



FINDING THE RIGHT PATH

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Higher Learning

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Pulling together to fight disease

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Third year Duke-NUS medical students display their research work

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VITAL SCIENCE

Editor: **John Davidson**

Production and copy-editing: **Adeline Sim**

Vital Science is a quarterly publication produced by the Office of Communications and Development.

For this issue, the banner features 3rd year Duke-NUS medical student Eunizar Omar attending Dr. Deidre De Silva's clinic to learn more about patient care. These learning settings provide opportunities for the medical student to do follow ups on study patients and recruit new patients.

Duke-NUS Graduate Medical School Singapore

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Finding the right path

They are an eclectic bunch of professionals organized under the Duke-NUS banner, brought together to tackle important health issues such as dementia, caregiver burden, and the role of innovative medical technologies with unique methodologies. Professor David Matchar, head of the Health Services & Systems Research (HSSR) Program, gave *Vital Science* the scoop on his multi-talented team and the pioneering work it is involved in.

Taking a Deeper View

Addressing the complex challenges facing our health system requires top minds from multiple research disciplines, working hand-in-hand with real-world decision makers. Made up of sociologists, epidemiologists, clinicians, economists, scientists and statisticians, they are as practical and passionate as they are scholarly. The Duke-NUS initiative represents top investigators in Singapore, the region and from Duke Durham in the US, and is headed by its inaugural director, Professor David Matchar.



Professor David Matchar is the Director of the Health Services & Systems Research (HSSR) Program.



The HSSR team

According to Professor Matchar, the goal of HSSR is fundamentally about making the best evidence available to decision-makers in a way that's compelling - to promote decisions linked to positive action. The brief for HSSR is wide – the program works with patients, providers, and policy makers to collect key information, integrate and provide it in a way that people in the trenches who are making decisions about health services can effectively act on.

The first major project illustrates this approach by tackling crucial clinical and policy issues surrounding dementia. Professor Matchar describes it as a “bear of a topic” with a lot of stakeholders, and a diverse range of clinical and public policy dilemmas.

“In this case we’re basically using a method called ‘systems dynamics’ a formal mechanism for simulating and reproducing what we currently understand about a particular problem and estimating the likely impact of different clinical and policy choices,” he says.

“HSSR has an overarching objective for this project, which is to develop a systems modeling laboratory which will allow us to address a range of health system problems, working in a collaborative way with stakeholders ranging from doctors to scientists, government departments, and community groups. Here we can come to a shared understanding of problems and solutions. Our decisions may still not be easy, but they will be well-informed.”

Professor Matchar says dementia was chosen as HSSR’s first application because of its complexity and the presence of what he termed “policy resistance.” “The population is ageing and their expectations for health care are dramatically shifting,” he says. “Yet decision makers are reluctant to change things without some compelling reason – a clear story. Should we push for more screening, modify payment for medications, expand dementia clinics, create alternative living arrangements or more nursing homes? Each of these changes has both desirable and undesirable consequences. Some clinicians say they would really love to create more dementia clinics to decrease waiting time and promote better services. But this involves shifting staff, finding funds, and creating new demands on community services. It may also create more demand for expensive medications – is it worth it and if so, who’s to pay? This is therefore an ideal context for using systems modeling.” A further benefit of the program is that we will train a cadre of researchers in systems modeling and create an infrastructure that will serve not just Singapore but also the region.

The Line-Up

To achieve its lofty goals the HSSR program boasts a line-up of enviable talent with faculty members of Duke-NUS, the Ministry of Health (MOH), specialists from the NUS Faculty of Arts and Social Sciences, Nanyang Technological University, SingHealth, Duke Durham and other organizations. It even includes a health economist from GlaxoSmithKline.

"We want to be a full-service, world-class enterprise. In order to really get up and running quickly and to start to make a contribution, we identified who in Singapore, who in the region and who from Durham who could contribute," Professor Matchar says.



Professor David Matchar (center) with his core team (from left to right: Associate Professor Cynthia Goh, Assistant Professor Young Kyung Do, Associate Professor Angelique Chan and Dr. Eric Finklestein).



STaR award winners Professor David Matchar from Duke-NUS and Professor Teh Bin Tean from the National Cancer Centre Singapore.

Professor Matchar, a clinician scientist whose background in medical sciences spans more than 30 years, recently received the prestigious Singapore Translational Research (STaR) Investigator Award to conduct research in Singapore. The award, which is jointly offered by the MOH and The Agency for Science, Technology and Research, provides research and salary funding to researchers over a period of five years. Another recent acclaimed STaR Award-winner, Professor Teh Bin Tean from the National Cancer Centre Singapore (NCCS), is also a member of the HSSR program. Professor Teh is one of the world's leading kidney cancer research scientists and has pioneered molecular profiling of kidney cancer.

