Early adopters of perioperative medicine: who are they and what motivates them?

ABSTRACT

Perioperative medicine is an emerging specialty aimed at improving outcomes in the high-risk surgical population. The authors set out to characterize the demographics and determine the motivation of 'early adopters' of this specialty by retrospectively reviewing the application forms of students enrolled on the UCL Perioperative Medicine Masters Programme.

A total of 139 applications were reviewed. The median age of applicants was 35 years; 81% were UK based, with the remainder from a worldwide distribution. Seventeen per cent were consultant anaesthetists and 64% anaesthetic trainees, with the remainder including doctors from other specialties (17%) and nurses (2%). Qualitative analysis using grounded theory methodology revealed common motivational themes: the belief that perioperative medicine would lead to better patient care, that it represents the future working practice for anaesthetists, a desire to be able to better lead local developments, and personal fulfilment and benefit.

The responses provided insight into the motivation of an international cohort of professionals. Perioperative medicine was perceived as a developing multidisciplinary specialty that will lead to better patient care. Applicants understood the importance of perioperative care extending beyond the operating theatre which may explain the growing demand for training in perioperative medicine.

The Royal College of Anaesthetists' (2015) document *Perioperative medicine The pathway to better surgical care* sets out a vision for improving the care of an ageing and increasingly comorbid population of surgical patients in a fiscally constrained health economy. Perioperative medicine was proposed as a solution to the great 'unmet need' of avoidable harm after surgery and could be led by any appropriately qualified health practitioner. Such perioperative physicians could be drawn from anaesthesia and surgery as well as specialties less traditionally associated with the operating theatre, such as acute medicine, cardiology and elderly care. This deliberately inclusive definition was designed to cultivate cross-specialty collaboration and recruitment, rather than simply expanding the remit of the anaesthetist. The principles of perioperative medicine are becoming more widely adopted in the UK, but the practitioners driving this remain uncharacterized.

In 2014, University College London introduced a programme of taught postgraduate courses in perioperative medicine, open to applicants throughout the world with a graduate degree, working in health care (www.ucl.ac.uk/surgery/periopmed). The Perioperative Medicine Masters Programme was considered challenging and innovative, with a novel syllabus, curriculum and state of the art educational material from world-renowned authors (Santhirapala and Walker, 2015). Students complete distance learning via online modules (four for certificate, eight for diploma, and an additional dissertation for the Masters) over a flexible time period between 1 and 5 years. The cost of the programme is competitive with other Masters programmes of this type: £9560 for UK/EU applicants and £19 010 for overseas applicants (2017–18 entry).

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Applicants returning to postgraduate education, particularly those in clinical employment or with personal/domestic obligations, are a select group of individuals who have made considerable commitments of time, energy and finance to study and should be characterized as a group of 'early adopters'.

The authors set out to characterize the demographic and motivational factors associated with the professional engagement of the early adopters participating in this postgraduate educational programme.

Method

The UCL research and ethics committee approved the authors' use of non-sensitive, completely anonymous educational survey material, in non-vulnerable participants.

As part of the university application process for the Perioperative Medicine Masters Programme, all students had to complete an application form incorporating demographic data as well as a personal statement designed to explore their suitability for the course:

> **'Describe your academic interests and reasons for applying for this course and detail your career objectives and any relevant non-academic achievements Outline any other relevant experience including attendance at specialist workshops or short courses.'**

Data were anonymised and exported to a qualitative data analysis program (QSR International, 2015) which was used to assist in coding and analysing data. Only data from fully completed applications were included in the study.

Primary analysis adopted grounded theory methodology as developed by American sociologists Glaser and Strauss: hypotheses were avoided at the outset, allowing two researchers to interact and reflect on data, identify patterns and organize data into key categories (Braun and Clarke, 2013). The computer software enabled coded data to be grouped together at virtual containers known as 'nodes', for easier pattern recognition. These nodes formed the basis of mind maps that,

after discussion and reflection, provided visual representation of coded data, supporting the iterative nature of this qualitative research. Word frequency queries of coded data supported this process by detecting repeatedly used key phrases to identify key themes.

Results

A total of 151 completed applications from students enrolled in 2014 and 2015 were reviewed. Twelve forms were incomplete and were excluded from the study. The remaining 139 application forms were analysed and represent the study population.

