As the national academic clinical research organisation, SCRI is tasked with the building and strengthening of Singapore’s clinical research capabilities. Together with its healthcare partners, SCRI is set to develop core capabilities and thought leadership in Singapore for clinical research excellence. At the heart of its mission is scientific collaboration and research innovation focused on providing better treatment outcomes for patients.
VISION
To be the ASEAN hub of academically-oriented clinical research efforts

MISSION
To spearhead and develop core capabilities, infrastructure and scientific leadership for clinical research in Singapore

CORE VALUES

Scientific
We believe in having a strong scientific foundation for our clinical research work

Collaborative
We believe in being collaborative and closely working with our partners in clinical research

Reliable
We believe in providing reliable support in our clinical research work

Innovative
We believe in being innovative in our clinical research work
The Singapore Clinical Research Institute (SCRI) is a national academic clinical research organisation dedicated to enhancing the standards of human clinical research. To this end, it strives to develop core capabilities and scientific leadership in Singapore. It is a wholly-owned subsidiary of Ministry of Health (MOH) Holdings.

SCRI aims to improve patient care through the design and conduct of quality, cutting-edge clinical research. It collaborates and supports academic, public sector and industry-sponsored studies ranging from proof-of-concept to late phase trials and epidemiological studies. While SCRI’s specific disease research portfolio include therapeutic areas of oncology, infectious diseases, psychiatry, ophthalmology, cardiology and neurology, its capabilities extend to pharmaceutical, vaccine, medical devices and procedural trials.

SCRI houses an experienced team of highly-qualified scientists and research staff, cohesively offering a comprehensive suite of clinical research capabilities. In line with its academic focus, many of its research scientists hold joint appointments as university teaching faculty. At the same time, SCRI spearheads the planning and delivery of training programmes on various aspects of clinical research in its efforts to enhance clinical research capability in Singapore and the region.

SCRI collaborates with clinicians in the development of specific disease, or practice-focused Clinical Research Networks, which translates the Communities of Practice concept into clinical research opportunities. Unique in the region in this area of network development, SCRI is able to leverage on its networks to engage local disease experts as Principal and Site Investigators and provide in-depth expertise in the design, review and execution of multi-site, multinational clinical studies. To this end, SCRI actively seeks strategic partnerships with biomedical science companies with the goal of spearheading academically-oriented clinical research efforts.

In 2014, SCRI took on the role of national coordinator for clinical research to look into improving Singapore’s clinical trial landscape. Together with National Medical Research Council (NMRC), SCRI acts as the joint secretariat of the Clinical Trial Implementation Committee (CTIC) set up by the MOH to explore and oversee initiatives to enhance clinical trial efficiency in Singapore. At the same time, SCRI aims to attract more private sector investment into clinical trials held in Singapore.
The Clinical Trials & Epidemiology Research Unit (CTERU) was established in November 1996 by the Ministry of Health (MOH) with funding from the National Medical Research Council (NMRC). CTERU’s goal was to provide essential infrastructure support for not-for-profit public-sector research. To achieve this goal, CTERU carried out multi-centre clinical trials, epidemiological and evidence-based medicine studies benchmarked to international standards.

In September 2008, CTERU was restructured to become SCRI, a national academic clinical research institute. SCRI built on CTERU’s foundation to develop enhanced resources and capabilities to advance intellectual and scientific leadership. Equally important was the focus on providing the necessary infrastructure for collaborative clinical research. SCRI has since been breaking new grounds in its clinical research together with its partners.
ORGANISATION CHART
SCRI has developed into an established academic research organisation supporting Singapore’s public healthcare institutions in our maturing national biomedical landscape. Today, SCRI partners healthcare and medical research bodies within and outside Singapore to promote clinical trials of international standard with a focus on Asian patients.

Associate Professor
John CW Lim
Chairman
When I was appointed Board Chairman in May 2015, I was happy to join a scientific organisation with a stable and well developed team comprising highly capable and committed professionals.

**WITH GRATITUDE**

My immediate predecessor, Professor Ranga Krishnan, can well be described as a biomedical pioneer and entrepreneur who grew Duke-NUS Medical School in scope and reputation.

Together with Professor John Wong who previously co-chaired SCRI with him, Ranga provided clear vision and direction for the senior management of the institute and also helped ensure a smooth transition during its leadership change in 2013. The Board and management of SCRI are indebted to both of them.

**SCRI’S UNIQUE ROLE**

Although SCRI celebrates its 8th anniversary in 2016, the institute grew out of MOH’s Clinical Trials & Epidemiology Research Unit that was set up in 1996. Hence, SCRI is actually commemorating 20 years of spearheading clinical research in Singapore.

I have a regulatory perspective gained from my former role as the CEO of the Health Sciences Authority and my current MOH and Duke-NUS responsibilities. I am therefore keen to see SCRI not only further strengthen its support for clinical trials conducted by principal investigators in our public sector healthcare institutions but also expand its role in improving and streamlining the national clinical research landscape. SCRI’s endorsed initiatives include coordination of research administration systems across our regional health clusters and training of clinical research coordinators to support trials.

In line with research priorities set by the National Medical Research Council (NMRC) to address Singapore’s key health issues, SCRI is well placed to support research in diabetes, ageing and infectious disease, in addition to its more established role in areas such as oncology therapeutics research.

SCRI can explore optimising its unique Singapore base but Asian-centric focus to appropriately support the burgeoning research scene in the region.

**BUILDING TALENT FOR THE NATION**

To fulfil its vision, SCRI needs to continually scan its environment and stay at the forefront of clinical research standards. As has become clear from SCRI’s involvement in studies spanning multiple sites, there is a need for skilled professionals to support clinical research meeting international standards.

SCRI is a relatively small and lean organisation operating in the fast growing global and regional clinical trial ecosystem. We cannot provide services at all levels like bigger commercial clinical research organisations. However, by wisely focusing on our strengths and providing value-added services, SCRI can continue to punch above its weight as a national academic research organisation of strong repute and effectiveness.

**IN APPRECIATION**

SCRI would not have come this far without the passion and contributions of our staff. We are deeply appreciative of our staff, especially those who have been with us since our early days as CTERU and who continue to demonstrate commitment in ably guiding new colleagues.

We also thank our partners in MOH, NMRC, the public sector academic medical centres and clusters who have demonstrated solid support for and unwavering belief over the years in SCRI’s critical role and mission to strengthen biomedical research in Singapore.
2015 was a busy and fruitful year for SCRI. In May, we welcomed as our new Chairman, Associate Professor John Lim, who took over from Prof Ranga Krishnan. Prof Lim’s wealth of experience in healthcare administration and the regulation of health products and clinical trials will guide SCRI in our continued growth as an academic research organisation with a national coordination role.

GREATER COLLABORATION
The government has announced the Research, Innovation & Enterprise 2020 (RIE) Plan as a national strategy to develop a knowledge-based and innovation-driven economy. With our coordination abilities and infrastructural competence, SCRI is ready to help Singapore further develop its biomedical landscape in the coming years.

On top of our expertise to provide training of clinical research personnel both locally and at international sites, SCRI will continue to focus on conducting research projects that benefit Singapore and showcase Singapore’s expertise in clinical research. Not only will we continue developing close collaborations with partners in Singapore, we will actively seek partnerships with overseas collaborators to enable our research projects to have a wider reach in Asia.

REACHING OUT
Collaborations with overseas healthcare sites serve a two-fold purpose. Firstly, they help us recruit more patients for our clinical trials. Secondly, the results of the trials offer benefits to the host countries. For example, we are supporting a major multicentre multinational trial, a new tuberculosis study called TRUNCATE-TB, to augment treatment for drug-sensitive tuberculosis, thus offering hope to tuberculosis patients. This is an important project that Singapore is leading and that brings together a network of Asian sites.

To date, SCRI has taken part in 108 studies, with 174 sites across the globe. We are looking forward to more locally developed drugs and medical devices reaching the clinical trial stage in the coming years. SCRI stands ready to provide greater support to these locally developed therapeutics.

One such study that SCRI has completed was the first in man Phase 1 trial on a new potential anti-diabetes oral drug, discovered and developed in Singapore. The des-aspartate-angiotensin I (DAA-1) drug aims to reduce chronic inflammation in diabetes patients.

VALUE-ADDED SERVICES
As part of SCRI’s value-added services in academic clinical research, we have embarked on evaluating health economic outcomes from our trials. For example, after helping to complete the Adult Dengue Platelet Study (ADEPT), our team is working with our collaborators to study the potential cost savings to the nation based on our study results. Another example of a study with important health economics component was our recently published study looking into the effectiveness of liver transplant vs. liver resection in Hepatocellular Carcinoma patients.

As the national coordinator for clinical research, SCRI acts as joint secretariat of the Clinical Trial Implementation Committee (CTIC). SCRI will continue working with the National Medical Research Council (NMRC) to facilitate many national initiatives to improve clinical trial efficiency in Singapore with the aim of attracting more private sector investment in clinical trials in Singapore.
A NATIONAL ROLE
Since 2014, SCRI took on the role of developing and managing the National Clinical Trial Dashboard to monitor clinical trial efficiency in Singapore. To improve clinical trial efficiency in Singapore, SCRI piloted comprehensive legal and consultation services for new clinical trials in May 2015 in collaboration with a few public healthcare clusters in Singapore.

As a one-stop communication point for legal support and contract negotiations, we are positioning SCRI as an important resource to industry collaborators, healthcare centres and Clinical Research Organisations with plans to initiate clinical trials.

