Calcium metabolism

Reflections on learning and teaching in general practice

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Years ago, as a GP registrar, I pawed through and pored over Professor Murtagh's compactly fact filled tome.[1] The beginner GP's equivalent of the 'Manual of VW Maintenance for the Complete Idiot'. I loved that book. Everything I needed to know about general practice was in it.

Apart from rashes.

Actually, other than the handful of easy ones, can anyone really diagnose rashes? Dermatologists might be able to, I guess, but I suspect they mainly just pretend they can. They get away with this by coming up with a complex, often Latin, diagnosis or a confusing mix that indicates that the condition is virtually untreatable. Papular urticaria for example. Papular urticaria. The treatment is often an extemporaneously compounded topical application, whose vague nomenclature justifies one's suspicions of secrecy and arcane connections. Occasionally one can persuade a pharmacist to reveal a concoction's contents and all too often these turn out to be, anticlimactically, one of a variety of steroid-laced moisturisers.

Anyway back to Murtagh. It seemed that within those friendly pages I might find all the symptoms and diagnoses that humanity trails through our consulting rooms. Murtagh summarised them, often with a useful diagram and the recommended treatments.

So what's the point? Have I got shares in Murtagh's publisher?

Well, no, I haven't.

At the beginning of my registrar year I diligently bought the recommended texts; McWhinney's *Textbook of Family Medicine*,[2] Murtagh's *General Practice* and a *Textbook of Dermatology* (the latter's colourful plates of rashes never quite matched the way the real thing looked in – or on – the flesh). I also lashed out on the latest edition of Harrison's *Principles and Practice of Internal Medicine*.[3] Harrison's, with its tiny font, thin pages and densely packed text. The sober cover added extra gravitas to its massive thickness and weight. It impressed the pants off me, as I hoped it would my potential patients. Sad.

I blame its turgid prose for my ongoing inability to engage in a meaningful way with calcium metabolism. I'm sure that at least one medical registrar has needed a couple of days of compassionate leave after I initiated a discussion with her about a patient's puzzling hypocalcaemia. Actually between you and me I suspect that apart from the odd renal physician no one, arguably not even the authors of that gruesome chapter in Harrison's, really understands calcium metabolism anyway.

But back to the point of the texts. I loved Murtagh (who wisely avoided calcium) and whose simple black and white diagrams explicate the diagnosable, and leave the vague and untreatable papular urticarias to the rarified stratosphere that is a specialist's domain.

McWhinney on the other hand...

Well, on my first curious browse the book fell open on the page dealing with Systems Theory. That's the one whose signature graphic resembles a Venn diagram on P. It starts with 'sub-atomic particle' inside a tiny square in the centre of a whole lot of concentric squares. The square outside 'sub-atomic particle' says 'atom' and so on it goes for about 63 squares until 'galaxy' and, ultimately, 'The Universe' as the outside square. As a new GP registrar struggling to find the correct dose of penicillin in *New Ethicals* I was completely boggled. They might as well have added in

Captain Kirk and Dr Spock for all the relevance it had for me. I could not make any connection between me surviving the next couple of terrifying patients and this bizarre taxonomy.

McWhinney ended up gathering dust on my bookshelf amongst back copies of *Patient Management* and a faithful old *Grants Atlas of Anatomy*. Murtagh's nuts and bolts, can-do practicality remained close by on my desk, ready to hand.

Where is all this leading in a paper on being a GP teacher?

Well the Murtagh vs McWhinney tension neatly introduces two aspects of general practice. Who hasn't looked up Murtagh or its modern equivalent, the GP Notebook website? We all do. On the other hand, who has gone back to McWhinney? I have and basked in his revolutionary vision of general practice that I interpret as a sea of credibility formed by the overlap of two mutually exclusive paradigms whose horizons can never meet: the scientific objectivity of Western biomedicine and the lived in, embodied subjectivity of our patients' reality.

I enjoy working with GP registrars. The apprentice model that we have in New Zealand general practice education provides a forum for learning that is unparalleled in any other teaching/learning situation I can think of.

The teaching is all that teaching can be: didactic; pedagogic; Socratic; androgogic; strong elements of 'Ako'; the passing on of technical skills; the difficult process of attitude change and paradigm shift.