Applicant demographics

Table 1 shows the demographic data of the study population. Gender distribution was approximately equal, and the majority of students (67%) were in their 30s (median age 33 years). The median number of years since undergraduate qualification was 9 years. By far the most students enrolled on the course were UK-based although there were students from around the world, with the majority from an anaesthetic background (81%).

Key themes in personal statements

Qualitative analysis of the supplementary personal statements revealed four key themes as to why participants chose to undertake further or higher education in perioperative medicine. These are represented graphically, with their supporting nodes, in *Figure 1*.

Key theme 1: better care for patients

The predominant theme across many personal statements (68%) was the belief that perioperative medicine would lead to better patient care. A word frequency query of the coded material revealed that 'patient' was the most commonly used word (*Figure 2*). Applicants spoke of their desire to deliver high quality patient care. An anaesthetic trainee described how he was:

> **'motivated by the desire to deliver care of the highest standards and I fundamentally believe that expertise in perioperative medicine is key to achieving this […] exceptional perioperative care results in exceptional patient outcomes.'**

Many detailed how they thought that formal training in perioperative medicine would enable them to be a better practitioner. An anaesthetic consultant stated that:

> **'gaining further expertise in how to master the perioperative period is essential for me to address the diversity of my patients' needs.'**

Many outlined how they felt studying perioperative medicine would enable them to remain up to date with the current evidence base and controversies in the field. An anaesthetic trainee wished to have a 'deep-evidence based knowledge in all perioperative issues so I can incorporate these into my daily clinical practice to improve patient outcomes.'

The ability to improve patient care by being better able to work as part a multidisciplinary team was another recurring theme among many applicants. An assistant professor in anaesthesia stated that key to improving patient outcomes was being 'able to communicate with other clinicians from other disciplines as how best to manage these patients', and this was a motivating factor for her continued study in perioperative medicine.

Key theme 2: perioperative medicine is the future of anaesthesia

The majority of applicants were anaesthetists, and a recurring theme among their statements (and thus this study as a whole) was that a transition to become perioperative physicians represented the future of the specialty: 'I think there is a need for a perioperative specialist with expertise of the effect of surgery on co-existing medical disease to lead and coordinate the care', a role in which anaesthetists were 'best placed to lead'. One anaesthetic trainee stated that perioperative medicine 'is the future of anaesthesia, if our specialty is to thrive'.

A sense of excitement about perioperative medicine was not unique to anaesthetists, and was present in over half (62%) of personal statements. One applicant stated that during his career 'the single most exciting development has been the emergence of perioperative medicine as a science and discipline'. This enthusiasm was also expressed by an anaesthetic trainee 'excited by the increasing recognition that anaesthetists should increase their role outside of the operating theatre'.