We are looking forward to more drugs and medical devices developed in Singapore reaching the clinical trial stage in the coming years. SCRI stands ready to provide greater support to these locally developed therapeutics.

While we celebrate 20 years of spearheading innovation in clinical research, the amazing journey of SCRI and CTERU is all due to the people who not only created the institute but guided it to the quality standards it now stands for.

I would like to express sincere thanks to our Board of Directors for their focus, direction and tremendous energy. To our staff, I thank you for your commitment, service and innovative spirit, without which SCRI would not be the special organisation that it is today.

Associate Professor
Teoh Yee Leong
Chief Executive Officer
BOARD OF DIRECTORS

**Associate Professor John Lim (Chairman)**
*Deputy Director of Medical Services (Industry & Research Matters)*
Ministry of Health (MOH)
*Executive Director*
Centre of Regulatory Excellence
Duke-NUS Medical School Singapore

**Ms Tricia Huang**
*Executive Director*
National Medical Research Council
Ministry of Health (MOH)

**Associate Professor Tan Say Beng**
*Group Director Research*
Singapore Health Services (SingHealth)
*Senior Associate Dean*
Office of Clinical Sciences
Duke-NUS Medical School Singapore

**Professor Soo Khee Chee**
*Director*
National Cancer Centre Singapore (NCCS)
*Deputy Group Chief Executive Officer*
Research and Education
Singapore Health Services (SingHealth)
*Senior Vice Dean*
Clinical, Academic and Faculty Affairs
Duke-NUS Medical School Singapore
Associate Professor Lynette Shek Pei-Chi
Vice Chairman
Medical Board (Research)

Head and Senior Consultant
(Division of Paediatric Allergy, Immunology and Rheumatology)
National University Hospital (NUH)

Adjunct Associate Professor Goh Boon Cher
Head/Senior Consultant
Department of Haematology-Oncology
National University Cancer Institute Singapore (NCIS)

Director
Investigational Medicine Unit
National University Health System (NUHS)

Deputy Director
Cancer Science Institute of Singapore
National University of Singapore (NUS)

Adjunct Associate Professor
Department of Pharmacology
National University of Singapore (NUS)

Adjunct Senior Research Scientist
Defence Medical and Epidemiology Research Institute, Singapore

Ms Vijayaletchimi D/O Egamparam
Director
Financial Control, Reporting and Analytics
MOH Holdings Pte Ltd (MOHH)

Clinical Associate Professor Lim Tock Han
Deputy Group CEO
(Education & Research),
National Healthcare Group Pte Ltd (NHG)

Senior Consultant
National Healthcare Group Eye Institute
Tan Tock Seng Hospital (TSH)

Professor Joseph Yeong Wee Yong
Chairman
Ascensia Education Group Pte Ltd

Ms Ho Weng Si
Director
Biomedical Sciences
Economic Development Board (EDB)
SENIOR MANAGEMENT

01: Associate Professor Teoh Yee Leong
   Chief Executive Officer

02: Mr Mihir Gandhi
   Head, Biostatistics

03: Dr Shi Luming
   Head, Epidemiology

04: Ms Janice Ng
   Head, Research Monitoring

05: Mr Au Wing Hong
   Head, Finance

06: Ms Jane Yeo
   Head, Business Operations

07: Mr Peter Tan
   Head, Human Resource & Talent Development

08: Mr Damien Hong
   Chief Operating Officer

09: Associate Professor Edwin Chan
   Chief Scientific Officer

10: Ms Lisa Tan
    Head, Corporate Affairs

11: Dr Gao Hong
    Head, Pharmacovigilance/Project Management

12: Ms Ng Xuanhui
    Head, Data Management

Absent with Apologies:
Ms Connie Kum
Head, Quality Assurance

(As of 31 March 2016)
OUR 2015 JOURNEY

SCRI works with its healthcare partners on clinical trials that meet international standards on a range of therapeutic areas with special focus on diseases of Asian significance.
KEY FACTS AND FIGURES


44,384 RESEARCH SUBJECTS ENROLLED FOR RESEARCH STUDIES*

*All research studies with patients involving SCRI.

7,220 HUMAN SUBJECTS ENROLLED IN CLINICAL TRIALS

SCIENTIFIC AND OPERATIONS TEAM IN 2015

A diversified team of 60 SCIENTIFIC AND OPERATIONAL STAFF
ACHIEVEMENTS SINCE SCRI’S INCORPORATION IN 2008

- Worked with 578 investigators
- Supported 174 local and international sites across 21 countries
- Research findings published in 215 publications
- Conducted 108 trials
- Conducted and participated in 157 workshops, seminars, and conferences
REVENUE SOURCES AND COLLABORATORS

Source | Key Collaborators in FY2015*
--- | ---
NMRC | Alexandra Health, Duke-NUS Medical School, Tan Tock Seng Hospital, Singapore General Hospital, National University of Singapore, National University Hospital Singapore, Singapore Eye Research Institute, KK Women’s and Children’s Hospital, National Cancer Centre
COMMERCIAL | Danone Baby Nutrition, Merck Pte Ltd, MicroVax LLC, IMS Health Asia Pte Ltd, Innogene Kalbiotech Pte Ltd
FOUNDATION | Khoo Foundation, Viva Foundation, Goh Foundation, Asia Cornea Foundation, Tanoto Foundation, International Myeloma Foundation
INDEPENDENT | National University of Singapore, Singapore General Hospital, Duke-NUS Medical School, Perinatal Society of Singapore, KK Women’s and Children’s Hospital

*As of 31 March 2016
THERAPEUTIC AREAS

These numbers reflect both ongoing and completed studies since 2008.

INFECTION DISEASE: 19
ONCOLOGY: 18
PSYCHIATRY: 10
OPHTHALMOLOGY: 7
CARDIOLOGY: 8
NEUROLOGY: 6
EMERGENCY MEDICINE: 5
ENDOCRINOLOGY: 5
PAEDIATRICS: 5
OTHERS: 25

(Anaesthesiology, Dietetics, Gastroenterology, Gynaecology, Haematology, Head and Neck, Medical Device, Musculoskeletal, Neonatology, Nephrology, Nutrition, Orthopaedics, Psychology, Quality of Life, Respiratory, Rheumatology, Statistical, Surgery, Vascular)
KEY TRIALS IN 2015

ADEPT

ADEPT is led by Prof Leo Yee Sin from TTSH to study the role of platelets transfusion in dengue patients. As dengue is one of the most common infectious diseases in the region, this study aims to address whether platelet transfusion is necessary in severe dengue infection with low platelet count. The study also included researchers from Malaysia and supported by SCRI in project management, data analysis etc.

AHCC06

National Cancer Centre Singapore (NCCS)'s Prof Pierce Chow leads the AHCC06 study on hepatocellular cancer. With co-funding from Sirtex Pharmaceuticals, this study has operations in more than 10 Asian countries and is due to be completed in mid-2016. Besides managing the operations of the study, SCRI is planning a prospective international meta-analysis project combining the Asian patients data (AHCC06 study) with the European patients data (SARAH study).

ACSIKS

Led by Prof Donald Tan from the Singapore National Eye Centre (SNEC), ACSIKS is a study of keratitis spanning eight countries, 30 local and overseas sites. More than 6,500 patients have been recruited in the study. The study is funded by the Asia Cornea Foundation and SCRI is providing project management and operations expertise.

ASCOLT

Led by Dr John Chia from the NCCS, ASCOLT is a study which investigates the role of aspirin in the treatment of colon cancer. This study has funding from philanthropic organisations such as the Swiss Rising Tide Foundation and involves more than 35 global sites. The study is currently on-going with SCRI supporting its overseas operations.

BRAINPAL

Led by Dr Lim Choon Guan from the Institute of Mental Health (IMH), BRAINPAL is a study on a brain-computer-interface device for children with Attention Deficit Hyperactive Disorder (ADHD). SCRI is providing project management and statistical analysis services for the study.
INH01 is a study of head and neck cancer led by NCCS’ Prof Soo Kee Chee. Co-funded by Innogene Kalbiotech, the study is supported by SCRI’s data management team which is in charge of managing the trial data collected from global sites ranging from Australia and Cuba to Saudi Africa and South Africa.

MUC-1 is a study led by NCCS’ A/Prof Toh Han Chong. This study boasts a unique tripartite partnership involving SCRI, NCCS and Microvax LLC, provider of the investigational vaccine. Besides taking on the trial sponsor role for the first time, SCRI is responsible for overall project management of the study. NCCS provides scientific lead and recruits patients for the first-in-man cancer therapeutic vaccine provided by Microvax LLC, a US biotech company. Unlike traditional first-in-man studies which are usually sponsored and controlled fully by the larger pharmaceutical companies, this study pioneers a collaboration model that allows smaller biotech companies to participate in first-in-man trials in Singapore with Singapore researchers who play a bigger role in designing and managing the trial.

PAROS 2 is led by A/Prof Marcus Ong from the Singapore General Hospital. This is a study involving data of more than 60,000 patients collected across Asia to study the impact of bystander CPR on improving the survival rates of cardiac arrest patients in Asia. The study is co-funded by several US philanthropic and pharmaceutical organisations such as the Laerdal Foundation, Laerdal Medical and Ramsey Social Justice Foundation. SCRI is involved in the data collection and scientific data analysis of the study.

TRUNCATE-TB is led by Prof Nicholas Paton from the National University Health System (NUHS). This study is primarily funded by the Medical Research Council of the United Kingdom to study a new treatment regime for tuberculosis involving 1,000 patients across several countries in Asia. SCRI is involved in the project planning and execution of the study in Asia.
Treatment that aids body’s fight against cancer on trial

By LINETTE LAI

DOCTORS at the National Cancer Centre Singapore (NCCS) are trying out a new treatment that helps the body fight cancer.

