Where medicine meets engineering

BY WONG KIM HOH
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IF IT could be measured, the pride in Professor Bertil Andersson’s voice would have broken the scale.

“Imperial College, for the first time, is leaving South Kensington,” says the incoming president of Nanyang Technological University (NTU), referring to the famous London medical school which ranks among the world’s top 10.

“And it’s coming to Singapore, it’s coming to NTU. Now that’s something, isn’t it,” he says, beaming.

There’s more good news. Earlier this month, the medical school – slated to receive its first batch of 50 students in 2013 – received a record donation of $400 million, the largest contribution ever made to a tertiary institution here.

The school has been named the Lee Kong Chian School of Medicine after the Lee Foundation – founded by the late philanthropist – donated $150 million. The rest came from enhanced government matching.

It will offer a five-year undergraduate degree jointly awarded by NTU and Imperial College London.

Prof Andersson says Singapore’s new medical school will be different from the Yong Loo Lin School of Medicine at the National University of Singapore (NUS) and the Duke-NUS Graduate Medical School.

It will focus on the interface between medicine and engineering.

After all, he says, “Imperial College has one of the most famous medical faculties in the world and NTU is the biggest engineering university in the world”.

Warming up to the subject, he says: “Engineering is leading to a quantum leap in medicine. You go to the garage now to get spare parts for your car. Maybe in the future, you get spare parts for cells.”

Many health problems – deemed to be death sentences two decades ago – can now be solved because of the sheer proliferation of medical devices.

“There are so many types of implants: You can put in a stem cell, artificial retinas and things like that. There is a lot of research on artificial hands. If you lose a hand, you can actually get a new hand. The big challenge, of course, is to get the nerves to interact in the right way.”

Leveraging on its engineering expertise for health care is not new to NTU. For the past 10 years, it has worked with local hospitals and undertaken some 200 projects in biomedical engineering and the use of technology in health care.

For instance, a team from NTU’s School of Mechanical and Aerospace Engineering collaborated with the National Cancer Centre and Tan Tock Seng Hospital to invent a surgical system using robotics and state-of-the-art cutting methodology for biopsies and cancer treatment.

Another team from the School of Electrical and Electronic Engineering teamed up with Singapore General Hospital to develop a medical tool that measures risks of a cardiac arrest in patients.

Prof Andersson says the new medical school’s interdisciplinary approach will extend beyond engineering.

“Singapore’s population is getting older. So managing the health system is very important, and doctors have to know about health economics and health management.”

Faculty members from the university’s business school and its College of Humanities, Arts and Social Sciences will also be tapped to give insight into issues like health management, health informatics and psychology.

“Doctors cannot just say, ‘I know what bacteria is, I know how to cure influenza and I know how to fix a broken leg’. They need to know a lot more.”

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