Summary: PAROS New Study Proposals

New Study Proposal 1

Proposer	Title	Objectives/Hypothesis
Dr Liu Nan (Singapore)	Development and Validation of the Pan-Asian ROSC After Cardiac Arrest (PA-RACA) Score	• Aim: To develop and validate Pan-Asian ROSC After Cardiac Arrest (PA-RACA) score to assess the probability of ROSC among OHCA patients in the Pan-Asian population. • Hypothesis: PA-RACA score outperforms the ROSC after cardiac arrest (RACA) score that was derived from German OHCA registry • Methods: Retrospective analysis of data collected in the PAROS registry. Two scores will be build, PA-RACA and PA-RACA-DA. All available data to develop the PA-RACA score, and use the data from countries that have DA-CPR implemented to develop the PA-RACA-DA score. In addition to traditional statistical modeling, we will also explore the use of machine learning algorithms for score derivation.

New Study Proposal 2

Proposer	Title	Objectives/Hypothesis
Dr Liu Nan (Singapore)	PA-RACA score outperforms the ROSC after cardiac arrest (RACA) score that was derived from German OHCA registry	Aim: To develop and validate artificial intelligence (AI) and deep learning models with prehospital data to predict several key clinical outcomes such as neurologic recovery and survival to discharge Method: A secondary analysis using the PAROS-2 dataset, with traumatic patients and cases without sustained ROSC after resuscitation excluded. Routinely collected variables use to derive predictive models using AI and deep learning algorithms. The primary outcome is neurological recovery (Cerebral Performance Cat 1 or 2) after ROSC and the secondary outcome is survival to hospital discharge. Given the low outcome rate, specific algorithms are design in the predictive model to deal with data imbalance, i.e. skewed data distribution in outcomes.

New Study Proposal 3

Proposer	Title	Objectives/Hypothesis
Dr Gayathri (Singapore)	Descriptive comparison of OHCA survival and predictors amongst the geriatric age group in Asia	• As age increases in the geriatric group (above 65), the predictors of OHCA survival may change and may not be the same as in the below 65 group. • The study aims 1) to determine if there is a cut-off age where full resuscitative efforts are not that effective, 2) to help shape the counselling for Advance care plans or Do not resuscitate orders, 3) set the path for a Discrete Choice Experiment where we can ask both stakeholders (healthcare workers) as well patients and relatives what their choices might be • Method: Retrospective analysis of the PAROS data, with exclusion of traumatic cardiac arrest and those who had termination of resuscitation. Using multivariate regression to look the predictors of good outcome (ROSC, Survival to d/c, survival with good neurological outcomes