If successful, it will give patients another shot at getting better after mainstream options like chemotherapy have been exhausted. The treatment, developed in Japan, is seen as a last resort for safety and effectiveness.

Of the 680 patients who have been involved, half of them developed side effects, but they were manageable, according to Dr Toh Han Chong, who is leading the trial, and Dr Toh Yee Leong, chief executive of the Singapore Clinical Research Institute.

Dr Toh said the new treatment is not expected to be able to cure cancer but may help to add months or years to the patients’ lives.

New book on clinical research in Singapore

When Professor Woo Kong Yee (far left), an emeritus consultant at Singapore General Hospital, and Associate Professor Tey Yee Leong, chief executive of the Singapore Clinical Research Institute, with copies of the commemorative book celebrating the progress of clinical research here.

This book is also featured in Channel NewsAsia Online, under the article “Book chronicling 50 years in clinical research in Singapore launched” on 28 September 2015.

Home section, 22 January 2015.
Reproduced with permission from The Straits Times.

Home section, 29 September 2015.
Reproduced with permission from The Straits Times.
MILESTONES

2008
» Transition to SCRI and transfer of over 20 clinical trials and other research studies.

2009
» First Grant Enhancement Training (GET) workshop.
» Appointment of Scientific Advisors.
» Establishment of Dementia Clinical Research Network
» First study using Electronic Data Capture (REDcap) system.

2010
» Establishment of Family Medicine Research Network (FMRN).
» First study using Electronic Data Capture (Oracle Clinical) system.
» Establishment of the Pan-Asian Resuscitation Outcomes Study (PAROS) CRN.
» Setting up of the Quality Assurance (QA) Department.
» Establishment of Metabolic Research Network (MRN).

2011
» Chairing the of Clinical Trial Operational Efficiency Review working group (COERWG) by SCRI.
» First conference collaboration with industry partner, ORACLE Health Sciences.
» First workshop collaboration with industry partner, Merck Pte Ltd.
» First patient recruited for FMRN study.

2012
» GET Workshop on Medical Devices, the first of a series of collaborations with A*STAR’s Biomedical Engineering Programme.
» PAROS CRN: Award of the Ministry of Health’s Health Services Research grant
» Second grant award from Tanoto Foundation for the Metabolic Research Network CRN.
» Appointment of new CEO.

» Collaboration with the Singapore Biomedical Sciences Industry Partnership Office (BMS IPO): Phase 1 of the Stratified Medicine effort in Diabetes.

» Collaboration with the National University of Singapore-Master of Clinical Investigation (NUS-MCI) for Clinical Trials Operations workshop.


» Signing of collaboration agreement with Clinical Trials Center Zurich to facilitate knowledge exchange, education and training on clinical research projects.

2013

2014

» First sponsor role by SCRI in a first-in-man trial (MUC-1).


» Announcement by SCRI, KKH, Duke-NUS and NUS YLLSOM researchers of research funding on administration of epidurals to women during childbirth.

» Additional funding of $1.9 million to the Asia-Pacific Hepatocellular Carcinoma Trials Group from Sirtex.

2015

» Appointment of new Chairman.

» Launch of the National Clinical Trial Insurance Policy.


» Completion of the first-in-man, “Made in Singapore” drug in Phase 1 trial (DAA-1) in NUHS.
GEOGRAPHICAL COVERAGE

SCRI has a far-reaching local and international presence
International Research Collaboration Sites

**AUSTRALIA**
- Austin Health Cancer Clinical Trials
- Ballarat Regional Integrated Cancer Centre
- Barwon Health Andrew Love Cancer Centre
- Border Medical Oncology Research Unit
- Calvary Mater Newcastle Hospital
- Central Coast Cancer Centre, Gosford Hospital
- Coffs Harbour North Coast Cancer Institute, NSW
- Flinders Medical Centre
- Goulburn Valley Health, VIC
- Lyell McEwin Hospital
- Macarthur Cancer Therapy Centre
- Monash Health Medical Oncology
- Newcastle Private Hospital
- North Coast Cancer Institute Port Macquarie
- Northern Cancer Institute, NSW
- Northwest Cancer Centre Tamworth
- Orange Health Service
- Peter MacCallum Cancer Centre
- Royal Brisbane and Women's Hospital
- Royal Darwin Hospital, Northern Territory
- Royal Hobart Hospital
- Sir Charles Gairdner Hospital
- Southwest Oncology, VIC
- St John of God Subiaco
- The Tweed Hospital
- Townsville Hospital

**BRUNEI**
- Brunei Cancer Centre

**CHINA**
- Beijing University Cancer Hospital
- Guangdong General Hospital
- Guangdong Provincial Cardiovascular Institute
- Nanjing First Hospital
- Qingdao Eye Hospital
- Second Affiliated Hospital of Zhejiang University
- Shandong Eye Hospital
- Shanghai Chest Hospital
- Sun Yat Sen University Cancer Centre
- The First People's Hospital of Foshan
- The Sixth Affiliated Hospital
- Xiamen Eye Centre
- Zhongshan City People’s Hospital

**CUBA**
- National Institute of Oncology and Radiobiology

**HONG KONG**
- Alice Ho Nethersole Hospital
- Hong Kong Eye Hospital
- Prince of Wales Hospital
- Queen Mary Hospital

**INDIA**
- All India Institute of Medical Science
- Amrta Institute of Medical Sciences and Research Centre
- Aravind Eye Hospital
- Christian Medical College
- G. Kuppuswamy Naidu Memorial Hospital
- Kidwai Memorial Institute of Oncology
- LV Prasad Eye Institute
- Mazumdar Shaw Cancer Centre
- Nizam’s Institute of Medical Science
- Regional Cancer Centre Trivandrum
- Tata Memorial Hospital
- University of Kelaniya, Sri Lanka

**INDONESIA**
- Cipto Mangunkususmo General Hospital (RSCM)
- Dharmais Hospital National Cancer Centre
- Rumah Sakit Dr. Sardjito Jogjakarta
- Sanglah General Hospital
- University of Indonesia

**JAPAN**
- Eguichi Eye Hospital
- Gunma University Hospital
- Hiroshima Red Cross Hospital & Atomic-bomb Survivors Hospital
- Ideta Eye Hospital
- Kansei Rousai Hospital
- Kobe City Medical Center General Hospital
- Komaki City Hospital
- Kyoto Prefectural Medical University
- Miyata Eye Hospital
- National Hospital Organization Disaster Medical Center
- Okamoto Eye Clinic
- Osaka University Graduate School of Medical Hospital
- Otemae Hospital
- Tokushima Prefectural Central Hospital
- Tottori University Hospital
SOUTH AFRICA
The Oncology Centre

NEW ZEALAND
Auckland City Hospital
Christchurch Heart Institute
Christchurch Public Hospital
Dunedin Hospital
University of Auckland

MONGOLIA
National Cancer Center, Mongolia

PHILIPPINES
Baguio General Hospital and Medical Center
Brokenshire Hospital
Cebu Velez General Hospital
Chong Hua Hospital
Davao Doctors Hospital
Davao Medical Center
Davao Medical School Foundation
East Ave Medical Center
Jose Reyes Memorial Medical Center
Lung Center of the Philippines
Makati Medical Center
Philippine General Hospital
Quezon Institute
St. Luke’s Medical Center
The Medical City
University of Santo Tomas Hospital
Visayas Community Medical Center
West Visayas State University Medical Center

SOUTH KOREA
Asan Medical Center
Bundang Seoul National University Hospital
Cheonnam University Hwasoon Hospital
Gachon University Gil Hospital
INHA University Hospital
Kim’s Eye Hospital
Korea University Anam Hospital
National Cancer Centre Korea
Samsung Medical Center
Seoul National University Hospital
Severance Hospital, Yonsei
St. Mary Hospital

SAUDI ARABIA
King Fahad Medical City

SRI LANKA
National Cancer Institute of Sri Lanka

TAIWAN
Chang Gung Memorial Hospital, LK
China Medical University Hospital
Koo’s Foundation SYS Cancer Center
Mackay Memorial Hospital
National Taiwan University Hospital
Shuang Ho Hospital
Taipei Medical University Hospital
Taipei Tzu Chi General Hospital
Taipei Veterans General Hospital
Wan Fang Hospital

THAILAND
Chiang Mai Hospital
Chiang Mai University Hospital
Chulabhorn Hospital
King Chulalongkorn Memorial Hospital
National Cancer Institute Thailand
Phramongkutklao Hospital
Prasat Neurological Institute
Sriraj Hospital
Thammasat University Hospital

VIETNAM
Ho Chi Minh City Eye Hospital
Vietnam National Institute of Ophthalmology
OUR ACADEMIC EXPERTISE

With its unique Singapore base but Asian-centric focus, SCRI is able to stay at the forefront of clinical research excellence in an ever-changing biomedical landscape.
This is a randomised, open-label, multi-arm multi-stage (MAMS) parallel group trial.

It aims to determine if a strategy of treating drug-sensitive tuberculosis for two months with novel combination regimens and re-treating relapses with a 6-month course of standard treatment (experimental arms) will be non-inferior to the standard treatment 8-month re-treatment approach (the control arm) in terms of a composite outcome at 2 years after randomisation.

For patients, the potential advantages of a 2-month treatment regimen are improved compliance, tolerability and quality of life.

