The Effect of the Undergraduate Curriculum and Intern Rotation in Anaesthesiology in making a Career Choice by Interns at King Edward VIII Hospital, Durban in 2009

Submitted to:

NELSON R. MANDELA SCHOOL OF MEDICINE

UNIVERSITY OF KWAZULU-NATAL DURBAN

SOUTH AFRICA

Submitted in partial fulfilment of the academic requirements for the degree: Master of Medicine (Anaesthesiology)

BY

Dr Justin Reddy

Student no.: 943492824

SUPERVISOR

Dr Larissa Cronje

ABSTRACT / SUMMARY

Introduction

South Africa has a shortage of anaesthesiologists. This is worse elsewhere in Africa. With the Anaesthesiologist's scope of practice becoming wider, the current shortage of trained anaesthesiologists is exacerbated. Exposure is limited during undergraduate training and internship, decreasing the chances of recruitment into the specialty. However, intern training in anesthesiology has increased from 2 weeks to 2 months. This may enable interns to make an informed career choice and improve recruitment.

Aim

To determine the perceptions recent medical graduates have of Anaesthesiology and whether exposure during internship helps in making a career choice.

Methods

This observational, analytic cohort study was done at King Edward VIII hospital from July 2009 – June 2010. Interns completed a structured questionnaire before and after completion of the anaesthesiology rotation. The analytical component compared pre and post rotation responses to selected questions.

Results

Of the 32 interns participating pre-rotation, majority were female (26), Asian (22) and UKZN graduates (12). Five were lost to follow-up. Anaesthesiology was one of top 3 career choices by 12 (3 of 13 1st year; 9 of 19 2nd year interns). After the rotation this increased to 16. There was a trend to older interns choosing Anaesthesiology. A

significant factor in making a career choice was limited exposure to HIV. This was not reproduced in the post-rotation questionnaire. In both questionnaires factors more likely to influence career choice were: positive patient outcomes, satisfaction from immediate results seen, intellectual content, hours/working conditions and no ward round or clinics.

Discussion

There is a growing female predominance in the medical workforce and lifestyle factors are becoming more important in specialty selection. The factors that least influenced career choice were related to knowledge of Anaesthesiology and the role of the Anaesthesiologist prior to entering medical school and during undergraduate training. This implies that there is very limited knowledge in the general public and amongst medical students.

Recommendations

The study should be repeated at multiple sites with more participants. There should be a drive to have more time in Anaesthesiology during internship and in the undergraduate curriculum. Public perception of Anaesthesiology needs to be improved.

(Word count = 349 words)

DECLARATION

I, Justin Reddy, declare that

(i) The research reported in this dissertation, except where otherwise indicated, is my original work.

(ii) This dissertation has not been submitted for any degree or examination at any other university.

(iii) This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

(iv) This dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:

a) Their words have been re-written but the general information attributed to them has been referenced;

b) Where their exact words have been used, their writing has been placed inside quotation marks, and referenced.

(v) Where I have reproduced a publication of which I am an author, co-author or editor, I have indicated in detail which part of the publication was actually written by myself alone and have fully referenced such publications.

(vi) This dissertation does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the dissertation and in the References sections.

Student: Dr Justin Reddy Signed: _____ Date: _____

Supervisor: Dr Larissa Cronje Signed: _____ Date: _____

Department of Anaesthesiology

Nelson R Mandela School of Medicine

University of KwaZulu-Natal South Africa

ACKNOWLEDGEMENTS

I would like to thank the following people:

- Dr Larissa Cronje and the Department of Anaesthetics at King Edward VIII hospital for assistance and support as well as the interns who participated in the study.
- Professor Chris Rout, the Research Professor at the Department of Anaesthesiology of the University of KwaZulu-Natal, for assistance with data interpretation and analysis as well as editing of a poster.
- Ms Tonya Esterhuizen and Mr Stephen van der Linde formerly of the Department of Biostatistics of the University of KwaZulu-Natal.

Finally, I would like to thank my wife Nisha and my sons Shayan, Avishai and Mischa for their patience, support and encouragement. Above all, I am grateful to the Lord Jesus without whom I could do nothing.

PUBLICATIONS OR PRESENTATIONS

1. Poster presentation

College of Health Sciences Research Symposium 2012

University of KwaZulu-Natal

12 September 2012

ACRONYMS AND ABBREVIATIONS

HPCSA: Health Professions Council of South Africa

UKZN: University of KwaZulu-Natal

Wits: University of the Witwatersrand

WSU: Walter Sisulu University

OFS: University of the Free State

UCT: University of Cape Town

HIV: Human Immunodeficiency Virus

TABLE OF CONTENTS

TABLES

FIGURES

1 CHAPTER I: INTRODUCTION

1.1 BACKGROUND

During the 14th World Congress of Anaesthesiologists in Cape Town in March 2008, the drastic shortage of trained anaesthesiologists in Africa was highlighted[1] In the United Kingdom there is one anaesthesiologist for every 2500 people but in South Africa there are only one thousand anaesthesiologists and this equates to one anesthesiologist for every 45 000 people. The situation in other African countries is much worse.

The current shortage of anaesthesiologists in South Africa is more evident in the public sector. In Durban, this is most evident at the medical officer and junior specialist level. Recently, this had also been seen at the registrar level. This may partially be attributed to the difficulty in recruiting junior doctors into the speciality. This study hopes to explore the factors responsible for newly qualified doctors making a career choice and why they would or would not choose anaesthesiology.

In the past, training in anaesthesiology has been limited to 2 weeks as an undergraduate and 2 weeks during internship training. The training has increased to a 2 month rotation with the introduction of the 2 year internship program as from 1 July 2004.[2] However, this is still less than the 4 month rotations of Surgery, Medicine, Obstetrics and Gynaecology and Paediatrics. It was said by the Subcommittee for Internship Training that limited exposure to anaesthesiology of even 2 months, instead of 2 weeks, would be dangerous in that it might create the impression that at the end of that period the intern was ready to practice that discipline independently, which of course is not the case.[3] The demand for exposure to the different domains within the 2 year period made it impossible to increase the Anaesthesiology rotation beyond 2 months. This 2 month rotation, although limited, could still impact on the choice of the specialty as a career.

This study can provide insight that can be used to strengthen the training program and promote anaesthesiology as a career thereby improving recruitment into the specialty.

1.2 STATEMENT OF THE PROBLEM

1.2.1. Research Hypothesis

Junior doctors from South African medical schools have insufficient exposure to anaesthesiology during their undergraduate and intern training and therefore may be inadequately prepared to make an informed career choice.

1.2.2. Research Questions

Does the exposure to anaesthesiology as an undergraduate and during internship influence a junior doctor's future career choice?

What are the factors influencing career choices of interns at King Edward VIII Hospital, Durban, 2009?

1.3. PURPOSE OF THE RESEARCH

This study is meant to provide an insight into the reasons why junior doctors would or would not choose a career in anaesthesiology. This would help to alter perceptions of the specialty and thus improve recruitment into the specialty.

1.4. SPECIFIC OBJECTIVES OF THE RESEARCH

- To ascertain the career choices of interns before starting their anaesthesiology rotation
- To follow up as to whether this choice would be anaesthesiology after completion of the rotation.
- To determine the factors influencing these choices.
- To determine whether and how perceptions of the specialty were changed after completion of the rotation.
- To determine if the demographic profile of a doctor influences choosing anaesthesiology as a career.

1.5. ASSUMPTION UNDERLYING THE STUDY

- All interns completed the prescribed undergraduate rotation in Anaesthesiology.
- All interns were registered with the HPCSA as interns.
- All interns completed minimum requirements in Anaesthesiology during the 2 month rotation for registration with the HPCSA to proceed to Community Service.

1.6. OPERATIONAL DEFINITIONS USED IN THE STUDY

- **Rotation:** used synonymously with 'block' to refer to a specified period during which a medical student or intern would spend in a specialty to gain relevant knowledge and experience. The time spent in a specialty is determined by the Health Professions Council of South Africa. This is currently 2 months in Anesthesiology for internship.

- **Internship:** this is currently a 2 year program in South Africa at an accredited hospital. It is entered into on completion of a recognized medical degree and is compulsory for registration as a general practitioner.

- **Community service:** this is a compulsory period of employment of 1 year at an underserved health institution in South Africa and is mandatory for all South African qualified medical graduates to receive full registration as a general practitioner.

1.7. SCOPE OF THE STUDY

This study is limited to the South African context, examining the career choices in interns and the factors that influence them. An attempt is made to look at whether the change in the intern rotation in Anaesthesiology from 2 weeks to 2 months makes a difference. As much as the medical training in South Africa is unique, this study may be extrapolated to countries with similar health care systems and medical training.

2. CHAPTER II: LITERATURE REVIEW

2.1. INTRODUCTION

It has been of interest for many years how medical students choose a specialty. Research in this area has been fuelled by the impact on policy.[4] Such research is important as it may give insight into recruiting doctors into underserved areas in medicine. It may also assist in developing undergraduate and postgraduate medical school programs.

Surveys regarding career choices have been carried more frequently in developed countries than in developing countries. These studies enquired about a choice in any of the specialties and the factors influencing this choice. Subjects of these studies included either undergraduates or postgraduates at different levels of training or experience. Few studies focused specifically on anaesthesiology. In developing countries there is little published about anaesthesia. It is also found that the profession of anaesthesia has a low status in most developing countries.[5]

2.1. PURPOSE OF THE LITERATURE REVIEW

Current literature regarding career choice in medicine was reviewed to ascertain the factors that influence decision making. An attempt has been made to compare local and international studies as well as to compare studies from developed and developing countries. An analysis of studies chronologically will help to show whether there may be changes in trends of how career choices are made.

2.2. SCOPE OF LITERATURE REVIEW

Studies that looked at factors influencing career choice in junior doctors were reviewed. An attempt was made to focus on studies looking at anaesthesiology as a career choice

but more general studies looking at all specialties were included. Studies looking at different stages of medical training were reviewed, all the way from junior medical students to senior registrars. International and local studies were reviewed.

