Special Feature

An Exclusive Interview with Executive Vice Dean of
DUKE-NUS Graduate Medical School Singapore,
Dr Ranga Krishnan
How did this collaboration between the two universities come about?

The Ministry of Education, Ministry of Health, Agency for science, Technology & Research (A*STAR), National University of Singapore and Duke University worked closely together to make this partnership successful. The Duke-NUS Graduate Medical School (GMS) started classes about 20 months since our collaboration was confirmed. The Singapore government wanted a well known brand and Duke has got a great reputation, especially in getting top scientists for research. Thus it fits the bill just nice.

Singapore decided to build another medical school after visiting several campuses around the world. They chose the Duke University School of Medicine not only because of its good reputation but also because of its unique curriculum. In 2005, the various institutes signed an agreement. Up until now, much of the logistics and planning has gone rather smoothly. Duke hopes to use Singapore as a base to branch to other countries in of Asia.

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How does the Duke University School of Medicine system compare with the local NUS MBBS system? What are the pros and cons of combining the systems to form the Duke–NUS GMS?

The Duke-NUS GMS complements the Yong Loo Lin School of Medicine program. We are a graduate school that only accepts mature graduate students. Also, the bond period for students graduating from the Yong Loo Lin School is five years with an additional year for housemanship; while the
bond period for local students graduating from the Duke-NUS GMS is four years after completing one year’s housemanship. The Duke-NUS GMS’s system is that of the US’ Doctor of Medicine (MD), while the Yong Loo Lin adopts the UK system. The final degree our students obtain at the end of the course is a joint MD from Duke University and NUS. We also have plans for a two year PhD program whereby students will be awarded the MD PhD degree.

Please provide some details of this course, i.e. the curriculum, cost of the course, size of intake, type of students (first batch), demographic data of students such as sex, age, country, etc.

The average age of the Duke-NUS GMS students is around 25 years old. Right now, we have students from seven countries. Some are single, while others are married, as well as those who are parents. Some of them hold a Masters degree while others hold a PhD degree. After completing this course and the one-year residency/housemanship, they have to serve a four year service obligation with the Singapore government. The service obligation is necessary because our fees are heavily subsidized by the government.

The curriculum of the course at the Duke-NUS GMS is unique in the sense that during the first two years, foundation sciences are taught and the third year will consist of research in one of four focus areas: infectious diseases, cancer and stem cell, neurobehavioral disorders or cardiovascular medicine. Much of the details of the curriculum can be seen in the graph shown.
We have top researchers such as Prof David Virshup, previously from the University of Utah, and Dr Duane Gubler, a world expert on dengue, who will lead these students in research. We aim to train physician scientists who are physicians as well as research scientists. This concept is the first of its kind in Asia.

The curriculum is intense with the first year’s basic sciences courses. The teaching style is different from the traditional teaching methodologies. Much discussions and group learning are involved. Students are encouraged to be conversant and to ask questions. It is more a dialogue way of teaching commonly termed “active learning” or “team-based learning” (such as those adopted in business schools). On the whole, it is indeed an intense program that requires total dedication.

With this sort of curriculum, it is impossible to have 200 students per cohort. In the first year of operation, we have 26 students. We target to increase this to up to 50 students each year from 2008.

**What is your opinion on medical students in Singapore being bonded for five years to government hospitals after graduation? Is this system unique or are there other medical schools with similar system?**

The estimated amount that is invested in a typical medical student is about US$66,666–US$333,333. After graduating from medical school, it is not the end of the road; in fact, it is just the beginning. In Singapore, the bond gives fresh medical graduates a guaranteed training program. This planned approach is favorable, as in many other countries, the graduates will have to “fight” for an opening for residency.
When do you expect to be able to move to the permanent Duke-NUS GMS campus? What facilities will the permanent campus have?

In actual fact, the building of the new facility of the Duke-NUS GMS as well as the planning of the school is advancing better than expected. The funds to build the school come mainly from local philanthropic donors such as the US$53 million donated by the Khoo Foundation. This amount is matched by the Singapore government. The Shaw Foundation and Goh Foundation have generously awarded student scholarships. The new building will be completed by 2009 and is within the grounds of the Singapore General Hospital.

How many faculty members are on staff? Are they mostly local or from overseas, full-time or part-time? Are any of them from Duke University?

The main challenge to this collaboration is getting the right faculty and having enough faculty members relocate to Singapore. It is also quite an experimental project to see how well a US-styled medical school can work in Singapore. We are excited and have high expectations that this model will work in Asia. So far, things look promising. As for the teaching faculty, some of them are full time and others part time. The local teachers are also sent to Duke University for training so that they can impart their skills in the Singapore campus.

What are the career prospects for students graduating from Duke-NUS GMS?

Singapore has a long term plan to build up the biomedical community and industry. It is indeed a right time to start a second medical school. At Duke University, USA, the medical program admits 99 students a year. The student/teacher ratio is extremely high. There, the teachers encourage creative thinking and active thinking rather than merely acquiring knowledge.

