Interview: Dr. Thomas Coffman – Dean, Duke-NUS Medical School, Singapore

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27.09.2016

Tags: Research, R&D, Education, University, KOL, Singapore, Healthcare

Dr. Thomas Coffman, Dean at Duke-NUS Medical School (Duke-NUS), explains how Duke-NUS has effectively disrupted medical education since the establishment of this unique collaboration 11 years ago.

Can you introduce to our international readers the underlying aspirations behind the creation of this partnership between Duke University and NUS as well as the milestones since its foundation?

This partnership was established in 2005 and, since its inception, was aimed at bringing diversity and disruption to the medical education landscape in Singapore. The idea was to establish an American-style graduate medical school that was research-intensive to provide a mechanism for expanding the talent pool for medicine in Singapore. Therefore, the Duke-NUS partnership has been focused on developing medical practitioners interested in research and innovation.

Among medical schools in the US, Duke University School of Medicine was chosen as the partner in this endeavor specifically because of its unique curriculum where medical students spend nine to 10 months doing hands-on research, with the idea that some of them will ultimately go on to pursue careers in research. But even for those who will become clinicians, this approach will help them understand how new discoveries are made, appreciate their significance, and incorporate new developments into their practice.

We have been successful in attracting highly qualified students from outstanding universities, including NUS and NTU, two of the best universities in Asia, as well as outstanding international institutions including Duke, Cambridge, Harvard, Oxford and Stanford. Since our inception 11 years ago, we have graduated almost 260 students. I believe our stakeholders are delighted with our accomplishments so far, as we position ourselves worldwide to be one of the best offshore partnerships with a US medical school.

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With such a young history, how did you go about effectively establishing the credibility and capabilities of this university?

Through our relatively short history, we have distinguished Duke-NUS through our education and research programs.

Regarding our education programs, we adopted the Duke School of Medicine curriculum in which the typical two years of preclinical training have been condensed into one year, to allow extra time for students to have a substantive research experience. To successfully accomplish this condensed pre-clinical training, our education group, led by Dr. Bob Kamei, devised a novel program of flipped classroom, team-based learning called TeamLEAD. Students are given the lecture material to assimilate before they come to class so that, when in class, they can focus on problem-based learning in teams. Along with learning the material, this novel approach also imparts a range of important skills that students will need once they become physicians.

The approach is very successful as a learning method, as our students consistently score above the mean in standardized tests of basic science knowledge. While this approach was very novel when we initiated it 11 years ago, it has become a popular trend in many US medical schools as well as Lee Kong Chian School of Medicine, now the newest medical school in Singapore. The principles of the Duke-NUS teaching methodology have now been commercialized for other learning applications, including training pharmaceutical company representatives.

The school’s research programs are another distinguishing factor for Duke-NUS, which are designed differently than typical medical schools in US. Rather than the conventional basic science departments in medical schools, such as anatomy, physiology and biochemistry, we have theme-based signature research programs focused on diseases reflecting major public health problems in Singapore. These include diabetes, cardiovascular disease, cancer, and diseases associated with aging populations such dementia or cognitive disorders. In addition, we have an emerging infectious diseases program to address research issues focused on important diseases in the

region, such as dengue, and epidemic respiratory infections. We also have a health services and systems research program, resembling a mini school of public health, which works closely with the Singapore Ministry of Health.

These programs have exceled in their ability to carry out cutting-edge translational research. As just one example, the first instance of a drug developed from a basic discovery made in Singapore, progressing from the molecule identification to clinical trials, came from the Duke-NUS Cancer and Stem Cell Biology program. This provided proof of concept that this process of moving from discovery to drug development can be successfully accomplished in Singapore.

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The government has really displayed a keen interest in building up its capabilities of biomedical sciences in these past 15 years. Where do academic medical institutions such as Duke-NUS fit into that picture?

Since Duke-NUS was founded, we have worked in strong partnership with SingHealth, the largest public hospital cluster in Singapore, to develop a thriving academic medical center. We have leveraged our joint capabilities to combine outstanding clinical practice with quality education and research, to teach our students along with a large number of post-graduate trainees, and develop strong translational research programs. Overall, the roles of academic medical institutions in Singapore are in delivering and improving high quality clinical care, carrying out research with clinical impact, and educating the next generation of doctors for the country.

What would you highlight as the biggest successes to have come out of this unique partnership with SingHealth?

We have had a number of successes in the history of our partnership. One shining example is our work in cancer genomics, which is a partnership between individuals in the Duke-NUS Cancer and Stem Cell Biology Signature Research Program, the Duke-NUS Centre for Computational Biology, and the National Cancer Center of Singapore. This group has focused on the genetic mechanisms of Asian cancers, and their work was recognized by the President’s Science Award last year. Their discoveries define the genetic architecture of Asian cancers and understand their causality, which will likely lead to new approaches for diagnosis and treatment.

It seems Singapore is perhaps the only place in Asia to have piloted such a concept and yielded this level of success.

Unequivocally, a major reason behind the success of Duke-NUS has been the partnership with, and strong support of the Singapore government. In my opinion, the Singapore government is quite unique in their vision, reliability, transparency, and ability to execute long-term strategic planning.

How would you position medical education in Asia against the “golden standards” of the West?

On a larger scale, it is worth noting that the overall quality of medical care in Singapore is outstanding and is achieved with relatively low fiscal expenditures in the range of 5 percent of GDP, compared with something like 18 percent in the US where quality of care is more variable. We have had an opportunity to innovate in our approach to medical education at Duke-NUS, and some of these innovations have been adopted by Duke School of Medicine in the US. So, there are real opportunities to learn in both directions, which has been another key feature of this initiative.

In terms of academic medicine, what are the key take away that Western countries can learn from Singapore’s rapid development so far?

In the six years I have been involved in this endeavor, I have been amazed at the speed at which the academic medicine culture has advanced within the SingHealth Duke-NUS Academic Medical Centre. This is a testimony to strong and persuasive leadership within SingHealth and its clinical programs, as well as to the power of the academic medicine vision. Interestingly, many of the challenges of doing this in Singapore are similar to those in the US, including how to balance the demands of clinical service with education and research missions. The determination of our team, along with opportunities to leverage on both NUS and Duke have helped us move our academic medical center forward at a very rapid pace.

What aspects of being Dean do you enjoy the most?

We have a great team here at Duke-NUS and I really enjoy working with them to advance our vision, while helping people make the most of their own individual programs. It has been interesting and challenging to lead an initiative of this caliber in a very exciting part of the world, while also working in partnership with Duke, a terrific institution where I have worked for more than three decades. Here at Duke-NUS we are helping our students learn medicine but also preparing them to improve medicine.

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