2.3. SOURCES OF LITERATURE REVIEWED

The electronic databases *Pubmed* and *EBSCOhost* were searched for studies related to factors influencing career choice in anaesthesiology. The following keywords were used: "Career choice in anaesthesiology", "Factors influencing career choice in anaesthesiology", "Choice of specialty", "Anaesthesiology as a career", "Career choice of interns".

2.4. LITERATURE REVIEWED

2.4.1. Anaesthesiology as a career choice

Anaesthesiology as evolved as a specialty over the past few decades and this is evident when comparing opinions about the specialty in the 1970's with more recent studies. A survey of 1976 U.S. medical graduates revealed that 65% of medical students receive minimal or no systematic exposure to anaesthesiology or anaesthesiologists.[6] It was not selected because it was viewed has having insufficient primary patient care.

The situation in a developing country was shown to be worse. In 1980 none of the 54 undergraduates in a Nigerian study selected anaesthesiology as first choice.[7] This was due to insufficient exposure.

Between 1981 and 1982, undergraduates completing a 4 week clinical clerkship in anaesthesiology at the University of Michigan completed a survey.[8] The results suggested that the clerkship improved attitudes towards anaesthesiologists as physicians,

was a worthwhile clinical experience and possibly affected career choice. This study was not representative of the entire student population because the clerkship was elective.

Attitudes of the 196 medical graduates of 1984 in Sri Lanka were surveyed.[9] Only 1.5% of respondents considered anaesthesiology as preferred career choice. Minimal patient contact and patient recognition (62%), and lack of recognition of the specialty by society (54%) were cited as the main reasons for not choosing the specialty.

Saudi medical undergraduates were surveyed about career preference in 1985 after a 2 week rotation in Anaesthesiology.[10] None of the pre-clinical students and one of the clinical students chose anaesthesiology. The students suggested a longer rotation and more opportunities to acquire skills.

A review of statistics from the American Medical Association showed an increase in female residents from 1980-1986.[11] There was an above average rate of growth for female residents in gynaecology, paediatrics, and internal medicine but there was a below average rate of growth for pathology, radiology, psychiatry, surgery, and anaesthesiology. The reasons for the differences in choice and the decrease in the percentage of women choosing anaesthesiology are unknown.

Two national surveys were conducted in Canada to better understand anaesthesia recruitment.[12] The first survey looked at undergraduate anaesthesia exposure at the different Canadian medical schools and at the number of students entering anaesthesia at the first postgraduate year in 1993. The second survey looked at why anaesthesiology residents chose the specialty. It was concluded that anaesthesia recruitment was not related to the duration of undergraduate anaesthesia exposure but was influenced by technical, applied basic sciences and life-style factors.

Senior medical students were asked to rank factors related to the selection of a residency program.[13] "Diversity of training experience" and "house officer satisfaction" ranked as the most important factors whereas items about treating patients with AIDS were ranked

as least important. Women assigned more importance to having a manageable case load, call schedules, and geographic location.

The career intentions of United Kingdom medical graduates, one year after qualification, was reported in 1996 and this was compared to those qualifying in 1993.[14] Anaesthesiology as first choice was made by 7.1% (n=2926) of respondents in 1996 and 7.0% in 1993. In 1996, 5.2% and 3.2% of doctors reported anaesthesiology as second and third choices respectively.

An Australian survey of 160 final year medical students was carried out.[15] Most were taught basic life support, cardiopulmonary resuscitation and intravenous cannulation but very few were taught specialised skills such as induction of anaesthesia and spinal anaesthesia. Positive role models in teaching anaesthetists were identified by students more commonly in those taught advanced skills and those intending a career in anaesthesiology.

A Scottish survey of doctors and medical students was conducted regarding a 4 month module in anaesthesia, pain management and intensive care for pre-registration house officers.[16] Eighty-three per cent of medical students would apply for the module, 88% of doctors would have found the module useful in their careers and 67% of doctors would recommend the module to trainees in their current speciality.

A cross sectional study of 77 house staff at the Mayo clinic, United States of America, in 2000-2001 academic year, was done as a follow up to a study done in 1995-1996.[17] Those included in the study were house staff already enrolled in the anaesthesiology training program. The factors influencing career choice may possibly differ from a group of doctors who have not already entered a training program. A study on doctors or medical students before they make a definite career choice may be more helpful in finding recruitment strategies. This study as well as the previous study by this group found that the most common reasons for choosing anaesthesiology included: it is a hands-on specialty, interest in physiology and pharmacology, it provides immediate gratification

with ones work, performance of invasive procedures and there is minimal on-going patient follow-up. Time off and time mostly devoted to patient care increased in rank in the follow up survey. Immediate earning potential on starting practice was persistently one of the lowest ranking factors.

A national survey of United Kingdom medical graduates was carried out over 28 years, from 1974 to 2002.[18] Doctors answered questionnaires regarding a career choice in anaesthesiology, one and three years after graduation. This was useful in that it showed a change in career choices through a 28 year period. Anaesthesiology has increased in popularity. In 1974, five per cent (n=89) of doctors chose anaesthesiology one year after qualification. This increased to twelve per cent (n=320) in 2002. It was also found that the majority of doctors who chose anaesthesiology one and three years after qualification were still in the specialty ten years after qualification. Thus a choice in anaesthesiology early post qualification may not be premature. According to this survey, a career choice in anaesthesiology was highly influenced by hours and working conditions, career prospects and chances of promotion and advice from others.

In 2002, a survey of Australian medical graduates was carried out to determine the factors influencing career choice.[19] It was found that 80% (n=4259) of graduates chose a specialty by the third year post graduation. This choice was greatly influenced by intrinsic factors such as appraisal of own skills and aptitude, intellectual content of the specialty and interest in helping people. Work culture or atmosphere, work experience and flexible hours were highly ranked extrinsic factors. The opportunity to work flexible hours was cited as an important factor amongst female doctors and partnered doctors.

A report on the career choices of United Kingdom graduates of 2002 showed a widening gap between the choices made by males as opposed to females.[20] There is a predominance of men choosing Surgery and women choosing Paediatrics and Obstetrics and Gynaecology. It also showed a mismatch between the percentage choosing each specialty and the percentage of senior doctors in that specialty. In this study, 9.5%

(n=2778) chose anaesthesiology, without any significant gender difference. This ranked the specialty 4th behind General Practice, General Medicine and Surgery.

In the year 2002 studies were also done in developing countries. The two reviewed focused on medical students. A South African study looked at the career intentions of medical students at the University of Transkei and their perceptions about the future.[21] Only 1.2% of students expressed an interest in anaesthesiology. This correlates well with other studies in developing countries which show a low level of interest in anaesthesiology as a career.

The other study from a developing country was a Nigerian study of sixty-seven final year medical students of the Obafemi Awolowo University.[22] This study as compared with the South African study above, focused specifically on anaesthesiology as a career choice. Eighty per cent of the students found anaesthesia interesting but none would choose anaesthesiology as a future career. It was not even a consideration for one third of the students. This again highlights the unpopularity of anaesthesiology as a career choice especially in developing countries and more so amongst undergraduates.

Trends in the number of U.S. medical graduates between 1987 and 2002 entering either primary care or hospital based specialties were reviewed.[23] The number of those choosing a primary care career has implications for the U.S. physician workforce. Interest in anaesthesiology showed an increase followed by a sharp decline during the study period. The lowest point coincided with a peak interest in primary care careers.

All female members and a randomly selected group of male members of the Australian Society of Anaesthetists were surveyed.[24] More women (39.7%) than men (8.7%) chose anaesthesia because of controllable hours, particularly the ability to work part-time. Experiences in anaesthesia during internship and residency were important for 19.1% of women and 14.1% of men. Very few mentioned undergraduate exposure.

A review of the factors influencing career choice was carried out in a University hospital in Pakistan.[25] Interview forms from doctors applying for residency training were collected between 1992 and 2004. Anaesthesia was chosen by 62% because of general interest and nature of the specialty whereas 36% made a choice because of better economic opportunities. A significant number were influenced by family and friends which is different from that reported in the United States and Australia.

A South African study published in 2005 surveyed a sample of medical graduates from the University of the Witwatersrand, collecting retrospective career histories.[26] This study looked at medical graduates from 1960 to 1994. It focused more on the distribution between public and private sector employment and geographic distribution (i.e. rural or urban) rather than factors influencing career choice. It was noted that 4.7% of graduates were specialists in anaesthesiology. By gender 5.2% of male graduates and 3.3% of female graduates were anaesthesiologists. These figures may not be accurate as only graduates still living in South Africa were interviewed.

The impact of gender, personality traits, career motivation and life goals on Swiss residents' specialty choices was assessed in 2005.[27] Of 522 4th year residents, 45 (8.6%) chose a career in primary care, 126 (24.1%) internal medicine, 68 (13.0%) surgical specialities, 31 (5.9%) obstetrics and gynaecology, 40 (7.7%) anaesthesiology and intensive care, 44 (8.4%) paediatrics, 25 (4.8%) psychiatry and 60 (11.5%) chose other specialities. Obstetrics and gynaecology, paediatrics and anaesthesiology were more popular with female residents while males tended to choose surgical specialties. Gender was the most significant factor influencing specialty choice. Career motivation and life goals were also rated as relevant. After controlling for career motivation and life goals as covariates, personality traits did not significantly influence specialty choice.

A study of medical students at three U.S. medical schools looked at emotional intelligence and specialty choice.[28] Results from 3 previous studies on emotional intelligence were linked to the specialty choice data retrieved from the National Residency Match Program (NRMP). No significant differences in emotional intelligence

were found between students choosing a career in primary care and those entering non-primary care specialties.

An Australian study assessed junior doctors' perceptions of difficulty of medical specialty training programs.[29] Doctors ranked medical specialties according to perceived level of training difficulty (incorporating entry difficulty, course difficulty, and length of training). They also chose their preferred medical specialty and completed a measure of medical values. Anaesthesiology was ranked as having the 4th most difficult training program after ophthalmology, surgery and dermatology. The least difficult were non-specialist hospital practice, general practice, public health medicine, occupational medicine, and medical administration. The more difficulty specialties were seen as more prestigious and intellectually demanding, whereas lower training difficulty specialties were seen as consistent with lifestyle and service values. Both male and female junior doctors have a similar view of the level of difficulty associated with the different specialties. However, females show preference for lifestyle friendly specialties.

