perspective, studies have shown that the factors influencing decision making include:

- Timing – initiating the conversation too early may undermine the patient's general health status, while waiting too long may miss the window in which the patient can make their own decisions(23,30)
- Uncertainty regarding which service provider should initiate the process – some providers preferred that the clinician who has spent the most time with the patient should initiate the conversation, while others felt that a detached professional is best suited. All these caused delays in starting the process(23).
- Health professional discomfort – some studies found that up to 55% of health service providers found the discussion on death uncomfortable and felt that they lacked the adequate skills to carry out the process(31)
- Communication factors – some service providers reported trying to read patient cues in order to gauge the desire to have a DNR order or advance directive. This could easily be subject to misinterpretation(10,15,23)
- Attitudes of the health professionals – some professionals felt that the DNR orders were cumbersome and just added additional steps to the patient care yet had no overall impact on the outcomes of care(30,32).

2.6 Study Justification

There being no existing framework or policy specifically guiding DNR orders in Kenya, it is important to establish the current practices so as to create a pathway for formulating guidelines. Kenyatta National Hospital, being a tertiary hospital, the National Referral Hospital as well as a training center, would be best placed to establish a standard of care as regards resuscitation orders. Any current protocols used rely heavily on cancer/terminal illness-related 'End of Life' care, leaving out cases such as severe trauma and other sudden unexpected adverse events. This creates situations in which patients that may not benefit from critical care end up utilising resources that would have benefitted another individual. Furthermore, those patients may not wish to have aggressive treatment carried out upon them. The utility of this study would be to establish the current practice as regards DNR/CPR orders in KNH, while assessing the basis of this practice, with the aim of future formulation of specific guidelines that serve to protect patients' rights and create a common practice within the institution, which may then be replicated countrywide. This will also serve to protect the health service providers from legal repercussions surrounding the execution of DNR orders. Very few studies exist in Kenya addressing this particular aspect, although individual hospitals do occasionally carry out DNR orders. The one study carried out in Aga Khan University Hospital addressed the use of advance directives amongst terminally ill patients in that centre.

2.7 Research Question

What is the current practice amongst medical doctors on initiation and execution of DNR orders in KNH, and what factors influence this practice?

2.8 Objective of the Study

2.8.1 Broad Objective

To describe the current practice on DNR orders and factors influencing decision-making amongst medical doctors involved in patient care in Kenyatta National Hospital .

2.8.2 Specific Objectives:

a) To determine the prevalence of DNR orders in KNH

b) To determine the initiators and administrators of the DNR orders

c) To determine the factors influencing the decision to initiate and execute the DNR orders

CHAPTER THREE: METHODOLOGY

3.1 Study Design

This was a descriptive prospective cross-sectional study. To analyse the factors influencing physicians in DNR order decision-making, structured self-administered questionnaires were distributed to physicians.

3.2 Specific Study Site

The study was carried out in the Kenyatta National Hospital accident and emergency unit, inpatient wards, medical and surgical critical care units and theatres.

3.3 Study Population

Participants included doctors involved in medical and surgical care, anaesthetists and anaesthesiology residents, physicians, surgeons, and residents across all sub-specialties.

3.4 Inclusion Criteria

All doctors involved in the initiation and execution of resuscitation orders in the various departments.

3.5 Exclusion Criteria

Any individual unwilling to participate in the study, doctors involved in the care of terminally ill patients who were already under palliative care.

3.6 Sample Size Calculation

Sample size was calculated using the Cochran formula

N = Z^2 P(1-P))/d^2

N = sample size

Z = statistic value for a desired level of confidence=1.96

P=expected prevalence or proportion. From a previous study done at Aga Khan University Hospital Nairobi(10), a prevalence of 41.2%, was found

d = Precision, set at 0.05

Substituting in the formula gave a sample size of 342 participants.

3.7 Sampling Technique

Consecutive sampling of respondents was carried out until the desired sample size was reached.

3.8 Recruitment and Consenting Procedures

The participants were identified as those meeting the inclusion criteria and were approached either physically or via virtual (online) communication to be informed about the study and its purpose and thereafter voluntarily chose to participate or declined.

3.9 Study Variables

3.9.1 Independent Variables

Independent variables were participants' demographic characteristics such as age, sex, and professional status (resident, consultant, medical officer).

3.9.2 Dependent Variables

Dependent variables or outcomes were: prevalence of DNR orders, knowledge and practice of DNR orders and factors influencing administration of DNR orders.

3.10 Data Collection

A structured self-administered questionnaire, specifically designed for this study based on information gathered from the literature review was used. It consisted of close-ended questions, including participants' bio data, knowledge on existing resuscitation protocols as recommended by the International Liaison Committee on Resuscitation (ILCOR) and use of these protocols in patient care. Awareness on the International CPR guidelines as formulated by ILCOR and the American Heart Association was also tested. A research assistant (a senior undergraduate medical student) was briefed on the study topic and recruited to assist in data collection.

