Reviewer's report

Title: An Evaluation of Pharmacology Curricula in Australian Science and Health-related Degree Programs

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Reviewer: Patangi Rangachari

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The authors sought to gauge the teaching of pharmacology in Australia across different programs at a national level in their country. They argue that though other surveys have sought to define the “what and how” of pharmacology curricula at different institutions, theirs was done at a national level. They note that defining commonalities across diverse programmes could lead to the development of a generic core curriculum.

To that end they have sent out a fairly detailed questionnaire that gathered information about who did the teaching, what they taught and how did they do it as well as the assessment procedures used. The approaches used to get the information seem logical and well thought out. The information provided is extensive and detailed. The authors must be congratulated on their efforts.

There are some points that need clarification or elaboration:

1. The authors surveyed 37 institutions, 27 agreed and 22 participated. That is 60% of the total pool. This is fine for getting a general feel. However, it would be interesting to know something about the 15 institutions that did not contribute information. Were these uniformly spread across the five degree programs or were these clustered in one specific program? If they were uniformly spread out, it is really not a major problem, but if they formed a significant part of one of the sub sets, that would skew the generalizability of the information provided.

2. There is unevenness about the information provided. There seems to be a curious combination of unnecessary lumping and undue splitting. Let me try and explain what I mean. The authors lump together a widely disparate group of programmes in the category of allied health programs, a hodge-podge ranging from physiotherapy to veterinary medicine, Chinese medicine and chiropractic.

This poses a problem for anyone trying to make sense of the data provided. The authors note that “pharmacokinetics was widely taught in allied health sciences” and the information provided in Table 7 seems to bear that out (though that Table itself raises more questions, see later). However this information may be a bit misleading. I would like to believe that students of veterinary medicine would require more serious teaching of pharmacology than those in chiropractic, podiatry or Chinese medicine. It would be quite disconcerting if that were not true.

On the other hand, the information provided in Table 3 seems to a trifle
excessive. Clearly it would be difficult to deal with drug receptor interactions without considering agonism/agonists/antagonism and antagonists. Or for that matter, the consequences of such interactions—intracellular signaling/signal transduction/desensitization and tachyphylaxis. Yet the authors choose to list these as separate items. I could give many more examples of such overdrawn items. This list could be really simplified by judicious lumping of items. The information provided in this list is used later to calculate the numbers that appear in Table 7. The data provided there are also confusing. The number 37% which is the median percentage coverage of pharmacokinetics in science programmes is derived from a more complicated calculation as explained in the legend. Oddly enough after all the splitting that was done in Table 3, the information provided in Table 7 lumps them! Why not just do it in the first instance?

The authors should seriously consider the potential readers of their paper. It is more likely to be read by practitioners of one of the 4 major programmes they list. They should really make it easier for them. It would be better if they simply removed all the information about the allied health programmes to a separate section at the end and not confuse the general picture.

The authors note that “defining pharmacology as a separate discipline from other biomedical sciences has proved surprisingly challenging” I found that an odd statement. Pharmacologists, by and large are an eclectic bunch borrowing and adapting approaches and techniques from other fields, making them quite eligible to win Nobel Prizes in different domains. The desire to maintain discipline identity seems rather quaint.

The general picture that emerges from this report is of a rather staid, conservative approach to the teaching of pharmacology, with a preponderance of lectures to deliver material. The information provided focuses on “teaching”. Whether students actually learned is assumed. Depth of coverage of a topic (number of topics covered, lectures given) does not necessarily translate into depth of learning of that particular topic. The authors are aware of this issue and there are some comments dotted through the paper. It would be more effective, if they made that point in their concluding section.