A study was conducted at an Israeli medical school to determine why anaesthesiology is such an unpopular specialty.[30] Medical students in the Israeli and American programs were surveyed. Anaesthesiology was not considered by any of the Israeli medical students but by 12.9% of students in the American program. Salary and working conditions in an anaesthesiology residency were considered to be advantageous by the American students but proved to be the opposite for the Israeli students. Little interest was shown by Israeli medical students despite a week of lectures and a two week rotation. The American students had just two lectures.

In a survey of medical students of four medical colleges in Pakistan, 8.7% chose anaesthesiology as a specialty whereas surgery was most popular (50.3%).[31] This was followed by internal medicine (26.8%) and paediatrics (23.2%). Personalities of individuals, prestige and respect, international opportunities, and time commitments were considered most important factors by most of the medical students (70%).

In a Nigerian survey of final year medical students, 18.2% stated that they would consider specialising in anaesthesiology.[32] The presence of nurse anaesthetists and that the specialty was not seen as lucrative were some of the perceived hindrances.

2.4.2. Intern training in anaesthesiology

Internship for medical graduates in South Africa has increased from 1 year to 2 years since 1 July 2004.[33] This also saw the rotation in anaesthesiology increase from 2 weeks to 2 months. It is not specified whether the anaesthesiology rotation be in the first or second year.

The mandatory 40 cases has fallen away, however, 80 cases have been stipulated as the minimum for the 2 month rotation at King Edward VIII Hospital. This bodes well for exposure to the field of anaesthesiology.

The Health Professions Council of South Africa has introduced a logbook which specifies procedures or areas that an intern should be exposed to and certain competencies that an intern should acquire. It is reassuring that obstetric and paediatric anaesthesia has been included in the 2 year program as areas that an intern should be exposed to.

3. CHAPTER III: METHODS

3.1. INTRODUCTION

There is a shortage of trained anaesthesiologists in South Africa and more so in other developing countries. The exposure to the specialty is limited in the undergraduate curriculum and during internship. This study aims to look at the career choice of interns and the factors that influence them. This chapter describes the type of research and the study design that was used. There is also a description of the research tools, study population and limitations of the study.

3.2. TYPE OF RESEARCH

This study is a health systems research study.

3.3. STUDY DESIGN

This study was prospective and was an observational, analytic cohort study design. It was predominantly quantitative with some open-ended questions leading to a qualitative component.

3.4. TARGET POPULATION

All medical interns, registered with the Health Professions Council of South Africa.

3.5. STUDY POPULATION

The study population chosen comprised of medical interns that rotated through anaesthesiology at King Edward VIII Hospital, Durban, KwaZulu-Natal, South Africa from July 2009 to June 2010.

Inclusion criteria: all interns rotating through anaesthesiology in King Edward VIII Hospital, Durban, KwaZulu-Natal, South Africa, during the study period.

Exclusion criteria: interns unavailable because of sick or vacation leave and interns that do not consent to participating in the study.

3.6. DATA SOURCES

3.6.1. Measurement instruments

A standardized questionnaire was used.

3.6.2. Data Collection Techniques

All interns completed the first part of a questionnaire on commencement of the anaesthesiology rotation. The second part of the questionnaire was completed at the end of the anaesthesiology rotation – approximately two months duration.

3.7. VARIABLES

The following were variable in the questionnaire:

- Demographic characteristics (age, sex, marital status, race)
- Medical school for undergraduate qualification
- Specialty choice

- Factors influencing career choice
- Rotations completed prior to entering anaesthesiology rotation

3.8. MEASURES TO ENSURE VALIDITY

A standardized questionnaire had to be completed by all interns before and after the anaesthesiology rotation.

3.8.1. Internal (face validity)

A focus group discussion was conducted with a group of interns prior to the actual study period and formulation of the final questionnaire. This served to validate the questionnaire and clarify any misconceptions.

3.8.2. Reduction of bias

3.8.2.1. Selection bias

None

3.8.2.2. Information bias

Recall bias of undergraduate training was reduced by conducting the first questionnaire on commencement of the rotation and the second part on completion of the rotation. Questionnaires were anonymous but the first and second parts of the questionnaire were linked by using the intern number.

3.8.3. External

It may be assumed that the group of interns in the study is similar to previous and future years but this study was conducted at one site, King Edward VIII Hospital, Durban. Interns at King Edward VIII Hospital may differ from interns at other training hospitals in the Durban complex, the province or the country. However, the training program for medical interns is standardized in South Africa by the Health Professions Council of South Africa's logbook.

3.9. LIMITATIONS

The questionnaires were completed during working hours and this may have caused participants to attempt to complete the questionnaire in less than adequate time. The survey was conducted in theatre by a member of the Department of Anaesthesiology and this may have caused interns to feel intimidated when completing the questionnaire. A similar questionnaire on interns in South Africa has not been carried out before and thus validation of the questionnaire was difficult. The study was carried out in a single centre.

3.10. STATISTICAL ANALYSIS

Data was captured on a Microsoft Excel spread sheet and imported into a statistics program. SPSS version 19.0 (SPSS Inc., Chicago, Illinois, USA) was used to analyse the data. A p value <0.05 was considered as statistically significant.

3.10.1. Descriptive statistics

Most of the objectives were assessed using descriptive statistics. Frequency tables and bar charts will be used to describe categorical variables, while the mean and standard

deviation or median and inter-quartile range will be used to summarize quantitative or Likert scale variables. Open ended questions were analysed manually according to themes identified.

3.10.2. Analytic statistics

The analytical component of this research involves comparison between pre and post rotation responses to selected questions. Paired analyses were done by matching respondent's pre and post rotation. McNemar's chi square test was used to compare binary responses pre and post, while Mann Whitney tests was used to compare Likert scale responses or scale variables pre and post rotation. Fischer's exact test was used to test for associations between demographic profiles and specialty choice.

3.11. Ethical Considerations

3.11.1. Institutional Ethical Review Board

Ethical approval was obtained from the University of KwaZulu-Natal Biomedical Research Ethics Committee (BE059/09).

This research poses minimal risk to the research participants and informed consent was obtained since it involved the use of questionnaires.

Intern numbers were used to correlate the pre and post rotation responses but these were removed once data was entered into the database so that all the intern numbers were de-linked. However, completion of the questionnaire by the interns was voluntary.

Dissemination of findings of the study and any publication as a result, will be via the University of KwaZulu-Natal and the Department of Anaesthesiology.

3.11.2. Permissions

The protocol was submitted to the Post-graduate Education Committee Nelson R. Mandela School of Medicine, University of KwaZulu-Natal, for registration as a research project for higher degree purposes – MMed (Anaesthesiology).

Permission was obtained from the Hospital Manager of King Edward VIII Hospital.

4. CHAPTER IV: RESULTS

4.1. INTRODUCTION

Interns were recruited into the study during the orientation to the anaesthesiology rotation. This took place from July 2009 to June 2010. There were a total of six groups. The follow-up questionnaire was administered during the last week of the two month rotation.

4.2. DEMOGRAPHIC PROFILE

Table 1: Demographic profile of interns

		n	%
Respondents	Pre rotation	32	100
	Post rotation	27	84.4
Age	20-24	13	40.6
	25-29	15	46.9
	30-34	1	3.1
	35-39	1	3.1
	>40	1	3.1
Group	July-August 2009	4	12.5
	September-October 2009	4	12.5
	November-December 2009	6	18.8
	January-February 2010	7	21.9
	March-April 2010	7	21.9
	May-June 2010	4	12.5
Sex	Female	26	81.3
	Male	6	18.7
Marital status	Single	20	62.5
	Married	7	21.9
	Unmarried with partner	5	15.6
	Divorced	0	0
Dependents	Yes	3	9.4
	No	29	90.6
Race	Black	7	21.9
	White	2	6.3
	Asian	22	68.8

	Coloured	0	0
Medical school	UKZN	12	37.5
	Wits	7	21.9
	UCT	2	6.3
	Stellenbosch	0	0
	Pretoria	1	3.1
	OFS	4	12.5
	Medunsa	1	3.1
	WSU	3	9.4
	Other	2	6.2
Intern year	First	13	40.6
	Second	19	59.4

Thirty two interns completed the questionnaire at the beginning of the rotation and five of these interns did not complete the questionnaire at the end of the rotation (Table 1). The drop-out rate was 15.6%.

Most of the interns in this study were under the age of thirty. Fifteen (46.9%) were in the 25-29 year age group followed by 13 (40.6%) in the 20-24 year age group. One intern was in each of the 30-34, 35-39, and >40 year age groups. Five of the thirty two interns had obtained a Bachelor's degree prior to entering medical school.

There were between 4 and 7 interns in each of the 6 groups over the 12 month period. Majority were female (81.3%). Most interns were single (62.5%) while 21.9% were married and 15.6% were unmarried with partners. Three interns had dependants.

Asians outnumbered other race groups (68.8%). There were 7 black interns (21.9%) and 2 white interns (6.3%). There were no coloured interns during the study period.

Graduates of the Universities of KwaZulu-Natal and Witwatersrand comprised 37.5% and 21.9% of the interns respectively. There were 4 graduates of the University of the Free State and 3 from Walter Sisulu University. Two were graduates of the University of Cape Town and 2 qualified outside of South Africa. There was one intern from Pretoria and one from the Medical University of South Africa. There were no interns who were graduates of the University of Stellenbosch.

There were more second year interns (59.4%) than first year interns (40.6%)

4.3. PRIOR EXPOSURE TO ANAESTHESIOLOGY

There were varying responses when interns were asked about prior exposure to anaesthesiology. There were different times given for the time spent in anaesthesiology at medical school. Responses ranged from one to eight weeks. Responses even differed between interns from the same medical school. The most common response (2 weeks) was given by 14 interns. Five did not answer this question.