3.11 Data Management and Analysis

All data collected in the study was sorted, coded, entered and analysed using SPSS version 22. The data entry folder on the software was password-coded and uploaded to Microsoft One Drive and backup was done daily. Statistical analysis was done only on fully completed questionnaires. Descriptive statistics such as frequencies and percentages were used to describe the prevalence, knowledge level and practices of DNR orders. Simple correlation analysis such as Fischer's exact and chi-square test was used to describe associations between independent variables and outcome variables. Level of statistical significance was set at a P-value of <0.05 for a 95% confidence interval. Results are presented in form of graphs, bar charts and descriptive analysis.

3.12 Ethical Consideration

Approval to carry out the study was sought and obtained from the Ethics and Research Committee Kenyatta National Hospital/ University of Nairobi, bearing in mind the sensitivity of the life and death issue under consideration and the privacy of the respondents. This is in consideration of the grave legal and ethical implications on the respondents based on their various responses, due to the fact that these decisions have a direct impact on the well-being

of the patients. Permission to conduct the study was sought and obtained from the Kenyatta National Hospital Research and Programs Department, and the Deputy Director of Clinical Services. Informed consent was sought and gotten from participants through the form attached in the appendices, no names or other forms of personal identification were used on the forms. Data collected will be used for research purposes only. Data collection sheets were stored in a confidential manner.

CHAPTER FOUR: RESULTS

4.1 Demographic Characteristics

A total of 238 responses were received, giving a response rate of 70%. Respondents constituted 97(40.8%) female and 141(59.2%) male. The mean age of participants was 39.2 years±5.5yrs and ranged from 26yrs to 58yrs. Most of the respondents 130(57.0%) were in the age group 31-35yrs. The age distribution of the study population is shown in Figure 1 and Table 1 below.

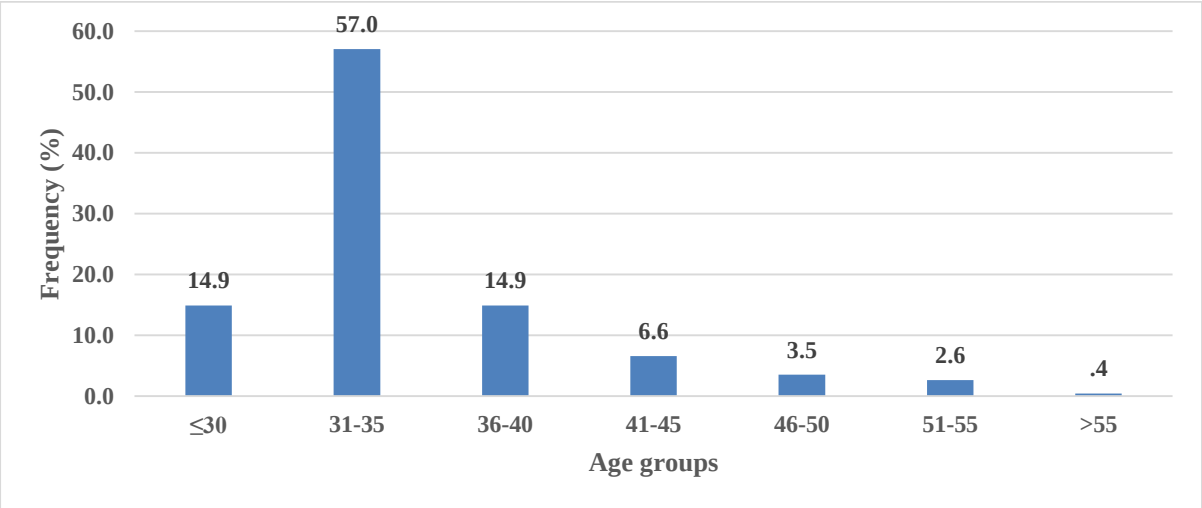

Figure 1: Age distribution of study population

Table 1: Demographic characteristics of study population

Variable		**Frequency (%)**
Age(yrs), *N-228*	≤30	34(14.9)
	31-35	130(57.0)
	36-40	34(14.9)
	41-45	15(6.6)
	46-50	8(3.5)
	51-55	6(6.6)
	>55	10.4
	Mean±SD	39.2±5.5
Gender	Female	97(40.8)
	Male	141(59.2)
Years of Service	Mean±SD	9±5.0
Professional Category	Resident surgeon	134(56.3)
	Qualified surgeon	52(21.8)
	Qualified anesthesiologist	10(4.2)
	Resident Anesthesiologist	14(5.9)
	Medical officer	20(11.8)

Resident surgeons made up most of the study population 134(56.3%). The distribution by professional category as represented in Figure 2 below.