Tuberculosis is still a major global disease with an estimated 9 million new cases and 1.5 million deaths a year. Poor adherence to treatment can breed drug resistance that has posed a grave threat worldwide.
THE TRUNCATE-TB PROJECT TEAM

From Left to Right:
Ho Shuet Han (SCRI)
Professor Nicholas Paton (NUS)
Nisa de Souza (SCRI)
Pang Yan (NUHS)
Kristina Rutkute (NUHS)
Padmasayee Papineni (NUHS)

Absent with Apologies
Lee Shu Ling (SCRI)
Lu Qingshu (SCRI)
Huang Ruiping (SCRI)
Lee Si Mun (SCRI)
Swetha Gangishetty (SCRI)
As a biostatistician, I have participated in statistical consultations, research grant applications and clinical trials for a wide range of therapeutic areas for several healthcare institutions.

My expertise mainly includes study design, protocol development, statistical analysis and reporting. I have performed interim and/or final data analyses for more than 15 trials. My work has been incredibly rewarding, especially my part in validating and revising the SAS randomisation macro that is now routinely used in randomised trials supported by SCRI.

I am looking forward to this new tuberculosis project, TRUNCATE-TB, to study the effectiveness of novel drug combinations to augment treatment for drug-sensitive tuberculosis.

The study protocol has been approved by the ethics boards in both UK and Singapore, and patient recruitment will be starting this year. I support the study as the trial statistician in study design and protocol development.

My role in protocol development includes performing extensive simulations based on the study requirements. Simulations are vital for a study such as TRUNCATE-TB to understand the trial operating characteristics. I also provide support in other aspects of study protocol such as sample size calculation, randomisation, statistical analysis and reporting.

The efficacy of several 2-month novel combination regimens will be assessed simultaneously against the current standard 6-month treatment for tuberculosis. The multi-arm multi-stage (MAMS) design used in this study allows several experimental arms to be assessed against a control arm within a single trial. Therefore, the study requires substantially fewer resources than if each regimen is evaluated against the standard treatment in separate two-arm trials.
SCRI’s help with the study design for the project has been tremendous. I am looking forward to more support from SCRI in the database development, data management, pharmacovigilance, etc.

I have been particularly pleased with SCRI’s biostatistics support. Being a complex and highly innovative trial, SCRI’s Dr Lu Qingshu has made a major contribution to the study design and done extensive modelling to make sure that the assumptions underlying the approach to the trial are robust.

This trial is being done in collaboration with the Medical Research Council (MRC) Clinical Trials Unit at the University College London (UCL). The statisticians there are world leaders in the methodology, design and analysis of clinical trials. They have told me how impressed they are with the quality of the biostatistics support at SCRI.

Much planning was required for this major multicentre multinational trial. Being one of the most complex and innovative clinical trials in the field of tuberculosis meant that we needed to take a considerable period of time to establish a robust protocol that has now gained buy-in from investigators and global stakeholders including community advisory boards. We have received ethical approval in both Singapore and the UK and the protocol is now under review in the regional countries.

This trial also brings together an Asian trials network led from Singapore. A landmark development for Singapore clinical trials indeed. With its geographical location, excellent infrastructure and communications, Singapore is in an ideal position to coordinate trials in Asia. We managed to get funding from major UK research funding agencies which enables us to run the trial at regional sites.

The TRUNCATE-TB trial could transform the way tuberculosis is treated in Singapore, Asia and the rest of the world. I think this presents a golden opportunity for Singapore to truly establish itself as a regional leader in clinical trials.

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Our Investigator
Professor Nicholas Paton
Professor of Medicine
National University of Singapore
Project management services comprise

» Planning and organisation, monitoring and control of clinical research projects from study feasibility to close-out
» Protocol preparation and implementation
» Study budget preparation
» Oversight for protocol compliance, adherence to Good Clinical Practice and Standard Operating Procedures
» Study progress reporting
» Management and review of timelines, budget and deliverables

THE DAA-1 PROJECT

• A single dose-escalation study to evaluate the safety and pharmacokinetics of orally-administered DAA-1 in healthy subjects.

• Current anti-diabetes drugs target mainly the lowering of blood glucose in diabetes patients and generally lack the specificity of improving the action of insulin and reducing chronic inflammation in peripheral tissues.

• DAA-1, an endogenous angiotensin peptide developed by NUS, produces biological responses that improve the action of insulin, leading to increased uptake of glucose into insulin-sensitive cells. DAA-1 also exerts anti-inflammatory actions and reduces the damaging chronic inflammation brought on by diabetes.

• The Phase I trial was led by the Clinical Principal Investigator Prof Lee Kok Onn from the National University of Singapore’s Yong Loo Lin School of Medicine. Prof Lee is also a Senior Consultant at NUHS’s Department of Medicine.

• This trial involved 18 healthy individuals aged between 21 and 50 years and was carried out from September to December 2015 at NUHS.

Phase I of the study will provide a dosing platform for the studies in the next phase, and at the same time, pave the way for the safe investigation of orally-administered DAA-1 in humans.

Not only could the study bring benefits to patients with diabetes, it will help build up Singapore’s reputation as an innovative developer of new drugs.
THE DAA-1 PROJECT TEAM

Front Row from Left to Right: Wang Rong Fang (NUHS), Associate Professor Sim Meng Kwoon (NUS), Khoo Chin Meng (NUHS, Duke-NUS Medical School), Professor Lee Kok Onn (NUHS)

Back Row from Left to Right: Tan Siew Hoon (SCRI), Ng Hwee Mian (NUHS), Lin Yuchen (NUHS), Lam Wei Cong (NUHS), Li Xinhua (SCRI)

Absent with Apologies: Chan Yiong Huak (NUS), Professor Balram Chowbay (NCCS)
After completing my medical training and PhD studies in oncology, I did clinical research at the National University Hospital Singapore (NUHS) for five years. At NUHS, my involvement in gastroenterology clinical trials and studies allowed me to build up my knowledge of good clinical practice and gain extensive experience in protocol writing, study design and the conducting of clinical trials.

Since joining SCRI as a Project Manager in 2013, I have been involved in clinical studies spanning a wide range of therapeutic areas other than oncology, such as infectious diseases and endocrinology.

With SCRI’s emphasis on training for project professionals, I have been trained to manage all aspects of a project, including facilities, budget and personnel. My exposure to different clinical trials has helped me learn the skills to manage a variety of projects.

I am currently involved in a study on a new anti-diabetes drug known as des-aspartate-angiotensin I (DAA-1). Discovered and developed in Singapore, DAA-1 is an oral drug that aims to reduce chronic inflammation in diabetes patients, a benefit not offered by current anti-diabetes drugs.

As Project Manager of the DAA-1 study since its early stages in 2014, I helped with the study setup and initiation. I also provided support to ensure study safety, and accuracy and quality of the data collection. My role included helping to review the study documents such as study protocol, Case Report Forms, etc. and assessing the potential study risks to develop the project plan and study reference manuals.

During the study, the SCRI team provided oversight on the quality control of the study while tracking the study progress to coordinate trial milestones. This Phase I trial was completed successfully within budget and timelines.

To me, it is very exciting and inspiring to be part of the team studying a novel drug that would help patients with diabetes, one of the most prevalent diseases in Singapore and the world.

Our Staff
Dr Li Xinhua
Project Manager
MBBS, Shandong University
PhD (Neuro-Oncology), National University of Singapore

Number of years in clinical research: 8
The DAA-1 is the result of 15 years of our extensive research. I first discovered the DAA-1 drug molecule when I was doing research at the NUS Department of Pharmacology and realised the potential of DAA-1 as a specific anti-diabetes drug.

With SCRI’s help to monitor this Phase I of trial, the trial achieved the status of industry compliance. I was especially pleased with the prompt reports that followed each monitoring visit. With the completion of the Phase I trial, we have submitted the manuscript of the trial results for publication and are looking forward to the trials in the next Phase.

We have completed our Phase I clinical trial on a novel drug first discovered in Singapore, an accomplishment that I am very pleased with and immensely proud of.

I am confident that the success of this study would not only bring benefits to diabetes patients in Singapore and all over the world, it would affirm Singapore’s status as an important clinical research hub.

Our Investigator
Honorary Associate Professor Sim Meng Kwoon
National University of Singapore
RESEARCH INFORMATICS

Research informatics services comprise

» IT solution recommendations and support for sustainable clinical research operations that help reduce operational costs of clinical trials

» Data Centre computer systems hosted on a high-speed, secured network with 24/7 network monitoring, back-up redundancy and compliance with regulatory requirements

» Application of informatics principles and techniques to support clinical research processes that meet study requirements and ensure compliance with regulations

» Development and use of new or customised information technology tools to facilitate complex clinical research workflows and sustainable operations

» Development and customisation of software tools and processes to enhance communication with stakeholders

» Sourcing and adoption of new technologies to support study designs in accordance with industry best practices

THE RESEARCH INFORMATICS TEAM

From Left to Right: Damien Hong (Chief Operating Officer, Head of Research Informatics), Henry Chua (IT Administrator), Gnanamuthu Sasi Kala (Systems Analyst), Huang Ruiping (Systems Analyst), Lee Simun (Senior Systems Analyst), Huang Kuanfu (Manager of Research Informatics)
I am trained to provide fast yet innovative database and technology solutions to clinical research operations. Attention to detail, analytical and problem-solving skills are important in the Research Informatics work that I do. The multiple assignments I am involved in range from playing support and analysis roles in development and maintenance projects to customer service activities. This includes the design, coding, testing and implementation of applications, performing diagnosis and troubleshooting functions.