Majority of interns thought that the time spent in Anaesthesiology as an undergraduate was inadequate (71.9%). Only 6 (18.8%) felt that this time was adequate. When asked whether the time spent in Anaesthesiology was necessary or unnecessary, all of the 13 interns that answered responded that the time was necessary.

Table 2: Rating of Anaesthesiology as a specialty pre rotation

Rate Anaesthesiology	n	%
1	0	0
2	0	0
3	21	65.6
4	9	28.1
5	2	6.3
	32	100

Interns were asked to rate anaesthesiology as a specialty on a scale of 1 to 5 with 1 being least liked and 5 being most liked (Table 2). All 32 interns gave a rating of 3 and above. The most common response of 3 was given by 21 (65.6%) of respondents with 28.1% giving a rating of 4 and only 6.3% giving a rating of 5.

They were also asked to substantiate their rating of Anaesthesiology as a specialty. This was through an open-ended question. The most common theme was that there was too little exposure to Anaesthesiology. Ten interns (31.3%) gave this response. Five interns already had a preference for other specialties with 3 choosing surgery. The involvement of physiology and pharmacology was seen as a positive aspect by 4 interns. Three interns felt that the time spent in theatre was too long whereas 2 others saw the controlled environment as a positive factor. The opportunity to learn life-saving procedures and handle emergencies was stated by 2 interns. Two associated Anaesthesiology with higher legal consequences. Other reasons mentioned were good working hours, little exposure to infectious diseases, difficulty getting posts and difficult exams.

Interns were also asked to rate various areas in their undergraduate exposure to Anaesthesiology (Table 3). The areas looked at were lectures, tutorials, skills laboratory or simulator, practical experience in theatre and opportunities for procedures. They were rated from 1 to 5 with 1 being irrelevant and 5 being most relevant.

Table 3: Rating of various areas in undergraduate exposure

Rate areas	**Lectures**		**Tutorials**		**Skills Lab**		**Practical experience**		**Procedures**	
	n	%	n	%	n	%	n	%	n	%
1	1	3.1	1	3.1	1	3.1	1	3.1	1	3.1
2	0	0	2	6.3	2	6.3	0	0	3	9.4
3	5	15.6	2	6.3	6	18.8	4	12.5	11	34.4
4	21	65.6	19	59.4	13	40.6	11	34.4	9	28.1
5	4	12.5	7	21.9	9	28.1	16	50	8	25
	31	96.9	31	96.9	31	96.9	32	100	32	100

A rating of 4 was given by most interns (65.6%) with regards to lectures. There was a similar distribution for tutorials and the skill laboratory or simulator. When it came to

practical experience 50% of interns regarded this area as most relevant. Ratings of 3, 4 and 5 were given by 34.4%, 28.1% and 25% respectively.

4.4. SPECIALTY CHOICE (pre rotation)

In the questionnaire at the beginning of the rotation interns were asked to list three possible options for a specialty choice in order of preference. Three of the 32 interns were undecided and did not make a choice.

Table 4: Top 3 Specialty choice

	1st choice	2nd choice	3rd choice	Total n (%)
Anaesthesiology	2	5	5	12 (14.5)
Internal Medicine	5	8	1	14 (16.9)
General Surgery	5	0	2	7 (8.4)
Paediatrics	5	2	3	10 (12.0)
Obstetrics and Gynaecology	2	1	2	5 (6.0)
Psychiatry	2	1	3	6 (7.2)
Orthopaedics	2	4	1	7 (8.4)
Radiology	1	0	0	1 (1.2)
Oncology	0	1	0	1 (1.2)
Otorhinolaryngology	0	2	2	4 (4.8)
Neurology	0	2	0	2 (2.4)
Dermatology	2	0	3	5 (6.0)
Cardiothoracic surgery	0	1	0	1 (1.2)
Chemical Pathology	0	0	2	2 (2.4)
Ophthalmology	1	1	1	3 (3.6)
Cardiology	1	0	0	1 (1.2)
Neurosurgery	1	0	0	1 (1.2)
Paediatric Surgery	0	0	1	1 (1.2)
	29	28	26	83 (100.0)

The interns listed one of 18 specialties as first, second or third choice (Table 4). Internal Medicine, General Surgery and Paediatrics were selected as a first choice by 5 interns each. As a second choice, Internal Medicine, Anaesthesiology and Orthopaedics were chosen by 8, 5 and 4 interns respectively. Anaesthesiology was a third choice by 5 interns. Paediatrics, Psychiatry and Dermatology were selected as a third choice by 3 interns each.

Internal Medicine was selected as one of the top 3 choices 14 times (16.9%). Anaesthesiology, Paediatrics and Orthopaedics were selected 12, 10 and 7 times respectively.

The demographic profile of the 12 interns who selected Anaesthesiology as one of their top 3 career choices is tabulated below (Table 5). Of the 12 interns, 10 (83.3%) were female and 2 (16.7%) were male. This equated to 38.5% of females and 33.3% of males choosing Anaesthesiology.

When analysed according to marital status, 4 (33.3%) were single, 5 (41.7%) unmarried with partner and 3 (25%) married. Of the single interns, 20% chose Anaesthesiology and of the married interns 42.9%. All 5 of those that were unmarried with children chose Anaesthesiology. Two of the 3 interns with dependents chose Anaesthesiology.

Two thirds of the interns choosing Anaesthesiology were in the 25-29 year age group. There was a negative predominance towards Anaesthesiology in the 20-24 year and 30-34 year age groups ($p < 0.036$; Fischer exact test)

Of the interns that chose Anaesthesiology, 7 (58.3%) were Asian, 3 (25%) Black and 1 (8.3%) was White. Of the Asian interns, 31.8% chose Anaesthesiology. This was 42.9% for the Black interns and 50% for the White interns.

When comparing medical schools, 3 of 12 UKZN graduates and 5 of 7 Wits graduates chose Anaesthesiology. The other 4 comprised of interns from Pretoria, OFS, WSU and a foreign medical school.

There was a mix of first and second year interns rotating through Anaesthesiology during the course of the year. Three of the 13 first year interns (23.1%) chose Anaesthesiology while 9 of 19 were second year interns (47.4%).

Three of the 5 interns who were graduates on entering medical school chose Anaesthesiology.

Table 5: Demographic profile of interns choosing Anaesthesiology

		n	%
Sex	Female	10	83.3
	Male	2	16.7
Marital Status	Single	4	33.3
	Unmarried with partner	5	41.7
	Married	3	25
	Divorced	0	0
Dependents	Yes	2	16.7
	No	10	83.3
Age group (years)	20-24	2	16.7
	25-29	8	66.6
	30-34	0	0
	35-39	1	8.3
	>40	1	8.3
Race	Asian	7	58.3
	Black	3	25
	White	1	8.3
	Unknown	1	8.3
Medical School	UKZN	3	25
	Wits	5	41.7

	UCT	0	0
	Stellenbosch	0	0
	Pretoria	1	8.3
	OFS	1	8.3
	Medunsa	0	0
	WSU	1	8.3
	Other	1	8.3
Intern Year	First	3	25
	Second	9	75
Previous qualification	Yes	3	25
	No	9	75

Interns were then asked to motivate why they chose anaesthesiology or not. Twenty two factors that possibly influence career choice were provided. Interns had to rate these on a scale of 1 to 5. A rating of 1 was given when a factor least influenced career choice and 5 when a factor most influenced career choice. To assess the strength of each factor in influencing career choice the rating given for each factor by all of the interns was summed. This score was then used to arrange factors according to relative importance (Table 6).

The 5 most highly ranked factors were: positive patient outcomes, satisfaction from immediate results, interest in critical care, intellectual content and the theatre environment. The lowest ranked factors were: domestic circumstances, the status of the specialty, advice from friends, advice from parents or relatives and interest before medical school. Limited exposure to HIV was seen as a factor that strongly influenced career choice in the group of interns that chose anaesthesiology. This was significant when compared to those who did not choose anaesthesiology ($p < 0.036$, Mann Whitney Test).

Table 6: Factors influencing career choice pre rotation ranked by summation of Likert scale

Factors influencing career choice	Sum of Likert scale
Positive patient outcomes	131
Satisfaction from immediate results seen	129
Interest in critical care	122
Intellectual content	120
Theatre environment	120
Appraisal of own skills/aptitude	119
Hours/working conditions	117
Limited exposure to HIV	116
Positive experience	115
Interest in physiology/pharmacology	113
Job security/prospects	112
Opportunities to work abroad	112
Encouraged or inspired by senior colleagues	110
Financial considerations	104
Years to complete	103
No long term patient follow-up	100
No ward rounds or clinics	97
Domestic circumstances	94
Status of speciality	91
Advice from friends	86
Advice from parents/relatives	80
Interest before med school	76

When interns were asked about their expectations for the rotation, the most common response was the opportunity to gain skills. Interns hoped to achieve competency in providing simple and safe anaesthesia for common procedures. Skills seen as important to gain were intubation, spinal and epidural anaesthesia, placement of lines for invasive

monitoring and resuscitation skills. The interns placed emphasis on gaining these skills to assist during the year of community service.

4.5. SPECIALTY CHOICE (post rotation)

A questionnaire was completed by each intern at the end of the 2 month rotation. They were again asked to rate Anaesthesiology and provide substantiation. It was asked whether Anaesthesiology would be one of their top 3 specialties. They were then asked to rate the factors that influence career choice as in the pre rotation questionnaire.

Most interns (74.1%) gave Anaesthesiology a rating of 4 with 1 being least liked and 5 being most liked (Table 7). In the pre rotation questionnaire the most common response by 65.6% of interns was a rating of 3 (Figure 1). This difference in distribution was not significant.

