The George Institute and Qualcomm initiated mobile health research center

The George Institute for Global Health (TGI) and Qualcomm Incorporated (through its Qualcomm® Wireless Reach™ initiative) announced the establishment of the China Center for mHealth Innovation (CCmHI) in November, 2014, to support the Chinese central government’s goal, as stated in the Twelfth Five Year Plan (2011-2015), of improving community healthcare in China.

Hosted by The George Institute for Global Health at Peking University Health Science Center (the China center of TGI) and funded by Qualcomm Wireless Reach, CCmHI is positioned to become a world-class center for mobile health (mHealth) innovation. Working with central and provincial governments, CCmHI will help improve community healthcare in China by developing mHealth solutions, implementing clinical evaluations and contributing to strategies for the implementation and scale-up of effective and affordable mHealth tools.

CCmHI’s main priorities are to:

- Build Chinese capacity in digital healthcare development and evaluation, including providing opportunities for student internships and fellowships.
- Develop and evaluate mHealth platforms designed to provide community healthcare workers with evidence-based, personalized guidance about the care of individual patients.
- Target the 10 leading causes of premature death and disability in China.
- Provide solutions that are effective in both urban and rural settings.
- Assist with the integration of mHealth strategies into national and provincial policies and guidelines.
- Support the development and expanded use of mHealth technologies globally.

Initially, CCmHI will conduct a landscape analysis of digital health policies, laws, standards, programs and research activities in China, all of which will inform CCmHI’s pilot and flagship research efforts. CCmHI aims to develop and field test at least one mHealth program for chronic disease management in its first year, which will lead to larger scale mHealth programs in future years.

“The George Institute is proud to collaborate with Qualcomm in the establishment of CCmHI as a world-class center for mHealth innovation,” said Professor Stephen MacMahon, Principal Director of The George Institute for Global Health. “There is a pressing need for fresh approaches to community healthcare in China and globally, particularly in resource-poor areas. CCmHI will address this need by developing new mHealth strategies designed to improve care for individuals at high risk of stroke and other prevalent causes of premature death and disability.”
**RESEARCH**

International study focuses on integrating treatment for patients with heart disease and depression in China

A multi-disciplinary and international study aiming to evaluate whether depression management and cardiovascular disease (CVD) management can be cost-effectively provided and improve the health outcomes in rural China officially launched in Beijing in October, 2014. The study is named as “Integrating Depression Care in Acute Coronary Syndromes (ACS) Patients in Low Resource Hospitals in China” (I-Care Study). More than 60 participants including hospital presidents, cardiovascular division directors, and researchers from the 20 county-level hospitals nationwide attended the launch and training.

Many patients with CVD are also affected by psychological barriers. However, healthcare facilities providing mental health services are not common in China, especially in the rural areas.

The research proposes approaches which are quite new to the healthcare service in China, in particular to low-resource hospitals lacking trained mental health specialists. The novel concept includes recruiting a nurse in the cardiology ward who can screen, diagnose and treat patients with ACS, one of the most life-threatening CVD, and depression. Providing online support to nurses from mental health experts broaden the access to mental healthcare services. The re-construction of healthcare service model and workforce maximizes the efficiency of current resources, and will positively influence the prevention and control of CVD as well as the healthcare status in China.

The study, funded by the US National Institute of Mental Health of the National Institutes of Health (NIMH), will utilize the platform of the “Clinical Pathways for Acute Coronary Syndromes in China” (CPACS-3) study carried out by TGI@PUHSC, and attempt to recruit 4000 ACS patients.

![Image of study participants]

Salt substitute study aims to bring strong evidence to CVD prevention and control in China

High salt consumption is closely related to hypertension, one of the most serious risk factors of chronic diseases such as CVD. In China, as salty cuisine has been part of the food culture for long, the average salt intake is 12 gram per day, much higher than the daily maximum-5g/day, recommended by WHO. The country also bears a severer CVD burden nowadays; cost-effective health care strategy targeting the greatest population has become one of the prioritized tasks the government needs to tackle.

At present, a large-scaled randomized controlled trial-The China Salt Substitute and Stroke Study (SSaSS), is underway in northern rural areas in China. The study aims to find out if the low-sodium salt substitute can reduce the morbidity and mortality of stroke.

The study recruited over 21000 high risk patients with stroke and hypertension from 600 villages in northern China who were randomized into control and intervention group at 1:1. Patients and their families in the intervention group will receive a salt substitute for free to replace the regular salt in the following 5 years. Investigators will follow up the participants and record stroke and other cardiovascular events. Urine samples will also be collected to reveal changes in sodium and potassium intake. Professor Yangfeng WU, one of the Principal Investigators (PI), Senior Director at The George Institute for Global Health at Peking University Health Science Center, said that previous studies had shown that low-sodium salt substitute can lower the blood pressure, however, SSaSS would be the largest ever study of a dietary intervention for stroke prevention worldwide.

