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A student's perspective on the relevance of anaesthesia and critical care to the medical school curriculum. Response to *Br J Anaesth* 2018; **121**: 993–6

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If you seek his monument, look around you

– Epitaph of Sir Christopher Wren

Editor—The manner of the anaesthetist is virtually revered by medical students: how they effortlessly glide that green cannula into a haemodynamically shocked patient; the way they take charge of the otherwise turbulent cardiac arrest; or their composed manner in assessing an airway no matter how low-pitched the machine beside them beeps. Anaesthetics and critical care are uniquely positioned at the crossroads between medicine and surgery, consolidating practice with principles of physiology and pharmacology, the same principles intensively taught to preclinical students, yet so frequently felt to be dissociated from clinical medicine.¹

I pen this reflection as a young professional seeking the origin of my enthusiasm in these specialities: was I drawn to the critical care unit because of a sudden clinical interest, or had I been inculcated by years of subliminal teaching in intensive care medicine? This correspondence in response to Smith and colleagues² addresses the role played by anaesthesia and critical care from the perspective of the medical student, highlighting the development of skills essential for qualification. By drawing on educational research and personal experience, I reflect on the role played by these specialities in medical students' progress.

As members of the largest hospital speciality, anaesthetists interact with up to 68% of hospital patients.^{1,3} Noting that they are at the forefront of rapidly flourishing empirical medicine,

one realises that they are exceptionally well equipped at executing their key roles in education. As identified by Smith and colleagues,² the role of the anaesthetist embodies the very tenets upon which our curricula are founded, as seen by navigating the General Medical Council's latest 2018 iteration of *Outcomes for Graduates*.⁴ The anaesthetist is a team worker (Outcomes 1): collaborating with a multidisciplinary cardiac arrest team. The anaesthetist is a holistic practitioner (Outcomes 2): drawing upon humanity and navigating polypharmacy to alleviate the multidimensional pain experience. And, of course, the anaesthetist is a scientist (Outcomes 3): stretching to first principles in applying acid–base physiology when interpreting an ABG (arterial blood gas).

Hiding in plain sight

In addition to the inclusion of anaesthetic tools such as ultrasound in preclinical teaching, attitudes in critical care to handover and checklists are highlighted to students. Euliano and colleagues⁵ rightfully argue that anaesthetics offers 'more procedural experience and real-time physiology... than that available elsewhere'. This is as true for me as a final-year student practising preoperative airway management, as of me in first year describing the receptors of pain modulation in an anaesthetist-led tutorial. I benefit from context-based learning in both situations. As a preclinical student yet to encounter an ill patient, I engage in the anaesthetic scenario to discuss pain modulation anatomy, gate control theory, the WHO Analgesic Ladder, and patient rights. And as a final-year

student, I undertake a kinesthetic approach in learning a procedural skill by observing the consultant's manner as they drift the patient off to a relaxed, analgesic, hypnotised slumber.

Whether grappling with the pharmacokinetics of drug redistribution or engaging the mechanisms of electrolyte imbalance, the scientific principles underpinning anaesthesia are seen from the very start of medical school. Science-heavy principles are revisited in clinical years when students observe the physiological effects of interventions instantly on patients, benefiting the learner's real-life contextualisation of otherwise 'abstract' concepts.⁶ Furthermore, as anaesthesia is not organ-specific, it allows the clinician to assess the patient holistically.

Importantly, a large portion of what we as medical students gain from anaesthesia is not even listed above: it is the tacit acquisition of knowledge through unarticulated teaching which inspires us in general medical principles. The anaesthetist's communication with the patient, particularly during induction of anaesthesia before surgery, plays a linchpin role in coordinating the perioperative team.⁷ The anaesthetist's unique focus on one patient at a time translates to one-on-one student teaching. Unspoken as it may be, implicit learning can be made explicit through the act of reflection, which demonstrably improves undergraduate self-directed learning.⁸

In contrast to Smith and colleagues' statement that 'anaesthetists' involvement in the undergraduate curriculum is variable',² a 2009 Delphi study of 27 anaesthetists strongly supported anaesthesia playing a wide role, as it already does, in medical school curricula, putting forth how student learning outcomes are frequently met by the close and constant doctor-patient interaction in the specialty.⁹ The authors further identify that those professional and procedural skills are relevant to the makings of every foundation doctor.

Preparing for the future

Experiences in anaesthesia during medical school prepare graduates for work through formal teaching methods and by subversively shaping their attitudes towards patient care. Explicitly, eight of the 15 core procedures that foundation doctors must fulfil are directly related to airway, intravenous access, or anaesthetic delivery.¹⁰ In addition, provisionally registered doctors must demonstrate proficiency in leadership, handover, using controlled drugs, and ensuring clear recordkeeping. I instinctively reflect upon instances where I have observed all those: an intensivist taking charge of a cardiac arrest; participating in a postoperative handover to recovery; witnessing the disposal of an incomplete fentanyl vial; and enquiring about the minute details being documented on the anaesthetic record.

Anaesthetists are already in the unique position of meeting the domains necessary for graduates and, in doing so,

uniquely culminating the assortment of knowledge from the undergraduate medical programme: physiology and pharmacology from preclinical years, tools to visualise multi-dimensional anatomy, and clinical skills crucial to working as a foundation doctor. Yet, the lasting impression from these specialists is through the tacit acquisition of professional and leadership abilities, and the attitudes that come with maintaining continuity of care.

It initially surprised me to note that formal anaesthesia teaching was merely a 10 day sliver amidst my surgical agenda. Yet, by participating in the encouraged reflective practice, I observe that teaching in anaesthesia and critical care has truly directed my learning throughout the programme, equipping me intellectually, practically, and professionally. I was seeking a single monument to the speciality: in truth, the monument was all around me.

Declarations of interest

The author declares that they have no conflicts of interest.

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