New Study Proposal 4

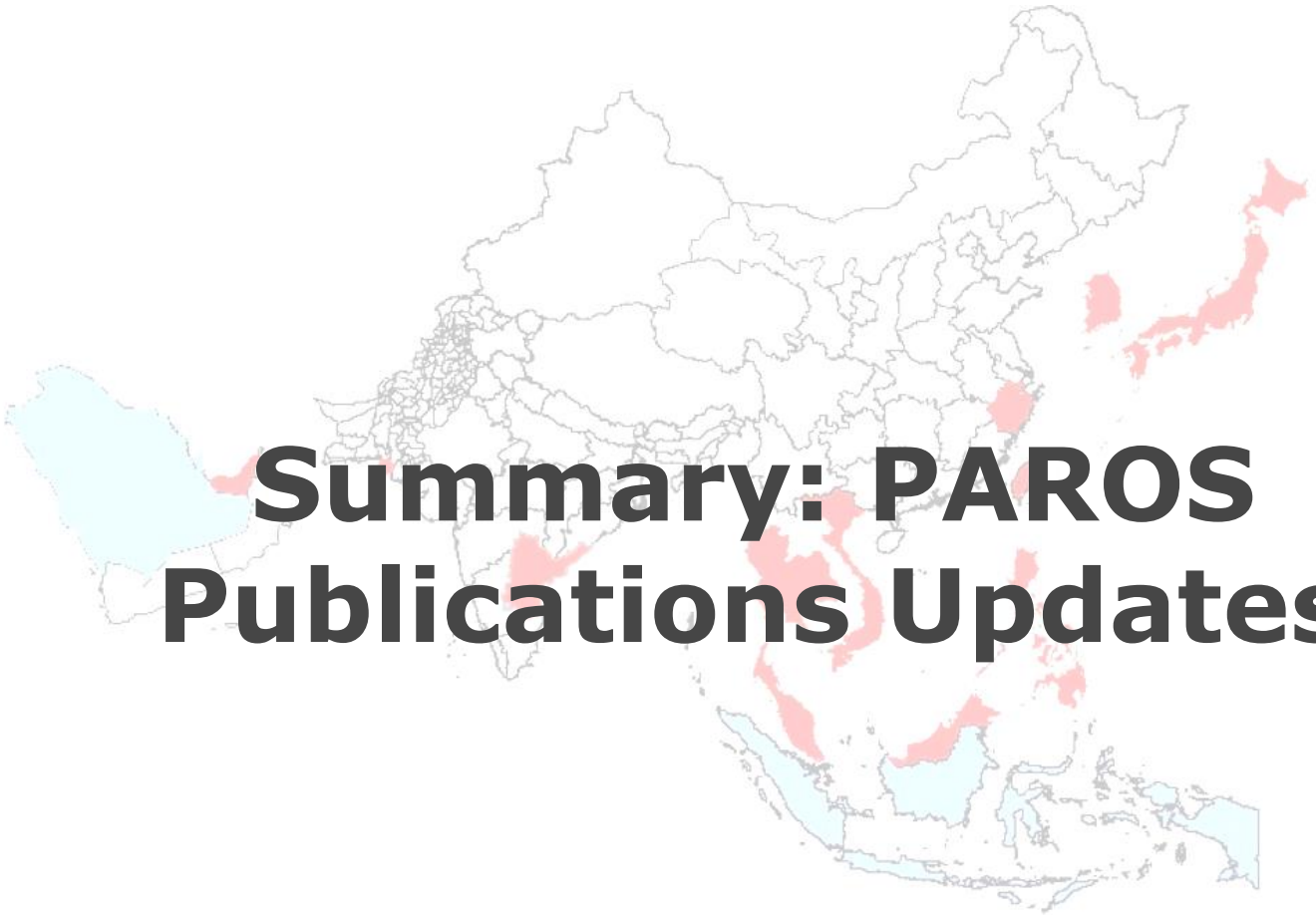
Proposer	Title	Objectives/Hypothesis
Dr Ivan Chua	Outcomes of OHCA patients stratified by mode of transport to the ED in Asia	• Aim: To examine the effect of mode of transportation to the ED on the outcomes of OHCA patients in different PAROS countries - whether there is a difference in terms of witnessed arrest, bystander CPR & AED rates across the different modes of transport to the ED on the survival outcome of OHCA patients • Hypothesis: OHCA patients brought in by EMS will have a higher rate of ROSC, survival to discharge and better neurological outcome compared to other modes of transport • Method: All PAROS countries with different mode of transportation to the ED, excludes patients with missing data. • Primary outcomes: Survival to discharge & Secondary outcomes: ROSC, good neurological status (Cerebral performance category 1 or 2) • Statistics: Multivariable logistic regression.

New Study Proposal 5

Proposer	Title	Objectives/Hypothesis
Dr Kenneth Doya G. Nonesa (Philippines)	Pediatric and Adult Non-Traumatic OHCA in Pan-Asian Countries in the time of COVID19	• Aim: To describe the incidence and demographics of Adult and Pediatric non-traumatic OHCA in Pan-Asian countries, To determine the ACLS provided by the EMS (prehospital) and in the emergency departments for adult and pediatric non-traumatic OHCA in Pan-Asian countries and outcomes [sustained return-of-circulation (ROSC)/ROSC to hospital admission, long-term neurological outcomes, survival to discharge] • Method: A retrospective cohort study of all Adult and Pediatric non-traumatic OHCA cases registered in PAROS database from March 2020

New Study Proposal 6

Proposer	Title	Objectives/Hypothesis
Dr Daniel Unno H. Hiquiana (Philippines)	Early versus Late Intubation among Out-of-Hospital Cardiac Arrest Patients: A Prospective Observational Study	• Aim: To determine the return-of-spontaneous circulation and 30-day survival-to-hospital discharge outcome among OHCA patients, brought to Emergency Department, treated initially with bag-valve mask ventilation with late ETI and early endotracheal intubation. • Hypothesis: There is no significant difference in the 30-day Survival-to-Hospital Discharge with 1) OHCA patients treated with BVM and late ETI, 2) OHCA patients treated with early ETI • Method: A prospective cohort study include OHCA patients subjected to the BVM with late ETI and early ETI. Early ETI is defined as intubation done ≤ 5 minutes while late ETI is defined as intubations done after 5 minutes. Exclude patients with signs of irreversible death (decomposition, rigor mortis, decapitation, etc.); In-Hospital-Cardiac Arrest; pre-existing DNR order; with advanced airway in place prior to resuscitation; and known pregnancy



