1 Prof Ranga Krishnan

– Dean of Duke-NUS Graduate Medical School

By Dr Toh Han Chong, Editor

The essence of Duke-NUS

Dr Toh Han Chong – THC: Why should students select Duke-NUS over other graduate medical schools?

Prof Ranga Krishnan – RK: If you want to build a clinical and research career, we're one of the very few schools in the world that focuses on that. If you look at the US curriculum, the students do two years of basic science and two years of clinical work, and Duke University is an exception.

Singapore wanted to build research capacity in clinicians, which was why we came. If somebody really wanted to choose a clinical and research career, we offer one of the few specially dedicated programmes in the world. Obviously, there are limits because when you come into Singapore, you have to be willing to live in Singapore, so it was really primarily built for Singaporeans.

US options are still pretty limited because if you're not a US citizen, getting into an American medical school is quite tough. In Asia, the only country that had graduate schools in the past was the Philippines.

THC: When you interview medical students, is there a set of criteria that you're looking for?

RK: For us, the metrics are key because it is very intense. You're not going to pass the interviews if you're not smart enough to go through. The second metric is why do you want to do Medicine, are you passionate about it? The third thing is whether there is something that says that you want to work hard.

I think one of the things they're going to do from next year, in the US, is that the Medical College Admission Test is changing to include behavioural knowledge. They are beginning to realise that a lot of what physicians do as practitioners is communications. If you have a hard time communicating effectively, it's going to be hard. And you can't teach that easily in medical schools, you have to learn some before you enter.

THC: When you look at a potential medical school candidate who is not a naturally good communicator nor overtly empathic, do you think he can cut it in medical school?

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RK: He can cut it in medical school, he'll probably do fine going through, but would he cut it as a physician? Again, it depends on what kind of physician he intends to be. If the nature of his job requires little human contact, it is possible. Even then, he will run into problems working in a team because almost all of Medicine today operates in teams. The solo physician who works in isolation is a gradually dying breed globally, because there are partnerships starting to take place.

THC: Do you think a new breed of doctors can be trained and equipped for this new century, when Medicine is changing so rapidly?

RK: How much of what you learnt ten or 15 years ago, is exactly what you use today? Some things remain, but a lot of technology and techniques have changed. In the last 100 years, Medicine has changed slowly, but we have seen rapid changes in the last 15 to 20 years. Traditionally, Medicine has been resistant to change. But the world is changing, whether we like it or not, and I think it'll change even more in the future. I don't think we even have a clue what the second half of this century will look like.

If you think about it, the ability of using of very large amounts of data to predict things is much greater than what any physician anywhere, at any time in history, could do. I think Medicine is on the verge of changing fast and most of the resistance has been the fear of change. If you ask me what Duke-NUS is trying to do, we're trying to train a group of doctors who can think critically and creatively, and who can adapt.

THC: With the increased costs of living and pressures of school fees, the eventual decision between becoming a purely clinical doctor, like a practising ophthalmologist, and an eye research clinical scientist can be a tough one to make, no?

RK: If everyone wanted to become clinical research scientists, no country can afford to sustain them. What you want is for every practising physician to be able to innovate in their area of practice. Basically, you want a group of physicians who keep asking the two questions: "Why?" and "Can we do it better?" If we ask those two questions, and we teach students to ask these questions too, we become a self-sustaining organisation.

The key is adaption, and innovation is key for one to adapt. The successful physicians you look up to were the ones who were critical, innovative and who had adapted.

THC: Malcolm Gladwell said in his book, *Outliers*, that it takes 10,000 hours of practice before you are a master of something. What do you have to say about the sometimes

articulated criticism that Duke-NUS's current medical school programme might be a little too short for a strong clinical education?

RK: The actual clinical side is the same or slightly longer than many traditional medical schools. And the reason is that you don't have vacations. As a physician, how many long vacations can you get? We also emphasise that the Duke-NUS students are spending evenings, nights and weekends working, which is what you do as a physician. Medical school is really about learning to swim by jumping in, it is not learnt by just observing. In fact, our data shows that the clinical performance of our students upon graduation are excellent, and similar to other top medical schools.

I suspect that what we're doing in terms of teaching now is the same as what was done 25 to 30 years ago. I also hear this from the older physicians here that what we're doing and expecting now was what was expected then. It isn't so much about seeing interesting cases just because you need to pass an exam, but to really understand what the patient has and needs – exactly what you will do when you hit the real world.

The tradition of bedside teaching, however, can never change, as that is nothing but face time. The tradition that I think has dropped is the tradition of students engaging with patients during their stay, outpatient follow-up, etc. Otherwise, without that, the patient becomes an object, instead of an individual.

