

## A study to enhance medical students' professional decision-making

I am nervous about producing a layman's summary of my study because it raises more questions than answers. However it illustrates three points: senior medical students in this study struggled to routinely assess benefits and harms of interventions for patients, even when they were led through a series of examples using medication scenarios. Secondly they were unused to questioning practice, that is they are trained to follow senior instructions or guidelines and thirdly they wildly over-estimate drug benefits and have difficulty analysing papers to decide the effectiveness of drugs. In support of my students once confronted with the issues they were interested and went to some lengths to look into information and what "medical truth" really means but lacked the skills. They also wanted to know the patient's details in order to provide the best outcomes.

There are also three parts to the study; here's what I did and what happened:

The first study (pre-test) was to ask, by questionnaire, groups of medical students their views on giving pertussis (whooping cough) vaccination in pregnancy. You will know that traditionally doctors do not give medications in pregnancy unless really necessary but a few years ago in the UK influenza and pertussis vaccinations in pregnancy became routine. Questions like "What are the pros and cons - and are there any long-term side-effects for the baby?" are questions we all want our doctors to ask. The students however responded generally that they would do what they were told; some would check with a senior or guideline but they would give the vaccination.

To see if I could create more curious, questioning medical students I took another group and taught them on three commonly used medication scenarios. You may know someone taking aspirin or simvastatin after a heart attack, or using a tiotropium handihaler for chronic obstructive airways disease (COPD). I used a major study from each of these scenarios and asked, for each medication, what was the likely benefit including in percentage terms, likely harms and the ethical considerations in making best prescribing decisions. This was followed by three students per group acting as the tutor, using the same process, to analyse prescribing a medication of their choice. So we covered 6 medications per group and then had a 2 months break from it. How did it go?

Well, students struggled to interpret studies, made numeracy errors, wildly over-estimated the benefits of medications (mode 70% benefit of aspirin rather than nearly 3% benefit in the study I used) and struggled to ask ethical questions. The ethics of benefits and harms was easier when they were presented with a specific patient case and I have sympathy with students who want to know the ins and outs of their patient before deciding. Students were frankly surprised that their "ballpark figures" for medication benefits were so out.

Did the students do some great things? Of course they did. Most didn't get beyond wanting a better handle on the the evidence; some looked up their own trials, one talked about needing to

know about unpublished studies. Some emailed in for advice, checking that they were allowed to reach their own conclusions. Some created excellent patient scenarios to illustrate benefits and harms for people in different circumstances.

When I gave this second group the pertussis vaccination in pregnancy questionnaire I was disappointed that, like the pre-intervention group, they were prepared to vaccinate despite uncertain knowledge, and felt that responsibility for problems lay with their seniors. They were not questioning new practice and I conclude that students need training in numeracy, evidence analysis and ethical questioning right through their courses, integrated in day to day patient care. "Ball park figures for evidence" should be easily available, even though less certain at an individual's level. Questioning of ethics, knowledge, uncertainty, change and information sharing should be at the heart of medical education if we want future doctors to help patients make best decisions.

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## **Publication**

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