

PAROS: Pan-Asian Resuscitation Outcomes Study Clinical Research Network

Background

Out-of-hospital cardiac arrest (OHCA) is a global health concern. Asia-Pacific's (Continental Asia and Australasia) population is still increasing and is expected to age progressively in the next 10 to 15 years. Emergency medical conditions in the elderly, including OHCA, are anticipated to increase and many Emergency Medical Service (EMS) systems in Asia are experiencing strain because of increase in workload and limited resources.

The Cardiac Arrest Registry to Enhance Survival (CARES) funded by the United States Center for Disease Control and Prevention (CDC), the Canadian Ontario Pre-hospital Advanced Life Support (OPALS) network and the Resuscitation Outcomes Consortium of North America are examples of regional registries that have produced research that impacts policy in this important area. There is a need for countries and regions with fewer resources to learn from these databases, to pool data and derive meaningful information for comparison with established registries in order to improve outcomes of OHCA through EMS systems, hospital policies and public and community education.



Some key questions for the Asia-Pacific and other developing countries are:

- How can we increase survival from OHCA in the most cost-effective, evidence-based way given the resource limitations?
- How can the heterogeneity across systems be addressed when designing future policies?
- What intervention strategies will give the most benefit for investment?

It is this urgent need for high quality data collection to promote research on OHCA in the Asia-Pacific region that led to the inception of the Pan-Asian Resuscitation Outcomes Study (PAROS).

Introducing PAROS Clinical Research Network

The Asian Emergency Medical Services (EMS) Council was established in 2009 as a voluntary, participation-based group promoting education and advocacy of EMS issues in the Asia-Pacific region. It has adopted the PAROS Study as one of its core activities for the next 5 years. A working group of interested pre-hospital and emergency care providers in the region was formed in 2009 to discuss the establishment of a Pre-hospital and Emergency Care Collaborative Research Group. This group had regular quarterly meetings as well as additional web-conferencing and telephone conferences.

The PAROS Clinical Research Network (CRN) was inaugurated in 2010 and adopted a constitution with an Executive Committee comprising of a Chairman, 3 Co-chairmen and 2 nominated representatives from each participating country. The Executive Committee is elected for a 3-year term. Bringing together like-minded Pre-hospital and Emergency Care providers from the Asia-Pacific region, the PAROS CRN aims to improve outcomes by promoting high quality research into resuscitation.

Supported by the Singapore Clinical Research Institute (SCRI) as the Trial Coordinating Centre, the PAROS CRN has now grown into a consortium of 9 participating countries –

Australia, Japan, Korea, Malaysia, Singapore, Taiwan, Thailand, Turkey and United Arab Emirates – offering enormous potential in regional and global research.

The PAROS CRN is chaired by Asso. Prof Marcus Ong from Singapore and co-chaired by Dr Sang Do Shin from South Korea, Prof Hideharu Tanaka from Japan and Asso. Prof Matthew Ma from Taiwan.

Clinical Research in Pre-hospital and Emergency Care

In Pre-hospital and Emergency Care, clinical research is used to scientifically validate strategies to preserve lives and guide resource allocation decisions. More importantly, clinical research serves as the gateway to stimulate new ideas, the very seeds that bear infinite possibilities to improve patient outcomes.

Today, clinical research in the pre-hospital and emergency care, especially in the Asia-Pacific region, is inadequate and lacks coordination. Owing a large part to the complex, uncontrolled environment of pre-hospital and emergency care, the lack of integrated understanding on the markedly different EMS systems and varying outcomes reporting adds to the challenge to derive meaningful data and outcomes from numerous sources and interpret them.

The Value of PAROS CRN

PAROS CRN endeavours to answer important questions for the development and revisions of pre-hospital and emergency care policies. Research pursued under the auspices of PAROS CRN aims to improve outcomes and treatment capabilities across the Asia-Pacific region.