At Duke-NUS GMS, we aim to offer a similar kind of education as the quality of students admitted are very high as well. The question exists: Can you bring the American curriculum out of the US? Can this research model work in Asia?

The program also allows the bridging of the gap between basic science and translational medicine. Translational sciences is regarded as the “next big thing” in medical science, thus the program is indeed appropriate. The students, after graduating, will be equipped with clinical skills as well as research skills. This will tie in with the demands of the field of translation medicine. Also, clinical doctors are in short supply globally, thus employment opportunities for these graduates are high.
What are the key areas of research for Duke-NUS GMS?
Duke-NUS GMS, in close consultation with its Duke University and Singaporean stakeholders, will be undertaking Signature Research Programs (SRPs) in the following key areas:

- Infectious Diseases
- Cancer and Stem Cell Biology
- Neurobehavioral Disorders
- Cardiovascular and Metabolic Disorders

Integrated with the four SRPs, a major area of emphasis for Duke-NUS GMS will be Health Services Research (HSR). HSR is the study of how medical knowledge can be applied, and how healthcare systems can be organized to improve healthcare outcomes. GMS’ activities in health services research will be applied across all four of the SRPs. Leveraging upon Duke University’s strengths and Singapore’s advantages as a medical and research hub, these research areas possess great potential for breakthroughs that will make a substantial impact on Singapore’s medical needs.

How was the student selection process carried out?
One of the hardest part of this collaboration is selecting the applicants. Out of the 300 applicants received in the first batch, 26 students were eventually selected. We aim to have up to 50 students for the 2008 intake. One of the criteria we are looking out for is people skills. The applicant must be comfortable interacting with people, able to work as part of a big team as well as with nurses and families. We are not looking out for just highly intelligent or academically smart applicants but also individuals with EQ.
It is a huge commitment to enter into this program, not only is it intense but it also requires total dedication of time. There are many personal sacrifices to be made, for example time away from their own families, going on night calls, etc. It is not an easy way to make a living. However, one should have a passion for learning, living and service.

As the saying go, “Medicine is an art and a science.”
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Exactly how true are these sayings?
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Becoming a doctor is more often than not a calling — a calling to contribute to the society. Medicine is a noble calling. It gets easier as one gets older as you are then more mature and more prepared to make this huge commitment. However, passion is a vital ingredient.

It is now common knowledge that doctors need to have both “hard” and “soft” skills in order to deal with patients efficiently and effectively. How do you nurture these “soft” skills in your students?

With globalization and the IT revolution, the old days of going to the library to collect information are obsolete. Nowadays, learning key skills like filtering and choosing the right information becomes more important. Also, continuing medical education is a must as doctors need to constantly upgrade themselves.

What is your view of the healthcare system and medical school system in Singapore?
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The healthcare system in Singapore is outstanding as it provides high quality care. In fact, the healthcare system here is a success story. The next phase will be bringing research findings to clinical use; and also training clinical scientists, like what Duke-NUS GMS is doing.
Overview of the new Duke-NUS Graduate Medical School building

- The new Duke-NUS Graduate Medical School (GMS) building will be ready in 2009 and will comprise four main zones.
- An 11-storey administrative tower, which contains a series of faculty offices, research support and student support functions, including the Dean’s office at level 11 of the tower;
- A nine-storey laboratory zone that contains five typical research lab floors above with teaching facilities below;
- A principal investigator zone containing principal investigator offices on the lab floors;
- The vertical campus atrium, open from the College Road entry to the top of the lab block, including three “Collaboration Pods” which accommodate the post-doc areas on the lab floors. These pods are sources of inspiration for students as well as collaboration spaces to create a “melting pot” of ideas.
- The Duke-NUS GMS design is strongly influenced by Singapore’s unique tropical climate, with an emphasis on sustainability. The primary materials are ceramics, glass and metal, with deference to the off-white walls, terracotta roof and colonial fenestration of the College of Medicine Building.
- The interior of the building is organized around an eight-storey atrium which will be the heart of this “Vertical Campus”. Functional elements are organized into four major zones that are stacked in such a manner as to allow public access at lower levels and secure access for research.
- Total building gross floor area: 24,000 square meters.
- The temporary occupation permit is expected to be issued by first quarter of 2009.
- The whole campus will operate at the new facility when the academic session commences in August 2009.

Key Features:
Administrative offices, education and research with:
- Research Laboratories (five floors)
- Teaching Laboratories
- Lecture Theater (125 seats)
- Teaching Room (65 seats)
- Library.
Duke-NUS GMS is proud to collaborate closely with the following partners:

- Ministry of Health, Singapore
- Ministry of Education, Singapore
- A*STAR and Ministry of Trade and Industry, Singapore
- Duke University School of Medicine, North Carolina, USA
- National University of Singapore

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