Building success

Another crucial member of the HSSR team is Dr. Eric Finklestein, a health economist whose job it is to try and understand what influences health behaviors and how they influence health expenditure. He operates in the area where health services and treatment meet economics and finance, and he is one of a handful of applied health economists in Singapore. "Our goal is not to figure out how to reduce cost, what we want to do is try and figure out how you can get the best value for the money that you're spending," Dr Finklestein says. "Our job is not to figure out how Singapore can spend less money on healthcare, it's to figure out how they can best spend money on healthcare. We want to provide high value services at fair prices."

In the US Dr. Finklestein has written papers that look into the effect of taxes on carbonated sugar-sweet beverages, and whether these taxes will help people lose weight. He is completing a related study on the impact of mandatory menu labeling in chain restaurants in the US.

"Part of what I do is figure out why people make the decisions that they make with respect to health behaviors, just as diet and exercise, and the use of health services, such as preventive services and treatments for specific conditions," Dr Finklestein says. "Much of my research focuses on behaviors related to obesity. Although obesity is bad for one's health, more and more people are engaging in obesity promoting behaviors. Our job is to understand the underlying causes of these decisions and identify strategies that may successfully promote healthier choices."

In Singapore, Dr Finklestein is working on three projects which are potential future work for HSSR – research into the cost-effectiveness and potential demand for a video game that treats childhood anxiety, research into health expenditures and how they vary across population subsets, and the third project relates to the issue of incentives to encourage people to engage in more physical activity. The video game, called Roc-N-Ash, has been developed by the Institute of Mental Health, and by using it children with anxiety learn coping skills to better manage their condition. If successful, the game also cuts down on the number of visits with a psychiatrist, thus allowing them to see more patients at a lower cost. "To have public health impact, it must be both cost-effective and have high demand to penetrate the market. Our research will address those questions," Dr. Finklestein says.



Health economist Dr. Eric Finklestein, who is also a Deputy Director on the HSSR team.

Professor Matchar believes the cost issue is "vitally important" as you can't introduce change that is sustainable unless you can make a business case for the option you're proposing. "Typically, decisions get made in individual or organizational silos, from relatively narrow perspectives," he says. "What you want is for decision makers to also consider the broader perspective. When there are winners and losers we need to find some way of reallocating resources so we don't have big losers."

Currently there is not much information about important health care costs and patterns of care. One of the first things the HSSR program is doing is a detailed descriptive study of resource utilization as well as other costs such as lost earnings and unpaid caregiver services.

These are but a few of the projects in HSSR, all focusing on how Singapore and other countries can provide health care in a way that is effective, humane, and sustainable. It may be a brand-new outfit but the future looks very bright for Duke-NUS' HSSR program.

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VITAL SCIENCE

February 2010

Higher Learning



Professor David Virshup with Tina Tan, 3rd year Duke-NUS medical student and Dr. Gary Coombs, a senior research fellow, shares his insights on the mentorship role for the 3rd year medical students.

To program head Professor David Virshup, who mentors third year research students, "many other medical schools encourage research and give you other opportunities for research, but it might be during the summer, it might be an elective, [but] it's not going to be a full year in the labs". The attraction at Duke-NUS is students are actually working on significant research, with the chance to make a real impact. "They're discovering things that no one has ever seen before," Professor Virshup says.

Eunizar Omar is attached to the stroke unit under the guidance of Dr. Deidre Anne De Silva, a consultant in the Neurology Department of Singapore General Hospital. There she gets to learn what being a clinician scientist is all about.

Students in their third year at Duke-NUS go through a challenging but rewarding year that few schools can offer. *Vital Science* finds out what the research-intensive third year is really like and how it can bring out the best in its participants.

Eunizar Omar likes the variety and the choices available to her. Daniel Yong enjoys the freedom and the recognition he receives for his work. Both Eunizar and Daniel are third year students currently involved in their research year, with 26 year-old Eunizar based at Duke-NUS and 29 year-old Daniel at Duke Durham.

They are two of the 26 Duke-NUS students who are immersed in an in-depth research experience that is both unique and intense. Duke-NUS and Duke Durham differs from other medical schools in that its third year is dedicated entirely to research, as students get the first-hand experience working in either a clinical or laboratory research milieu.



Professor David Virshup is the Director of the Cancer & Stem Cell Biology Program.



3rd year Duke-NUS medical student Eunizar Omar working hand in hand with her mentors on a project involving brain imaging analysis of acute stroke patients.