![Image of study participants]

Professor Bruce NEAL from The George Institute for Global Health and University of Sydney, another PI of the study, said that if the SSaSS study was effective, it would provide concrete scientific evidence to policy makers, help get prepared to promote low-sodium salt substitutes, including relevant policy making, and low-sodium salt substitutes subsidies (the price of low sodium salt subsidies is as twice as expensive to that of regular salt).

In addition to that, China adopts a monopolistic salt supply system. To convince the salt industry to gradually reduce sodium content and improve the salt substitute formula would be an alternative strategy.
Children are key to reduce salt intake in China

Funded by the Medical Research Council (MRC) of the United Kingdom, the School-based education programme to reduce salt intake, also known as School EduSalt study, successfully lowered the population's salt intake, which is critical to the prevention and control of cardiovascular disease (CVD) in China. Its result will be published in British Medical Journal (BMJ) soon.

This cluster randomized controlled trial was carried out in Changzhi city, Shanxi province, in 2013. 280 students aged around 10 from 28 primary schools along with 560 adult family members were enrolled and further randomly assigned (1:1) to either the intervention or the control group.

During the one-semester time (around 4 months), students from the intervention group were given nine innovative health curriculums delivered by local health educators who were trained by health researchers. Key messages including the harmful effects of salt on health, the salt reduction target, recommended level of salt intake, and how to reduce salt consumption were delivered to the children (the protocol has been published by BMJ Open in March 2014).

24 hour urine was collected and BP measured for all participants before and after the intervention to evaluate the effects of the intervention in change in sodium intake as well as BP. The results showed that the daily salt intake among children who received the educational classes was greatly reduced compared with the control group; while for the adults in the intervention group, a significant drop was observed. On the other hand, the mean effect on systolic BP in both children and adults was also lowered.

Study principal investigator Professor Fengjun HE from Queen Mary University in London said the result was very impressive. "As to date, no country has ever demonstrated a successful programme where salt intake can be lowered due to consumers being educated to use less salt." She continued, "The findings suggest that the WHO’s target of 30% reduction in salt intake by 2025, could be easily achieved in China and result in a major reduction in CVD morbidity and mortality if this cost-effective education programme is implemented nationwide."

SimCard main result presented at 2014 AHA

At 2014 American Heart Association Scientific Sessions held in Chicago, Dr. Maoyi TIAN from TGI@PUSHC presented the main results of the Simplified Cardiovascular Management (SimCard) intervention carried out in Tibet, China and Haryana, India on behalf of the research team. This was the first trial that use Electronic Decision Support System (EDSS) based on smartphone to manage local high-risk patients with CVD in China. The results proved the efficacy and feasibility of the intervention and suggested real impact on reducing disease burden in resource limited areas could be brought via advanced mobile technology.

Adapted to different cultures, this one-year intervention enrolled 2086 high-risks in 47 villages from Lingzhi county and Gongbujiangda county, Tibet, China, and Haryana, India. The patients (1036 from China and 1050 from India) were randomized to intervention and control groups. With the help of EDSS, village doctors and healthcare workers could provide lifestyle recommendations and prescribing appropriate medications. The follow-up showed that after the intervention, both village doctors and patients' behaviors in increasing uptake of evidence-based medicine (anti-hypertensive medication and aspirin) were effectively changed. An increase in the awareness of high salt harm among villagers and a reduced systolic blood pressure of 2.1 mmHg were also detected.
Challenges for current diabetes management in China revealed by new study

January, 2015, one of the largest studies on basal insulin usage in China, the ORBIT Study, announced its main results in Beijing. The study, named as “Observational Registry for Basal Insulin Treatment”, initiated by the Chinese Diabetes Society (CDS), was conducted and managed by The George Institute for Global Health at Peking University Health Science Center and supported by Sanofi China.

The study enrolled nearly 20,000 patients from 209 county-level hospitals nationwide since 2011. Its outcome confirmed the utility and safety of basal insulin in “real world” clinical treatment in type 2 diabetes; and revealed many challenges facing the clinical application of this valuable therapy in China including late initiation of basal insulin and insufficient dose titration, which were still affecting the achievement of optimal blood sugar control in diabetics.

The ORBIT team hoped the findings could ultimately help more diabetic patients meet the target blood glucose level.

Mobile technology boosts clinical research

The George Institute for Global Health at Peking University Health Science Center and Peking University People’s Hospital jointly implemented the THAT Study (Telmisartan and Hydrochlorothiazide in Antihypertensive Treatment) which was funded by The National Science-technology Support Plan from Ministry of Science and Technology as part of the 12th Five-Year Plan.