THC: Do you think Duke-NUS can engage in positive interactions and forge synergistic relationships with Yong Loo Lin School of Medicine (YLLSoM) and Lee Kong Chian School of Medicine (LKCMedicine)?

RK: For LKCMedicine, they are essentially going with our model of teaching. They're using a model similar to our team-based learning approach and they've hired one of our people. (*laughs*) We are willing to work with them as we move forward. I don't see us as competing

Photo: Duke-NUS Graduate Medical School

with anybody because we are only doing one thing – we are trying to train the next generation to think. It is unfortunate that education ends up being another competitive arena because it shouldn't be.

Our collaboration with YLLSoM is probably closer to percolation rather than directly doing things, but I think what their students are experiencing at SingHealth is similar to what we have built for our students.

THC: If someone were trying to understand what Duke-NUS's whole pedagogical culture and system was about, how would you explain its philosophy?

RK: We had 180 delegations, including Ministry of Education, National Institute of Education, etc. People know what we do, but it hasn't been applied. We are probably the first one to do it by starting out from scratch.

First of all, you clearly flip the onus of learning to the students. If you're not committed, you're not going to do well. Second thing is that it is not connected to say, passing an exam. It is connected to really learning because it is key for you to do well in Medicine. The most important way to remember things is by learning to apply it to the real world.

Medicine and management

THC: Do you think management and leadership skills are an important part of the syllabus for medical students?

RK: Everybody needs to know how to work in a team and how to lead. Often, doctors' roles in a team are to provide critical leadership, and that is what we've been trying to do from Day 1 with team-based learning for our students. We're trying to get more of it in the wards. I wouldn't say we've succeeded but I would say we're gradually getting there.

At Duke University, probably 5% to 10% of the students do an MBA at the North Carolina campus. We've also had the first of our students doing that. That student is now spending an extra year at Duke finishing an MBA.

THC: Do you see more Duke-NUS students taking up such MBA programmes?

RK: I think once one person does it, there seems to be more interest when that student talks to other students. That's how all things work because they come back with more skills and it shows in their work. Many physician leaders in US have MBAs; it's not just to understand financials, but also to improve operations. However, I would rather build the research aspect of the Duke-NUS programme first as some of our students coming in already have a PhD.

THC: You recently wrote an article in *Today* newspaper on education and how having a clear set of goals is crucial to the education journey. How do you ensure that the Duke-NUS students fulfill these goals in education?

RK: The students actually get explicit goals on what they will do by the end of Year 1 and Year 2 respectively, but we tell them that mastery of goals takes time. As they get into Year 4 and housemanship, they'll have to differentiate what their goals are. We try to get them to have clear goals in their mind because if you don't have goals, you do not know where you're going.

Education has become a second priority, not a top priority, for most institutions today. Even in the US, it fades out because it is a revenue loss leader, and people don't think about it unless they are passionate. Even if people are passionate, they only focus on what they want to do, but the question should be what the students need ten years from now.

When I was a doctor in training, my main focus was whether I could diagnose a patient. I didn't really learn a whole lot on how to treat – you only learn from textbooks on how to treat a patient, but you don't really learn the art of treatment.

I tell physicians that they need to read a book that they have probably never heard of. It is called *Predictably Irrational*. Our thought process is irrational; it is actually built for survival. You make decisions not based on data most of the time, but based on personal opinions. For physicians, their clinical decisions are based on two factors – one is called availability and the other is called representativeness.

Representativeness means that although I have successfully seen the last ten patients a certain way, but the following four patients are not doing so well with what I did so I'm going to try something else. There is no data; it's just personal opinion with a small sample size. Gut feeling may be right in some circumstances, but it can be wrong more often than not.

And availability means you actually only remember things that you remember. If you look at 100 patients and what happened with them, you'll learn differently than if you only remember from the last ten patients. These are human thought processes, and none of us are immune to it.

Concluding thoughts

THC: Outside of being the Dean and very busy running the medical school, what other things interest you?

RK: Being the Dean, to me, is relatively straightforward.

There are several things that interest me. On a personal level, I'm constantly curious; I try to find things to do. I travel and hike; I recently hiked up Ladakh in India, which is one of the more difficult places to get to and trek. I've never done hiking except in the last few years because of my kids.

One of the reasons I do it is that it makes you feel small. You also realise how much people have done in history, in spans of life that are exceedingly short as compared to us. You look at individual contributions that have happened in those days and you wonder how somebody can become an emperor in three years, and conquer other regions where they couldn't even travel that easily. I love interesting places, interesting people. To me, it makes you realise that what we know personally is also very little. I love talking to people because you learn. SMA