3rd year Duke-NUS medical student Daniel Yong (extreme right) in an operating theater at the vivarium in the Duke Medical Center, with his research supervisors (from left) Dr. John Mancini and Dr. Walter N. Simmons.

"I work closely with both my mentor and other members of the stroke trial team consisting of a stroke fellow, trial coordinators and research assistants who all play a part in teaching me about the ins and outs of clinical research," she says. "I am able to have hands-on experience in patient care, administrative aspects of running a clinical trial, in recruitment of patients into studies, analyzing data as well as writing research papers. Other than that, my mentor is also actively involved in public education through stroke awareness seminars. One of my goals for the third year was to gain a deeper insight about what being a clinician scientist entails and I believe that I have learnt that through my day to day interactions with Dr. Deidre and the other clinician scientists in the department."



Eunizar puts on the BPro watch, a device used to measure 24 hour ambulatory blood pressure in study patients on a new patient recruit. Observing by the side is Dr. Jennifer Manzano.

For Eunizar, this experience is very different from the typical Singaporean undergrad educational experience. Every year in the Duke-NUS Medical Program is a vastly different experience from the previous and poses different challenges, she says. In their first year students concentrate on learning the principles and basic concepts of science and medicine. In their second year they find out how the principles they have learnt are applied in clinical practice through clinical rotations in various fields of medicine like surgery, pediatrics and internal medicine. In their third, they are given the luxury of spending an entire year researching a topic of their choosing and gain first-hand experience of life as a clinician scientist.



Taking retinal photographs of study patients. As part of a collaborative study of stroke risk factors, Eunizar's team also works closely with a research assistant from the Eye Institute.

"Having only been exposed to the Singaporean style education system all the way to university level prior to this, I am really struck by the amount of flexibility and the choices that the Duke-NUS medical program offers," Eunizar says. "Even though, as a pioneer batch we are faced with many uncertainties and unique challenges, I find it to be an enriching experience so far."

Similar to his Singapore-based peer, Daniel Yong has embarked on his research year at Duke Durham. Daniel is doing research in urology that involves mainly translational research with respect to stone lithotripsy and clinical research in both stone diseases and robotics-assisted urology procedures. Daniel describes the dedicated research year as being a "great experience". "I've been given the freedom to participate and lead in various projects that I am interested in," he says.

"My mentor has been very supportive and the people in the research lab are very supportive and eager to teach and nurture. Researchers here are very driven and it's always refreshing to be in a stimulating environment. Unlike my previous research experience, I'm given full recognition and credit for the work I contribute. For example, I've already published a paper as second author and have another first author paper accepted."

A major benefit of the dedicated third year research year is the level of mentorship that students are provided with. They attend regular lab meetings, participate in a journal club and then meet with their mentors regularly. "One of the advantages is regular face-time," Professor Virshup says. "It's critical. You also get somebody who you can then go to for career advice."

Daniel believes this mentoring is particularly effective and it has resulted in him learning statistical analysis skills, in-depth clinical urology knowledge, surgical skills, and animal surgical skills, as well as learning how to write scientific papers properly. Another important advantage is that the research year breaks down barriers for students who don't have strong, first-hand lab experience.

"The hard part is to try and get them into the lab so that once they start, they'll find out that its really not as scary as they think," Professor Virshup says. "I think what they'll find once they get in the labs is that everyone's training, everyone's facing these barriers, there's a lot of sympathetic help from people who are eager to train them. The things that they learn in the lab – even if they don't use it for the rest of their lives – will be invaluable for when they read the medical literature, because the medical literature now is just chock-a-block full of molecular biology. It makes it so much easier to understand what's going on if you actually have the hands-on experience and know what the right controls are and understand a little bit what they did, what the pitfalls are."



Daniel with Dr. Maria E. Raymundo, a Research Fellow in his lab, conducting a ureterostomy to enable stone implantation as part of his project that involves the shock wave lithotripsy.



Mentoring and providing guidance and support to students is a vital component in the research third year.

By all accounts the third-year dedicated research experience is one not to miss. Both Eunizar and Daniel sing the praises of the research year and recommend the opportunity to other students. "Students learn that the goal of translational medicine is to bridge the gap between the guy at the bench and the person seeing the patient," Professor Virshup says. "It's a wonderful opportunity to look at medicine from an entirely new perspective."