Besides my four years of experience in various programming and scripting languages such as ASP.Net (C#), Java, Korn Shell, Ant, Perl, XML, I have significant experience in the design, development and support of client/server databases (MS-SQL Server, MySQL, Oracle (PLSQL) and web-based applications. I also possess a strong working understanding of SDLC management and control through my work in research informatics.

RAND is a unique integrated randomisation and investigational product (IP) management system developed and maintained by SCRI’s research informatics team. This user-friendly system offers easy management of multi-centre trials, and is used in diverse clinical research studies including the multicentre IHN01 study on head and neck cancer.

As a core member of the research informatics team, one of my tasks in 2015 was to design and develop applications to further enhance the RAND system. Some of my accomplishments include:

- Analysing the current system and procedures that are already in place
- Collating the new requirements, reviewing the documents and specifications
- Customising applications to facilitate sustainable clinical research operations
- Setting up and completion of testing procedures for the new requirements of the application
- Preparation of all the necessary documents such as user manuals, procedures of the system, release notes, installation guides
What challenges me professionally is the analysis and problem-solving skills required to determine the most efficient way for the computer programmes to process and accomplish a task. I also work with our database management team to determine the best way to implement the backup and recovery procedures of the databases and the applications.

With great teamwork, we were able to enhance our RAND system to support different study parameters required for diverse study requirements. In addition, our system allows investigators to screen and randomize patients, manage and track IP inventory throughout the entire study process. With the RAND system in place, the randomisation and IP management processes are streamlined, which eliminates the need for manual and labour-intensive IP management.

As a systems analyst, I am always looking into innovations to meet the demands of a dynamic clinical research environment and developing solutions to encompass complex inter-dependencies between data and visualisation, collaboration and workflow.

I hope that through innovation and technology solutions, we can continuously enhance our RAND system to higher levels of efficiency, reliability, user-friendliness, robustness and performance. I am very proud of my involvement and that I can professionally show my competence to provide the benefits to all stakeholders in terms of productivity and convenience.
RESEARCH MONITORING

Research monitoring services comprise

» Coordination and conducting of site initiation visits
» Customisation of project templates in accordance with GCP
» Provision of training for investigators and site personnel
» Monitoring of clinical trials according to the monitoring plan in compliance with the approved protocol, regulatory and Institutional Review Board (IRB) requirements, sponsor guidelines and GCP. Monitoring includes source documents verification, protocol and GCP compliance checks, safety, operations and essential documents review, investigational products and lab samples reviews
» Facilitation of communication with project stakeholders including clients and trial sites
» Close-out visits after the completion of clinical trials with processes ranging from documentation reviews to archival of clinical trial data documents

THE AHCC06 PROJECT

• The 6th investigator-initiated project conducted by the Asia-Pacific Hepatocellular Carcinoma (AHCC) trial group is led by Prof Pierce Chow from NCCS in collaboration with SCRI, and funding from SIRTeX, a medical device company and NMRC.

• This is a pioneering multi-centre hepatocellular carcinoma project with extensive geographical reach of 27 renowned sites spanning across 10 countries in the Asia Pacific region.

• This randomised-controlled trial aims to compare the outcomes of two established treatments in patients with locally-advanced hepatocellular carcinoma, namely SIR Spheres® microspheres and Sorefenib. The primary objective of the trial is to determine which of the two treatments confers better overall survival for hepatocellular carcinoma patients.

The results of the study will provide for the first time an important reference for clinicians and patients with locally advanced hepatocellular carcinoma when deciding on the most suitable treatment.

With the expertise gained from this cornerstone project, SCRI is in the position to provide thought leadership and spearhead more of such multi-centre research in the region.
THE AHCC06 PROJECT TEAM

From Left to Right: Gan Yar Chze (SCRI), Kelvin Ang (SCRI), Professor Pierce Chow (NCCS), Phang Su Ting (SGH), Su Jie (SCRI), Fiona Ni Ni Moe (SGH), Lynette Lai (SGH), Rachel Choi (SGH), Lim Hui Qing (SCRI), Win Oo Htut (SGH)

Absent with Apologies: Liew Wei Ming (SCRI), Tan Siew Hoon (SCRI), Tan Choon Ping (SCRI), June Leam (SCRI), Mihir Gandhi (SCRI), Patricia Tay (SCRI)
As a CRA with SCRI’s research monitoring team, I have taken part in both local and international clinical trials for oncology and infectious diseases.

Like other CRAs in SCRI who have gained work experience, I underwent training as part of my professional development to be accredited as a Certified CRA from the Association of Clinical Research Professionals. SCRI’s emphasis on expertise development helps ensure that staff are kept abreast of the latest industry standards.

Other than training site personnel to meet study requirements, CRAs make regular site monitoring visits to enhance operational efficiency and consistency of the project.

I have done site monitoring visits in countries ranging from Brunei, Hong Kong, Malaysia, Mongolia, Myanmar and Saudi Arabia. The guidelines, regulatory requirements and working culture and environment vary and are challenging. However, my site monitoring visits to these different countries provided fruitful and enriching experiences for me.

As part of the team supporting the AHCC06 study which is dedicated to liver cancer research, I communicate closely with the site personnel on protocol and process workflow. This helps me to build rapport with my site collaborators so that we can efficiently resolve site issues together.

My regular on-site monitoring visits are important to ensure that the rights and well-being of trial patients are protected by verifying trial patient data and ensuring quality compliance to the applicable GCP Guidelines, regulatory requirements, SOP and the approved protocol. Smooth collaboration with site personnel helps us to manage the project so that we not only have timely delivery of the project plan and milestones, but also quickly resolve day-to-day operational issues on site.

In the AHCC06 project, I enjoy close working relationships with cross-functional teams comprising Biostatisticians, Data and Project Management staff, as well as SCRI CRAs. Through regular project updates and close collaboration across departments, our team has successfully spearheaded intensive data cleaning and validation programmes within tight timelines for two interim analyses with strong support from each collaborating centre. Our SCRI team has also been recognised for improving trial quality through dedicated site personnel training, continuous process improvements, regular communication and monitoring visits.

The AHCC06 study will provide important supporting data for treatment selection which will have a great impact on providing better outcomes to patients with locally advanced hepatocellular carcinoma.
The research data is meaningful to clinicians in Singapore and the region as the majority of Asian patients share the same disease etiology – chronic Hepatitis B infection; while hepatocellular carcinoma in western countries are more prevalently caused by chronic Hepatitis C infection.

Liver cancer is the sixth most prevalent cancer in the world and the fourth most common cancer for men in Singapore. I am very proud to be part of the flagship AHCC06 study team. The study results will help provide better clinical outcome for patients with locally advanced hepatocellular carcinoma.

Our Staff
Mr Liew Wei Ming
Senior Clinical Research Associate
BSc (Life Science), National University of Singapore

Number of years in clinical research: 4
My centre was offered the protocol developed for the AHCC06 study, enabling my country to participate in multi-centre international clinical research projects.

I am very pleased with SCRI’s training of our medical officers on research methodology; and appreciate their advice on conducting clinical trials that meet regulations and standards.

The study is a comparison of two treatment modalities for inoperable locally advanced hepatocellular carcinoma cases. By providing treatment services, the trial is a welcome option for our patients to seek alternative treatment for hepatocellular carcinoma case management.

The Yangon GI and Liver Centre has been involved in many international clinical trials and the staff are experienced and trained in clinical research methodology. In fact, the centre has been participating in the AHCC clinical trials since the first protocol, AHCC01. We are pleased and proud to be the project’s top recruiting centre and to have helped contribute to it.

Our Investigator
Professor Khin Maung Win
Yangon GI and Liver Centre, Myanmar
DATA MANAGEMENT

**Data Management services comprise**

» Design of Case Report Forms (CRF) based on requirements of study protocol
» Development of study database using the Clinical Data Management System (CDMS) known as Oracle Clinical (OC)
» Writing of data validating programmes to perform checks in study database
» Development of CRF Completion Guidelines
» Data cleaning and query management to ensure integrity and accuracy of study data
» Training of study site personnel to equip them with adequate data entry skills which improve quality of data
» External connection to study database via the Remote Data Capture (RDC) application that allows data to be recorded directly at study sites
» Classification of medical events and medications to standard codes under the rules of established dictionaries (e.g. MedDRA and WHO Drug Dictionary)
» Use of business analytics software called SAS Enterprise Guide for reporting of comprehensive data metrics

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**THE POM-DEX PROJECT**

- The POM-DEX study is led by Prof Chng Wee Joo involving six Asian trial sites.
- The study will look at the effect of Pomolidomide, a new immunomodulatory drug, on Asian patients. Although this drug has been found to significantly improve the overall survival rate of patients in a Phase III clinical trial, no Asian patients were included in that trial.
- As overall data is also lacking on the effect of Pomalidomide on Asian patients, the POM-DEX study conducted in Asia will assess the efficacy of Pomalidomide in combination with Dexamethasone in Asian patients with relapsed myeloma.

The study will provide unprecedented results for Asian patients with relapsed myeloma which are unresponsive to prior drug treatments.
THE POM-DEX PROJECT TEAM

From Left to Right:
Adeline Lin (NCIS),
Wei Yuan (SCRI),
Ivy Toy (NCIS),
Zhuo Lingying (SCRI),
Professor Chng Wee Joo (NCIS)
As a Data Management Associate, I have been involved in studies in a wide range of therapeutic areas, and also participated in studies on medical devices, vaccines and surgical treatments.

SCRI has database systems for the several study trials it supports. I have helped to manage such a database involving more than 6,500 study subjects and 30 sites across Asia. My Data Management colleagues and I use the OC and RDC systems. Not only are we trained in GCP and GCDMP, we are proficient in using MedDRA and WHO Drug Dictionary.

