Policy Document

Anatomy Curriculum (2018)

Background

The Australian Medical Students’ Association (AMSA) is the peak representative body of Australia’s medical students. Accordingly, AMSA is uniquely placed to advocate on issues of medical education and make representation on the provision of modern medical curricula in Australia.

Much conjecture still exists on what constitutes an appropriate level of anatomical knowledge for graduating medical students, especially given the recent introduction of time-poor four-year postgraduate medical courses and the redesign of the medical curriculum to be problem-based learning (PBL) focused [1-3]. Existing curriculum guidelines for medical graduates by the Australian Medical Council (AMC) do not detail content requirements with respect to individual subjects, including anatomy. This policy aims to identify limitations that Australian universities face with regards to teaching resources, as well as to propose alternatives that are less restricted, with the hope of creating clear standards of anatomy teaching. Without guidelines, it is unclear whether the content of a medical degree should be limited to the knowledge required of interns, or whether it should provide students with the capability and confidence to undertake further training after medical school.

A recent study identified several factors associated with Australian medical students’ confidence in their own levels of anatomical knowledge [4]. Two of these factors related to the integration of anatomy teaching with clinical and basic sciences teaching [4]. This suggests that a more fluid, multi-disciplinary and multimodal form of teaching is likely to increase students’ level of confidence in their anatomical knowledge. Another factor was frequency of assessment, with slightly more than half of the medical students surveyed indicating that they felt there was not enough assessment of anatomy in their degree [4]. Under-assessment of anatomy may lead to the discipline being under-prioritised by students preparing for exams.

Professional perspectives on the adequacy of current curricula remain varied. Whereas some clinicians are supportive of student concerns [5, 6], others consider the assertion that contemporary anatomy education is “in crisis” to be unfounded [7]. In the surgical literature, published opinions remain largely emotive, with a lack of empirical data to substantiate the claim that current graduates have significantly less anatomical knowledge than previous generations [8, 9]. A number of publications suggest that modern medical curricula significantly undervalue anatomy teaching, leading to the perception, amongst certain clinicians, of poorer diagnostic skills and clinical error due to so-called “anatomical ignorance” [6, 10-13]. As such, the Australian & New Zealand Association of Clinical Anatomists (ANZACA) has formally stated the need for a standardised curriculum to address the conflicting opinions in this area [5, 14].

Several extracurricular anatomy courses are now available in some Australian medical schools to further develop anatomical knowledge [16, 17]. Students have identified a perceived deficiency in anatomical knowledge as a key reason for participating in these courses [6, 17]. However, given their extracurricular nature and the limited number of positions, along with the fact that many medical schools do not offer such programs, the benefits are not extended to entire cohorts [16, 17].
addition, the advent of graduate diplomas and master’s degrees in gross and surgical anatomy further shifts the onus of responsibility away from universities providing more than a perfunctory knowledge of anatomy [6]. The fact that these courses involve additional expenses is also an issue of concern, as this may lead to inequity of access on a financial basis. This issue may also arise with extracurricular elective courses in medical schools that require a fee to undertake [17].

Anatomy education is continually evolving, and much discussion has centred around how to balance more traditional methods of anatomy teaching (dissection and prosection) with newer modalities [18, 19, 20]. Exposure to dissection is positively correlated with improved levels of confidence in anatomy [4], and so this may require dissection to remain a key component of the curriculum. However, the number of Australian medical students has increased significantly in the past decade, and there are several financial and logistical barriers that universities face when implementing a dissection program for students [21]. As such, other teaching modalities such as radiological anatomy and innovative technology may be required.

Junior doctors are required to request and justify investigations, as well as routinely interpret results relating to anatomy, including radiological imaging [22, 23]. Many students find that the integration of radiological anatomy alongside traditional methods augments their learning [19, 24]. Furthermore, the teaching of radiological anatomy demonstrates living and dynamic anatomy, which is something that students cannot observe with traditional anatomy methods focusing on the deceased [25]. Some universities are also integrating technology into their anatomy teaching, such as 3D printed models and augmented reality, in order to replicate the tactile and visual experience of dissections [26, 27]. By implementing this with multiple pedagogical resources, such as medical imaging, living anatomy and computer-based learning, universities can better accommodate the larger number of students and also enhance anatomical teaching [28].

The Anatomical Society (UK) recently stated that “applying an effective and appropriate level of anatomical knowledge is the foundation of safe and effective clinical practice” [3]. This presents a challenge for curriculum planners to not only define what ‘appropriate’ is, but to incorporate the demands of various other disciplines [3]. In such situations, looking to other countries’ responses to such dilemmas can inform and help shape our own curriculum requirements. The Anatomical Society, through rigorous analysis of current curricula by 39 experts, has provided UK medical graduates with an anatomy syllabus that details knowledge they should attain prior to graduation to ensure safe and effective internship practice [3]. This syllabus includes areas from anatomical terminology to specific anatomical details of various body regions [3]. Although this syllabus is yet to be adopted by the General Medical Council (the equivalent body of the AMC in the UK), it is expected that it will enable UK medical schools, clinical teachers and students alike to better address the enduring question “What do I need to know?” [3]. The synthesis of a similar syllabus for Australian medical schools would assist in guiding anatomy curricula for Australian medical students.

In summary, there is currently a wide variation in the emphasis given to anatomy at Australian medical schools, likely due to the lack of national guidelines for an anatomy curriculum. In the absence of such guidelines, the level of basic anatomical knowledge held by some graduates may be inadequate for competent clinical practice, as curriculum standards are left to the discretion of individual institutions. Moreover, multiple anatomy teaching modalities are beginning to be introduced across the nation, and whilst this may improve the knowledge of students who partake in them, there again exists a wide variation in these courses and to whom they are offered to, leading to inequity. In reality, defining the core required knowledge is a difficult task that requires input from the key stakeholders with a vested interest in the quality and competency of Australian medical graduates,
namely, the Australian Medical Council, the Medical Deans Australia & New Zealand, as well as the postgraduate specialist colleges.

Position Statement

AMSA believes that:

- Consideration should be given to developing a national standard for anatomical teaching across all Australian medical schools.
- Assessment is a key method of driving learning outcomes in anatomy, and more research is needed to determine the most efficacious methods of assessing anatomical knowledge in medical students.
- Further research is needed as to what should constitute core knowledge of anatomy for Australian medical graduates.
- Traditional methods of anatomical instruction, including dissection and prosection, should be available to medical students at all universities where feasible. These methods should be supplemented with other modalities of teaching, such as radiology, digital media, ultrasound and 3D printing.

Policy

AMSA calls upon:

1. The Australian Medical Council, with the support of Medical Deans Australia & New Zealand and the specialist colleges to:
   a. Collaborate to develop clear guidelines that make explicit the core knowledge of anatomy expected of medical graduates for competent practice.
   b. Make specific recommendations to universities as to how they can improve the teaching, method of instruction and assessment of anatomy, based on recent research in this field.
2. Australian universities and the postgraduate specialist colleges to carry out further research into the role of anatomy in modern practice, and the most effective methods of delivering anatomical education.
3. Australian medical students, when given the privilege of learning from cadavers, to show the utmost respect for donors and their families.

References


Policy Details

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Category: B – Medical Education

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