- **Network:** This effort is a unique, low-cost and self-

funded model of a collaborative research network. Each participating country is responsible for administering its own data collection process and all data are input via secured shared internet electronic data capture system hosted by SCRI, the Trial Coordinating Centre, in Singapore. By creating a platform to connect serious researchers, PAROS CRN fosters an environment conducive to intellectual exchanges and for research ideas to be shared and implemented beyond local settings. The 9 participating countries present a potential patient population of 89 million, a huge population base crucial for the characterisation of populations and population-based studies. The consortium leverages on its systemic diversity to deepen the understanding of issues and systems in pre-hospital and emergency care at both local and international levels. Its ability to reach out to countries across the Asia-Pacific region means that PAROS CRN can adopt a multi-pronged strategy that targets key stakeholders such as the community, EMS providers and the hospitals with the singular aim to improve outcomes.

- **Affiliations:** Recognising that education promotes mutual understanding between countries and plays a pivotal role in the generation of new ideas, PAROS CRN is affiliated to the Asian EMS Council, an advocate for Pre-hospital Care / EMS in Asia that focuses on creating opportunities for education and training. Both PAROS CRN and the Asian EMS Council are affiliated to the Asian Relations Ad Hoc Committee of the National Association of EMS Physicians (NAEMSP). PAROS CRN has also forged ties with the CARES, a research initiative based in Atlanta, USA, demonstrating collaboration with parties beyond the region.



Participants at the PAROS CRN Meeting in June 2010 (held during 13th International Conference on Emergency Medicine in Singapore)

- **Harmonised Database and Data Capture System:** To measure the outcomes from the Asia-Pacific region in a meaningful way, PAROS CRN developed a harmonised and unified data dictionary based on the Utstein template. With a system adapted from CARES, a user-friendly data capture system (ePAROS) was developed. Access to this electronic mode of data collection is offered at no cost to the data personnel of the participating countries, allowing data to be collected in a cost-effective manner in limited resourced environments. With collected variables and system compatible to CARES, data collected using ePAROS would also allow comparative studies to be conducted between the Asia-Pacific region and USA.
- **Research Focus and Activities:** As a first step, PAROS CRN has identified OHCA as one of its key research areas. OHCA is a global health concern and a leading cause of mortality. The main network study, PAROS is an international study that aims to understand OHCA as a disease in the Asia-Pacific region, provides international benchmarking and study of best practices and ultimately improve OHCA survival by determining appropriate interventions at systemic and community levels.

Besides this main study, the Network is also supporting a pivotal study on comparison of EMS Systems in the Asia-Pacific region and 13 other ongoing studies conducted in the Network. While independent development and varied amounts of resource commitment across countries has led to variations among EMS systems, there is no knowing how similar or dissimilar EMS systems in the Asia-Pacific region are; more fundamentally, whether systemic characteristics can have an impact on resuscitation outcomes. The study on comparison of EMS systems is the result of a concerted effort to characterise EMS systems in the Asia-Pacific region and it will provide baseline information for future studies involving the region.

The research questions of the 13 other studies range from termination of resuscitation, training, performance indicators, compliance of therapies to secondary analysis of the main OHCA study. These 13 are:

- 1 Overcrowding of Emergency Department (ED) in Asia
- 2 Emergency Medical Services (EMS) Systems – “End-of-Life” Issues
- 3 EMS Education and Training
- 4 Survey on the EMS System Performance Index
- 5 Adherence of Therapeutic Hypothermia / Early Goal-Directed Therapy (EGDT)
- 6 Paediatric OHCA Study
- 7 Incidence of Ventricular Fibrillation (VF) in Asian OHCA
- 8 Regional Variation in Outcomes of Witnessed VF in Asia
- 9 Impact of Supraglottic Airways and Endotracheal Intubation on Outcomes Following OHCA
- 10 Classify Urban/ Suburban/Rural Sites for OHCA Research across PAROS Countries
- 11 Re-exploration of EMS Response Time to the Survival of OHCA in Asia
- 12 Does Advanced Airway Benefit the EMT-Resuscitated OHCA
- 13 Non-Cardiac OHCA in PAROS