Besides providing RDC training on study trial to site personnel, I have the expertise to use business analytics software to perform data cleaning and generate complex data reports. Data report has a great impact on the study progress and quality of the trial data, which ultimately impact the quality of the clinical trial.

I am currently part of the POM-DEX team studying myeloma (a form of bone marrow cancer). The full name of the study is Prospective Follow-up of Relapse Myeloma Patients after Previous Exposure to Bortezomib and Lenakudomide treated on Pomalidomide and Dexamethasone.

My role in the study is to provide data management skills ranging from study protocol review to creation of data validation programmes and data reports. I have collaborated with the study team to develop a sound study database with customised data monitoring report features. I have also implemented a data validation plan to ensure quality standards of data collection.

As multiple study sites are involved in the POM-DEX study, SCRI provided training of site personnel to equip them with data collection and management skills. I was especially happy with the training of our Japanese study team in Nagoya where despite language barriers, we established a rapport and shared information on clinical trial regulations in our respective countries.

To help maintain site performance, SCRI's data management team has designed and developed monthly data monitoring reports unique to the study. I have maintained regular communication with all site coordinators for the monitoring of study progress.

Multiple myeloma is the second most common haematologic malignancy in the world. The POM-DEX study is my first oncology study and I am grateful for the chance to be part of a study to help provide hope for Asian myeloma patients.
This is the first trial conducted in the newly-formed Asian Myeloma Network. The network was set up by the International Myeloma Foundation as a cooperative clinical trial group in Asia and is a recognised source of expertise for myeloma in Asia. Myeloma experts from Singapore, Hong Kong, Japan, China, Korea, Taiwan and Thailand in the network share resources to look into the growing health threat presented by myeloma in Asia.

The POM-DEX trial in 150 Asian patients will look at the efficacy and tolerability of Pomolidomide and provide information on whether the addition of a second drug, Cyclophosphamide, can bring about improvement.

Since the POM-DEX study started in 2014, SCRI has helped the trial progress well, with quick recruitment and quality results such that the study is on track to completion in 2018.

SCRI’s sterling services so far include safety reporting and pharmacovigilance, statistical support, monthly reports on data completeness and recruitment. I am particularly satisfied with SCRI’s e-CRF and the training by the data management team at the multiple centres to teach the site personnel how to use the e-CRF.

The preliminary result that has been so promising that the drug sponsor, Celgene, is providing funding for a second trial. This randomised trial will compare the efficacy of Pomolidomide and Dexamethasone with a combination of Pomolidomide, Cyclophosphamide and Dexamethasone.

Our Investigator
Professor Chng Wee Joo
Director
National University Cancer Institute, Singapore
Statistical analysis and research consultation services comprise

» Collaboration for study design, grant and protocol development together with SCRI’s Biostatistics and Epidemiology teams
» Generation of randomisation lists with appropriate block-size and stratification factors, preparation of code-break envelopes for emergency unblinding
» Statistical analysis planning and programming including interim, final and secondary analyses for research publications
» Systematic literature review and meta-analysis
» Study report and scientific manuscript writing and review
» Scientific and statistical consultation and workshop services

THE ANALIS STUDY

• This investigator-initiated clinical trial was led by Prof Aung Tin from SNEC in collaboration with NMRC and SCRI, with funding from SNEC.

• This pioneer multi-centre, paired randomised-controlled trial aims to assess the effects of laser iridotomy on patients with asymptomatic narrow angles, an anatomical trait that predisposes patients to primary angle closure glaucoma.

• By studying patients over five years, the team could compare the effect of laser iridotomy (e.g. if the laser treatment can prevent the progressive blinding course for which the condition is known for) with the disease progression in patients who had no treatment.

With the results of the trial, the team will be able to better understand the natural history of primary angle closure glaucoma and to ultimately offer better patient care to Asian patients.
THE ANALIS PROJECT TEAM

From Left to Right: Dr Baskaran Mani (SERI), Professor Aung Tin (SERI) and Ganesh Lekurwale (SCRI)

Absent with Apologies: Teo Soh Chin (SERI), Lu Qingshu (SCRI), Lee Shu Ling (SCRI), June Leam (SCRI)
SCRI’s Biostatistics team provides statistical analysis and research consultancy services to both internal and external collaborators. For example, we work closely with clinical investigators from research institutions and academia to critique the research question, form a testable hypothesis and help in choosing an appropriate study design.

As a statistical analyst, I am not only a certified advanced programmer for SAS (one of the most commonly used statistical software for regulatory studies) but also proficient in SAS programming for data migration, implementation of CDISC standards for data standardisation, and Tables/Figures/Listings generation. My technical expertise ranges from providing safety and efficacy analyses programming support to investigator-initiated studies, commercial studies and statistical automation tools development.

A recent example of a study I am involved in is an investigator-initiated trial called ANALIS that started in 2005. After recruitment of 480 patients was completed in 2010, a five-year follow-up was completed in July 2015.

Since January 2016, I have provided statistical programming support for the trial to look into the preventive effects of laser treatment for a type of eye disease called angle closure glaucoma.

I worked closely with other SCRI teams on some of the data analysis issues that arose from this trial due to the complexity of the trial design. As these issues had rarely been encountered in other trials, they posed a bit of a challenge. However, the team managed to resolve them. With input from the trial statistician, the analysis programmes that I wrote were successful in generating reports on safety and efficacy analyses, an essential outcome that greatly enhanced my job satisfaction.

Although the final analysis of this trial is still on-going, I have a great sense of fulfilment knowing that I am playing a small yet important role that will impact glaucoma management in Asia.

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Our Staff
Mr Ganesh Lekurwale
Senior Statistical Analyst
BSc (Bioinformatics), Swami Ramanand Teerth Marathwada University
Post Graduate Degree (Applied Statistics with Software), University of Mumbai

Number of years in clinical research: 6
Our multi-centre randomised controlled trial on Prophylactic Laser Iridotomy for eyes with narrow drainage angles proceeded smoothly and we have successfully completed the five-year follow up for the last subject of this trial.

Now in the process of data cleaning and analysis, SCRI’s help with data monitoring, database setup and statistical analysis has been invaluable. With SCRI’s preparations to ensure that our investigator documents were kept in place, the team managed the SingHealth internal audit very well despite receiving study documents from several parties.

This study is a landmark trial as it is the first of its kind to be held in the field of ophthalmology. The results will help us answer a fundamental question on prophylactic intervention in angle closure disease.

Angle closure glaucoma is a major blinding condition in Singapore other Asian countries such as China and India are also known to have a high incidence of the eye disease. In fact, studies have found narrow angles to be a predisposing condition prevalent among about 6% to 10% of Asians above 40 years of age, especially among the Chinese.

While laser peripheral iridotomy is a possible strategy to prevent disease progression, there is no current evidence to support this. Hence, the results of our trial will be the first in the world to provide us with evidence and will be instrumental in helping us improve treatment outcomes for Asian patients.

I am very proud that this clinical trial was conducted successfully in Singapore, thus helping to cement Singapore’s position as a leader in eye research. Our research focus on Asian patients is especially important as western eye care does not always apply to Asian populations with their genetic differences.

Our Investigator
Professor Aung Tin
Senior Consultant, Head of Department of Glaucoma, and Deputy Medical Director (Research)
Singapore National Eye Centre (SNEC)
Evidence synthesis services comprise:

» Development of methodology to promote evidence-based medicine including systematic review and meta-analyses

» Conceptualisation of synthesis approaches of qualitative and quantitative evidence from multiple published studies

» Use of systematic reviews and meta-analyses methods to summarise and interpret existing knowledge, identify knowledge gaps to support health services assessment and inform decision-making

» Writing of systematic reviews for Cochrane, a global independent network of researchers, professionals, patients, carers and people interested in health

Prognosis of Paradoxical Low Gradient Severe Aortic Stenosis:

A NETWORK META-ANALYSIS APPROACH

• This investigator-initiated project was led by Assistant Professor Chin Woon Loong Calvin from NHCS in collaboration with SCRI.

• This networks meta-analysis aims to assess how the prognosis varies from different types of aortic stenosis patients.

Current studies show conflicting results for outcomes and benefits of aortic valve replacement. Current guidelines also do not provide specific recommendations for symptomatic patients with the condition. Hence, a synthesis of all the relevant evidence for a comparison of patients with different types of aortic stenosis will help clinicians provide better treatment options for the variations of the heart condition.

With the insights gained on the cardiac condition through the meta-analysis study, the team can look into future research and clinical trials to tailor better patient care.
THE PROJECT TEAM

From Left to Right:
Assistant Professor Chin Woon Loong, Calvin (NHCS), Charles Zheng Qishi (SCRI)
Our Staff
Dr Charles Zheng Qishi
Epidemiologist
MBBS (Preventive Medicine),
Shanghai Jiao Tong University
MPhil (Epidemiology and Biostatistics),
University of Hong Kong

Number of years in clinical research: 2

As an epidemiologist, my professional interests are in clinical outcomes and health services research. These include study design and data analysis, health economics evaluation such as cost-effectiveness analysis, and evidence-based medicine, e.g. literature search strategy development, critical appraisal and advanced meta-analysis methods.

Like some of my SCRI colleagues, I am a staff member of Cochrane Singapore, a network of contributors who work together to produce credible and accessible evidence about the effectiveness of healthcare services. I organised Cochrane workshops to train local clinicians and researchers on systematic reviews and also developed course materials for new training workshops.

