Past MSIWF Grant Awardees in Singapore

Statistics

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<tbody>
<tr>
<td>No. of applicants</td>
<td>3</td>
<td>14</td>
<td>11</td>
<td>8</td>
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<tr>
<td>No. of grants approved</td>
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<td>4</td>
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<td>Total amount of grant (SGD)</td>
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2011 Awardees

1) An Elderly-Friendly Pedestrian Crossing System for Singapore
   Dr. KONG Pui Wah, Assistant Professor, Nanyang Technological University
   The study aims 1) to assess whether the current pedestrian crossing system in Singapore is appropriate for elderly, and 2) to determine the time required for elderly pedestrians to cross the road safely with considerations of real life demands such as pushing a pram and pulling a shopping cart. Such information is important for the calculation of appropriate green man time to ensure the safety for elderly pedestrians. Results of this study will significantly impact future transportation planning to accommodate the growing aging population in Singapore.

2) Oral Health Status of Residents in Intermediate Care Facilities and Its Relationship on Clinical Outcomes of Medical Rehabilitation and Quality of Life Measures
   PR - Catherine HONG Hsu Ling, Assistant Professor, Faculty of Dentistry; National University of Singapore
   Gerald CH KOH, Assistant Professor, Department of Epidemiology and Public Health, Yong Loo Lin School of Medicine;
   Peter TP YU, Senior Consultant, National University Health Systems;
   Hilary PY THEAN, Adjunct Senior Lecturer, Department of Restorative Dentistry, Faculty of Dentistry;
   Kenny BL TAN, Director, Corporate Affairs and Special Projects & Innovation, Ang Mo Kio - Thye Hua Kwan Hospital
   To evaluate the Oral Health Related Quality of Life (OHRQoL) of institutionalized elders and the relationship between poor oral health status and patients’ medical rehabilitation outcome as measured by the length of stay in intermediate care facilities in Singapore. The aims of this multi-centre prospective observational study are therefore to assess the oral health status residents in intermediate healthcare facilities in Singapore and to determine whether poor oral health negatively impacts the clinical outcomes of medical rehabilitation. A secondary aim of this study is to assess the OHRQoL of patients and its relationship with clinical outcomes of medical rehabilitation. Lastly, the oral health knowledge and attitudes of healthcare providers in these types of facilities will also be assessed.
3) **Health-Related Social Control, Perceived Control Beliefs, and Illness Adjustment among Elderly Diabetes Patients in Singapore**  
PR - FANG Yang, PhD student, Division of Psychology; Nanyang Technological University  
Wendy JY CHENG, Assistant Professor  

The proposed study will look at the role of social relationship, and the interplay of social relationship and perceived control beliefs in diabetes management and adjustment, using a mixed method of combining qualitative and quantitative study in order to enhance the quality of results and provide a more comprehensive understanding of the diabetes management in Singapore. The proposed study will provide new evidence on the role of social relationships in patient empowerment and illness management. It will help improve patients quality of life and reduce the burden on health care system in Singapore.

4) **Load Configuration Physiotherapy System for the Upper Extremities for Patients with Hemiparesis**  
Dr. John-John CABIBIHAN, Assistant Professor / Electrical and Computer Engineering, Faculty of Engineering; and Deputy Director / Social Robotics Laboratory, Interactive and Digital Media Institute; National University of Singapore  
Erick VILEGES, Research Engineer  

The research aim to design and develop a load configurable physiotherapy system for patients with hemiparesis. This would be accomplished by obtaining first the loads commonly used in rehabilitation and second, what type of movements are utilized. This information would guide the design team on the type of controllers to use, the configuration of the machine by which resistant force is applied, and provision for safety features. This study is significant because it has the potential to replace commonly used physiotherapy devices such as free weights, weight machines, rubber bands and tubes. The programmable resistance enable ‘custom fitting’ of load for individual patient’s needs.

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**2010 Awardees**

(1) **Development of an e-Guardian for the single elderly or the chronically-ill patients**  
Dr. Tan Kok Kiong, Associate Professor, Department of Electrical and Computer Engineering; Yuan Jian, Ph.D. candidate, NUS Graduate School for Integrative Sciences and Engineering  
National University of Singapore  
e-Guardian is a home-based, remote physiological monitoring and notification system for the elderly living alone or patients having chronic diseases. The system is low-cost, small, extremely power saving, simple in operation, and robust in performance. The centrepieces of e-Guardian are a number of wearable devices capable of measuring blood pressure, monitoring heart rate, detecting accidental falls, tracking location, etc. The system will mainly benefit those who have cardiovascular diseases, elderly living alone or chronically-ill patients. The system monitors health status (heart rate, temperature, movement, etc) of wearers. Any abnormality will automatically trigger an alert message to family members or caregivers immediately. A GPS receiver can also be incorporated for use on elderly with dementia to alert caregivers to their whereabouts.

(2) **Anatomical analysis of Acute Aortic Dissection in Elderly using Computed Tomography post-processing measurement**
Dr. Ho Pei, Jackie, Associate Professor, Department of Surgery;
Dr. Lee Heow Pueh, Associate Professor, Department of Engineering (Co-PI);
Dr. Sudahkar Kundapur Venkatesh, Assistant Professor, Diagnostic Radiology, YLLSM (Co-PI)
National University of Singapore
Aortic dissection is a devastating cardiovascular condition usually affects elderly population. The exact pathogenesis and mechanism of dissection is not well understood in modern medicine. With the development of endovascular intervention, more treatment options are available for dissection management. We plan to perform anatomical and morphological study of patients' computed tomography scan to obtain more understanding of the pathogenesis and pattern of progression of dissection in aorta for elderly patients. This knowledge will serve as important basic information of clinicians to develop future treatment and design endovascular stent-graft for management of aortic dissection in elderly patients.