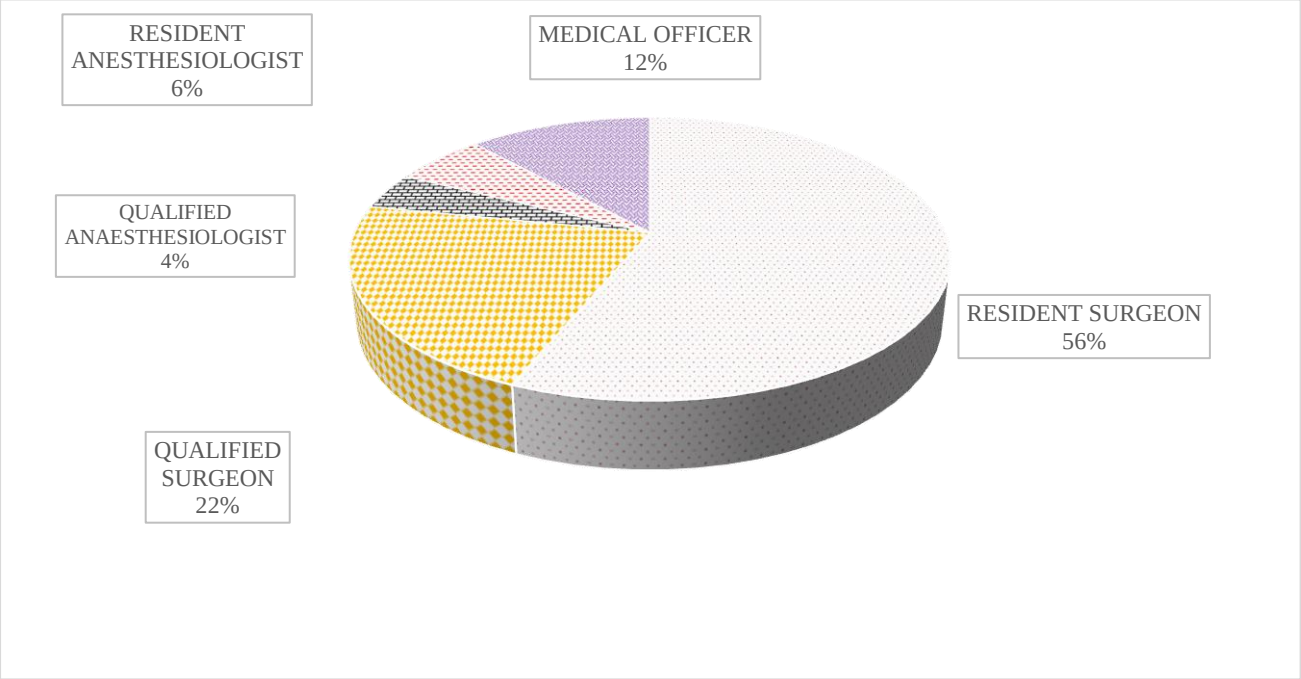

Figure 2: Professional categories of study participants

Participants had been in service for a mean duration of 9yrs±5.0yrs. Duration in service ranged from 1year to 30yrs.

4.2 Prevalence of DNR

A total of 21.4% (51) Participants had ever initiated a DNR order. Most of the study population 206(86.5%) were not aware of the existence of any protocols related to DNR orders at KNH.

Table 2 : Correlation between professional category and initiation of DNR orders

		Ever initiated a DNR?		**P-value**
		No	**Yes**	
Professional category	Resident surgeon	111(82.8)	23(17.2)	**0.002**
	Qualified surgeon	37(71.2)	15(28.8)	
	Qualified anesthesiologist	4(40)	6(60)	
	Resident Anesthesiologist	9(63.4)	5(35.7)	
	Medical officer	26(92.9)	2(7.1)	
Duration of service	≤10yrs	145(81.9)	32(18.1)	**0.04**
	>10yrs	39(68.4)	18(31.6)	

Table 3: Duration of service vs. Initiation of DNR

		Ever initiated DNR?		P-value
		No	**Yes**	
Duration of service	≤10yrs	145(81.9)	32(18.1)	**0.04**
	>10yrs	39(68.4)	18(31.6)	

Among those who had ever initiated a DNR, the highest rate of initiation was found among qualified anesthesiologists. Medical officers had the lowest rates of initiation of DNR orders. This relationship was statistically significant. Respondents who had been in the medical practice for ten years or more were more likely to initiate DNR orders.

4.3 Knowledge of DNR

With respect to the understanding of DNR orders, most participants 135(55%) correctly understood DNR to mean withholding only CPR. Withholding all medical and surgical care, patients specifications, and providers discretion accounted for 27(11.3%), 62(26.1%), and 18(7.6%) of responses respectively.