Summary: PAROS Publications Updates

PAROS Main Paper

- Cost-effectiveness of Modifiable Factors for OHCA Survival

Title: Strategies to Improve Survival Outcomes of Out-Of-Hospital Cardiac Arrest (OHCA) Given a Fixed Budget: A Simulation Study

Published in Resuscitation on Feb 2020

Proposals Withdrawn

– due to timeline and lack of progress

Study Title	Date of Approval	First Author	Status updates_ Aug 2020	Topic Status
EGDT/ Hypothermia	June 2010	Dr Patrick Ko	Withdrawn 2018	Open to all
Non-Cardiac OHCA in PAROS	April 2011	Dr Young sun Ro	Withdrawn 2018	Open to all
A survey on public access defibrillation (PAD) implementation among PAROS members	June 2014	Dr Sheng-Wen Hou	Withdrawn 2019	Open to all
Safety practices among Asia EMS	Oct 2014	Dr Sarah Karim	Withdrawn 2019	Open to all
Relationship between OHCA burden and cardiac arrest outcomes	Oct 2014	Dr Kuo Chan-Wei	Withdrawn 2019	Open to all

Proposals Withdrawn

– due to timeline and lack of progress

Study Title	Date of Approval	First Author	Status updates_ Aug 2020	Topic Status
Location Characteristics and The Outcome Impact on OHCA among PAROS Communities	Nov 2015	Dr Patrick Ko	Withdrawn	Open to all
Analyzing the utilization of ECMO for OHCA in current situation among PAROS communities	Nov 2015	Dr Patrick Ko	Withdrawn	Open to all

Study Updates

Study Title	Approval	First Author	Status updates_Aug 2020
In OHCAs, does shortening the response time effect survival?	Oct 2010	Dr Chiang Wen-Chu	Preliminary abstract has published in ERC 2019 annual meeting. Manuscript in preparation, target to submit end of September.
Predictive performance of Termination-Of-Resuscitation (TOR) rules in Asia: Are They Accurate Enough?	April 2014	Dr Huang Yu-Sheng Dr Chiang Wen-Chu	Analysis completed. Manuscript in preparation, target to submit end of September.
Time Interval between Collapse and Return of Spontaneous Circulation between Various Outcomes in OHCA	June 2014	Dr Andrew Ho	Analysis in progress
Outcome Prediction for OHCA Patients Using Statistical Computation Approaches	Nov 2015	Dr Liu Nan	Published in Resuscitation (Validation of the ROSC after cardiac arrest [RACA] score in Pan-Asian OHCA patients)

Study Title	Approval	First Author	Status updates_Aug 2020
Factors Influencing Bystander Cardiopulmonary Resuscitation and the Related Outcomes across PAROS Communities	Nov 2015	Dr Jonathan Lu	Previous data outdated. Awaiting PAROS II dataset and analysis
Epidemiology of OHCA between developing and developed countries	Aug 2016	Takahiro Hara, Dr Marcus Ong	
Resuscitation Academy (RA) 10-Step Implementations in the Pan-Asian Resuscitation Outcomes Study (PAROS) group	Aug 2016	Dr Marcus Ong	Ongoing
Arrest to first compression time and survival outcome in witness OHCA.	Aug 2016	Dr Yu Jin Lee	Request to withdraw
The Outcomes of Traumatic or Injured OHCA and Ventricular Fibrillation	Aug 2016	Dr Yen-Pin Chen, Dr Sot Shih-Hung Liu Dr Patrick Ko	

Study Title	Approval	First Author	Status updates_Aug 2020
Comparison of dispatcher-assisted cardiopulmonary resuscitation (DA-CPR) practices among Pan-Asian Countries: A web-based survey	Dec 2016	Dr Ng Yih Yng, Dr Desmond Mao	Published in BMC Emerg Med (Title: Emergency medical dispatch services across Pan-Asian countries: a web-based survey)
Percutaneous coronary intervention provision and outcomes among cardiogenic OHCA in Asian countries	July 2017	Dr Takashi Tagami	Analysis phase
Population aging and proportion of elderly among cardiogenic out-of-hospital cardiac arrest patients: Post-hoc analysis of the Pan Asian Resuscitation Outcomes Study	July 2017	Dr Takashi Tagami	Published in Acute Med Surg (Title: Impact of population aging on the presentation of OHCA in the PAROS)
Environmental exposure as a risk factor for out-of-hospital cardiac arrest	Feb 2018	Dr Andrew Ho	