Table 7: Rating of Anaesthesiology as a specialty post rotation

Rate Anaesthesiology	n	%
1	0	0
2	0	0
3	3	11.1
4	20	74.1
5	4	14.8
	27	100

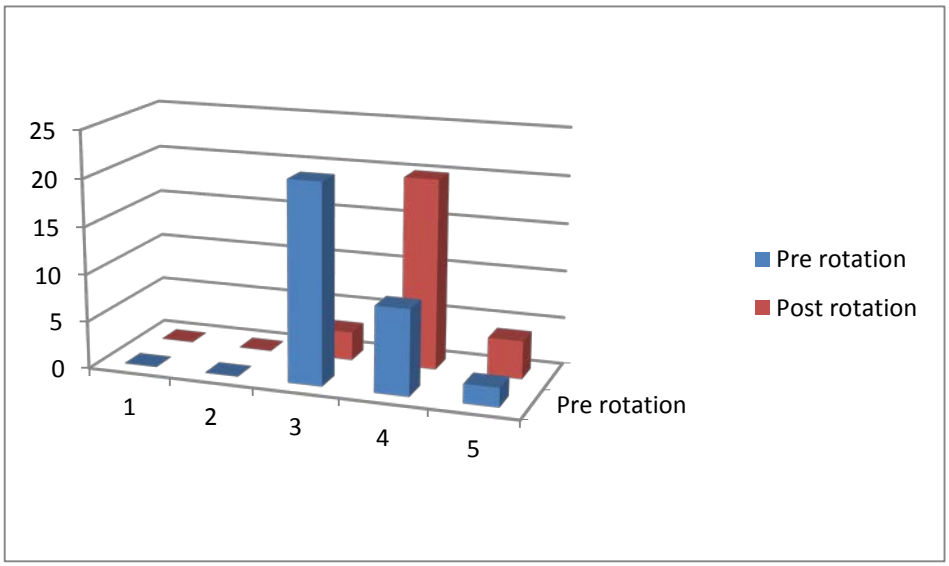

Figure 1: Rating of Anaesthesiology pre and post rotation

In an open-ended question, interns were asked to give reasons for the rating given to Anaesthesiology. Most interns had a positive experience during the rotation. The application of pharmacology and physiology in anaesthetic management was seen as very useful. Most enjoyed the theatre environment and the working conditions as well as the working hours. However, 4 of the interns felt that monitoring of patients under anaesthesia was monotonous or boring and felt being in theatre and not leaving the entire day was restrictive. One intern found that the lack of continuity and patient follow-up was a negative aspect.

The interns were asked specifically whether Anaesthesiology would be one of their top 3 career choices (Table 8). Sixteen interns (59.3%) said that Anaesthesiology would be one of their top 3 career choices and 10 (37%) considered it as a possibility. Only one intern did not consider it at all as a possible career choice.

Table 8: Anaesthesiology as one of top 3 career choices

Anaesthesiology top 3	n	%
Yes	16	59.3
No	1	3.7
Maybe	10	37.0
	27	100.0

As in the pre rotation questionnaire, interns were asked in the post rotation questionnaire to motivate why they chose anaesthesiology or not. The same twenty two factors that possibly influence career choice were provided with the same rating scale. Interns had to rate these on a scale of 1 to 5. A rating of 1 was given when a factor least influenced career choice and 5 when a factor most influenced career choice. To assess the strength of each factor in influencing career choice the rating given for each factor by all of the interns was summed. This score was then used to arrange factors according to relative importance (Table 9).

The 5 most highly ranked factors were: no ward rounds or clinics, satisfaction from immediate results seen, intellectual content, positive patient outcomes and hours or working conditions. The lowest ranked factors were: domestic circumstances, positive experience, advice from friends and advice from parents or relatives and interest before medical school.

Table 9: Factors influencing career choice post rotation ranked by sum of Likert scale

Factors influencing career choice	Sum of Likert scale
No ward rounds or clinics	107
Satisfaction from immediate results seen	107
Intellectual content	106
Positive patient outcomes	106
Hours/working conditions	104
Interest in physiology/pharmacology	102

Opportunities to work abroad	102
Job security/prospects	101
Encouraged or inspired by senior colleagues	100
Theatre environment	99
No long term patient follow-up	99
Appraisal of own skills/aptitude	99
Limited exposure to HIV	96
Interest in critical care	95
Financial considerations	94
Years to complete	93
Status of speciality	87
Domestic circumstances	82
Positive experience	76
Advice from friends	74
Advice from parents/relatives	72
Interest before med school	53

The interns were asked whether their expectations for the rotation were met and there was an overwhelming majority (26 of 27 interns) that felt that their expectations were met.

The last question posed was how their exposure to Anaesthesiology affected their perception of the specialty. Most interns viewed Anaesthesiology in a more positive light after the rotation. Only 2 interns felt that their perception had not changed. Most interns enjoyed the rotation and felt it more interesting than expected. A few thought it was not as difficult as expected. Most interns appreciated the practical skills gained such as in airway management and resuscitation. The integration of the various disciplines in medicine and the intellectual content of Anaesthesiology were seen as important. Interns also noted that they had gotten a better understanding of the speciality and the role of the anaesthetist.

4.6. SUMMARY

Thirty two interns participated in the survey with 5 not completing the post rotation questionnaire. Twelve interns chose Anaesthesiology as one of their top 3 specialties before the rotation with this increasing to 16 after the rotation. Limited exposure to HIV was seen as a significant factor in choosing a career amongst those interns that chose Anaesthesiology. Perceptions of Anaesthesiology were improved after the two month exposure to the specialty.

5. CHAPTER V: DISCUSSION

5.1. INTRODUCTION

One of the main objectives of this study was to examine the factors that influence career choice and use this information to improve recruitment into Anaesthesiology. It is intuitive that increased time spent in a specialty will provide a good opportunity to assess the nature of the work and thus make a career choice. The introduction of the 2 month rotation in Anaesthesiology as opposed to the two week rotation has provided interns with a longer exposure to the specialty and this has helped change perceptions.

5.2. FINDINGS

5.2.1. Demographic profile

The demographic profile of interns at King Edward VIII hospital may indeed be very different to that of interns at other hospitals. It is an academic hospital attached to the Nelson R Mandela School of Medicine.

The profile of interns may be related to that of the undergraduate population. Local graduates were 37.5% of the study population. The majority of interns in this study (81.3%) were female. There is an increase in female graduates at medical schools in South Africa and internationally. A study of medical schools in Gauteng showed that 63% of graduates were female.[34]

Asian interns were in the majority and this is because the study was in Durban with a large Asian population. It would thus be difficult to draw conclusions about career choice and a possible racial bias.

Graduate entry into medical school is not common in South Africa therefore most of the interns in the study were under the age of thirty years. This is similar to medical training in Australia and the UK. Programmes in the US and Canada are graduate entry. In an American study on career choice 40% of respondents were in the 31-40 year age group.[17] In an Australian study the mean age was 27.5 years.[29] Neither of the studies drew any associations between career choice and age of the junior doctor.

5.2.2. Prior exposure to Anaesthesiology

There is a drive to increase the time undergraduates spend in Anaesthesiology. The time allocated to Anaesthesiology in the undergraduate curriculum is usually 2 weeks and this was the most common response from interns in the study. In the past decade there have been curriculum changes in South African medical schools and there may have been changes in the time spent in Anaesthesiology. The overwhelming majority of interns felt that the time spent in Anaesthesiology was inadequate. This sentiment was repeated when interns were asked to substantiate their rating of Anaesthesiology as a speciality.

There was no representation from the University of Stellenbosch in the study. This medical school provides undergraduates with a 6 week rotation in Anaesthesiology.[35] This exposure is much longer compared to other medical schools. The exposure to Anaesthesiology is variable abroad with some medical schools only offering Anaesthesiology as an elective. In a survey of Canadian medical schools it was found that anaesthesia recruitment is not related to the duration of undergraduate anaesthesia exposure but is influenced by technical, applied basic sciences and life-style factors.[12]

Internship training is meant to be a period of intensive practical training. This is possibly why interns found that practical experience was most relevant in their undergraduate exposure to Anaesthesiology.

5.2.3. Specialty choice (pre rotation)

In this study there is a difference in ranking of specialties depending on whether the specialty was chosen as first choice or whether it was chosen as one of the top three choices. As first choice, Internal Medicine, General Surgery and Paediatrics, were equally popular. When considering whether a specialty was chosen as one of the top three, Internal Medicine, Anaesthesiology and Paediatrics were the most popular in that order. Anaesthesiology was more popular as a second and third choice rather than a first choice.

Career choice in this group of interns is indicative of the marked female predominance in the sample (81/3%). The popularity of Internal Medicine, Anaesthesiology and Paediatrics amongst female graduates has been shown in other studies.[20, 27]

There were 12 interns that selected Anaesthesiology as one of their top 3 career choices. This group of interns did not have any specific characteristics or demographic profile.

It would seem intuitive that the older interns would be more concerned about the duration of a training program. Interns in the 20-24 year and 30-34 year age groups tended not to choose Anaesthesiology and this reached statistical significance. However, the sample size was small. Two thirds of those choosing Anaesthesiology were in the 25-29 year age group. Fifteen interns were in this group and 13 were in the 20-24 year age group. It is difficult to separate perception of difficulty of a training program from duration of training. Duration of training in Anaesthesiology may be shorter than the surgical specialties but it is often perceived as difficult because of the intellectual content and examinations. An Australian study showed that it is ranked 4th in terms of perceived level of difficulty.[29]

It would be difficult to draw any conclusions when comparing 8 medical schools in South Africa in a sample size of only 32 interns. The University of Stellenbosch was also not represented in this sample. However, 5 of 7 Wits graduates and 3 of 12 UKZN graduates

chose Anaesthesiology. A study of Wits graduates from 1960 to 1994 found that 4.7% of graduates were anaesthesiologists.[26] This may be inaccurate as graduates who emigrated were not interviewed and there are a fair number of South African qualified anaesthesiologists working abroad.

Interns rotate through Anaesthesiology in either their first or second year of internship. Second year interns may possibly be more confident and competent in their responsibilities as opposed to their first year counterparts. This may alter their perceptions of a specialty. In the study group there was a trend to more second year interns choosing Anaesthesiology. Of the second year interns, 47.4% chose Anaesthesiology; 23.1% of first year interns chose Anaesthesiology.