Didactic because sometimes telling someone the answer is the best way; good old jug-to-mug.

'What dose of penicillin do I give this toddler?'

'Twenty mg/kg, look in MIMs under phenoxymethyl penicillin.'

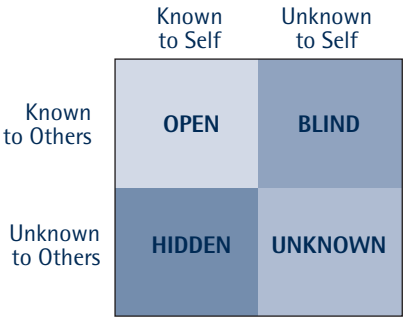
Pedagogic? Think of Johari's window, the blind and unknown panes where the learner (self) doesn't know and especially the one where both the teacher and learner (others and self) don't know. There needs to be some proscription.

Most GP teachers will pick up on things that registrars straight from the hospital wards are not aware of. Often it is how the context of a patient's family or work situation alters the management of the presenting problem. Leafing through Murtagh or various skills lists or syllabuses indicates unrecognised learning needs. Had a sufficiently pedagogic teacher insisted I read the useful parts of McWhinney, a large blind spot would have been converted into 6/6 vision several years before I finally cottoned on to what he was saying. For the particularly masochistic, dipping into Harrison's at random brings up enough 'Blind' panes to fail a driver's medical.

For the 'Unknown' pane, external triggers can throw gaps in my knowledge that I was unaware of into sharp relief. Patients do this, colleagues, specialists (even, dare I say it, dermatologists) and especially the registrar I happen to be working with.

There are times when the registrar already knows the answer but needs guiding towards it. The teacher emulates a Socratic approach.
Registrar: *'I'm not sure about this rash. I'm worried that it could be papular urticaria or it could be fungal.'*
Teacher: *'How did it start?'*
Registrar: *'Oh, with a big patch on the back, then lots more round slightly itchy ones spread over the trunk.'*
Teacher: *'And what is the pattern of the smaller patches over the back?'*
Registrar: *'Scattered.'*
Teacher: *'In lines?'*
Registrar: *'Umm, well, yes I suppose.'*
Teacher: *'Like a Christmas tree?'*
Registrar: *'Well, maybe, sort of... Not really.'*
Teacher: *'And how quickly would a fungal infection come on?'*
Registrar: *'Not that quickly. So it probably isn't fungal.'*
Teacher: *'I think you're probably right. And how itchy is urticaria?'*
Registrar: *'Well, quite itchy, really. So...it's probably not that.'*
Teacher: *'I agree. OK. What rash do you know of that starts with one big patch then lots of others that can appear quickly over the trunk, looks a bit like a fungal infection, is sometimes a bit itchy, and, with a stretch of the imagination could have the appearance of a Christmas tree?'*
Registrar: *'Oh...I saw that in Murtagh. Pityriasis rosea!'*

Figure 1. Johari's Window



Yahoo. Go Socrates.

Some of the most effective learning arises from what the learner wants or feels they need to know. Part of an old Arabic proverb goes: *'He who doesn't know and knows that he doesn't know is a student – teach him.'* (Actually the commonly accepted version uses the term 'simple', but I have taken the liberty of changing the wording to 'student').

This learner-centred, learner-driven focus is called androgogy; a fabulously unpronounceable word that can be put to brilliant use to stifle vexing conversation at dinner parties.
Teacher: *'What have you identified as one of your learning needs since our tutorial last week?'*
Registrar: *'Well, I came across a patient with hypocalcaemia. I'm not sure why it might be low, or how to investigate it. I need to learn more about calcium metabolism.'*
Teacher: *'There is an excellent chapter in Harrison's I can refer you to... Or it might help to phone the medical registrar on call. He probably needs a couple of days off anyway.'*

The interactive nature of the teacher-registrar relationship replicates in some ways a Maori tradition of teaching-learning or Ako. The roles of the teacher and learner blur to the degree that the distinction between the two becomes hazy. Many registrars come straight from the hospital. Some are medical registrars who have fled the hospital system and the endless

phone calls from GPs wanting to talk about calcium metabolism. Their cutting edge medical knowledge is a gift from the Other Side. Younger postgraduate year three doctors bring a refreshing questioning enthusiasm and challenge my assumptions. They bring an energy that banishes any ageing staleness and kicks me out of whatever rut I'm stuck in. Older doctors and those from other countries and cultures bring new perspectives and insights that enrich my perception and understanding of the world. I have yet to work with a registrar who has not taught me about as much as I thought I was teaching them.