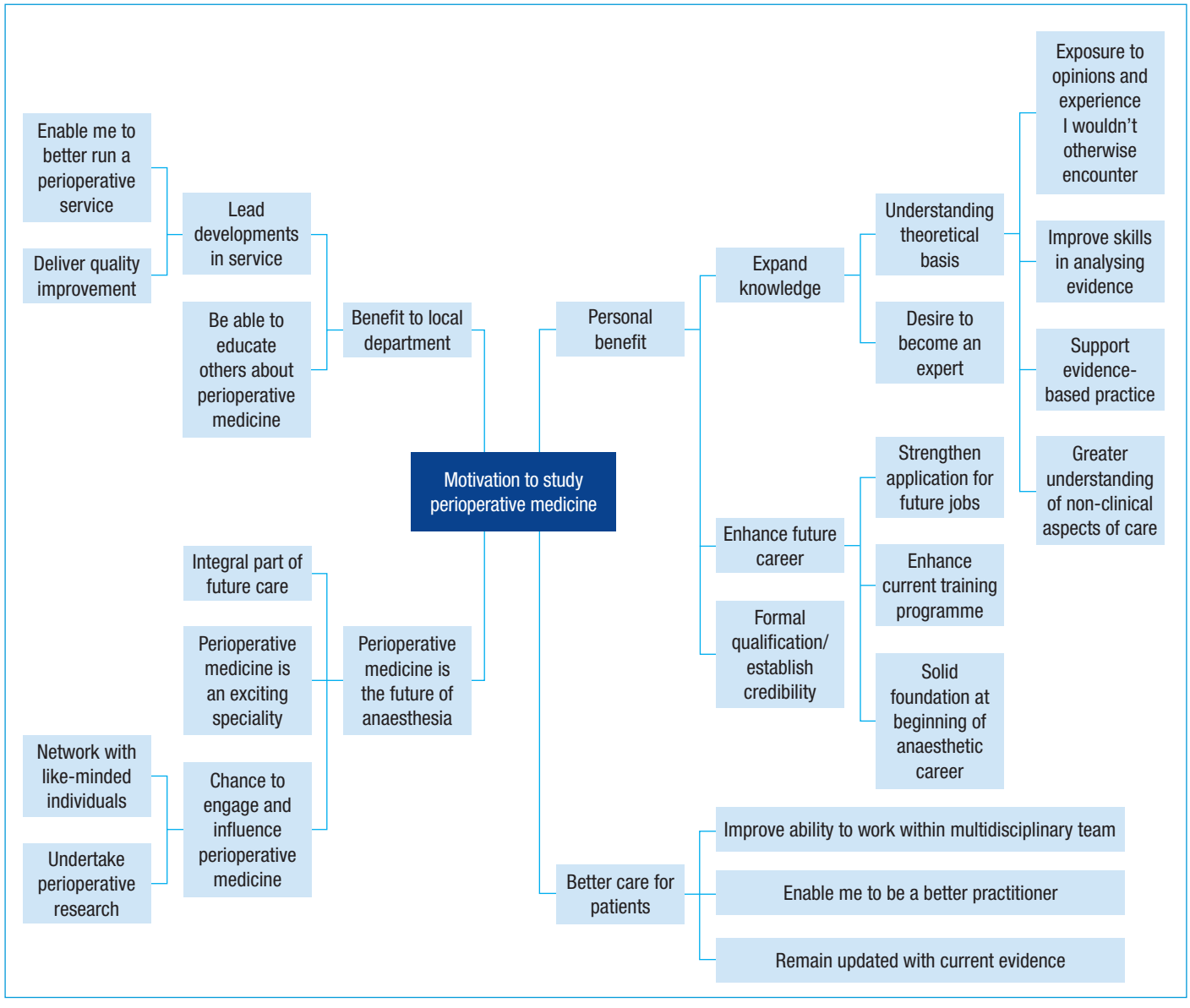
This extension of practice was important to other anaesthetists, such as a trainee who felt 'we are often viewed as having a technical role but are optimally placed and trained to provide' perioperative care, and a consultant: 'I believe [my role] is much more than that where one meets a patient on the day of surgery, delivers an anaesthetic and then moves on.'

Table 1. Applicant demographics

		n	%
Gender	Male	71	51%
	Female	68	49%
Age (years)	≤25	5	4%
	26–30	23	17%
	31–35	65	47%
	36–40	28	20%
	≥40	18	13%
	Median	33	IQR = 6
Years since qualification	<1	3	2%
	1–5	20	14%
	6–10	74	53%
	11–15	22	16%
	>15	20	14%
	Median	9	IQR = 4.5
Specialty	Anaesthetics or intensive care medicine	112	81%
	Foundation trainee	10	7%
	Geriatrics	8	6%
	Nursing	3	2%
	General medicine	3	2%
	Surgery	2	1%
Grade	Trainee or resident	104	75%
	Consultant or attending	23	17%
	Non-training or staff grade	9	6%
	Nursing	3	2%
Location	UK	113	81%
	Other European	14	10%
	Australasia	5	4%
	Asia	3	2%
	North America	2	1%
	Other	2	1%

IQR = interquartile range

Figure 1. Key motivational themes and subthemes.



A key theme in the statements of more senior applicants was the opportunity to undertake the Perioperative Medicine Masters Programme and to network with like-minded colleagues from around the world. They felt it would expose them to the opinions and experiences of experts that they would not otherwise encounter. They felt that being part of this network would be a chance to engage with and influence perioperative medicine.

Key theme 3: benefit to local department

Many applicants (61%) felt that formal training in perioperative medicine would benefit their departments. They felt that it would enable them to better run a perioperative service and lead developments in this service. One experienced consultant anaesthetist stated that:

> **'the MSc Programme […] will give me both structure and hopefully some inspiration when developing the perioperative medicine service at my trust.'**

Many were motivated by the desire to better lead quality improvement projects in perioperative medicine. One resident was:

> **'investigating how to transition our current enhanced recovery programmes from GI [gastrointestinal] surgery onto our vascular unit. Having the expertise in perioperative medicine will allow me to provide continuity of care and play a greater role in the pre-habilitation, pre-op workup and postoperative care, all the way from diagnosis to discharge.'**

The opportunity to be formally trained in how to deliver quality improvement was attractive to some applicants:

> **'I hope this Masters will introduce me to a world of clinical academia beyond the restrictive scope of clinical audit I currently have experience of. With the skills provided by this degree, I will be able to design more meaningful projects with publishable results. With the ability to complete high quality projects, I will be better placed to improve clinical practice at my workplace.'**

Within the Perioperative Medicine Masters Programme there is the opportunity to undertake original research to achieve a

Figure 2. 'Word cloud' representing word frequency in coded text (larger words occur more frequently).