A Likert scale was used to assess the motivation for choosing Anaesthesiology or not. A five point scale was used and the problem with this is that most subjects would tend to choose a rating of three especially if they were uncertain about a factor. However, a five point scale does not force a subject into making a positive or negative response. For these reasons, the Likert scale was summed to assess the strength of a factor in influencing an intern to make a career choice. The higher the score, the more important a factor was in making a career choice.

Two of the most highly ranked factors were a positive patient outcome and satisfaction from immediate results seen. In the South African context the burden of HIV and AIDS, chronic diseases and trauma can be quite demoralising to a junior doctor. The anaesthetic management of a surgical patient undergoing curative surgery can be quit rewarding in this environment. The intellectual content and association with critical care were also ranked highly. This was also seen in other studies abroad.[17, 19] It was also interesting to note that interns choosing Anaesthesiology found that limited exposure to HIV was a factor that strongly influenced career choice. This factor was significant when compared to the interns that did not choose Anaesthesiology.

The lowest ranked factors that influenced career choice were the status of the speciality, advice from friends, advice from parents or relatives and an interest before medical school. This implies that there is little exposure to or awareness of the anaesthesiologist by the general public. This is the situation globally with very little knowledge of the anaesthesiologist in developing countries. In a study in India, all illiterate subjects and more than 50% of postgraduate subjects were not aware that Anaesthesiology was a separate medical discipline.[36] The situation may be similar in South Africa. Public perception of the anaesthesiologist may vary from country to country. This may be based on who provides anaesthesia. In some countries the anaesthetist is a doctor who is subsequently trained in anaesthesia. This is the norm in the UK, Australia, South Africa, New Zealand, Japan, China and Russia. In other countries, anaesthesia may be provided by a nurse. Nurse anaesthetists are common in the Netherlands, Sweden, Norway, Denmark, Austria, Switzerland, USA, France, the DRC, Ghana, Tunisia, Cambodia, Indonesia, Taiwan and Jamaica. In some countries where doctors and nurses are in short supply, anaesthesia may be provided by a variety of individuals.[37]

Interns were asked about their expectations for the rotation in Anaesthesiology in an open-ended question. The desire to acquire practical skills was a common theme. Imparting these skills to interns should be seen as an important way to promote the specialty.

5.2.4. Specialty choice (post rotation)

A post rotation questionnaire was a seen as an important tool to assess the effect the 2 month rotation in Anaesthesiology would have on interns making a career choice. The questionnaire was very similar to the one at the beginning of the rotation. Five interns did not complete the questionnaire at the end of the rotation.

Interns were asked to rate Anaesthesiology as a specialty again. Most interns gave a rating of 4 as opposed to 3 in the pre rotation questionnaire. This did not reach statistical

significance but a statistical difference may have been found had the sample size been larger. This trend is important to note as it shows an improved perception of the specialty after a 2 month period. The number of participants having a favourable perception of Anaesthesiology is greater than those choosing the specialty, thus showing that even those not interested in pursuing a career in Anaesthesiology had a positive experience during the rotation.

Most interns enjoyed the theatre environment and application of physiology and pharmacology in Anaesthetic management. However, 4 interns found the monitoring of patients under anaesthesia monotonous and being unable to leave the theatre complex during the day as restrictive. These perceptions could be changed with a wider exposure to the role of an Anaesthesiologist. Anaesthesiology is an evolving specialty with the expertise of an Anaesthesiologist extending beyond the theatre environment. Anaesthesiologists are involved in critical care and pain medicine and are seen as perioperative physicians. Much is needed to be done to alter the perception of the Anaesthesiologist in the eyes of the public and junior medical staff. A two month period of exposure to Anaesthesiology during internship may not be sufficient to achieve this.

In the post rotation questionnaire interns were again asked about their top 3 choices for a specialty. The question was phrased differently from the pre rotation questionnaire. At the beginning of the rotation interns were asked to list 3 possible specialties in order of preference. At the end of the rotation they were just asked if Anaesthesiology would be one of their top three choices. They could choose an answer of yes, no or maybe. It was thus difficult to compare both the pre and post rotation responses directly. A comparison was made with a choice of Anaesthesiology as one of the top three choices in the pre rotation questionnaire to a response of yes in the post rotation questionnaire. There was a trend to more interns choosing Anaesthesiology with 16 in the post rotation questionnaire as opposed to 12 pre rotation. Although 10 interns gave maybe as a response, this cannot be compared directly with the choice of Anaesthesiology as one of the top three in the pre rotation questionnaire. These trends suggest that after the 2 month rotation, interns have an improved perception of the specialty.

As in the pre rotation questionnaire, interns were asked to motivate why they chose Anaesthesiology or not. The top 5 factors influencing career choice were similar to those ranked in the pre rotation questionnaire except for two factors. The highest ranked factor in this questionnaire was that there were no ward rounds or clinics. The fifth ranked factor was hours or working conditions. Life-style factors are becoming increasingly important in choosing medical careers. The importance of hours and working conditions in choosing Anaesthesiology was also found in other studies.[12, 17, 18]

The lowest ranked factors were the same as in the pre rotation questionnaire. This just serves to confirm that there is very limited knowledge of Anaesthesiology and the Anaesthesiologist in the general public and amongst medical students,

At the end of the questionnaire interns were asked in an open ended question whether the 2 month rotation had changed their perceptions of Anaesthesiology. There was an overwhelming positive response. Most of the interns enjoyed the rotation and benefited from the skills acquired. It may be that this improved perception of the specialty may translate into more interns choosing Anaesthesiology.

5.3. BIAS AND LIMITATIONS

5.3.1. Selection bias

The study was based at one hospital and all interns during the study period were recruited into the study. However, those interns who were not present in theatre on the first day of the rotation may not have been recruited into the study.

5.3.2. Information bias

Interns were asked to recall details of their undergraduate training in Anaesthesiology which may have occurred 2 to 3 years before. Their ability to complete that section of the questionnaire accurately would have been dependant on them remembering details of their undergraduate training. An attempt to reduce this was made by asking interns about undergraduate training on the first day of the Anaesthesiology rotation.

The questionnaire was conducted by a member of the Anaesthesiology Department and this may have intimidated interns when completing the questionnaire. Interns had to fill out the questionnaire during their orientation to the Anaesthesiology rotation. They could not take the questionnaire away to be completed. This may have limited the time to complete the questionnaire and thus responses may not have been thought out at length.

5.3.3. Limitations

A similar questionnaire was not carried out locally before and thus it was difficult to validate the questionnaire. Time to available to complete the questionnaire was also a limitation.

The number of interns recruited into the study was less than anticipated. Prior to the study King Edward VIII Hospital was designated as a regional hospital from having been a tertiary hospital and thus may have employed fewer interns. A few interns may not have been present at the orientation at the beginning of each block and thus not have been recruited into the study. These interns may have been on leave, sick or have worked the previous night. As the first part of the questionnaire was a pre rotation questionnaire the opportunity for recruitment into the study would only have been at the beginning of the rotation.

Statistical analysis was difficult because of the small sample size. This limited the study to being mostly descriptive with a small analytical component.

The study was carried out at only one hospital. The profile of interns at this centre may vary from those at other centres within the Ethekwini metropolitan area and more so from interns in other areas in the province and country.

6. CHAPTER VI: RECOMMENDATIONS AND CONCLUSIONS

6.1. INTRODUCTION

The introduction of a two month rotation in Anaesthesiology during the two year internship program is a step in the right direction. A longer exposure to Anaesthesiology was needed to improve skills as well as to improve perception and thus recruitment into the specialty.

6.2. CONCLUSIONS

There is a female predominance amongst recent medical graduates and this was evident in the study. Results of the study may be an indication of the perceptions of female graduates.

Interns had insufficient exposure to Anaesthesiology during undergraduate training. This was variable at the different medical schools.

There was a trend to improved perception of the specialty after the 2 month rotation. This was coupled with a trend to more interns choosing Anaesthesiology as one of their top 3 specialties after having completed the 2 month rotation.

Lifestyle factors are important in choosing a specialty. This current trend in South Africa follows the global trend.

The factors that least influenced career choice were related to knowledge of Anaesthesiology and the role of the Anaesthesiologist prior to entering medical school and during undergraduate training. This implies that there is very limited knowledge of Anaesthesiology and the Anaesthesiologist in the general public and amongst medical students,

6.3. RECOMMENDATIONS

A longer and more focused rotation in Anaesthesiology needs to be included in the undergraduate curriculum. This also needs to be standardised across all the medical schools in the country.

Both undergraduate and postgraduate training programmes need to be designed with emphasis placed on the challenges of the growing female predominance in the medical workforce.

The 2 month rotation in Anaesthesiology during internship should be strengthened and possibly increased in duration.

Public perception of Anaesthesiology needs to be improved. This can be done through education of the public at healthcare facilities and through the media. There can also be education of secondary school students at career days. Medical students also need more information about a career in Anaesthesiology and more exposure to the Anaesthesiologist.

6.4. RECOMMENDATION FOR FURTHER STUDY

This study can be repeated. However, it should be a multi-centre study. Interns can be recruited from other hospitals in the Ethekwini Metropolitan area. The study can also be done at a provincial or national level.

Interns need to be followed up after community service to assess whether their intentions to enter a specialty actually translate into them applying for training posts after community service.

A study of doctors already in training posts can be carried out to ascertain their motivations for choosing the specialty.

A study of public perceptions of the Anaesthesiologist and Anaesthesiology can be carried out. In South Africa there may be varied perceptions in public and private sector patients and in different social and economic classes.

