

## Press Release

For immediate release

4 June 2010

### **Eminent cardiologist leads heart research at NUHCS**

Internationally renowned heart clinician and scientist, Professor Mark Arthur Richards has been appointed director of the Cardiovascular Research Institute (CVRI) at the National University Heart Centre, Singapore (NUHCS).

Professor Richards, a New Zealander, is renowned for his achievements and work in the field of cardio-endocrinology. His leadership of the CVRI - which was established to focus on translational research efforts to develop or find better ways of treating heart disease – will see the institute launch important studies that are expected to impact the way heart disease is treated here and around the world.

“We are delighted to have someone of Professor Richard’s stature join our faculty. He is well known to our cardiology community and will enhance our already strong links with New Zealand. The burden of heart disease globally is enormous and increasing with the aging population. We need better ways to manage this in Singapore and the region,” said Professor John Wong, Dean of the NUS Yong Loo Lin School of Medicine, where Professor Richards is a member of faculty.

Already, Professor Richards is leading two major research efforts, both funded by the National Medical Research Council. “The additional investment Singapore is making in cardiovascular research is a major step towards strengthening this country’s regional leadership in the field and will pave the way to contributions of world-wide significance in the understanding and management of common serious cardiac diseases,” he said.

The two programmes are:

#### **1. Singapore Heart Failure Outcomes and Phenotypes Study (The “SHOP” study)**

Heart failure is a major global public health problem. In Singapore, heart failure admission rates have continued to rise, accounting for 4,018<sup>1</sup> admissions (Annex A) from the period 1 May 2009 to 30 April 2010 alone. Patients stay an average of four to six days. Further racial disparity in outcomes can be seen in the multiracial population of Singapore, with Indians and Malays incurring a worse prognosis than Chinese.

<sup>1</sup> Ministry of Health: <http://www.moh.gov.sg/mohcorp/billsizedetails.aspx?cld=51>

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### **Diastolic heart failure (preserved ejection fraction)**

Heart failure is a clinical syndrome characterized by shortness of breath and fatigue due to an underlying abnormality of cardiac structure and function.

Heart failure has been traditionally viewed as a failure of heart pump function and ejection fraction (the percentage of blood that is pumped out of a filled ventricle with each heartbeat). This is also known as systolic heart failure (impaired ejection fraction).

However, numerous studies have demonstrated that diastolic heart failure (preserved ejection fraction) where the relaxation stage of the heart is the cause of heart failure is common. In fact, about 50% of patients admitted into hospitals suffer from this syndrome.

However, the prevalence and clinical outcomes for patients suffering from diastolic heart failure has been uncertain. Together with leaders in heart failure care in other hospitals in Singapore as well as in New Zealand, Professor Richards and his team aim to define the prevalence and outcomes of diastolic heart failure. The potential findings will have high translational and clinical impact to enable accurate resource planning to address the current and future healthcare burden projected from this syndrome.

Study points include the number of patients admitted in these two countries, the size of their hearts at the point of admissions, the respective ethnic groups the patients represent, their survival rates, ultrasound tests, blood tests and emergency data compiled by hospitals in these two countries.

Biomarkers, genetics, imaging and outcomes between the two forms of heart failure will be compared with the aim to uncover the differences in epidemiology, prevalence, underlying mechanisms and prognosis so as to pave the way to novel effective treatments.

The links between the hospitals in Singapore and New Zealand will facilitate randomized controlled trials of the highlighted therapeutic possibilities. In addition, sizable cohorts recruited in parallel in both Singapore and New Zealand will enable inter-ethnic comparisons between ethnic Chinese, Malay and Indian subgroups within Singaporean, European and Maori communities in New Zealand. Genetic and biomarker differences which may emerge between these ethnic groups might also point to appropriate pharmacogenetic approaches which may differ between ethnicities.

## **2. Heart Failure and Acute Cardiovascular Disease in the Emergency Department**

This research project revolves around the Emergency Department at NUH. The project focuses on the identification of two separate acute clinical populations. The first population comprises patients experiencing new onset of breathlessness which might be



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due to heart failure, while the second group involves identifying patients with symptoms which might be due to acute coronary syndromes (heart attacks).