Masters degree. Many applicants were enthusiastic about using this opportunity to develop and undertake perioperative medicine research within their own departments. One consultant anaesthetist stated that:

> **'I am convinced that the work for a systematic review at the end of the degree will provide an invaluable basis on which to build future research projects in the field.'**

Many applicants felt that by completing formal training in perioperative medicine they would be able to use the knowledge and skills to educate their colleagues and juniors.

Key theme 4: personal benefit

A key theme throughout almost all personal statements (95%) was of the personal benefit that completing formal study in perioperative medicine would bring. Some described how returning to formal education after many years would be a welcome opportunity to read, analyse and form evidence-based opinions again. One applicant, a consultant anaesthetist for over 10 years, described how:

> **'Having been out of academic teaching and learning for a while, I feel personally this opportunity will be intellectually stimulating at the same time as being very educationally practical.'**

Many applicants thought they would gain personal fulfilment in achieving a formal qualification. They felt that this would also give them credibility to lead service developments or research in perioperative medicine. One anaesthetist said that:

> **'a qualification would provide me with greater confidence, credibility, and autonomy as a medical practitioner allowing me to take a more involved role in providing high quality, evidence based and safer care.'**

Applicants had a strong desire to expand their knowledge in the developing field of perioperative medicine and become an expert. Applicants wanted to better understand advances in clinical perioperative medicine as well as non-clinical aspects of care. One anaesthetic trainee said she was motivated to 'understand the logistical, financial and resource planning implications of instigating and improving patient care'. Some were also motivated by a desire to improve their skills in analysing available evidence.

Trainees in all specialties felt that training in perioperative medicine would have a positive impact on their careers. They felt that the course would enhance their current training programme where perioperative medicine was less well emphasized in the curriculum. One trainee anaesthetist stated that: 'the anaesthetist's role in the perioperative period is clearly expanding and our training curriculum, as yet, does not reflect this change.' The more junior foundation year doctors felt it would provide a solid foundation at the start of their careers. Senior trainees felt the training would strengthen their ability to get a consultant job and enhance their future careers. This is illustrated by statements from both senior anaesthetic trainees: 'a postgraduate degree and research in my chosen specialty will put me in good stead for a competitive consultant interview' and senior trainees in geriatrics: 'ultimately, I hope to be a consultant geriatrician with an interest in surgical liaison and feel that the Masters will put me in an excellent position to pursue this.'

Discussion

There is limited literature exploring why health professionals undertake postgraduate study, on top of their working lives. In her qualitative study of German and British nurses undertaking a Masters degree, Watkins (2011) found that motivating factors included seeking a personal and professional challenge, career enhancement, upgrading knowledge and skills and increasing credibility. White and Gunaratna (2013) describe the desire to reawaken a passion for medicine and learning, and being inspired by senior colleagues as motivating factors for junior doctors for undertaking a Masters degree.

Applicants to the UCL Perioperative Medicine Masters Programme represent a global cohort of motivated individuals. As these results indicate, the key reason they are willing to make a significant commitment to the study of perioperative medicine is that they believe it will improve the care of the high-risk surgical patient and is integral to future care pathways. This study highlights the perceived importance of this evolving specialty and agrees with a published survey of 100 anaesthetists where 99% thought perioperative medicine was important although only 50% of surveyed consultants felt they had the knowledge and skills to take on an extended role of a perioperative physician (Kumar et al, 2013).

Key throughout the applicants' personal statements was the belief that the adoption of patient-centred, protocol-based pathways, better risk assessment and multidisciplinary care would improve outcomes for patients. Many believe that this integrated approach to patient care is the future of anaesthesia and relish the opportunity to become perioperative physicians. There was an acknowledgement, particularly among consultant anaesthetists, that anaesthetics as a specialty has much more to offer the high-risk patient than their perceived current role of being limited to the operating theatre. This supports the literature calling for anaesthetists to evolve and embrace the idea of leading as perioperative physicians (Grocott and Pearce, 2012; Cannesson et al, 2015; Carlisle et al, 2016).