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Pulling Together to Fight Disease

In December, Duke-NUS further strengthened its reputation as a leading global center of medical research when it hosted an important international conference on Emerging Infectious Diseases (EID), which attracted world-leading doctors, scientists and medical professionals. The global gathering, from December 8-11, 2009, was organized by Duke-NUS' EID program, a leading regional center for reference and research in the Asia Pacific region on infectious diseases such as dengue. Attending the conference were more than 350 experts and public health offices from the US, the UK, Australia and across Asia. Among these key international experts was Dr David Heymann, from the Center on Global Health Security, Chatnam House, UK, Dr Ian Lipkin, Columbia University, USA, Dr Malik Peris, University of Hong Kong and Dr David Rogers, University of Oxford, UK.



The conference included symposia on EID and Infectious Disease Modeling, as well as the Asia Dengue Research Network Meeting which were the first meetings sponsored by Duke-NUS. They were held to inaugurate the school's Signature Research Program in EID. Speaking at the conference Mr Goh Aik Guan, Deputy Secretary at the Ministry of Health, talked about the recent impact of H1N1 and SARS on Singapore and the timeliness of the gathering. "I am pleased that Duke-NUS Graduate Medical School has taken the initiative to bring together leading researchers and clinician-scientists, distinguished professors and heads of various research institutes who have much to share about the latest knowledge and thinking in this field," Mr Goh said. "I also hope that your discussions would lead to new insights and collaborations that can contribute to better detection, treatment, control and prevention of emerging infectious diseases."

Issues covered at the conference included microbe hunting in the 21st century, the pathogenesis of influenza and the unveiling of new research into dengue fever. The Director of Duke-NUS' EID program is Professor Duane Gubler, an internationally recognized expert on dengue fever. Professor Gubler told *Vital Science* that the goal "is to develop the Duke-NUS EID program into a globally recognized leader of infectious disease research in Asia". Professor Gubler described the conference as being "highly successful".





Professor Duane Gubler is the Director of the Emerging Infectious Diseases Program.

"The conclusions were that emerging infectious diseases, including dengue, influenza and others, both known and unknown, will continue to present major threats to our health and economic security, especially in Asia, and that more research is needed to develop new and better diagnostics, therapeutics, prevention and control of emerging infectious diseases," he said.

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Students' Corner

Giving back to the community

By: Sally Ong, Vice-President (Community Services) Class of 2012

The beginning of a new year often marks a time of reflection and review. This is therefore an appropriate time to share with you the past years' updates from the student community service.

2009 was a year of new initiatives as well as continuing the traditions of previous years. In the first half of 2009, we organized a Chinese New Year celebration at St Joseph's Home and helped the Singapore Heart Foundation at a health screening targeting women in Raffles Place. In May we collaborated with students from Yong Loo Lin School of Medicine to organize the biggest student project at Duke-NUS thus far - Camp Simba. A two-day camp at Sentosa for children of cancer patients, Camp Simba involved 30 medical students from both schools and 26 children participants. Planning for the camp started back in October 2008. After the camp we organized three reunion sessions during the school holidays with a movie screening at Hospice Care Association Hospice in June, a picnic lunch in the Botanical Gardens in September and an outing to the Singapore Zoo in November. Feedback for the camp has been overwhelmingly positive, with most children saying that they will return for the next camp and with more than 80% participation in the final reunion at the zoo, half a year after the initial camp in Sentosa.



In the second half of 2009, we had a new group of first years join us and they too have enthusiastically supported student community service at Duke-NUS. In November, we went trick-or-treating during Halloween at KK Hospital, the second year we visited the hospital for Halloween. The children received gifts such as party items or soft toys and were fascinated by the balloon sculpturing skills of our students. Following that the students and staff completed a charity run to raise funds for cancer research, the third year we had taken part in Run for Hope as a school. In December, 20 first year students descended on St Joseph's Home to entertain the residents and staff with popular Chinese and English songs as well as Christmas carols.

As the school matures, so has the student body. We are starting traditions that will define us as a student body and as a school. As 2010 begins, planning for the next Camp Simba is well underway and a group of students have recently traveled to the mountains in Chiang Mai, Thailand near the Burmese border to provide medical help to the Karen Hill tribes, and to study the community to assess feasibility of a long-term engagement there by our student body.

We are confident that 2010 will be another exciting and defining year for the student community service at Duke-NUS. If you'd like to support any of our initiatives with cash or in kind, please contact Sally Ong at sally.ong@nus.edu.sg.

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A touch of Bavaria at the Faculty Appreciation Night – Skohl!



Duke-NUS and Singhealth jointly organized a faculty appreciation night-cum-Oktoberfest at Duke-NUS on October 30, 2009.



Following the welcome address by Professor Tan Ser Kiat, Group CEO, Singapore Health Services, the "C.Kwa" (Watermelon) race was officially flagged off by Dr. Kwa Chong Teck, Executive Director of National Dental Centre.