One of the research projects I am currently supporting is a study that was started in October 2015. Named “Prognosis of Paradoxical Low Gradient Severe Aortic Stenosis: a Network Meta-Analysis Approach”, the study aims to synthesise all the relevant evidence to indirectly compare patients with various types of aortic stenosis so as to assess overall management and mortality for patients with the heart condition.

My key responsibilities for the project include search strategy development, study eligibility screening, risk of bias assessment using critical appraisal tools, data extraction and transformation, data analysis and result interpretation.

I am glad that my evidence synthesis expertise is helping not just healthcare providers but also patients looking for quality information on the effectiveness of treatments.

The exponential increase in medical publishing makes it almost impossible to keep up with primary research evidence, particularly for busy healthcare providers and policy makers. By conducting evidence synthesis, I efficiently summarise the current evidence and help translate it into practice. Concise medical information benefits the patients and caregivers as well.

My Evidence Synthesis colleagues and I take professional pride in delivering strong and dedicated support to evidence-based medicine and emerging health economics evaluation. Knowing we are able to translate our expertise into local healthcare benefits gives us a great sense of accomplishment.
I am working with SCRI on more than one project and I am very appreciative of my SCRI collaborators who are highly experienced and very professional.

One of the projects we are working on is a meta-analysis to look into the role of aortic valve replacement in patients with aortic stenosis, a common cardiac condition that can result in left ventricular hypertrophy and heart failure in the adult population.

In this study, we used a novel approach to better understand how the different characteristics of aortic stenosis patients affect their outcomes. SCRI’s expertise ranging from literature search to complex analyses has been invaluable in every step of the study. From search strategy development to statistical analysis, each step was clear and standardised.

Interaction with my SCRI partners taught me new techniques in data synthesis e.g. network meta-analysis and meta-regression. These skills equipped me to handle complex evidence to reveal the effects of clinical characters that traditional methods may not achieve.

We are on track with the project schedule and in the midst of finalising analyses. We are also looking at the possibility of a novel therapy in hypertension treatment. I am indeed very pleased that the study results have the potential to impact current management of hypertension.

Our Investigator
Assistant Professor Chin Woon Loong, Calvin
Consultant, National Heart Centre, Duke-NUS Medical School
SCRI’s Business Operations team supports our partners in the planning of their studies and budgeting process.

For new projects or requests for collaboration, Business Operations first strives to understand the requirements before offering customised project proposals that meet the study objectives.

For partners applying for research grants to fund their studies, the Business Operations team helps them assess their operational needs and revise budgets for grant submissions to their funders.

Through understanding and initiative, the team works closely with them to ensure that SCRI’s proposed services not only meet partners’ needs but also fit their proposed budgets and finalised contracts.

As the coordinator between internal and external stakeholders, Business Operations also offers advice on the proposed workflows based on our collaborators’ needs and requirements.
SCRI’s Pharmacovigilance team plays an essential role in product development by ensuring the safe use of investigational products so as to reduce risks and increase benefits for patients. To do this, the team designs trial-specific SAE forms and safety monitoring plans in collaboration with the principal investigators of a study. The Pharmacovigilance team provides its partners with medical support that includes the taking on of reactive medical monitoring roles in specific studies.

Other key services performed by Pharmacovigilance include the creation of centralised safety databases that capture and monitor SAEs. The team not only performs SAE reviews and queries, it does follow-up with investigational sites to assemble SAE reports and carry out SAE reconciliation.

If events are identified for expedited reporting, the Pharmacovigilance team offers its partners its regulatory expertise when required in the form of Council for International Organizations of Medical Sciences (CIOMS) submissions to local authorities such as HSA.
QUALITY ASSURANCE

Quality Assurance services comprise

» Auditing of clinical data in line with approved protocols
» Ensuring clinical studies are conducted in accordance with Good Clinical Practice (GCP) guidelines, regulations and sponsor requirements while the rights, safety and well-being of trial patients are protected
» Assuring clinical trial data produced are of integrity and credible
» Collaborating with clinical operations staff for corrective action on violations/deviations detected
» Training of site and clinical operations staff to meet requirements of audits from the institution, sponsor or health authority inspections
» Fulfilling of services for external clients as per contract obligations

Within SCRI, Quality Assurance works closely with the different services to ensure clinical studies are conducted in compliance to approved protocols, guidelines and regulations. Our external partners range from investigators of healthcare institutions to study sponsors and health regulatory authorities.

One of the SCRI Quality Assurance’s objectives is to ensure that study conduct is compliant to relevant guidelines and regulations. Adherence to protocols and operating processes assure trial patients that their rights, safety and well-being are protected. This is done through audit and appropriate training.
An example of a key study Quality Assurance supported in 2015 is the Doxy-TB trial. It is a pilot study conducted on healthy volunteers and patients on the effects, safety and tolerability of an investigational study drug, Doxycycline, on tuberculosis. With the support from SCRI (Quality Assurance and clinical operations staff), and the site staff’s diligence in the study conduct, this trial received a positive inspection report during the regulatory inspection.

One of the Quality Assurance’s achievements in May 2015 was the site audit for the MUC-1 study for which SCRI is the study sponsor. With the successful completion of the site audit, site staff’s and sponsor’s confidence are enhanced. They are assured that the first-in-man clinical study is performed in adherence to protocol and required regulations resulting in the approval of the study extension.

Additionally, Quality Assurance provides on-site support services such as review of case notes, consent forms and documentation consent form, and other related study matters to ensure that study conduct is complied with according to approved protocols, regulations and guidelines. Other auditing services by the Quality Assurance include systems process and vendor audits as requested by study sponsors or healthcare institutions.

Besides on-site training of site personnel on guidelines, regulations and audit processes, it conducts training for internal staff on SCRI’s revised or new SOPs, and all staff are trained on their responsibilities in reporting misconduct or fraud.
OUR CONTRIBUTIONS

While its global clinical research networks provide an important platform for research breakthroughs, SCRI helps Singapore to enhance clinical trial efficiency.
CLINICAL RESEARCH NETWORKS AND MANAGEMENT

In managing and developing its CRN, efforts by SCRI comprise

» Strengthening of clinical research capabilities through SCRI’s setup of a support framework

» Provision of opportunities for engagement in high-impact research for diseases of Asian significance

» Facilitation and enhancing of collaborations between academia, industry and government

» Provision of a platform to promote clinical leadership and facilitate career development of clinical investigators, scientists and other clinical research personnel

» Skill development of clinical research personnel through opportunities to develop high-impact research questions and application for national-level research funding

» Development of support infrastructure for network partners including key secretariat support and training of research personnel

Well-established clinical research networks have become a critical platform to gather clinical evidence that was not possible in the past with single sites.

Since its early days as CTERU, SCRI has developed specific or disease-focused CRNs to link investigators with research interests in the same disease areas. Through its building of foundation and infrastructure, SCRI has established new CRNs such as the Asia-Pacific Hepatocellular Carcinoma (AHCC) Trials Group covering more than 40 sites in 17 countries, and the Singapore-based Metabolic Research Network. In the area of network development, SCRI is unique in the region.
With its CRN support framework in place, SCRI is able to provide its network partners the appropriate infrastructure, personnel, sites and management to work collaboratively in innovative clinical research.

Through its collaborations with network clinicians in the development of specific disease, or practice-focused CRN, SCRI is able to translate the Communities of Practice concept into clinical research opportunities. SCRI aims to continue engaging Singapore’s disease experts as Principal and Site Investigators in multi-site, multinational clinical studies.
NATIONAL CLINICAL TRIAL COORDINATION INITIATIVES

As a key member of the Clinical Trials Implementation Committee (CTIC), SCRI’s responsibilities comprise

» Development of the Master Clinical Trial Agreement (MCTA)
» Improvement of ethics review timelines
» Development of the National Clinical Trial Dashboard to track and measure the performance and efficiency of clinical trials
» Drawing up of incentives for clinicians and public healthcare institutions to carry out clinical trials
» Development and implementation of training schemes and career path framework for Clinical Research Coordinators (CRCs)

CTIC was set up in 2014 to enhance the efficiency of clinical trials conducted in Singapore. The committee comprises research and clinical trial directors from the public healthcare institutions and other key stakeholders.

Led by the Ministry of Health’s Deputy Secretary (Policy), CTIC oversees the implementation of strategic initiatives based on recommendations by the Clinical Trial Workgroup, a high-level workgroup formed earlier to shape the clinical trial landscape in Singapore. The CTIC joint secretariat is staffed by SCRI and NMRC.
SCRI is tasked with implementing strategic initiatives identified by CTIC, such as:

**ONE-STOP LEGAL SERVICE**

» SCRI set up the one-stop legal service following a Contracting Agent (CA) model

» SCRI acts as an agent to help negotiate pharmaceutical sponsored agreements within pre-agreed parameters (with clusters)

» Piloted since May 2015, the service is currently providing support to clusters when required

» The service helps provide a single template for pharmaceutical companies

» The service provides training and support to research office staff on the usage of master clinical trial agreement (MCTA) templates

**NATIONAL CLINICAL TRIAL INSURANCE**

» Implemented by SCRI among the public healthcare clusters since 1 May 2015, SCRI initiates all negotiating processes for the National Clinical Trial Insurance for the clusters. Not only will SCRI work with insured parties on the administration and notification of potential claims, it will also coordinate annual clinical trial declaration for submissions to the insurers

» SCRI is currently renewing the policy for the clusters

To meet the requirements of the clusters, SCRI staff trained in legal documentation and administration are on hand to provide help and support. SCRI has also engaged a well-known legal counsel for help when required.
AS A TRIAL SPONSOR FOR INVESTIGATOR-LED STUDIES

As a trial sponsor, SCRI offers services comprising

» Regulatory submissions
» Study protocol development
» Safety monitoring
» Quality control
» Legal responsibilities
» Legal import of the investigational product

In 2014, SCRI took up the role of trial sponsor for the landmark MUC-1 study. The partnership between SCRI, National Cancer Centre Singapore and a US-based biotechnology company, MicroVAX, LLC, saw the group conducting the “first-in-man” Phase 1 therapeutic cancer vaccine study in Singapore.