This one-year randomized double-blinded parallel controlled trial aims to compare the antihypertensive efficacy and safety of monotherapy of routine dose angiotensin receptor antagonist telmisartan (ARB) and diuretic Hydrochlorothiazide (HCTZ) in high sodium intake patients with mild to moderate hypertension. Currently is has completed the enrollment of 1411 eligible patients from 14 local county-level hospitals in Hebei province. Healthcare workers will conduct 3 follow-ups to each patient in the next 2 months to ensure the medication compliance, collect relevant data on blood pressure and evaluate the efficacy of blood pressure control and the safety of the medicine.

The study designed and developed a mobile device-based system called Electronic Data Capture (EDC). This novel approach was efficient in helping save much time of paper-based survey data input, improve the efficiency and accuracy of the patient data collection and surveillance by doctors, and enable the researchers to have a more comprehensive understanding of the process of the study.

RECENT PUBLICATIONS


**2014 Great Wall International Congress of Cardiology**

October, 2014, the 25th Great Wall International Congress of Cardiology was held in Beijing. Professor Yangfeng WU was invited as guest speaker and introduced the efficacy of community-based intervention on the control and management of non-communicable (NCD) diseases in China. According to Professor, WU, the NCD management strategy in China must be evidence-based, cost-effective and simplified to be conducted by primary care providers. He said that evidence from the randomized control trials (RCT) in China such as strengthening primary healthcare system, conducting community-based individualized lifestyle intervention, patient self-management program, and community-based salt reduction suggested the possible solutions to tackle the severe health problems in China.

**SOCIAL EVENTS:**

**2014 World Heart Day**

For those who spend most of their working time sitting at the desks in the office buildings, it is very common to ignore the risk factors of heart disease, for example, unhealthy diets, inadequate activities and smoking, which are actually affecting their cardiovascular system.

On September 29, 2014, as part of the World Heart Day activities, The George Institute for Global Health at Peking University Health Science Center initiated an event at its office building (Horizon Towers) to promote heart health knowledge and encouraged people working at and around the office building to take an outdoor walk during the lunch break.

We hope that by making this little change on lifestyle, awareness on heart health can be raised. Salt-control spoon and heart-healthy fruit were also distributed to attract attention.

Professor Anushka Patel, Chief Scientist of the George Institute for Global Health, Professor of Medicine at The University of Sydney and cardiologist at Royal Prince Alfred Hospital in Sydney, also attended the event and said: “Maintaining normal body weight via BOTH proper diet and exercise is very important for prevention of CVD. Even if it is difficult to lose weight, exercise has separate benefits in preventing CVD.

The George Institute Academic Visit Program

To support the researchers and research programs at the local offices, The George Institute enacted the Academic Visit Program. Senior, highly-experienced academics from Australia and the UK started to visit the China office to help strengthen both productivity and quality of research outputs, as well as meet immediate capacity development needs. October 2014, Professor John Knight MBBS, MA, MBA, FRACP Professorial Fellow at The George Institute came to visit the China office and stayed for a month to support the academic work. Prior to joining the George he worked in Sydney as an academic paediatric nephrologist, and then as a senior pharmacovigilance professional within the healthcare industry in Europe, Asia and the USA.
FELLOWSHIP AND INTERNSHIP OPPORTUNITIES

Interview with Xuejun Yin

Xuejun YIN is a research assistant at The George Institute China. She’s been with the institute for over 2 years. For the next 3 years, she has a clear plan—“work hard to become a senior researcher.”

Xuejun has been to many research fields in rural China with very poor conditions. “I love the research work, and would love to devote myself to upgrade the scientific research capability in China and improve people’s health,” said Xuejun. “This is not only a dream, but also a task that I will accomplish in the future.”

A delicate girl but also a motivated young researcher as she is, Xuejun is eager to learn more and improve herself whenever possible. “I’m quite happy that I can truly ‘see’ the progress I have made—during these 2 years, I’ve gained academic capacity, professional knowledge, site work experience and I also honed my skill of communicating with every sector involved in project implementation. I cannot and will not stop improving myself and will continue to urge myself to the next level.”

These are not just talks. In October, 2014, the paper of the study of using salt substitute to reduce blood pressure among Tibetans was published by PLOS One and Xuejun was the secondary author. This was the first paper discussing the relationships of salt substitute and hypertension in Tibet and the research result was really impressive and encouraging.

What was more, after long discussion and preparation, Xuejun has been successfully granted the in-house exchange fellowship, which enables her to spend 6 weeks in Sydney to further study in qualitative research under the supervision of Professor Bruce NEAL, senior director at The George Institute and Medicine Professor at University of Sydney. “I’m quite excited about it,” said Xuejun, “and I hope what I can learn there will be definitely helpful to my future career.”

Congratulations to Xuejun, and look forward to hearing more great news from her!

For detailed information on our fellowship and internship opportunities, please visit www.georgeinstitute.org.cn or contact xli@georgeinstitute.org.cn.

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