



## Perhaps we don't know what we thought we knew: Why clinicians need to re-visit and re-engage with clinical anatomy

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### EDITORIAL

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Please cite this paper as: Cornwall J. Perhaps we don't know what we thought we knew: Why clinicians need to re-visit and re-engage with clinical anatomy. AMJ 2013, 6, 6, 339-340. <http://dx.doi.org/10.4066/AMJ.2013.1676>

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Throughout the centuries, famous anatomists such as Vesalius, Da Vinci, Galen, Santorini and Gray have examined and described human anatomy in great detail. Many procedures in medicine are underpinned by the anatomical knowledge provided by these and other individuals, and medicine would likely be on a different page had such scientists not taken an interest in the human form.

Here in the 21st century we can still see the fruits of their collective labours in books such as *Gray's Anatomy*, a magnificent tome of more than 400 pages that provides in exquisite detail almost everything you would possibly want to know about human anatomy. Similar books on anatomy are easily found on university bookstore shelves, with most editions stretching into hundreds of pages describing every facet of human anatomy. Students, educators and clinicians rely on these texts for learning and refreshing the anatomy that they have learned. However, as 'published' texts even the basic information contained within often remains unchallenged. But should it remain so, and is it important to question even the simplest of facts from such great books? After all, the anatomical bases for clinical practice are used around the world by thousands of clinicians each day, and surely any errors that affected clinical practice would have been identified many years ago. However, therein lies the problem: the acceptance that modern texts are correct in every detail.

Clinical anatomy is currently being revisited by researchers. Recent investigations have addressed simple things that many take for granted, and have found textbooks to be in need of revision. Human dermatomes and surface anatomy landmarks are two examples of areas that are commonly utilised in clinical practice, yet a review of the evidence for dermatome maps indicated inconsistencies and a newer, updated dermatome map was proposed as a result.<sup>1</sup> The topic of surface landmarks, popular with clinicians, have been given a special section in a recent edition of the journal *Clinical Anatomy*.<sup>2-8</sup> This section was dedicated to recent findings that challenge the existing anatomical dogma and guidelines by examining the evidence for the current data. Many original research articles in this issue provide evidence that is contrary to the commonly held beliefs that have been passed from generation to generation of both textbook and clinician.

So what can be made of the above-mentioned differences between many texts and the recent findings of researchers? It may be suggested that small errors or measurements such as the location of surface anatomy landmarks for deeper structures are 'small details', with a minor effect on clinical outcomes. There are multiple ways to address such criticism.

Individuals may suggest that most texts are 'good enough' for medical practice. Good enough for what? Most procedures, most people, or most of the time? One could ask the question 'is near enough good enough?' to address this issue and challenge such concerns as pithy or 'nit-picking'. Knowing, with as much precision as is possible, the surface markings for the location of major blood vessels before attempting to introduce a needle is important; it is hardly good enough to 'roughly' know where to place an entry point in such an instance. Such an example may seem extreme, however it cannot be argued with any weight that precision (or equally, as much precision as is possible) is unimportant in clinical practice. The question could be asked in this form: would clinicians



suggest anatomical 'generalisations', or being 'near enough', were acceptable if they themselves were the patient?

Science and scientific method are also society's chosen method for the determining improvements in most professions. To ignore an advance, no matter how small, is to impose a judgement on the methodology of choice in modern medical practice. If the small refinements and improvements in clinical practice are ignored, then at what stage should they become embraced? Refusing to acknowledge improvements, however small, also sets a poor example for the trainee clinicians who should be striving for 'gold standard' performance in their work.

It could be suggested that the precision of anatomical texts can, to some extent, be bypassed and is not strictly necessary, with medical training used as a vehicle for 'fine tuning' the anatomical knowledge of clinicians. However, in this modern era it is not good enough to practice on patients relying on the 'apprenticeship' model of clinical training, especially when trainees are coming to terms with clinical anatomy. To adopt the old medical axiom 'see one, do one, teach one' is not in line with current trends in modern medical practice, social expectation, or best ethical practice. To learn anatomy in this manner contradicts not only trends in medical training, but also imparts an attitude on clinicians that will likely be passed on to future generations of medical professionals, one that suggests that learning anatomical concepts by working on patients is sufficient as a platform for good medical practice.

Until attitudes change and a culture of exploration and questioning is created, many clinicians will continue to rely on word-of-mouth and 'facts' passed down through the generations like Chinese whispers as a basis for their anatomical knowledge. As recent investigations have shown,<sup>1-8</sup> the basis for some elementary anatomical information did not stand up to rigorous scrutiny when the evidence was examined. The inherent danger if clinicians do not re-engage with clinical anatomy is that unsubstantiated and potentially incorrect information will continue to be used in clinical practice. Perhaps it is up to today's clinician to facilitate a change in attitude and approach to how clinical anatomy is viewed, because if everyone takes the attitude that 'all is well', who is going to take the responsibility for changing it in the future?

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## CONFLICTS OF INTEREST

The author is a Senior Editor of the AMJ