Table 4: Factors to consider before initiating DNR orders

Factor	**% "Yes" response**
Patients diagnosis	224(94.1)
Patients performance status	189(79.4)
Disease severity	215(90.3)
Availability of resources	143(60.1)
Patients wish	211(88.7)
Relatives demands	64(26.9)
Patients financial status	31(13.0)

Table 5 :Who to involve in decision making?

Who to involve	**% "Yes" response**
Colleague	205(81.6)
Senior colleague	231(97.1)
The patient	217(91.2)
Patients NOK	215(90.3)
Primary nurse	209(87.8)
None	28(11.8)

4.4 Main Hindrance to DNR Orders

Absence of a legal framework guiding the initiation and administration of DNR was the most frequently cited barrier to the initiation of DNR (Figure 3)

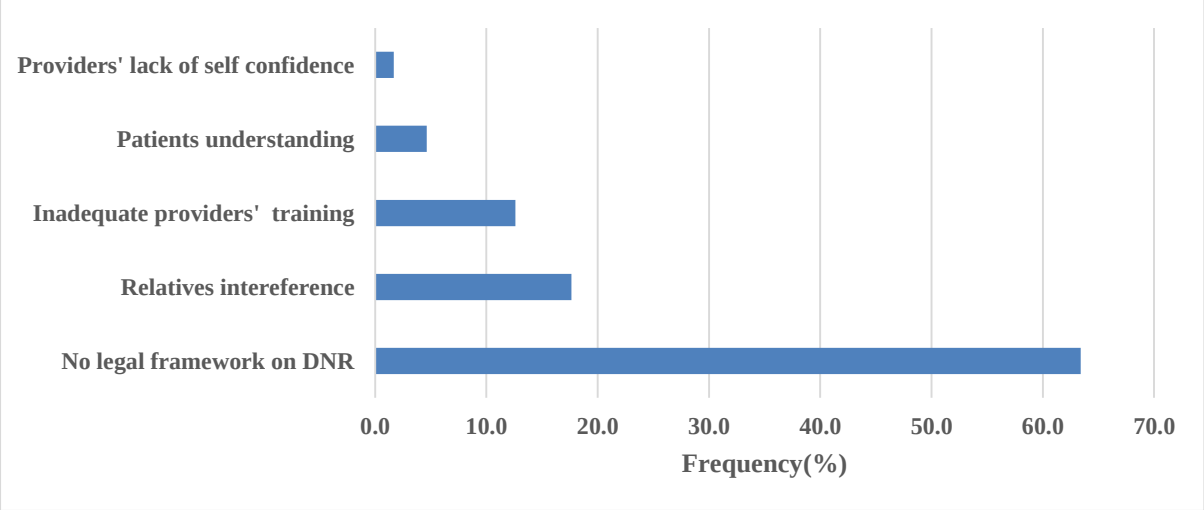

Figure 3: Hindrances to DNR

4.5 Correlations

Respondents who were aware of the existence of DNR protocol were referred to as DNR-Aware, otherwise, they were referred to as DNR-Naïve.

Table 6: Correlation between demographic variables and awareness of DNR orders

Variable		**DNR-Naïve**	**DNR-Aware**	**P-value**
Age(yrs) *N=228*	≤30	28(82.4)	6(17.6)	
	31-35	117(90.0)	13(10.0)	
	36-40	28(82.4)	6(17.6)	0.20
	41-45	14(93.3)	1(6.7)	
	46-50	7(87.5)	1(12.5)	
	51-55	5(83.3)	1(16.7)	
	>55	00	1(100)	
	Mean±SD	34.8±5.3	35.7±7.0	0.42
Gender	Female	84(86.6)	13(13.4)	
	Male	122(86.5)	19(13.5)	1.00
Years of Service	Mean±SD	8.9±4.9	9.7±5.8	0.42
Professional Category	Resident surgeon	119(88.8)	15(11.2)	
	Qualified surgeon	45(86.5)	7(13.5)	
	Qualified anesthesiologist	9(90)	1(10)	0.49
	Resident Anesthesiologist	11(78.6)	3(21.4)	
	Medical officer	22(78.6)	6(21.4)	

None of the demographic parameters were significantly related to the awareness of DNR orders.

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

In this study we sought to analyse the practice of physicians of various specialities and qualifications as regards 'Do Not Resuscitate' orders, as well as the factors that they put into consideration when carrying out these orders.

5.1.1 Prevalence of DNR orders

The prevalence of DNR orders in KNH was quite low, with only 21% of respondents having ever initiated and executed the orders. Chen et al found that physicians had most of the control regarding initiation of DNR orders and those involved in critical care were more likely to initiate and execute these orders, as was reflected in this study(25).

