



Irish Medical Students Knowledge and Perception of Anaesthesia

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ABSTRACT

Background: Medical students are often considered by anaesthetists to have a lack of knowledge of anaesthesia and the role of the anaesthetist. **Aim:** The aim of this study was to assess the impact of a clinical clerkship in anaesthesia on Irish medical students understanding of anaesthesia as a specialty, the role of anaesthetists and career choice through comparison of pre-clinical and clinical medical students. **Methods:** This was a cross sectional study of 80 Irish medical students who completed an anonymous questionnaire consisting of 16 items. **Results:** Only 47.5% of clinical students were aware that anaesthetists participate in running intensive care units and just 65% knew that anaesthetists were involved in the management of chronic pain. However, 100% of clinical students recognised that anaesthetists administered epidural analgesia to obstetric patients and 30% of clinical students would consider a career in this specialty. **Conclusion:** This research is providing medical professionals and educators with updated information which may be useful for improving students experience and understanding of anaesthesia.

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Introduction

From humble beginnings over 150 years ago the clinical specialty of anaesthesia has evolved to establish itself as a sophisticated, independent and diverse field of medicine. Anaesthetists are multi-skilled physicians who, in addition to ensuring patient safety and stability prior to, during and after surgery, participate in a vast array of hospital activities ranging from the alleviation of acute and chronic pain, running intensive care units, gaining specialised intravenous access and emergency management of life threatening events. As such, the domain of anaesthesia has now extended far beyond the exclusive remit of the operating theatre; the extent to which this is appreciated by medical students remains unknown.

It is important that medical students possess an accurate representation of the field of anaesthesia and the exact role of the anaesthetist. The diversity of tasks anaesthetists perform may encourage medical students to consider the specialty as a career in future years [1-3]. Additionally, a thorough knowledge of the clinical aspects of anaesthesia is an imperative to ensure that once qualified such individuals will be suitably informed to answer patient queries and concerns regarding anaesthesia.

The aim of this study was to assess the impact of a clinical clerkship in anaesthesia on Irish medical students understanding of anaesthesia as a specialty, the role of anaesthetists and career choice through comparison of pre-clinical and clinical medical students.

Subjects and Methods

This study was approved by the Cork Research and Ethics Committee and the Research Ethics Committee of the School of Medicine, University College Cork (UCC). This was a cross-sectional study and questionnaires were distributed between March and April 2011 at Brookfield Health and Science Complex, UCC. 80 Irish medical students completed an anonymous questionnaire consisting of 16 items.

Questionnaires were distributed in a lecture theatre and medical students were invited to participate in this study. This questionnaire was designed through collaboration of a focus group consisting of two anaesthetic consultants and one medical student following review of relevant literature. As 40 pre-clinical students were available to participate in this survey this number was matched to 40 clinical students. An equal number of pre-clinical and clinical medical students were surveyed in order to estimate the impact of a clinical placement in anaesthetics through comparison of the two groups. All clinical students would have completed at least one week of clinical placement in anaesthesia at the time of participation in this study.

The survey was broadly divided into three sets of questions. The first question sought to establish medical students' interest in pursuing a career in anaesthesia. The second set of questions explored medical students' knowledge of the role of an anaesthetist, their tasks and responsibilities. The third set of questions was designed to sample medical students' specific clinical knowledge of anaesthesia.

Results

All medical students who consented completed the survey. A total of 80 Irish medical students participated in this study, 40 of whom were pre-clinical students and 40 of whom were clinical students. All questions were answered with no blanks left in the questionnaire. Results of each section of the questionnaire are presented in a separate table. Table 1 shows a greater number of students who would and an even greater number who would not consider anaesthesia as a career after a clinical placement in anaesthesia. There was a decline in the undecided students. Table 2 presents students' knowledge about the role of the anaesthetist. The trend is towards a better understanding across all areas of activity following an anaesthetic clinical placement. In terms of clinical knowledge (Table 3) the proportion of correct answers is greater and the proportion of 'Do not know' answers is less in the clinical students group.