The "C. Kwa" (Watermelon) race saw the groups searching for clues in a bid to be the fastest group to hunt for their watermelon and gobble it up to win.



Professor Ranga Krishnan presented awards to the faculty in recognition of their efforts and contributions to the school.



Judges of the Singhealth's Perfect Platter Competition included Professor Bob Kamei, Vice Dean of Education.



Great entertainment by the Swiss Alpine Lions Band.



Professor Tan Ser Kiat's Beer Chugging Challenge was enthusiastically welcomed by everyone!



Awards were presented to winners of the “C.Kwa” (Watermelon) Race– student team (JU C), SingHealth’s Perfect Platter Challenge – Dr. Kwa Chong Teck and Professor Tan Ser Kiat’s Beer Chugging Challenge – student team (Alcohol Dehydrogenators). It was certainly a night to remember in celebration of the two events amidst great food, company, entertainment and even a video presented by the students showcasing their acting talents, testimonials as well as their “tribute” to the teaching faculty.

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Third year Duke-NUS medical students display their research work

We are very excited about both the quality of mentors and variety of projects that our students have begun. We look forward to seeing the final outcome of their hard work – which we expect to result in important contributions to our mission of *“Transforming Medicine, Improving Lives”*. -- Dr. Sandy Cook



On October 19, 2009 in the Duke-NUS atrium our 3rd year students presented their final research project proposals. The presentations showcased to the Duke-NUS community the research work that our inaugural batch of Duke-NUS medical students would be carrying out in the span of the 10 months of their Research Year.



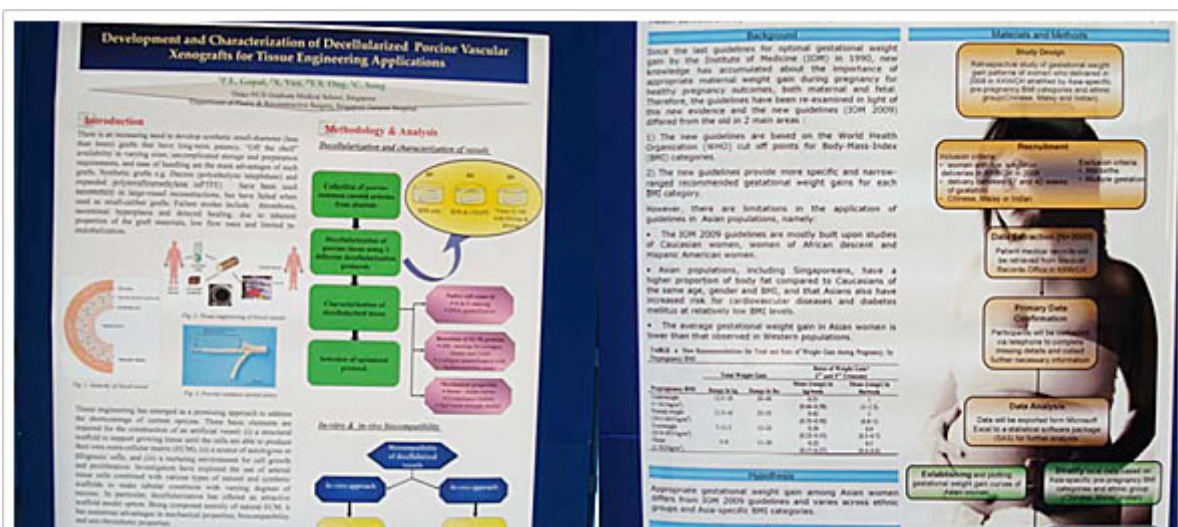
A total of 21 research posters were displayed from October 19-21, 2009.



3rd year Duke-NUS medical students explaining their research projects and giving insights on the research design and analysis plan.



Research mentors play a pivotal role in guiding students on their research project and developing essential research skills. Left: Dr. Sandy Cook chats with 3rd year medical student Chia Ghim Song; right: 3rd year medical student Vincent Tay presents his project to Professor John Rush and Professor Colin Song.



The mentors reviewed and gave feedback to our students on the projects planned. They were quite impressed at the variety and quality of the projects planned, with half of the projects focused on basic science research and half on translational research.



The Poster Day Presentations were a huge success, giving 3rd year students a chance to publicly present their work to a total of 150 attendees. It also offered subsequent batches of medical students a chance to obtain information and interact with potential mentors. Stay tuned for the Research Presentations in August 2010 where these 3rd year students will present their finished work.