5.1.2 Physician's Demographics and Current Practice

Of the 238 respondents, majority (56.3%) were young residents in the 31-35 age group, the minority were medical officers, with fewer years of practice. Irrespective of the age group or speciality, majority of the respondents across the board were unaware of any existing protocol on DNR orders in the hospital. Age and years of practice had no statistical significance on the awareness of any protocols on DNR within the hospital. This is in comparison to other studies in which the demographics of the individual physicians had no influence on their knowledge on DNR protocols(25).

Qualified anaesthesiologists, though they constituted a small portion of the respondents (4.6%), were disproportionately more likely to initiate and carry out DNR orders, although they were also not aware of an existing protocol in KNH. This is probably due to their exposure to more critically ill patients. This was similar to other studies that focused on interrogating ICU physicians and the factors that influenced their decisions regarding DNR order(26,33).

The number of years of practice increased the likelihood of initiating DNR orders, with physicians with more than 10 years in practice more likely to initiate and execute DNR orders. This closely compares to a study carried out in Turkey by Baykara et al where physicians who had practiced more than 6 years were more comfortable with and likely to initiate and execute DNR orders(33).

5.1.3 Knowledge and Understanding of DNR Orders

Most of the respondents (55%) understood DNR orders as withholding cardiopulmonary resuscitation alone. Still, a considerable number, 26.3%, understood it to mean that they would tailor the orders to the patient's specifications, 11.1% would withhold all medical and surgical care, and 7.6% would use their own discretion to decide the level of care to provide. This diverse result reflects on the questions that still arise on interpretation of DNR orders. An article titled 'Who should decide' by J. Malek makes an argument for the several options available, taking into account patient autonomy and also the discretion of the physician based on their training and experience. Other traditional articles still refer to DNR as only withholding CPR but with the caveat that the patient may make a specific request as regards other care (1,14,17). Thus there is still complexity and diversity on the full range of options(9,19)

5.1.4 Factors Influencing Decision Making

The findings of this study revealed that overall, majority of the respondents were DNR naïve, meaning they were not aware of an existing protocol on DNR orders and had not initiated DNR orders, with the most cited hindrance being lack of a known legal framework to guide the process. In contrast, studies carried out in South Africa which has a similar demographic and societal picture to the Kenyan population and in Asia, religious and cultural practices had a large bearing on decision making on DNR orders(3,5,15). This was also different from other studies conducted in which factors such as the physician's willingness to initiate the conversation, even though they believed DNR orders were important, and the patient's wish played a larger role in decision making(3,4,23,25,30,33).

The factors most considered were the patient's diagnosis, disease severity and performance status. This was similar to other studies conducted where clinicians considered the patient's comorbidities, previous ICU admissions and previous attempts at resuscitation as factors that influenced their decision making(10,30). 60% of respondents felt that availability of resources to sustain life would influence their decision to carry out DNR orders, this may be a reflection of an underlying issue in resource limited settings.

5.2 Conclusion

This study demonstrates that most physicians practicing within KNH are not carrying out DNR orders, are not aware of any existing protocols, and cite a lack of legal framework and

guidelines as the main hindrance to initiating and executing these orders. Physicians working in the Critical Care Unit and those who have been in practice for 10 years and longer were found to be more likely to initiate and carry out DNR orders.

5.3 Recommendations

- Guidelines need to be formulated specific to our local set up, with consideration of the international practice, such as outlined in the ILCOR protocols and in keeping with existing legal frameworks.
- Physicians should be trained on the options available to patients as regards DNR orders, to enable them to be more competent in initiating conversations on the orders.
- Further studies may be carried out to explore the patient's perspective on uptake of DNR orders.

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APPENDICES

Appendix I: Sample DNR Form

UNIFORM DO-NOT-RESUSCITATE (DNR)

Patient Directive

I, _____, born on _____, hereby direct the following in the event of:
(print full name) (birth date)

1. FULL CARDIOPULMONARY ARREST (When both breathing and heartbeat stop):

☒ **Do Not Attempt Cardiopulmonary Resuscitation (CPR)**
(Measures to promote patient comfort and dignity will be provided.)

2. PRE-ARREST EMERGENCY (When breathing is labored or stopped, and heart is still beating):

SELECT ONE

❑ **Do Attempt Cardiopulmonary Resuscitation (CPR) -OR-**

❑ **Do Not Attempt Cardiopulmonary Resuscitation (CPR)**
(Measures to promote patient comfort and dignity will be provided.)

Other Instructions _____

_____

Patient Directive Authorization and Consent to DNR Order (Required to be a valid DNR Order)

I understand and authorize the above Patient Directive, and consent to a physician DNR Order implementing this Patient Directive.