The PAROS CRN is an active network that meets at least twice every year to exchange new research ideas, discuss the progress of ongoing studies and reconnect with members of the network and its affiliates. As a young network, PAROS CRN has also taken an interest in

organising events relevant to the building up of research capabilities of its members. Members from the participating countries are able to submit new study proposals for evaluation at designated meetings. Data drawn from ePAROS for secondary analyses require prior approval so as to ensure that only relevant data is drawn and used. The setting up of Publications Committees has helped PAROS CRN develop an in-built peer review structure to ensure that only quality research is pursued. Currently, the 4 Publications Committees are organised into 4 domains – OHCA, EMS Systems, EMS Survey and Emergency Department (ED) Survey.

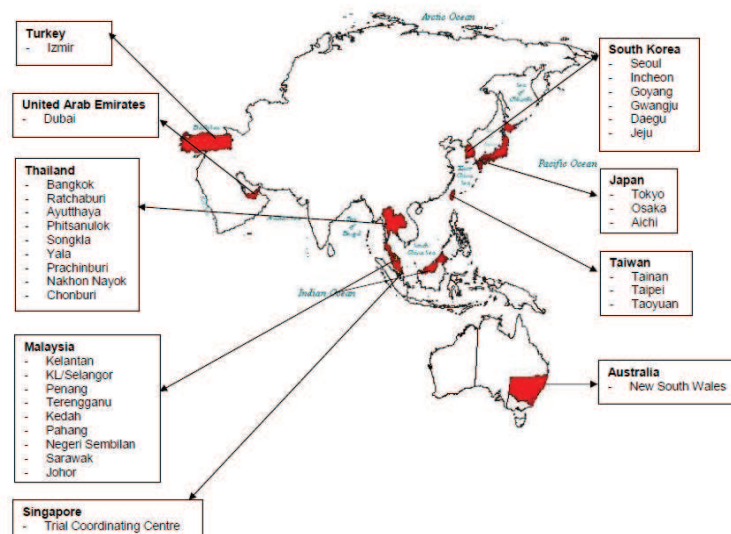
Trial Coordinating Centre – Singapore Clinical Research Institute

The Singapore Clinical Research Institute (SCRI) is an Academic Research Organisation dedicated to enhance the standards of human clinical research and become the ASEAN hub for clinical research excellence. SCRI strives to improve patient care through design and conduct of high-quality, cutting-edge clinical studies and supports academic, public-sector and industry sponsored studies, ranging from proof-of-concept to late-phase clinical trials and epidemiological studies.

As the Trial Coordinating Centre for PAROS CRN, SCRI fosters multi-institutional research through the development of personnel, sites and infrastructure, central coordination and management towards the common goal of scientific excellence. It leverages on the frameworks and platforms established as part of its clinical research network initiative to develop the people, processes and systems needed to effectively execute this common goal. SCRI plays a significant role in catalysing clinical research by creating a platform for academic leaders with common research interest, providing core research expertise ranging from study design methodology to project management, data management and data analysis and building up research capabilities of clinicians through training and education.

If you are interested to learn more about the possibilities PAROS CRN can bring to you, you are most welcome to visit us at <http://www.scri.edu.sg/index.php/paros-clinical-research-network> or email the Network Secretariat at sweesung.soon@scri.edu.sg

Besides PAROS CRN, SCRI also supports The Asia-Pacific Hepatocellular Carcinoma (AHCC) Trials Group, The Family Medicine Research Network (FMRN), and The Dementia Network.



Associate with PAROS CRN

As a progressive network, PAROS CRN is constantly seeking for opportunities to grow and get new research ideas that can contribute to better outcomes in Pre-hospital and Emergency Care.

Asso Prof Marcus Eng Hock Ong

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