I see many parallels between models of teaching and models of general practice consultations. The key to both teaching and general practice lies in the relationship between the protagonists; the teacher–learner and the GP–patient. Successful teaching/healing stems from the way the learner/patient gains autonomy. Learners shuffle off their dependency on the teacher. Patients restore the integrity of their damaged selves. The magic is done.

One of the most satisfying parts of teaching GP registrars is seeing them develop skills. Minor surgery can be draining to teach. Suddenly your usually crisp registrar has, against all the laws of nature, developed two left hands with thumbs and little fingers for digits. Nothing brings perspiration out on the brow and desiccates the oropharynx more than watching part of a favourite patient take on the appearance of fermenting strawberry jam. *'I should never have made her read that chapter in Harrison's on calcium metabolism last night,'* you think to yourself. But within a couple of months her touch becomes deft and sure. The wound blooms in bloodless perfection and tissue planes part as if they have been simply asked to, politely.

But the GP teacher passes on more than technical skills. In general practice we all have the ability to quickly forge a connection with a total stranger. We take it for granted; every day we do this without even thinking about it. For a registrar it can be a baffling and frustrating experience. At the end of an attachment, I really enjoy watching the transformation in registrars' consultations. They change from a stilted one-sided soliloquy of medical jargon and closed questions directed at a computer screen into a sophisticated skilfully woven construction of few words around pools of silence that the patient fills with what they really want to tell you and what you really want to hear.

The last, most difficult and most important part of teaching in general practice is teaching for attitude or paradigm change.

I was a GP for years, happy that what I was doing was intuitively right, but not feeling confident with it, not knowing why it was right. Somehow I felt diminished, as if I worked in the shadows cast by my specialist colleagues. I found protocols and guidelines ineffably clumsy and difficult to apply to the individual sitting in front of me. Double-blinded randomised controlled trials seemed to provide all the right answers but they weren't quite answering the questions I was asking.

Almost on a whim I enrolled in a paper through the University of Otago's Department of General Practice – what was then called the *'Nature of General Practice'* paper. I attended a two day introductory session in Wellington. One of our tasks was to go away and read a paper for a couple of hours over lunch. I found a sunny spot at the top of Wellington's botanic gardens with a great view and ploughed my way through a paper on epistemology[4] that made Harrison's chapter on calcium metabolism look like Postman Pat for Dummies. Epistemology is that branch of philosophy that deals with how we come to know things. Now to me that used to sound pretty irrelevant but, after the two hour session in the Gardens, I felt as though someone had come into a darkened room, drawn the curtains and drenched the place in sunlight. McWhinney had been telling me the same thing all along. I just had to get there the hard way.

The challenge GP teachers face is to show the registrar, usually coming to general practice from within the hospital system, that the illness that the patient has and the disease the doctor is diagnosing are the same thing looked at from different perspectives. Which is the real one? Well, is something real because you have experienced it, felt it, lived it, or because you have been able to observe, define, conceptualise it? There is your epistemology. In general practice we do both. The sea of credibility formed by the overlap of two mutually exclusive paradigms whose horizons can never meet. Hopefully, by the end of the year, the registrars have shifted their paradigm from the western biomedical model and are happily bobbing about in the choppy misty sea of general practice.

Teaching in general practice is more than it seems at face value. I can think of no better way of rediscovering or reigniting the excitement and passion that most of us started off with in our first tentative consultations. Much more exciting and passionate than looking for solace in appearance medicine or some other sub-speciality of primary care. Each registrar is different; each challenges and teaches you in different ways. At the end of their registrar year, some of the change that you see in them is actually a reflection of yourself. Remember that old misanthropic saying – *'Those who can do, those who can't teach.'*

Yeah, right... Tell that to Murtagh and McWhinney.

Competing interests

None declared.

References

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