Study Proposal S1

1. BASIC INFORMATION	
Name: Won-Chul Cha	Designation: Emergency Physician
Email: docchaster@gmail.com	Country: Jeju, Republic of Korea

2. TYPE OF REQUEST (Please select one)		
■ New Study Proposal	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

OVERVIEW OF ED OVERCROWDING IN ASIA

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Survey questionnaire can be developed with input from the epidemiology team at the workshop.
Suggest "patient volume in ED" as alternative to "ED overcrowding" to reflect more neutrality.
Consider differentiating emergency cases from non-emergency ones at the triage be addressed in the survey/ be considered as a factor

- What are the definitions of overcrowding and which definition is most applicable to the ED setting?
- What are the characteristics of patients at EDs with high patient volume?
- What are the factors that affect patient volume?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

a. Primary: to describe ED overcrowding in Asian countries based on input, throughput and output factors.
b. Secondary: to compare physician perception on overcrowding based on definition, effect and solution.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

1. Inclusion: Hospital units of PAROS PIs
2. Study design: structured questions in the form of survey (6 major parts):
   a. Hospital demographics
   b. Input factors
   c. Throughput factors
   d. Output factors
   e. Overcrowding state
   f. Physician perception
3. Statistics: demonstration of demographic data

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

1. PAROS' first step to extend interest to hospital system.
2. First step towards solution to ED overcrowding:
   a. Modeling and statistical analysis should follow;
   b. Simulation method will help.

Study Proposal S2

1. BASIC INFORMATION	
Name: Chi-Hao Lin	Designation: Physician
Email: emergency.lin@gmail.com	Country: Tainan, Taiwan

2. TYPE OF REQUEST (Please select one)		
■ New Study Proposal	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

EMS Systems – "End-of-Life" Issues

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Consider "Termination of Resuscitation" as alternative to "End-of-Life" issues in title.
For objective of study, consider expanding scope to "to compare death issues in EMS settings internationally".

- Which countries have termination of resuscitation rule?
- What are the varying rules/criteria for termination of resuscitation currently in practice?
- Are there any sociological or cultural factors that could affect the application of termination of resuscitation application?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

1. To compare death issues in EMS settings among Asian countries

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

1. Questionnaire (3 major parts)
   a. Do not resuscitate
   b. Termination of resuscitation
   c. Death Declaration on scene

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

1. Legal
2. Financial
3. Ethical
4. Clinical

Study Proposal S3

1. BASIC INFORMATION	
Name: Hideharu Tanaka	**Designation: Professor**
Email: hidetana@kokushikan.ac.jp	**Country: Japan**

2. TYPE OF REQUEST (Please select one)		
☑ New Study Proposal (initial)	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Compare of education contents and quality across PAROS countries

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Consider obtaining syllabuses/ curricula of the various countries from textbooks and professional associations.

- What are the factors for consideration when assessing quality of EMS education?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

The outcome of out-of-hospital cardiac arrest (OHCA) may depend on the quantity and the quality with the emergency medical service staff (EMSS). However, we did not discuss the relation of education and outcome of OHCA. The aim of this study is to compare of education contents and quality across PAROS countries.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

The principle investigators of each site have to fill the questionnaire listed below,

1. EMS physician training (No of EMS physician, Definition of EMS physician, Duration training, others)
2. EMS agency (No of firefighter/EMT-Basic/Paramedic, No of station, EMS school/academy, others)
3. Education contents of Paramedic/EMT-Basic (Didactic, Skill training, CME, others)
4. BLS agency (Type of organization, CPR training in School, others)
5. Dispatch agency (EMD training (hr/year), Duration of training, others)

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

After analyze the relations of education and outcome of OHCA, we can improve the quality of EMSS education curriculum.

Study Proposal S4

1. BASIC INFORMATION	
Name: NIK HNA RAHMAN	**Designation:** ASSOCIATE PROFESSOR
Email: nhliza@hotmail.com	**Country:** MALAYSIA

2. TYPE OF REQUEST (Please select one)		
☒ New Study Proposal	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

PAN ASIAN STUDY ON EMS PERFORMANCE INDICATORS

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Surveying client satisfaction might not be feasible, or reliable if focusing on all clients of ambulance services. Suggest focusing only the low-risk clients for process indicators.