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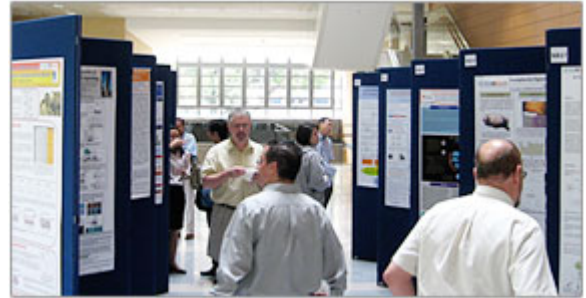
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DUNES Scientific Symposium and Career Development Workshop

By: Dr. Laura Jane Gray

Whilst Duke-NUS has at its core a medical education curriculum, another group of developing professionals also plays a very important role. Early career scientific researchers provide the backbone of the research efforts of Duke-NUS and represent a unique component of its community. They are already employed in medical research but need to continually develop their scientific, professional and research skills to further both their research endeavors and their individual career progression. In recognition of both the critical role of this group and the many challenges involved in establishing a career in medical research, we have established the Duke-NUS Early Career Scientists Association (DUNES).



Duke-NUS staff display their work at the DUNES Symposium.



The workshop was popular with students and staff alike

Created in January 2009, DUNES has developed from an assorted group of enthusiastic young researchers to an organized body led by a representative committee. Established in order to provide a forum for addressing professional development, scientific networking and the sharing of research skills and ideas, DUNES also fosters a sense of community, encouraging closer interactions within the school.

The first professional development workshop held by DUNES focused on applying for faculty positions and the presentation of a 'chalk-talk' by Dr. Mathijs Voorhoeve and Professor David Virshup. Professor Shirish Shenolikar, the faculty mentor for DUNES, also chaired a session on career planning and professional development in science.

DUNES' major event for 2009 was the inaugural Scientific Symposium and Career Development Workshop which was sponsored by Biomed Diagnostics, Millipore, ThermoFisher Scientific and VWR. Over 40 early career scientists from Duke-NUS presented their work, in poster sessions and oral presentations, and over 120 attendees registered. Keynote speakers for the workshop included Dr. Robert Campbell, Director of Oncology Drug Research at the Lilly Singapore Centre for Drug Discovery, Dr. Neil Miller, Site Head and Director of Chemistry of the GSK Neural Pathways DPU Singapore and Professor Bob Kamei, Vice Dean for Education, Duke-NUS.



Representatives from industry and lab companies showcased their wares.



The diversity of speakers reflected the breadth of research at Duke NUS.

Held concurrently with the Scientific Symposium was the inaugural Duke-NUS Photography Competition, sponsored by Nikon and Zeiss, which received over 100 entries. Entries and winning submissions can be viewed on the DUNES website: http://www.dunes.sg/DUNES/dunes_photocont.htm.

In 2010 DUNES is planning multiple social and professional development events, in addition to the annual Scientific Symposium. We are also exploring ways to extend and strengthen our connection with researchers at the parent campuses of NUS and Duke University in the USA, and with researchers at A*Star and other research groups within Singapore.

DUNES aims to continue to expand our activities and provide assistance, support and encouragement to all early career researchers at Duke-NUS. We have developed rapidly from our small beginnings in 2009, and look forward to the challenges and opportunities in 2010.

Please visit us at <http://www.dunes.sg>
Contact us at: dunes@duke-nus.edu.sg



The excellent presentations from early career researchers stimulated debate and discussion from the audience.