Printed name of individual	Signature of individual	Date

-OR-

Printed name of (circle appropriate title): legal guardian OR agent under health care power of attorney OR healthcare surrogate decision maker	Signature of legal representative	Date

---

Witness to Consent (Required to have a witness to be a valid DNR Order)

I am 18 years of age or older and acknowledge the above person has had an opportunity to read this form and have witnessed the giving of consent by the above person or the above person has acknowledged his/her signature or mark on this form in my presence.

Printed name of witness	Signature of witness	Date

Physician Signature (Required to be a valid DNR Order)

I hereby execute this DNR Order on _____.
Today's date

Signature of attending physician	Printed Name of attending physician	Physician's telephone number

◆ *Send this form or a copy of both sides with the individual upon transfer or discharge.* ◆

Appendix II: Consent Form (English)

Informed Consent

This informed consent form is for health service providers involved in decision making on initiation and execution of resuscitation orders in Kenyatta National hospital emergency department, critical care units and surgical units.

The informed consent contains 3 parts:

- **a)** Information sheet
- **b)** Certificate of consent
- **c)** Statement by the researcher

Part 1:

Information Sheet

TITLE: "**DO NOT RESUSCITATE" ORDERS IN EMERGENCY SURGICAL CARE: CURRENT PRACTICE AND FACTORS INFLUENCING DECISION MAKING IN KENYATTA NATIONAL HOSPITAL**

Investigators Statement

I am Dr. Mina Uchi Mumba, a postgraduate student of General Surgery at the University of Nairobi. I am conducting a study on the factors influencing your decision making in initiation and execution of 'do not resuscitate' orders in your day to day clinical work. I am requesting you to participate in this study and the purpose of this form is for you to decide whether to participate or not. Kindly read through the form carefully and feel free to address any queries or concerns regarding the study to me. This study has been approved by the KNH/UON Ethics and Research Committee protocol number…….. I, the investigator, will be available for any clarifications while filling the form and thereafter.

Brief Description of the Study

DNR orders pose a challenge worldwide even in countries with established policies and guidelines. There being no particular guidelines or legal frameworks in Kenya addressing the issue, it is important to establish the current practices so as to guide formulation of future policies. Research has shown that proper use of DNR orders improves patient satisfaction in that it addresses the patient's express wishes, and also provides protection to the health service providers involved in executing these orders.

Despite the clear need and benefit of having specific guidelines, most hospitals in Kenya continue to either ignore the existence of these orders or carry out their own versions of the resuscitation protocols. With improved patient understanding of their rights and responsibilities, it is important for the health care service provider to also offer clear guidance and information on aspects of resuscitation, backed by legal frameworks.

Participation

If you choose to participate in the study, you will be handed a questionnaire to fill which should take not more than 10 minutes of your time. The questionnaire will cover the prevalence of DNR orders in KNH, who initiates the conversation regarding institution of a DNR order and what factors influence the making of this decision. The data collected will remain anonymous and will be stored securely.

Risks Involved in the Study

No risks or adverse events have been identified in participating in the study, no personal identification information will be collected and data will remain anonymous and cannot be traced back to you.

Benefits of Participating in the Study

The information gathered will assist in identifying various issues and challenges surrounding the use of DNR orders, thus enabling the process of formulating guidelines to help improve patient care.

Questions and Choices

You are free to address any questions to the principal investigator via the contact information provided at the end of this document.

Your participation is wholly voluntary and you may choose to decline to participate in the study or withdraw your participation at any stage without any repercussions.

Part 2:

Certificate of Consent

Participant's Statement

I have fully read this consent form or had the contents read to me. My questions, if any, have been answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is completely voluntary and I may choose to withdraw at any time without repercussions. I freely choose to take part in this study.

Signed……..……. Date…….

Part 3:

Researcher's Statement

I, the undersigned have fully explained the relevant details of this research study to the participant and believe the participant has understood and has freely and willingly given his/her consent.

Researchers name: ……

Signed…….……. Date…….

For more information please contact:

Principal Investigator:

Dr. Mina Uchi Mumba

Phone: +254710228426

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Department of Surgery,

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University Supervisors:

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If you have any questions on your rights as a participant, contact the Kenyatta National Hospital/University of Nairobi-Ethics and Research Committee on;

P. O. Box 20723 KNH, Nairobi 0020

Phone: 2726300 Ext. 44355

Appendix III: Consent Form (Swahili)

Fomu hii ya ridhaa iliyo na habari ni ya watoa huduma za afya wanaohusika katika utoaji wa maamuzi juu ya kuanzishwa na kutekeleza maagizo ya kufufua upya katika idara ya dharura ya hospitali ya kitaifa ya Kenyatta, vitengo muhimu vya utunzaji na vitengo vya upasuaji.
Idhini iliyo na habari ina sehemu 3:

- **a)** Karatasi ya habari
- **b)** Cheti cha idhini
- **c)** Taarifa ya mtafiti

Sehemu 1:

Shema ya Habari

KITUO: "USITUME" Maagizo kwa Uendeshaji wa EMERGENCY SURGICAL: PRESHA ZA UCHUNGUZI NA WAFAFU INFLUENCING DECISION KUFANYA HOSPITALI YA KENYATTA

Hatua Ya Waandishi

Mimi ni Dk Mina Uchi Mumba, mwanafunzi wa Shahada ya Uzamili ya Upili wa Chuo Kikuu cha Nairobi. Ninafanya utafiti juu ya sababu zinazoshawishi maamuzi yako katika kuanzishwa na utekelezaji wa maagizo ya 'usisimamishe' siku yako ya kazi ya kliniki.
Ninakuomba ushiriki katika utafiti huu na madhumuni ya fomu hii ni kwako kuamua ikiwa unashiriki au la.
Kwaheri soma fomu kwa uangalifu na jisikie huru kushughulikia maswali yoyote au wasiwasi kuhusu utafiti kwangu.
Utafiti huu umepitishwa na nambari ya Itifaki ya Kamati ya Maadili na Utendaji ya KNH / UON …….
Mimi, mchunguzi, nitapatikana kwa ufafanuzi wowote wakati wa kujaza fomu na baadaye.

Utafiti Wa Kiufundi Wa Studi

Amri za DNR zinaleta changamoto ulimwenguni hata katika nchi zilizo na sera na miongozo iliyoanzishwa. Kwa kuwa hakuna miongozo au mifumo maalum ya kisheria nchini Kenya kushughulikia suala hilo, ni muhimu kuanzisha mazoea ya sasa ili kuongoza uundaji wa sera

za siku zijazo. Utafiti umeonyesha kuwa matumizi sahihi ya maagizo ya DNR inaboresha kuridhika kwa wagonjwa kwa kuwa inashughulikia matakwa ya mgonjwa, na pia hutoa ulinzi kwa watoa huduma za afya wanaohusika katika kutekeleza maagizo haya. Licha ya hitaji wazi na faida ya kuwa na miongozo maalum, hospitali nyingi nchini Kenya zinaendelea kupuuza uwepo wa maagizo haya au kutekeleza matoleo yao ya itifaki ya uamsho.

Kwa uelewa mzuri wa mgonjwa juu ya haki na majukumu yao, ni muhimu kwa mtoaji wa huduma ya afya pia kutoa mwongozo na habari wazi juu ya mambo ya kujiondoa, yanayoungwa mkono na mifumo ya kisheria.

Sehemu

Ukichagua kushiriki katika utafiti, utakabidhiwa dodoso la kujaza ambalo halipaswi kuchukua zaidi ya dakika 10 za wakati wako. Karatasi ya maswali itashughulikia kuongezeka kwa maagizo ya DNR katika KNH, ambaye huanzisha mazungumzo kuhusu taasisi ya agizo la DNR na ni sababu gani zinazoshawishi kufanywa kwa uamuzi huu. Takwimu zilizokusanywa zitabaki bila majina na zitahifadhiwa salama.

Athari Zaidi Kuhusu Studi

Hakuna hatari au tukio mbaya ambazo zimetambuliwa kwa kushiriki katika utafiti, hakuna habari ya kitambulisho cha kibinafsi itakusanywa na data itabaki bila kujulikana na haiwezi kupatikana kwako.

Manufaa ya Kushiriki Katika Masomo

Habari iliyokusanywa itasaidia kubaini masuala na changamoto mbali mbali zinazozunguka matumizi ya maagizo ya DNR, na hivyo kuwezesha mchakato wa kuunda miongozo kusaidia kuboresha utunzaji wa mgonjwa.

Maswali na Kesi

Uko huru kushughulikia maswali yoyote kwa mpelelezi mkuu kupitia habari ya mawasiliano iliyotolewa mwishoni mwa hati hii.

Ushiriki wako ni wa hiari yoyote na unaweza kuchagua kukataa kushiriki katika utafiti au kuondoa ushiriki wako katika hatua yoyote bila athari yoyote.

Sehemu Ya 2:

Ujumbe Wa Mtafiti

Cheti Cha Kukubali Kushiriki

Nimesoma kikamilifu fomu hii ya idhini au nimesomewa yaliyomo. Maswali yangu, ikiwa yapo yoyote, yamejibiwa kwa lugha ambayo naelewa. Hatari na faida zimeelezwa kwangu. Ninaelewa kuwa ushiriki wangu katika utafiti huu ni wa hiari kabisa na naweza kuchagua kujiondoa wakati wowote bila athari. Ninachagua kushiriki katika utafiti huu.