7. REFERENCES

1. Mannak M. HEALTH-AFRICA: Anaesthesiology on Life Support. 2008; Available from: http://ipsnews.net/news.asp?idnews=41507.
2. Africa HPCoS. Regulations relating to the registration and training of interns in medicine. 2002; Available from: http://www.hpcsa.co.za/hpcsa/UserFiles/File/Regulations%20registration%20and%20training%20Interns%20in%20Med.pdf.
3. Meintjies Y. The 2-year internship training. *S Afr Med J*. 2003;93(5):2.
4. Barzansky B. Commentary: Research on Specialty Choice: The Challenge is in the Details. *Education for Health: Change in Learning & Practice (Taylor & Francis Ltd)*. [Article]. 2000;13(2):197-200.
5. Walker I, Wilson I, Bogod D. Anaesthesia in developing countries. *Anaesthesia*. 2007 Dec;62 Suppl 1:2-3.
6. Levin KJ, Friedman CP, Scott PV. Anesthesiology and the graduating medical student: a national survey. *Anesth Analg*. 1979 May-Jun;58(3):201-207.
7. Akinyemi OO, Soyannwo AO. The choice of anaesthesia as a career by undergraduates in a developing country. *Anaesthesia*. 1980 Jul 7;35(7):712-715.
8. Samra SK, Davis W, Pandit SK, Cohen PJ. The effect of a clinical clerkship on attitudes of medical students toward anesthesiology. *J Med Educ*. 1983 Aug;58(8):641-647.
9. Karalliedde LD, Senanayake N, Aluwihare AP. Attitudes of the 1984 medical graduates of Sri Lanka to anaesthesia. *Med Educ*. 1986 Jan;20(1):60-63.
10. Famewo CE, Bodman RI. The choice of anesthesia as a career by undergraduates in a Saudi university. *Middle East J Anesthesiol*. 1985 Jun;8(2):179-185.
11. Lucas LF, Thomas MH, Rigor BM, Sr. Women and specialty choice: why not anesthesiology? *J Am Med Womens Assoc*. 1992 Mar-Apr;47(2):54-57.
12. Yang H, Wilson-Yang K, Raymer K. Recruitment in anaesthesia: results of two national surveys. *Can J Anaesth*. 1994 Jul;41(7):621-627.
13. Lebovits A, Cottrell JE, Capuano C. The selection of a residency program: prospective anesthesiologists compared to others. *Anesth Analg*. 1993 Aug;77(2):313-317.
14. Goldacre MJ, Davidson JM, Lambert TW. Career choices at the end of the pre-registration year of doctors who qualified in the united kingdom in 1996. *Med Educ*. 1999 Dec;33(12):882-889.
15. Watts RW, Marley J, Worley P. Undergraduate education in anaesthesia: the influence of role models on skills learnt and career choice. *Anaesth Intensive Care*. 1998 Apr;26(2):201-203.
16. Sharma AD. Anaesthetic pre-registration house officers: a survey of doctors and medical students opinions. *Scott Med J*. 1999 Feb;44(1):11-13.
17. Wass CT, Long TR, Randle DW, Rose SH, Faust RJ, Decker PA. Recruitment of house staff into anesthesiology: a re-evaluation of factors responsible for house staff

selecting anesthesiology as a career and individual training program. *J Clin Anesth*. 2003 Jun;15(4):289-294.
18. Turner G, Goldacre MJ, Lambert T, Sear JW. Career choices for anaesthesia: national surveys of graduates of 1974-2002 from UK medical schools. *Br J Anaesth*. 2005 Sep;95(3):332-338.
19. Harris MG, Gavel PH, Young JR. Factors influencing the choice of specialty of Australian medical graduates. *Med J Aust*. 2005 Sep 19;183(6):295-300.
20. Lambert TW, Goldacre MJ, Turner G. Career choices of United Kingdom medical graduates of 2002: questionnaire survey. *Med Educ*. 2006 Jun;40(6):514-521.
21. Dambisya Y. Career intentions of UNITRA medical students and their perceptions about the future. *Educ Health (Abingdon)*. 2003 Nov;16(3):286-297.
22. Faponle AF. Anaesthesia as a career--the influence of undergraduate education in a Nigerian Medical School. *Niger Postgrad Med J*. 2002 Mar;9(1):11-12.
23. Newton DA, Grayson MS. Trends in career choice by US medical school graduates. *JAMA*. 2003 Sep 3;290(9):1179-1182.
24. Roberts LJ, Khursandi DC. Career choice influences in Australian anaesthetists. *Anaesth Intensive Care*. 2002 Jun;30(3):355-359.
25. Khan FA, Hamdani GA. Factors influencing the choice of anesthesia as a career in a developing country. *Middle East J Anesthesiol*. 2007 Feb;19(1):149-157.
26. Price M, Weiner R. Where have all the doctors gone? Career choices of Wits medical graduates. *S Afr Med J*. 2005 Jun;95(6):414-419.
27. Buddeberg-Fischer B, Klaghofer R, Abel T, Buddeberg C. Swiss residents' speciality choices--impact of gender, personality traits, career motivation and life goals. *BMC Health Services Research*. 2006;6:137-137.
28. Borges NJ, Stratton TD, Wagner PJ, Elam CL. Emotional intelligence and medical specialty choice: findings from three empirical studies. *Med Educ*. 2009 Jun;43(6):565-572.
29. Rogers ME, Creed PA, Searle J. Assessment of junior doctors' perceptions of difficulty of medical specialty training programs. *Journal of Vocational Education & Training*. 2012 2012/06/01;64(2):199-210.
30. Orbach-Zinger S, Rosenblum R, Svetzky S, Staiman A, Eidelman LA. Attitudes to anesthesiology residency among medical students in the American and the Israel programs at Sackler Faculty of Medicine, Tel Aviv University. *Isr Med Assoc J*. 2011 Aug;13(8):485-487.
31. Rehman A, Rehman T, Shaikh MA, Yasmin H, Asif A, Kafil H. Pakistani medical students' specialty preference and the influencing factors. *J Pak Med Assoc*. 2011 Jul;61(7):713-718.
32. Nwasor EO. Perception of final-year medical students about choice of anaesthesia as a specialty. *Niger J Med*. 2010 Apr-Jun;19(2):208-213.
33. Health Professions Council of South Africa. Medical and Dental Professions Board - Health Professions Council of South Africa: Logbook for Internship Training. Pretoria: Health Professions Council of South Africa; 2005 [cited 2008 15 August]. Available from: http://www.hpcsa.co.za/hpcsa/UserFiles/File/LOGBOOK%20FOR%20INTERNSHIP%20TRAINING%202005.pdf.

34. Khan T, Thomas LS, Naidoo S. Analysing post-apartheid gender and racial transformation in medical education in a South African province. *Glob Health Action*. 2013;6:1-7.
35. Faculty of Medicine and Health Sciences, University of Stellenbosch, Anaesthesiology and Critical care. 2012 [cited 2013 2013/03/09]; Department of Anaesthesiology and Critical care homepage]. Available from: http://sun025.sun.ac.za/portal/page/portal/health/Health_Sciences/English/Departments/Anesthesiology%20_CriticalCare.
36. Mathur SK, Dube S, Jain S. Knowledge about Anaesthesia and Anaesthesiologist Amongst General Population in India. *Indian journal of anaesthesia*. 2009;53(2):7.
37. O' Donnel A. Anaesthesia: A Very Short Introduction. 1 ed: Oxford University Press; 2012.

8. ADDENDA

8.1. Approval from the Postgraduate Education Committee

UNIVERSITY OF KWAZULU-NATAL

COLLEGE OF HEALTH SCIENCES

NELSON R MANDELA SCHOOL OF MEDICINE

MEMORANDUM

TO:	FROM:
Dr L Cronje Department of Anaesthetics NRMSM	Professor SR Thomson Postgraduate Administration Nelson R Mandela School of Medicine 08 April 2009

Dear Dr Cronje

PROTOCOL: The Effect of the Undergraduate Curriculum and Intern Rotation in Anaesthesiology in making a Career Choice in Interns at King Edward VIII Hospital, Durban in 2009
Reddy Justin, Student No: 943492824, MMed, Anaesthetics

The Postgraduate Education Committee ratified the approval of the abovementioned study on 07 April 2009.

Please note :

- the Postgraduate Education Committee must review any changes made to this study
- the study may not begin without the approval of the Bioethics Research Ethics Committee.

May I take this opportunity to wish the student every success with the study.

Yours sincerely,

Professor SR Thomson
Assistant Dean: Postgraduate Administration.

cc: Dr J Reddy, Department of Anaesthetics, NRMSM
Ms P Pillay, Department of Anaesthetics, NRMSM

8.2. Ethical Approval

UNIVERSITY OF
KWAZULU-NATAL

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za
Website: http://research.ukzn.ac.za/ResearchEthics11415.aspx

14 August 2009

Dr Justin Reddy
Department of Anaesthesiology
Nelson R Mandela School of Medicine
UKZN

Dear Dr Reddy

PROTOCOL: The effect of the Undergraduate Curriculum and Intern Rotation in Anaesthesiology in making a Career Choice in Interns at King Edward VIII Hospital, Durban in 2009. REF: BE059/09

EXPEDITED APPLICATION - RATIFICATION

This letter serves to notify you that at a full sitting of the Biomedical Research Ethics Committee meeting held on **11 August 2009**, the Committee **RATIFIED** the sub-committee's decision to approve the above study.

Yours sincerely

Ramnarain

Ms D Ramnarain
Senior Administrator: Biomedical Research Ethics

8.3. Permission from King Edward VIII Hospital

HEALTH
KwaZulu-Natal

KING EDWARD VIII HOSPITAL
Private Bag X02, CONGELLA 4013
Corner of François & Sydney Road
Tel.:031-3603853, Fax: 031-2061457
Email.:khuzwayo@.kznhealth.gov.za
www.kznhealth.gov.za

Enq.:Miss. R.Khuzwayo
Ref.: KE 2/7/1/ (19/2009)
Research Programming

10 June 2009

Dr. J. Reddy
Department of Anaesthesiology
Nelson R. Mandela – School of Medicine
UNIVERSITY OF KWAZULU-NATAL

Dear Dr. Reddy

Protocol : The Effect of the Undergraduate Curriculum and Intern Rotation in Anaesthesiology in Making a Career Choice in Interns at KEH

Your request to conduct research at King Edward VIII Hospital has been approved.

Please ensure the following:-

- That King Edward VIII Hospital receives full acknowledgment in the study on all publications and reports and also kindly present a copy of the publication or report on completion.
- Before commencement:
  * Discuss your research project with our relevant Directorate Managers
  * Sign an indemnity form at Room8, CEO's Complex, Admin. Block.