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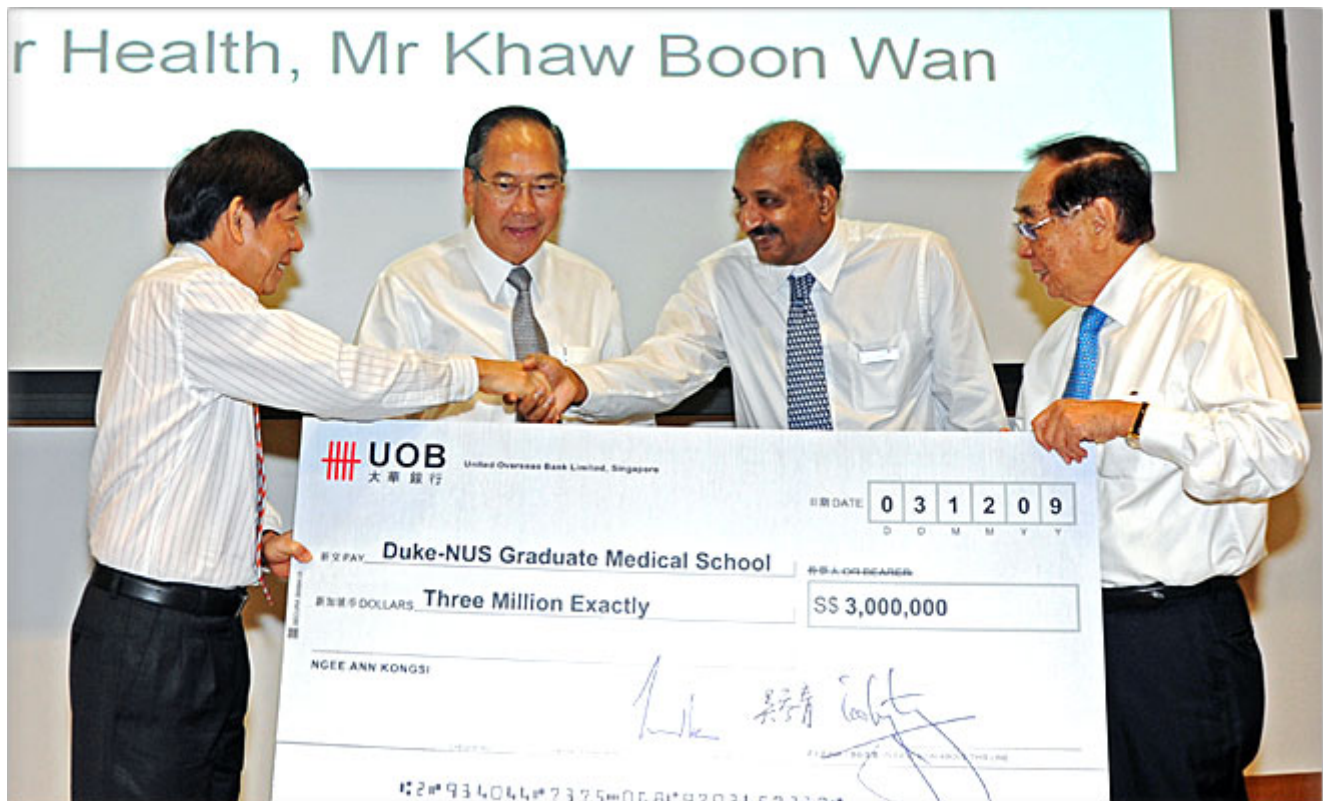
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Ngee Ann Kongsi's Distinguished Scholars Program

Ngee Ann Kongsi, an esteemed philanthropic organization founded in year 1845, has pledged S\$3 million towards a Distinguished Scholars Program to train and support exceptional students pursuing the Doctor of Medicine (M.D.) degree at Duke-NUS. The Kongsi's S\$3 million Gift will be matched dollar-for-dollar by Singapore's Ministry of Education.

From August 2010, up to two scholarships will be awarded annually to Singaporean and Singapore Permanent Resident students who have excellent academic achievements, with consideration for those with demonstrated financial need. Each scholarship is valued at S\$50,000 per annum covering tuition fees, other educational costs or the students' living expenses, and is tenable for the full 4-year course of M.D. training.



*Strengthening clinical and biomedical sciences through Ngee Ann Kongsi's donation.
Health Minister Khaw Boon Wan (left) accepting the cheque on behalf of Duke-NUS from Ngee Ann Kongsi's President Dr. Lim Kee Ming (extreme left). Observing the exchange are Duke-NUS' Chairman Mr. Tony Chew (2nd from left) and Professor Ranga Krishnan, Dean, Duke-NUS (2nd from right).*

The school aims to develop clinician-scientists with creative and critical-thinking skills who will be pivotal in providing critical linkages between research laboratories and busy hospital wards, as well as building medicine for the future.

Duke-NUS' Dean Professor Ranga Krishnan extends his deepest gratitude to the Ngee Ann Kongsi for the scholarships, saying "the Gift will give a tremendous boost to attracting the brightest and the best talent for the advancement of health care in substantive ways, for Singapore and the region. It will also fulfill the ardent aspirations of a young generation of doctors to transform medicine in new, but yet meaningful and impactful ways."

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Singapore researchers join forces to test promising anti-flu drug

Singapore researchers are racing to test the effectiveness of a drug that has proven to be effective against flu when tested earlier under laboratory conditions. The researchers are moving quickly to see if real-world tests of chloroquine on 1,500 volunteers will bear the same encouraging results.

If so, the drug – used around the world for over 50 years to treat malaria – may well be the weapon to stop flu in its tracks. Already, resistance to Tamiflu – the main drug used to treat flu and a well known occurrence in normal seasonal flu - is now starting to be seen in cases of the H1N1 as well.