Breathlessness and chest pain are the two most common symptoms presented at the hospital's emergency department. A large amount of time and hospital resources are consumed to identify patients who are really suffering from either heart failure or acute coronary syndromes. To accelerate accurate diagnosis, a new blood test, developed in New Zealand, will be applied to identify actual heart failure patients arriving at the Emergency Department. The new tests may hasten the introduction of appropriate treatment for such patients, in addition to reducing unnecessary hospital stays for people with negative tests and non-threatening causes for their symptoms.

These research initiatives as well as others that are led by Professor Richards will have significant impact on the understanding of heart disease and ways to treat the problem, said the director of the National University Heart Centre, Singapore, Associate Professor Tan Huay Cheem. "We are very pleased to have Professor Richards join the team. He is truly a clinician-scientist of international renown whose leadership will add a new dimension to the basic science and translational research capabilities within the NUHCS and the whole of Singapore."

The NUHCS, located in the National University Hospital, is Singapore's second national heart centre. It was established to meet the growing need for expert care to look after the increasing number of people suffering from heart disease locally. Heart disease is the second leading cause of death in Singapore. The mortality rate was 20.1% in Year 2008 as compared to 18.5% in Year 2006<sup>2</sup> (Annex B).

The NUHCS provides a comprehensive and holistic approach to the treatment of heart problems that focuses on four core clinical programmes mainly heart failure, congenital heart disease, acute coronary syndrome and vascular disease.

<sup>2</sup> Ministry of Health: <http://www.moh.gov.sg/mohcorp/statistics.aspx?id=5526>

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### **The National University Health System**

Established in January 2008 and jointly owned by the MOH Holdings and the National University of Singapore (NUS), the National University Health System groups the National University Hospital (NUH), NUS Yong Loo Lin School of Medicine and NUS Faculty of Dentistry under a common governance structure to create synergies to advance health by integrating excellent clinical care, research and education.

The enhanced capabilities and capacity will enable the NUHS to deliver better patient care, train future generations of doctors more effectively and bring innovative treatments to patients through groundbreaking research.

For more information, please visit [www.nuhs.edu.sg](http://www.nuhs.edu.sg)

### **The National University Heart Centre, Singapore**

The National University Heart Centre, Singapore (NUHCS) brings together the resources, expertise and capabilities in the areas of Cardiology, Cardiothoracic and Vascular Surgery to better meet the needs of the growing number of patients with heart disease. A key centre for the treatment and management of complex cardiovascular diseases, its core clinical programmes include heart failure, congenital heart disease, acute coronary syndrome and vascular disease.

Comprising a team of cardiac specialists and experts from a multitude of medical and surgical disciplines, the NUHCS provides a comprehensive and holistic approach to the treatment of patients with heart problems. This approach is backed by cutting edge knowledge and information gathered by the Cardiovascular Research Institute (CVRI). Working in close collaboration with both local and international renowned research institutes such as the Agency for Science, Technology and Research (A\*STAR) and New Zealand's Christchurch School of Medicine and Health Sciences, the CVRI will focus on developing niche research work in creating new knowledge in support of NUHCS's core clinical programmes: heart attack, heart failure, congenital and vascular disease.

For more information, please visit [www.nuhcs.com.sg](http://www.nuhcs.com.sg)



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**Annex A**

Ministry of Health: Bill Size Details

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**Overview**  
**Heart failure**  
Select another condition/procedure

Ward A | Ward B1 | Ward B2 | Ward C | All Wards

**Ward A**

Hospitals	Volume <sup>1</sup>	Average Length Of Stay (Days) <sup>2</sup>	50th Percentile Bill Size (\$) <sup>3</sup>	90th Percentile Bill Size (\$) <sup>4</sup>
CGH	32	4.8	2,573	4,579
NHC	36	5.6	4,922	9,704
TTSH	34	6.6	2,557	6,039

**Ward B1**

Hospitals	Volume <sup>1</sup>	Average Length Of Stay (Days) <sup>2</sup>	50th Percentile Bill Size (\$) <sup>3</sup>	90th Percentile Bill Size (\$) <sup>4</sup>
NHC	49	5.4	3,025	9,120
TTSH	35	4.1	2,214	4,272