Table 1: Students' career choice

		Pre-Clinical Students		Clinical Students	
		n	(%)	n	(%)
Would you consider a career in anaesthetics?	Yes	10	(25)	12	(30)
	Possibly	20	(50)	9	(22.5)
	No	10	(25)	19	(47.5)

Table 2: Students' knowledge of the role of the anaesthetist

		Pre-Clinical Students		Clinical Students	
		n	(%)	n	(%)
Who decides if the patient is suitable for anaesthesia?	Anaesthetist	34	(85)	40	(100)
	Surgeon	1	(2.5)	0	(0)
	Cardiologist	0	(0)	0	(0)
	Do not know	5	(12.5)	0	(0)
Whose responsibility is it to monitor the patient's vital signs intra-operatively?	Anaesthetist	33	(82.5)	39	(97.5)
	Surgeon	2	(5)	1	(2.5)
	Nurse	1	(2.5)	0	(0)
	Do not know	4	(10)	0	(0)
Whose responsibility is it to manage immediate post-operative pain?	Medical Doctor	11	(27.5)	2	(5)
	Surgeon	5	(12.5)	1	(2.5)
	Anaesthetist	14	(35)	37	(92.5)
	Do not know	10	(25)	0	(0)
Medical students were asked to circle from a list the hospital activities they believed anaesthetists to be involved in, the results are outlined below					
Intra-operative blood transfusions		9	(22.5)	32	(80)
Cardio-pulmonary resuscitation in Emergency Department or the wards		11	(27.5)	27	(67.5)
Administering epidural anaesthetics in obstetric/labour wards		35	(87.5)	40	(100)
Running intensive care units		4	(10)	19	(47.5)
Management of patients with anaphylactic reactions		12	(30)	32	(80)
Management of patients with chronic pain		12	(30)	26	(65)
Gaining specialised or difficult intravenous access		20	(50)	37	(92.5)
Treating any medical problems as they occur intra-operatively		17	(42.5)	27	(67.5)

Table 3: Students' clinical knowledge of anaesthesia

		Pre-Clinical Students		Clinical Students	
		n	(%)	n	(%)
According to current guidelines for what length of time should solids not be consumed pre-operatively?	From 6 hours before the operation	6	(15)	9	(22.5)
	From midnight the night before the operation	24	(60)	30	(75)
	From 2 days before the operation	1	(2.5)	0	(0)
	Do not know	9	(22.5)	1	(2.5)
The most common triggers for malignant hyperthermia are:	Volatile anaesthetics and suxamethonium	20	(50)	38	(95)
	Thiopental and etomidate	2	(5)	0	(0)
	Morphine and ketamine	0	(0)	0	(0)
	Do not know	18	(45)	2	(5)
Approximately how many patients will report post-operatively of some form of intra-operative awareness during their anaesthetic?	1/7,000	11	(27.5)	12	(30)
	1/700	2	(5)	16	(40)
	1/70	1	(2.5)	4	(10)
	Do not know	26	(65)	8	(20)
Is haemophilia a contraindication for the use of spinal anaesthesia?	Yes	4	(10)	13	(32.5)
	No	2	(5)	8	(20)
	Do not know	34	(85)	19	(47.5)

Discussion

The aim of this study was to evaluate knowledge and perceptions of the specialty of anaesthesia among pre-clinical and clinical UCC medical students. Specifically, this survey evaluated the impact and benefit of a clinical attachment in anaesthesia by comparing data obtained from pre-clinical and clinical students relating to their interest in a career in anaesthetics, knowledge of the role of the anaesthetist and clinical knowledge of the specialty.

The UCC anaesthesia curriculum consists of lectures and tutorials which take place in 3rd, 4th and 5th year of medical school. Additionally medical students attend a one week clinical

attachment in anaesthesia in 3rd year and a further 3 days clinical placement in 4th year. During their clinical attachment students are expected to take patient histories, perform physical examinations, attend tutorials, observe the anaesthetist in theatre and acquire practical experience in as many anaesthetic procedures as possible, for example LMA/ET tube insertion, bag/mask ventilation and gaining intravenous access.

For a number of significant reasons it is an imperative that medical students possess an accurate representation of anaesthesia, a thorough understanding of the role of an anaesthetist and the diversity of tasks they perform within the hospital. Such knowledge

will ensure that once medical students become qualified doctors they are suitably prepared to collaborate and work efficiently with anaesthetists, provide accurate and appropriate information to patients regarding their anaesthetic procedure and also ensure that they are fully informed when considering their career choice in future years.