“There is an urgent need to find new drugs for influenza – both to prevent it and to treat it - as we currently have a very small number of options and antiviral resistance is limiting our choices,” said Dr. Fred Hayden, Professor of Medicine at the University of Virginia, influenza research coordinator at the Wellcome Trust in London, and WHO consultant. Each time, when cases of drug resistant flu are found, there are intensive efforts to investigate and limit the spread. So far, these efforts have been successful. Hence, such cases remain uncommon, although the problem is almost certain to increase – we know that some other strains of flu can become 100% resistant to Tamiflu. Unfortunately, if someone catches flu that is resistant to Tamiflu there are few alternative options – Zanamivir, the only other medicine that is currently available to treat it has to be inhaled rather than taken by mouth.

Last month, The New England Journal of Medicine described an outbreak of drug resistant flu amongst a group of students on a 42-hour train trip in Vietnam, with an additional case of resistant flu in another passenger in the next carriage. Other small groups of drug-resistant flu have also been reported in Europe and the USA. In November 2009 in Wales, UK, the first cases of transmission of Tamiflu-resistant swine flu between hospital patients was reported.

Three of Singapore's leading clinical research institutions – Duke-NUS Graduate Medical School (Duke-NUS), the National University Health System (NUHS) and the Singapore Clinical Research Institute (SCRI) – have collaborated to conduct the important Chloroquine for Influenza Prevention (CHIP) Trial.

The CHIP trial started in November 2009 and is open to people aged between 18 and 65 and who are generally healthy. The volunteers will take chloroquine or a placebo pill for 12 weeks, and will visit the NUHS Investigational Medicine Unit at the beginning of the trial and again after 12 weeks for a check-up and blood test. This Singapore trial is leading the world in finding out whether this old drug can be used for the prevention of flu.

While development of a new drug for flu takes many years, is a hugely expensive undertaking and takes years for the manufacturer to be ready to provide enough supplies. The Singapore team of researchers is working on a solution using chloroquine, which has been around for 50 years and used for prevention and treatment of malaria.




Dr. Ooi Eng Eong

The CHIP trial team is building on the findings of Dr. Ooi Eng Eong who made the discovery with colleagues at the DSO National Laboratories a few years ago that chloroquine can stop the flu virus in laboratory experiments. Answers are expected within the next few months.

“If this works, chloroquine can be a very cheap prophylaxis against pandemic influenza when it emerges. This could tide us over until a suitable vaccine is manufactured, which typically has a six to nine month lag following disease emergence,” says Dr. Ooi Eng Eong, Associate Professor of the Emerging Infectious Diseases Program at Duke-NUS. More information on the CHIP trial can be found at <http://www.chip.sg/>.

Pancakes for a cause

The third Annual Deans' Pancake Breakfast was held on December 1, 2009 with staff and students getting together over breakfast to raise money for worthy causes. Professor Bob Kamei, Dr. Sandy Cook and Dr. Craig Stenberg played pancake chefs for that morning while colleagues from the Office of Education contributed in varied ways, ranging from frying eggs and grilling sausages and ensuring no details are left undone. By 7am, the delectable aroma of freshly made pancakes, eggs and grilled sausages began wafting through the Duke-NUS atrium and certainly tempted everyone's taste buds.

The idea for the original Deans' Pancake Breakfast came from Professor Kamei when the inaugural students were facing the academic challenges of Duke's first year curriculum.

Despite their exceedingly busy schedule, several students approached the Deans about taking up a collection from staff and faculty to support community service projects. Professor Kamei decided a fund-raising initiative such as a Pancake Breakfast would fit the bill, as cooking for them was a concrete way to show we care about them and encourage them to find the time - no matter how tough circumstances are, to give back.



Kudos to our chefs (from left to right) Dr. Craig Stenberg, Dr. Sandy Cook and Professor Bob Kamei.



The anticipation for breakfast builds up.

"We are thrilled by the enthusiastic turn out at the third Annual Deans' Pancake Breakfast and we certainly enjoyed cooking the pancakes and seeing the many smiles. We thank everyone for contributing to the success of the event and to date, almost \$4,000 has been raised. It is especially heartening for the students to know we are standing firm behind their efforts to make meaningful contributions to the community," said Dr. Craig Stenberg, Associate Dean, Student Affairs & Admissions.

The money raised at the Pancake Breakfast will help support two major initiatives that Duke-NUS students are involved in - *Project KAREN and Camp Simba.

*Project KAREN is a community service project with the children of the Karen Hill tribal people in northern Thailand while Camp Simba is a two-day camp, specially for children of cancer patients, in collaboration with the students from NUS Yong Loo Lin School of Medicine.



The eggs are served up, cooked to perfection.

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