The Management of King Edward VIII Hospital reserves the right to terminate the permission for the study should circumstances so dictate.

Yours faithfully

SUPPORTED/~~NOT SUPPORTED~~

DR. O.S.B. BALOYI
MEDICAL MANAGER

11/06/2009
DATE

APPROVED /~~NOT APPROVED~~

MR. M. BHEKISWAYO
CHIEF EXECUTIVE OFFICER

12/06/09
DATE

8.4. Questionnaires

The Effect of Undergraduate Training and Intern Rotations In Anaesthesiology In Making a Career Choice.										
Part 1 (Before anaesthesiology block)					**Date**					
1. Intern number										
2. Age										
3. Sex	Male		Female							
4. Marital Status	Single									
	Unmarried with partner									
	Married									
	Divorced									
5. Dependants	Yes				No					
6. Race	Black		White		Asian		Coloured			
7. Medical school attended										
8. Previous post matric qualifications										
9. Internship year	1		2							
10. Time spent in anaesthesiology at medical school										
11. Do you think that the time spent in anaesthesiology at medical school was										
	Adequate				Inadequate					
	Necessary				Unnecessary					
12. Rate anaesthesiology as a specialty					**1**	**2**	**3**	**4**	**5**	
1 = least liked; **5** = most liked										
13.Give reasons for the above										
14. Rate the following areas in your undergraduate exposure to anaesthesiology										
1 = Irrelevant; **2** = Of little relevance; **3** = Moderately relevant **4** = Relevant; **5** = Very relevant										
					1	**2**	**3**	**4**	**5**	
Lectures										
Tutorials										
Skills lab/ simulator										
In theatre exposure										
Opportunities for procedures										
15.Future medical career choice (top 1, 2 or 3 and rank in order of preference)										
1										
2										
3										
16. To motivate why you would choose anaesthesiology or not, rate the extent to which the following factors										

would influence your career choice.					
1 = Least influence; 5 = most influence					
	1	**2**	**3**	**4**	**5**
Interest before medical school					
Positive experience in medical school					
Intellectual content					
Theatre environment					
Hours/working conditions					
Status of specialty					
Financial considerations					
Job security/prospects					
Years to complete post graduate training					
Interest in physiology/pharmacology					
Interest in critical care					
No ward rounds or clinics					
No long term patient follow up					
Advice from parents/relatives					
Advice from friends					
Encouraged or inspired by senior colleagues					
Domestic circumstances					
Appraisal of own skills/aptitude					
Satisfaction from immediate results seen					
Positive patient outcomes					
Limited exposure to HIV					
Opportunities to work abroad					
17. What are your expectations for your 2 month block in anaesthesiology?					

Part 2 (After anaesthesiology block)			**Date**			
1. Intern number						
2. Rotations completed thus far						
3. Rate anaesthesiology as a specialty **1** = least liked; **5** = most liked		**1**	**2**	**3**	**4**	**5**
4. Give reasons for the above						
5. Would anaesthesiology feature as one of your top 3 choices for a career path?						
Yes		No		Maybe		
6. Rate the extent to which the following factors would influence your choice?						
1 = Least influence; **5** = most influence						
		1	**2**	**3**	**4**	**5**
Interest before medical school						
Positive experience in medical school						
Intellectual content						
Theatre environment						
Hours/working conditions						
Status of specialty						
Financial considerations						
Job security/prospects						
Years to complete post graduate training						
Interest in physiology/pharmacology						
Interest in critical care						
No ward rounds or clinics						
No long term patient follow up						
Advice from parents/relatives						
Advice from friends						
Encouraged or inspired by senior colleagues						
Domestic circumstances						
Appraisal of own skills/aptitude						
Satisfaction from immediate results seen						
Positive patient outcomes						
Limited exposure to HIV						
Opportunities to work abroad						
7. Have your expectations for the block been met?		Yes		No		
8. Apart from making a career choice, how has the exposure affected your perceptions of anaesthesiology?						

8.5. Information Document

INFORMATION DOCUMENT

Study Title: The Effect of the Undergraduate Curriculum and Intern Rotation in Anaesthesiology in making a Career Choice by Interns at King Edward VIII Hospital, Durban in 2009

What is this Study About?

We would like to invite you to take part in a research project regarding intern training in anaesthesiology at King Edward VIII Hospital in Durban. We would like to assess intern perceptions of undergraduate and intern training in anaesthesiology in King Edward VIII Hospital, Durban in 2009. We would also like to ascertain interns career choices and the factors influencing these choices before and after the anaesthesiology rotation and whether the two month anaesthesiology rotation influences career choice.

Who is conducting the Study?

The study is being carried out by researchers at King Edward VIII Hospital and the University of KwaZulu Natal, Department of Anaesthesiology. Dr Justin Reddy is the principal investigator involved in the research project and can be reached by calling 0828796337 or 031 260 4328.

Requirements of participants

You will be asked to complete a questionnaire on commencement of your Anaesthesiology rotation. This will be conducted by The Head of Department of Anaesthesiology at King Edward VIII Hospital, Dr L Cronje, at the orientation to your 2 month rotation. You will also be asked to complete a questionnaire at the end of your 2 month rotation in Anaesthesiology.

Possible risks and benefits of participation

There are no risks associated with you participating in this study. Your privacy and confidentiality will be maintained at all times. To protect your privacy, you will only be

asked to fill in your intern number. All of the information you enter into the questionnaire will be stored only with your intern number, not with your name. Only the research investigators and the study staff will have access to your files. We are very careful about protecting the identity of the participants in the study. The data collected may be presented at educational forums, publications or research presentations but you will not be personally identified in any of these. The data will be kept under lock and key in the Department of Anaesthesia for a period of five years and will be safely disposed of thereafter.

By taking part in this study, you will be helping us to better understand the perceptions of interns regarding their training in anaesthesiology and the factors influencing career choices. This will help to improve training in Anaesthesiology and career guidance. Whether you decide to take part in this study or not will not affect your Anaesthesiology rotation.

Rights as a participant

If you agree to take part in the study, your participation is voluntary. This means that you have the right to change your mind about taking part in the study and to stop being involved at any time. You also have the right to refuse to answer any questions that you are uncomfortable with. If you wish to leave the study or have any questions, please do contact Dr Justin Reddy at 082 879 6337 or through the University of KwaZulu-Natal, Department of Anaesthesiology at 031-260 4328. The researchers will make the results of the study accessible to you once the results are available.

If you have questions about your rights as a study participant, or are unhappy at any time with any part of this study, you may contact the Biomedical Research Ethics Committee (BREC), Private Bag x54001, Durban, 4000 and speak with the BREC Administrator or Chair at +27(0)31 2604769/2601074; Fax: +27(0)31 2602384; email:ngwenyap@ukzn.ac.za

8.6. Informed Consent

INFORMED CONSENT

INFORMED CONSENT FORM

What is this study about?

We would like to invite you to take part in a research project titled: The Effect of the Undergraduate Curriculum and Intern Rotation in Anaesthesiology in making a Career Choice by Interns at King Edward VIII Hospital, Durban in 2009. We would like to assess intern perceptions of undergraduate and intern training in anaesthesiology in King Edward VIII Hospital, Durban in 2009. We would also like to ascertain interns career choices and the factors influencing these choices before and after the anaesthesiology rotation and whether the two month anaesthesiology rotation influences career choice.

Who is conducting the Study?

The study is being carried out by researchers at King Edward VIII Hospital and the University of KwaZulu Natal, Department of Anaesthesiology. Dr Justin Reddy is the principal investigator involved in the research project and can be reached by calling 0828796337 or 031 260 4328.

Requirements of participants

You will be asked to complete a questionnaire on commencement of your Anaesthesiology rotation. This will be conducted by The Head of Department of Anaesthesiology at King Edward VIII Hospital, Dr L Cronje, at the orientation to your 2 month rotation. You will also be asked to complete a questionnaire at the end of your 2 month rotation in Anaesthesiology.

Possible risks and benefits of participation

There are no risks associated with you participating in this study. Your privacy and confidentiality will be maintained at all times. To protect your privacy, you will only be

asked to fill in your intern number. All of the information you enter into the questionnaire will be stored only with your intern number, not with your name. Only the research investigators and the study staff will have access to your files. We are very careful about protecting the identity of the participants in the study. The data collected may be presented at educational forums, publications or research presentations but you will not be personally identified in any of these. The data will be kept under lock and key in the Department of Anaesthesia for a period of five years and will be safely disposed of thereafter.

By taking part in this study, you will be helping us to better understand the perceptions of interns regarding their training in anaesthesiology and the factors influencing career choices. This will help to improve training in Anaesthesiology and career guidance. Whether you decide to take part in this study or not will not affect your Anaesthesiology rotation.

Rights as a participant

If you agree to take part in the study, your participation is voluntary. This means that you have the right to change your mind about taking part in the study and to stop being involved at any time. You also have the right to refuse to answer any questions that you are uncomfortable with. If you wish to leave the study or have any questions, please do contact Dr Justin Reddy at 082 879 6337 or through the University of KwaZulu-Natal, Department of Anaesthesiology at 031-260 4328. The researchers will make the results of the study accessible to you once the results are available.

If you have questions about your rights as a study participant, or are unhappy at any time with any part of this study, you may contact the Biomedical Research Ethics Committee (BREC), Private Bag x54001, Durban, 4000 and speak with the BREC Administrator or Chair at +27(0)31 2604769/2601074; Fax: +27(0)31 2602384; email:ngwenyap@ukzn.ac.za

Documentation of Consent

If you agree to participate, you will be given a signed copy of this document and the participant information sheet which is a written summary of the research.

The research study, including the above information, has been described to me orally. I understand what my involvement in the study means and I voluntarily agree to participate. I have been given an opportunity to ask any questions that I might have about participation in the study.

Signatures:

Participant: _____ Date: _____

Witness: _____ Date: _____

Note: A summary of results will be made available to interested participants. If you would like to receive correspondence please enter your e-mail address below.

_____