(3) Enhancing Cooperation and Sustaining Long-term Collective Action in Elderly Community Programs
Tania Ng Tze Lin, Master in Public Policy Student, Lee Kuan Yew School of Public Policy
National University of Singapore
Elderly community programs have found to be effective intervention measures in preventing social alienation and cognitive disorders. Club activities and social outings and similar programs provide opportunities for the elderly to interact with one another, and to pursue a hobby or interest such as calligraphy, gardening, sports etc. It allows the elderly to age actively and is a form of empowerment. However, such programs have been languishing in recent years and suffer from low participation or even abolishment of the programs. In Singapore, efforts are currently underway to establish community programs for elderly. This study is aimed at finding measures to enhance cooperation and sustaining long term collective action among the elderly in their elderly community programs.

(4) Mobility of Visually-handicapped Pedestrians - Crossing Behaviour and Assistive Design/Technologies at Signalised Pedestrian Crossings
Dr. Wong Yiik Diew, Associate Professor, School of Civil & Environmental Engineering;
Dr. A.P. Gopinath MENON, Adjunct Associate Professor, (Co-Researcher);
KOH Puay Ping, Ph.D. Student, (Co-Researcher)
Nanyang Technological University
The project is aimed at characterising crossing behaviour of visually-handicapped pedestrians at signalised pedestrian crossings, and establishing ‘best practices’ in the provision of assistive design/technologies. Data shall be derived from literature surveys, accident & other databases, perception surveys of stake-holders, and field observations. The findings shall translate into measures to further enhance the mobility of visually-handicapped travellers, particularly at signalised pedestrian crossings. The expected deliverables are a better understanding of VHP’s crossing behaviour, attendant quality demands of the crossing facility, and a set of ‘best practices’ for provision of VHP-friendly signalised cross-walks throughout the day.

2009 Awardees

(1) What Factors Contribute to Life Expectancy: Comparison of ASEAN Countries in the 21st Century
Dr. Chan Moon Fai, Assistant Professor, Alice Lee Centre for Nursing Studies (PI)
National University of Singapore
(2) Enhancing Exercise-Mediated Longevity and Brain Function in the Elderly
Dr. Steven Graham, Assistant Professor, Department of Psychology (PI)
Dr. Gerald Koh, Assistant Professor
Dr. Ho New Fei, Postdoc Fellow
Ho Yan Yin, PhD student
Chan Hui Minn, Research Assistant
Ho Yiling, Research Assistant
Koh Zhisheng, Research Assistant
Carissa Kuswanto, Research Assistant
Mohamed Shan-Rievan Mohamed Salleh, Research Assistant
Sam Huifang, Research Assistant
National University of Singapore

(3) Living Alone, Loneliness and Health of the Elderly
Ms. Lena Lim, Research Fellow, Department of Psychological Medicine (PI)
Dr. Ng Tze Pin, Associate Professor
National University of Singapore

(4) Augmented Reality-Enhanced Navigation Assistance System
Dr. Andrew Nee, Professor, Department of Mechanical Engineering (PI)
Dr. Ong Soh Khim, Associate Professor, Department of Mechanical Engineering (co-PI)
Ms. Shen Yan, Research Engineer
Ms. Zhang Jie, Research Fellow
National University of Singapore

2008 Awardees

(1) Development of an Intelligent Physiotherapy System
Dr. Tang Kok Zuea, Professional Officer (Research), Electrical & Computer Engineering (PI)
Dr. Tan Kok Kiong, Associate Professor
Dr. Lee Tong Heng, Professor
Dr. Huang Sunan, Research Fellow
National University of Singapore

(2) Analysis of Human Walking Motion and Design and Development of an Exoskeleton to Aid Mobility of Senior Citizens
Dr. Patrick S K Chua, Associate Professor, Mechanical and Aerospace Engineering (PI)
Mr. Matthew Chee Ming Chua, Research Engineer, Biomedical Engineering, Marquette University
Nanyang Technological University

(3) Promoting Exercise and Healthy Food Consumption: A Study on Senior Citizen’s Acceptance and Adoption of Digitally Mediated Fitness Games
Dr. Theng Yin Leng, Associate Professor, Information Studies (co-PI)
Dr. May O Lwin, Associate Professor (co-PI)
Nanyang Technological University
(4) Conceptualize Possibilities, Design and Make Proto-Types for Gadgets that Improves Traffic Safety with Secondary Students in Singapore
Dr. Yau Che Ming, Assistant Professor, National Institute of Education (PI)
Mr. Thomas Johnson Wong Voon Ping, Research Student, National Institute of Education
Nanyang Technological University

2007 Awardees

(1) Identifying Safety Consciousness of Motorcyclists
Mr. Mohd. Mazharul Haque, Research Scholar, Civil Engineering (PI)
Dr. Chin Hoong Chor, Associate Professor
National University of Singapore

(2) Exercise and Mental Health
Dr. Gerald Koh Choon Huat, Assistant Professor, Medicine (PI)
Dr. Steven Graham, Assistant Professor, Psychology
National University of Singapore

(3) A Study of Older Men Living Alone in Singapore
Dr. Thang Leng Leng, Associate Professor, Japanese Studies (PI)
Mr. Lim Wei Loong, Researcher, Fei Yue Community Services
National University of Singapore