There was a 5 % increase between pre-clinical and clinical students of those who would consider anaesthesia as a career, a 27.5% decrease in those who answered possibly and an increase of 22.5% in those who answered no. This demonstrates that following clinical exposure to anaesthesia there is a higher level of certainty among medical students as to whether they would or would not consider anaesthesia as a career. This change in medical students' consideration of a career in anaesthesia following a clinical placement has been shown in other studies also [4].

Overall this survey demonstrated the significant benefit of an anaesthesia clinical attachment for advancing clinical knowledge of anaesthesia as well as students understanding of the role of an anaesthetist and the hospital activities they are involved in. Our findings are mirrored in other research studies [5]. However, while medical students possess a good working knowledge of the role and responsibilities of an anaesthetist within the operation theatre there is still a relatively low awareness among clinical students of several important activities that anaesthetists perform outside of the operation theatre including running intensive care units, providing cardiopulmonary resuscitation assistance and management of chronic pain. Thus far medical student training has reasonably focused on emphasising the major activities of the anaesthetist, i.e. those within the operation theatre, and consequently medical students do not fully appreciate several specialised skills of the anaesthetist. Medical educators could prevent such deficits in knowledge occurring by emphasising to students all the tasks anaesthetists perform, both inside and outside the operation theatre, encouraging students to attend pain management clinics and intensive care units

and promoting the use of the most up to date and current clinical practice guidelines in anaesthesia [6].

In 3rd year UCC medical students receive a booklet outlining the educational objectives, clerkship content and details regarding their assessment/evaluation of their clinical attachment in anaesthesia. This resource could be a potential tool for both highlighting the myriad of hospital activities anaesthetists perform to students and improving their knowledge of the exact role of the anaesthetist, within and outside the operation theatre.

Limitations of this study are that when clinical medical students were surveyed different lengths of time had lapsed from their anaesthetic clinical attachment. In addition, exposure to anaesthetic procedures and teaching received may have varied between sites. The sample size, although representative, may have been too small to detect significant differences in all areas. Finally as this study was conducted solely on UCC medical students, future studies in other medical universities outside of Cork would be useful in providing additional information regarding the issues assessed in this survey.

This research has identified a number of potential areas of improvement in medical student education which, if addressed, would advance their understanding of the specialty, improve clinical knowledge of anaesthesia and ultimately ensure all medical students receive the maximum benefit from their experience in the field of anaesthesia.

Reference

1. Adudu, OP, Le, NH, Devito, I, Campbell, FA, Levine, MF (2010) Medical student impressions of anaesthesiology and anaesthesiologists *Can J Anesth* 57:792-793. (<http://www.ncbi.nlm.nih.gov/pubmed/20524102>)
2. Bruhn, JG, Epstein, BS, Burnap, TK (1973) Senior Medical Students' Knowledge of and Attitudes Toward Anesthesiology in Ten Medical Schools *Anesthesiology* V39, No1. (<http://www.ncbi.nlm.nih.gov/pubmed?term>

=senior medical students knowledge of and attitude toward anesthesiology in ten medical schools&cmd=correctspelling)

3. Smith RH, Cullen, SC (1963) One method of teaching anesthesia to medical students *Anesthesiology* Jan-Feb; 24: 68-71 (<http://www.ncbi.nlm.nih.gov/pubmed/13989564>)
4. Khan FA, Minai FN, Siddiqui S. (2011) Anaesthesia as a career choice in a developing country; effect of clinical clerkship. *J Pak Med Assoc* 61 (11): 10552-6. (<http://www.ncbi.nlm.nih.gov/pubmed?term=Anaesthesia%20as%20a%20career%20choice%20in%20a%20developing%20country%3B%20effect%20of%20clinical%20clerkship>)
5. Samra, SK., Davis, W., Pandit, S.K., *et al* (1983) The effect of a clinical clerkship on attitudes of medical students toward anaesthesiology *Journal of medical education* Vol 58. (<http://www.ncbi.nlm.nih.gov/pubmed/6876125>)
6. Rohan D, Ahern S, Walsh K (2009) Defining an anaesthetic curriculum for medical undergraduates. A Delphi study. *Medical Teach* Jan, 31(1):21-5 (<http://www.ncbi.nlm.nih.gov/pubmed?term=defining%20an%20anesthetic%20curriculum%20for%20medical%20undergraduates.%20a%20delphi%20study>)