Sahihi …….

Tarehe…….

Sehemu ya 3:

Habari za Kufanya

Mimi, niliyesajiliwa nimeelezewa kikamilifu maelezo muhimu ya utafiti huu kwa mshiriki na ninaamini mshiriki ameelewa na kwa hiari na kwa hiari ridhaa yake.

Jina la mtafiti: ……

Sahihi: ……

Tarehe: ……

Kwa mawasiliano zaidi ya habari:

Mtafiti Mkuu:

Dr. Mina Uchi Mumba

Simu: +254710228426

Barua pepe: mumbamina@gmail.com

Idara ya upasuaji, Chuo Kikuu cha Nairobi.

Wasimamizi

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P. O. Box 19676 Nairobi- 00200, KNH

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Kwa maswali zaidi kama mhusika katika utafiti huu, unaweza kuwasiliana na

Katibu Mkuu,

Kenyatta National Hospital/University of Nairobi-Ethics and Research Committee

S.L.P 20723 KNH, Nairobi 0020

Simu: 2726300 Ext. 44355

Appendix IV: Data Collection sheet

Serial number……..

Section A

Demographic data

Age …….

Gender (Tick applicable)

Male

Female

Years of practice (Tick applicable)

1-3

4-10

>10

Professional status (Tick applicable)

Physician

- Consultant
- Resident

Surgeon

- Qualified
- Resident
- Subspecialty……

Anaesthesiologist

- Qualified
- Resident

Medical Officer

Section B

Current Knowledge Attitude and Practice on 'Do Not Resuscitate' Orders

1. Have you ever initiated, executed or participated in the execution of DNR orders within KNH?
    - Yes
    - No
2. Are you aware of any protocols regarding DNR orders that are in place in KNH?
    - Yes
    - No

3. Are you aware of the International CPR guidelines as outlined by the International Liaison Committee on Resuscitation?
    - Yes
    - No
4. What do you understand about DNR orders
    - I should withhold only cardiopulmonary resuscitation
    - I should withhold all medical and surgical care
    - The patient will specify the kind of care to give
    - I will provide the level of care I deem necessary based on my own assessment
5. What factors do you consider when deciding to initiate DNR orders? (may select more than one)
    - Patient's diagnosis and prognosis
    - Performance status
    - Disease severity
    - Availability of resources to sustain life
    - Patient's express wishes
    - Relatives' demands
    - Patient's financial status
6. Who do you or would you involve in the decision making (may select more than one)
    - Colleague
    - Senior colleague
    - The patient
    - Patient's next of kin
    - Primary nurse
    - No other person needs to be involved
7. What would you consider to be the biggest hindrance to initiating and carrying out DNR orders?
    - Patient's understanding of the DNR orders
    - Lack of a legal framework or specific protocols
    - Relatives' interference even when patient has expressed their wishes
    - Lack of confidence regarding my skills in initiating the conversation
    - Lack of training on DNR orders

Appendix V: Ethical Approval

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Ref: KNH-ERC/A/187

19th June 2020

KENYATTA NATIONAL HOSPITAL APPROVED 19 JUN 2020 KNH/UoN-ERC P. O. BOX 20723 - 00202 NAIROBI

Dr. Mina Uchi Mumba
Reg. NO.H58/80983/2015
Dept. of Surgery
School of Medicine
College of Health Sciences
University of Nairobi

Dear Dr. Mina

RESEARCH PROPOSAL – "DO NOT RESUSCITATE" ORDERS: CURRENT PRACTICE AND FACTORS INFLUENCING DECISION MAKING IN KENYATTA NATIONAL HOSPITAL (P19/01/2020)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and **approved** your above research proposal. The approval period is 19th June 2020 – 18th June 2021.

This approval is subject to compliance with the following requirements:

a. Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
b. All changes (amendments, deviations, violations etc.) are submitted for review and approval by KNH-UoN ERC before implementation.
c. Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
d. Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
e. Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
f. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
g. Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website**http://www.erc.uonbi.ac.ke**

Protect to discover

Yours sincerely,

PROF. M. L. CHINDIA
SECRETARY, KNH-UoN ERC

c.c. The Principal, College of Health Sciences, UoN
The Director, CS, KNH
The Chairperson, KNH- UoN ERC
The Assistant Director, Health Information, KNH
The Dean, School of Medicine, UoN
The Chair, Dept. of Surgery, UoN
Supervisors: Dr. Elly Nyaim Opot, Dept.of Surgery, UoN
Dr. Ferdinand Nang'ole, Dept.of Surgery, UoN
Dr. Michael Magoha, Dept.of Surgery, UoN

Appendix VI: Certificate of Plagiarism

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