Study Title	Approval	First Author	Status updates_Aug 2020
Association between Response Time Interval and Favorable Neurologic Outcome according to Bystander CPR : Pan Asian Resuscitation Outcome Study	Feb 2018	Dr Hyun Wook Ryoo	Published, Association of response time interval with neurological outcomes after out-of-hospital cardiac arrest according to bystander CPR, on June 2, 2020 in American journal of Emergency Medicine.
Interaction effect of bystander CPR on the association between time from call to first rhythm analysis and shockable presenting rhythm after out-of-hospital cardiac arrest	Feb 2018	Dr Jeogn Ho Park	Ongoing
The influence of cancer on post-resuscitation treatments among out-of-hospital cardiac arrest patients	Feb 2018	Dr Joyce Kong	Request to withdraw
The effects of cancer on outcomes after out-of-hospital cardiac arrest	Feb 2018	Dr Joyce Kong	Request to withdraw

Study Title	Approval	First Author	Status updates_Aug 2020
The effect of initial ECG rhythm on the association between bystander cardio-pulmonary resuscitation (CPR) and outcomes after out-of-hospital cardiac arrest (OHCA)	Feb 2018	Dr Jung Eujene	Ongoing
Interaction effects of communities and advanced airway management on survival after out-of-hospital cardiac arrest; Multi-level analysis.	Feb 2018	Dr Ki Ok Ahn	2020: Published in CEEM (Variability in the effects of prehospital advanced airway management on outcomes of patients with out-of-hospital cardiac arrest)
Basic versus Advanced Life Support in Out-of-Hospital Cardiac Arrest: A Retrospective Study of the Pan-Asian Resuscitation Outcomes Study (PAROS) Registry Population	Feb 2018	Dr Mazen El-Sayed	Awaiting PAROS II dataset and analysis

Study Title	Approval	First Author	Status updates_Aug 2020
Utstein Factors and Outcomes in Traumatic Out-of-Hospital Cardiac Arrests	Feb 2018	Dr Chia Yih Chong Michael	Awaiting dataset and analysis
Pre-hospital Advanced Airway and Survival Outcomes after Paediatric Out-of-Hospital Cardiac Arrests.	Feb 2018	Dr Tham Lai Peng	Awaiting dataset and analysis
The difference of on-scene resuscitation according to initial rhythm in patient with out-of-hospital cardiac arrest	Feb 2018	Dr Won Chul Cha, Dr Taerim Kim	Request to withdraw
The impact of early coronary angiography on clinical outcomes in out-of-hospital cardiac arrest	Feb 2018	Dr Lim Shir Lynn	Analyses completed. Abstract written – submission to RESS 2020 planned. Manuscript ongoing.
Monitoring the brain after cardiac arrest	Feb 2018	Dr Lim Shir Lynn	Ongoing. Data collection only from Singapore – 2 centers presently.

Study Title	Approval	First Author	Status updates_Aug 2020
Gender difference in out-of-hospital cardiac arrest survival by region in Asian countries	Feb 2018	Dr Lee Sun Young	At preparatory phase
Prehospital Advanced Airway and Outcomes in OHCA	Feb 2018	Dr Tae Han Kim Dr Sang Do Shin	Request to withdraw
Variability of a first responder dispatch after out-of-hospital cardiac arrest among Asian countries	Jun 2019	Dr Sattha Riyapan	Ongoing
Emergency department factors and outcomes of adult and paediatric out-of-hospital arrests in Pan-Asian Countries	Jun 2019	Dr Gene Ong	Planning phase
Development and Validation of a Predictive Model for Early Neuro-Prognostication after OHCA	Jun 2019	Dr Liu Nan	Ongoing

Study Title	Approval	First Author	Status updates_Aug 2020
Comprehensive Prehospital Intervention for Heat Wave Victims	Jun 2019	Prof Marcus Ong, Dr Gayathri Nadarajan, Dr Ramana Rao, Dr Keshav Reddy	Manuscript in progress of being finalized; aim to submit July 2020 Survey questions being developed
Protocol development for Video-Call based DACPR	Jun 2019	Dr Tae Han Kim	Ongoing
Gender Disparities Among Recipients of Bystander CPR and AED in Pan-Asian Communities	Oct 2019	Dr Liu nan	ongoing