I was recently riding in a cab in New York, trying to get to the Bronx. The driver would have none of it, however. He said that he did not know the Bronx - that was not his area of expertise (he was a specialised Manhattan cabbie, it seemed) - and that I should therefore take another cab. Because I was late for a ball game, and because Yankee stadium is right across the bridge from Manhattan, I pulled out my smartphone and convinced him to take me. But it got me thinking.

Why is specialization such a pervasive force in society? Has it always been this way? Did it get this way because specialization in fact offers advancement to human civilization? And what are the implications of this for medicine, the generalism movement within medicine, and family medicine?

There is no question that specialization is useful in the natural world, but only up to a point. Most biologists put generalist and specialist species on a useful spectrum, with one end providing the most likelihood of fully benefiting from a narrow set of environmental conditions, and the other end offering the most chance of surviving changing conditions. So, on the one hand we have hyper-specialised species (did you know that there is a species of mosquito only found in the London Tube), and on the other hand very generalised, adaptable species (often represented by the ubiquitous raccoon).

This has huge implications for the "paradox of primary care" first described by Stange and Ferrer (1) - the observation that primary care is associated with worse outcomes for individual diseases as compared to specialist care, but confers better outcomes at the population level. The truth is, we don't know why this is the case, though several mechanisms have been postulated.

Stange and Ferrer observed that most people are not faced with one rare disease that is best managed by a specialist. Rather, and increasingly, people deal with multiple, chronic conditions that need to be managed together by a generalist. This is the classic example of managing heart failure without making renal failure worse.

But there are other forces at work. In a decidedly original study trying to model the mechanisms behind the success of primary care, Homa and colleagues (2) confirm the importance of "longitudinality", which will not surprise many readers, but also adaptability. It is likely, they argue, that people's needs change over time, not to mention the different needs of different contexts and communities. It may be that we, as family doctors, are very skilled at filling in gaps, according to need.

As if on cue, The Economist recently published a short report on how over-specialization may hamper such adaptability, though this time, the story is about robots. It turns out that one can build a robot who can assemble furniture (even IKEA furniture). The problem is, it can do little else (3).

But the problem remains: doctors, and increasingly society, respond to evidence. And how do you measure the adaptability of a physician, over time, between contexts, over the course of a career? It may be that one of the hardest things to measure about primary care - its flexibility to respond to present and local needs - is also one of its most important attributes (4).
All this went through my mind in the back of the cab that reluctantly took me across the river to the Bronx. But it was only later that a friend sent me a quote that summed it all up rather nicely (if a bit dramatically):

"A human being should be able to change a diaper, plan an invasion, butcher a hog, conn a ship, design a building, write a sonnet, balance accounts, build a wall, set a bone, comfort the dying, take orders, give orders, cooperate, act alone, solve equations, analyze a new problem, pitch manure, program a computer, cook a tasty meal, fight efficiently, die gallantly. Specialization is for insects."

- Robert Heinlein

References

5. http://www.cfp.ca/content/61/7/596/tab-article-info

Photo Credit: Couvrette/Ottawa