**Ward B2**

Hospitals	Volume <sup>1</sup>	Average Length Of Stay (Days) <sup>2</sup>	50th Percentile Bill Size (\$) <sup>3</sup>	90th Percentile Bill Size (\$) <sup>4</sup>
AH	74	4.6	774	1,758
CGH	229	4.2	761	1,401
NHC	392	4.9	963	2,108
NUH	227	4.3	999	2,148
SGH	333	4.9	895	1,800

**Estimated Charges**  
Hospital Bill Size | Dental Fee Info

**Healthcare Financing (FAQs)**  
保健财务 (中文版)  
Pembayaran Penjagaan Kesihatan (Soalan yang sering di tanya)

**Advance Medical Directive**

http://www.moh.gov.sg/mohcorp/billsizedetails.aspx?cid=51

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Singapore Government Online



Singapore's Official Flu Site  
www.flu.gov.sg



Welcome To Our Blog

Hospitals	Volume <sup>1</sup>	Average Length Of Stay (Days) <sup>2</sup>	50th Percentile Bill Size (\$) <sup>3</sup>	90th Percentile Bill Size (\$) <sup>4</sup>
TTSH	360	5.0	873	2,308
<b>Ward C</b>				
AH	149	6.2	628	1,607
CGH	349	4.9	564	1,326
NHC	412	5.3	689	1,583
NUH	451	5.4	807	1,696
SGH	266	6.5	678	1,865
TTSH	590	6.3	710	1,826

TOTAL VOLUME : 4018 Admissions. <=>



- Legend**
- AH Alexandra Hospital
  - CGH Changi General Hospital
  - NHC National Heart Centre
  - NUH National University Hospital
  - SGH Singapore General Hospital
  - TTSH Tan Tock Seng Hospital

- <sup>1</sup> Number of cases for the period 1 May 2009 to 30 Apr 2010
- <sup>2</sup> Average Length of stay for the condition/ procedure
- <sup>3</sup> 50% of patients pay this amount or less, and 50% pay more. This figure provides an estimate of the typical bill sizes for patients
- <sup>4</sup> 90% of patients pay this amount or less, and 10% pay more. This figure provides an estimate of the upper range of bill sizes.

Note: Actual bill sizes may exceed the 90th percentile or fall lower than the 50th percentile.



Select another condition/procedure

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Ministry of Health, Singapore, 2007  
Best viewed using Internet Explorer 6.0+

<http://www.moh.gov.sg/mohcorp/billsizeDetails.aspx?cId=51>

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Annex B

Ministry of Health: Principal Causes of Death

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**Statistics**  
Health Facts Singapore

**PRINCIPAL CAUSES OF DEATH**

	2006	2007	2008
<b>Total No. of Deaths</b>	16,393	17,140	17,222
<b>% of Total Deaths</b>			
1. <b>Cancer</b> [ICD9 : 140-208]	28.5	27.7	29.3
2. <b>Ischaemic Heart Disease</b> [ICD9 : 410-414]	18.5	19.8	20.1
3. <b>Pneumonia</b> [ICD9 : 480-486]	13.7	13.9	13.9
4. <b>Cerebrovascular Disease (including stroke)</b> [ICD9 : 430-438]	8.9	8.7	8.3
5. <b>Accidents, Poisoning &amp; Violence</b> [ICD9 : E800-E999]	6.3	6.0	5.8
6. <b>Other Heart Diseases</b> [ICD9 : 393-398,402,415-429]	4.3	4.3	4.0
7. <b>Diabetes Mellitus</b> [ICD9 : 250]	3.3	3.6	2.7
8. <b>Chronic Obstructive Lung Disease</b> [ICD9 : 490-493, 496]	3.3	2.6	2.5
9. <b>Nephritis, Nephrotic Syndrome &amp; Nephrosis</b> [ICD9 : 580-589]	1.7	2.0	2.1
10. <b>Urinary Tract Infections</b> [ICD9 : 599.0]	2.0	2.2	2.1

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