With SCRI responsible for the project progression, the study has proceeded favourably. By 2015, more than four cohorts of patients were enrolled. SCRI’s support as the trial sponsor enabled the Singapore investigators and research partners to focus on their role in patient recruitment and administration of investigational drugs.
As an academic research organisation, SCRI has the expertise to manage the planning and execution of high quality clinical trials. Through this innovative initiative, SCRI is able to bring Singapore to the next level of investigator-led trials.

Associate Professor Teoh Yee Leong
Chief Executive Officer, SCRI
OUR GROWTH

SCRI spearheads the planning and delivery of training programmes for clinical research personnel to develop clinical research capability in Singapore and the region.
SCRI believes that the well-being of our employees has a direct impact on the success of the organisation. The SCRI Welfare and Wellness Committee has adopted a holistic approach incorporating the Work Place Health Promotion Programme (WHP) and diverse range of social recreational programmes to promote and enhance employee total well-being and workplace camaraderie.

The SCRI Bowling Tournament was held at the Singapore Polytechnic Graduate Guild.

SCRI staff celebrating the festive season with a team log cake decoration contest at the SCRI Christmas Tea Party.
SCRI staff and families having a fun day at Sentosa on Family Day.

SCRI staff enjoy keeping fit together at weekly body combat sessions.
On 27 March 2015, staff went back in time for Retro Nite, the theme of the SCRI Dinner and Dance 2015.

Sportingly attired in retro fashion, staff enjoyed an evening of good food and company, taking turns to join in group activities on and off stage. Funny props provided good photo opportunities for one and all.

An informal award ceremony saw SCRI CEO Associate Professor Teoh Yee Leong handing out Long Service awards and the much-looked-forward to Staff of the Year award. Many staff members then took to the dance floor for a mass dance that ended the evening on a high note.

A time for nostalgia for SCRI staff at Retro Nite, Dinner and Dance 2015, held at the National University of Singapore Guild House.
SCRI continues to provide various training and development opportunities to develop the capabilities of its staff. In addition to individual professional development, SCRI has also organised the following programmes to develop our talent:

**7 HABITS OF HIGHLY EFFECTIVE PEOPLE**
As a continuation from 2014, SCRI organised a 3rd run of “7 Habits of Highly Effective People” in 2015 to develop and enhance the effective habits among employees.

**CLIENT ENGAGEMENT WORKSHOP**
To enhance the engagement skills of our staff, we also arranged for a 2nd run of the “Client Engagement Workshop” in 2015.

**COMPETENCY BASED INTERVIEW WORKSHOP**
To further enhance the skills of our managers in the assessment of competency, capability and character in a candidate during an interview, the managers were given an opportunity to participate in the Competency Based Interview Workshop. Usefulness of the workshop came through when managers learnt to formulate behaviour-based questions to find the best-fitting candidates for our SCRI family.
SEMINARS, CONFERENCES AND WORKSHOPS

WORKSHOP HIGHLIGHTS

3 FEBRUARY 2015
A*STAR BIOMEDICAL ENGINEERING PROGRAMME, GRANT ENHANCEMENT TRAINING (GET) WORKSHOP
This Workshop was the 4th annual collaborative series between SCRI and A*STAR that focused on Medical Devices. It was set up to assist clinicians and biomedical engineers who are seeking Biomedical Engineering Programme (BEP Grants) to understand the fundamentals of medical device clinical trials methodology in order to enhance their grant applications.

Guest speakers from various institutions shed light on regulatory strategy, practical tips on writing grant applications and animal model services for medical device development. SCRI speakers covered topics on clinical study design elements, statistical analysis planning, clinical site management and budgeting for clinical studies.

2 APRIL 2015
SCRI-CSU ADVANCED CLINICAL TRIAL WORKSHOP ON “MANAGING LARGE INVESTIGATOR-INITIATED TRIALS”
In collaboration with NUS CSU, this one day practical workshop aimed to help experienced investigators to manage their investigator-initiated clinical trials. Participants rotated through three practical sessions to discuss with key faculty members from SCRI their projects. Practical issues regarding project management, recruitment strategies, study monitoring, and data management etc. were discussed.

7-8 MAY 2015 (TTSH) | 7-28 JULY 2015 (NUS)
COCHRANE SYSTEMATIC REVIEW WORKSHOPS
The two-day Basic Workshops provided essential guidance of the entire systematic review process, in accordance with the Cochrane Handbook for Systematic Reviews of Interventions. It covered the topics on developing a focused question (PICO method) and effective literature searching, assessing risk of bias of studies, conducting meta-analysis using Review Manager and understanding the results (e.g. forest and funnel plots) and heterogeneity.

24 JULY 2016
INTRODUCTION TO SYSTEMATIC REVIEW OF LITERATURE
Participants learnt how to conduct a systematic review of the Research Literature and also how to formulate a research question and develop an appropriate search strategy. At the end of the workshop, participants were able to structure research questions, perform systematic searching of e-literature databases, evaluate sources of bias, and interpret meta-analysis.

16 OCTOBER 2015
GRANT ENHANCEMENT TRAINING (GET) WORKSHOP
Aimed at helping individuals develop competitive grant applications through facilitating early engagement and preparation.

SCRI Lecturers and Facilitators discussed scientific methods, study operations and study budgeting. The participants commended the SCRI Team for their practical knowledge and found the workshop very beneficial and rewarding, gaining valuable insights to writing persuasive and impactful grant research proposals.
SEMINAR AND CONFERENCES

Through industry seminars, workshops and conferences, SCRI shares its expertise with the clinical research community. These avenues for interaction between industry, clinicians and research personnel serve to develop active networks and collaborative discussion that enhances the quality of clinical research.

20 - 23 JANUARY 2015
13TH ASIA PACIFIC EVIDENCE-BASED MEDICINE & NURSING WORKSHOP AND CONFERENCE

7 MARCH 2015
BIOBIZ CONFERENCE 2015

12 MARCH 2015
NATIONAL HEALTHCARE GROUP GRANT PREPARATORY SEMINAR

18 - 19 MARCH 2015
NMRC AWARDS CEREMONY & RESEARCH SYMPOSIUM 2015

24 - 25 MARCH 2015
8TH BIOPHARMA ASIA CONVENTION 2015

12 - 15 JUNE 2015
COCHRANE SYSTEMATIC REVIEW WORKSHOP, JEJU ISLAND, SOUTH KOREA

1 OCTOBER 2015
SINGAPORE-STANFORD BIODESIGN INNOVATION PROGRAMME

2 - 3 OCTOBER 2015
SINGAPORE HEALTH AND BIOMEDICAL CONGRESS 2015

CONFERENCES HIGHLIGHTS

28 SEPTEMBER 2015
SCRI INVESTIGATOR-INITIATED TRIALS (IITS) CONFERENCE

The Conference discussed strategies and initiatives in specific areas of investigator-initiated and academic clinical research. Many clinician scientists, researchers and experts from research institutions, policy makers, industry and regulatory agencies took part in the Conference. The agenda provided the key to future success in investigator-initiated trials by addressing current challenges and highlighting novel solutions.

In conjunction with Singapore’s Jubilee Anniversary, the SCRI had specially commissioned the SG50 commemorative book on Saving Lives Through Clinical Research – A 50-Year Journey of Singapore’s Scientific Leadership, which was unveiled at the Conference by Minister of State for Health, Dr Lam Pin Min. The book captures the journey of clinical research and milestones achieved in Singapore, and also discusses the new frontiers in the road ahead.

During the book launch, Dr Lam highlighted the importance of clinical research in Singapore and breakthrough studies such as ATOM, which SCRI was a collaborator. “Today commemorates the pioneering efforts of many Singapore medical researchers whose painstaking efforts and dogged research have transformed once life-threatening diseases into treatable conditions. As a result, this has helped improve the quality of life of Singaporeans and extended the survival of our patients,” said Dr Lam.
In 2015, SCRI participated as a Booth Exhibitor at the Singapore Health and Biomedical Congress (SHBC) organised by National Healthcare Group. The Conference is the largest healthcare scientific meeting in Singapore, attracting over 3,000 local and global healthcare delegates each year. SCRI Biostatistician, Ms Wei Yuan’s abstract titled “Patterns and standards for fetal abdominal circumference and estimated fetal weight in Chinese Population” was one of the posters accepted for presentation at the event.

SHBC aims to foster an environment of lifelong learning and relevant research and uphold key values in nurturing success by promoting collaborations, participation and trust among healthcare organisations. This event also provided a compelling and accessible platform to advance the education of the healthcare professionals and the patients they care for so as to build a more integrated healthcare system for the people of Singapore.
### SCRI LED RESEARCH PUBLICATIONS


5. **Lekurwale G**, **Wani P**. Adverse event data programming for infant nutrition trials. PharmaSUG China 2015 Sep; 09.


### SCRI COLLABORATIVE RESEARCH PUBLICATIONS


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INNOVATION IN CLINICAL RESEARCH FOR THE NATION
OUR FOCUS

While SCRI supports multi-site clinical trials spanning many countries, at the heart of its clinical research is its focus on Singapore’s key health issues and diseases that affect Asian patients.