Many applicants were motivated by a desire to deliver service improvements and conduct research in their own departments. This is a very positive development and demonstrates how distance online learning can be translated into real life improvements in patient care. It is well documented how many efforts at improvement fail to sustain (Massoud et al, 2006) but with both formal training in quality improvement and the development of networks linking like-minded individuals on the course, local implementation of quality improvement will flourish and spread. Similar networks within the perioperative medicine community such as the Perioperative Medicine Clinical Trials Network (www.pomctn.org.uk/) have already started to develop meaningful contributions to perioperative research.

The median age at application to the postgraduate course was 33 years. Although applicants ranged from medical student

KEY POINTS

- Perioperative medicine is a new and developing specialty aiming to improve outcomes in high-risk surgery.
- A central tenet of perioperative medicine is the adoption of improved multidisciplinary care.
- Applicants to a UK postgraduate perioperative medicine course came predominantly from an anaesthetic registrar/resident background with a quarter from other specialties including surgery, geriatrics and general medicine.
- The proportion of overseas applicants suggests a worldwide interest in perioperative medicine.
- Reasons for wanting to study perioperative medicine were better patient care, relevance to future anaesthetic practice, benefit to local department and personal fulfilment.

to senior consultant, the largest group was doctors in training (75%). This group is the future face of the workforce, caring for high-risk surgical patients. It suggests that as this young cohort develop and complete their training, in the future an ever-greater emphasis will be placed on adopting the key principles behind perioperative medicine. There has been much discussion in UK literature on how demotivated and demoralised doctors in training of this generation are (General Medical Council, 2016). However, this article demonstrates a large group who are motivated to make a very large commitment to studying both to enhance their knowledge and skills to improve patient care and to enhance their prospects of a consultant post. Many trainees outlined how they felt that their current training programmes did not emphasize perioperative medicine enough and were seeking an opportunity to learn more. With changes in both anaesthetic and geriatric training curricula in the UK the authors hope this deficit will also be addressed elsewhere (Braude et al, 2016; Carey, 2016).

This research shows that perioperative medicine is evolving as a multidisciplinary team specialty. Although the majority of applicants were anaesthetists, 23% were from other specialities including geriatricians, surgeons and general physicians and 2% from a nursing background. There are many proposed models of perioperative care, but models with demonstrable improvements in outcome have been based on a multidisciplinary approach to care. An award-winning exemplar of this is the Proactive care of Older People model at Guy's and St Thomas' Hospital, London (Harari et al, 2007; Dhesi, 2013).

Demographic data of applicants demonstrates that the desire to learn more about perioperative medicine has global appeal. As expected for a UK-based course, most of the applicants were from the UK but a large proportion (19%) were from the rest of the world. This included countries where perioperative medicine is already a prominent part of care, such as Australia (Australian and New Zealand College of Anaesthetists, 2005) as well as countries where early adopters are just beginning to consider the benefits, such as the burgeoning interest in enhanced recovery in the USA (Miller et al, 2014).

This study has made opportunistic use of existing data. The authors acknowledge that course applicants may adapt the texts in their personal statements to what they hope those selecting students will want to hear. It is possible that semi-structured interviews unrelated to the application process would have been less susceptible to the influence of seeking to write an acceptable set of motivating factors for applying to the MSc. Nevertheless, the authors believe that there is interest in what applicants chose to write.

As the first students enrolled on the Perioperative Medicine Masters Programme complete their postgraduate certificates and diplomas and undertake dissertations to be awarded Masters degrees the authors hope to perform a similar analysis on how training in perioperative medicine has changed their practice. They hope to be able to demonstrate that online distance learning can lead to measurable improvements in patient care.

Conclusions

This study has demonstrated that the opportunity to train in perioperative medicine is attractive to anaesthetists and other medical professionals, at all substantive and training grades and has global appeal. Motivating factors for those individuals making this commitment fall into four key themes: better patient care, perioperative medicine being integral to the future of anaesthesia, benefit to their local department and personal fulfilment. **BJHM**

Conflict of interest: Dr C Groves: none; Dr A Whiteman, Dr G Kumar, Dr R Stephens and Dr D Walker are faculty members of the UCL Perioperative Medicine Masters Programme.

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