- What are the process indicators vs outcome indicators for EMS in the literature?
- What are the acceptable performance indicators for EMS?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

To create a standardize and sustainable performance indicators for the Emergency Medical Services (EMS) across Asian countries

Specific:

To measure the ambulance response time (ART) in each study center

1. To identify factors associated with ART
2. To measure the association of ART with mortality & morbidity for medical/surgical & trauma cases
3. To measure the client satisfaction with the EMS provision
4. To assess the factors associated with the client satisfaction
5. To measure the association of ART with client satisfaction

Null Hypothesis

The client satisfaction and ambulance response time are similar throughout the Asian countries regardless of the EMS system and client features

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

Prospective cross-sectional study to look at ambulance response time and patients' perception the ambulance services will be conducted for a two year period from ……..to …….. . The data form collection will be used which include for the time parameters and the client survey forms. Univariate analysis such as Independent t-test & One-way anova for each Independent variable. Multivariate analysis such as Multiple Linear/Logistic Regression & ANOVA/ANCOVA test using the Statistical Package for Social Sciences (SPSS).

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

i. For Service improvement
ii. For Patient outcome
iii. For auditing and quality assurance
iv. For interorganization comparisons

Study Proposal S5

1. BASIC INFORMATION	
Name: Patrick Chow-In Ko	Designation: Dept. of Emergency Medicine, National Taiwan University Hospital
Email: patrick.patko@gmail.com	Country: Taiwan

2. TYPE OF REQUEST (Please select one)		
■ New Study Proposal	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Adherence of Therapeutic Hypothermia(TH) /Early Goal-directed Therapy (EGDT) in Emergency Medicine Practice

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Survey questionnaire can be developed with input from the epidemiology team at the workshop, but obtainment of institutional or widely practised guidelines would be useful in isolating the important aspects of the protocol that could impact outcome.
Suggest focusing on only one therapy first (i.e. either TH or EGDT).

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

(1) To know the adherence of TH and EGDT for emergency medicine practice among Pan-Asian area and its difference between systems.
(2) To know the influence factors for the difference

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

2. Questionnaire
3. Web-based
4. PAROS member cities and its associate, each site at least two tertiary centers, & four community hospitals. This may be varied according to site scale.
5. Inclusion: hospital with both emergency department and intensive/critical care unit.
6. Estimated number of joined hospital: 60 hospitals.

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

To explore the important leaks from research to practice in resuscitation science.
To analyze the influence factors of adherence that may enhance guideline implementation and adherence.
Closely linking to PAROS core visions.
Hit international hits.

Study Proposal S6

1. BASIC INFORMATION	
Name: Tham Lai Peng	Designation: Senior Consultant, KK Women's and Children's Hospital
Email: tham.lai.peng@kkh.com.sg	Country: Singapore

2. TYPE OF REQUEST (Please select one)		
√ New Study Proposal	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Paediatric Out-of-hospital Cardiac Arrest Resuscitation Outcome – An Asia-Pacific Population-based Study

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Consider extending age cut-offs for the pediatric population from 17 to 21 years old.
Consider further stratifying the study population into various age-groups (e.g. infants, toddlers, children, teenage).
Need to assess if there are any additional variables that need to be collected for this study.

- What are the factors affecting outcomes (e.g. survival to discharge) in the paediatric OHCA population?
- Are the outcomes of the paediatric OHCA population different for different regions?
- What are the predictive risk factors?
- What are the modifiable risk factors?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

i. To study the epidemiology (including etiology), outcome and predictors of outcome in paediatric out-of-hospital cardiac arrest within the Asia-Pacific region.
ii. Identify preventable risk factors in paediatric OHCA, through the etiologies, which differ from adult.
iii. To develop effective paediatric out-of-hospital resuscitation strategies to improve outcome.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

- An international, multi-center cohort study on paediatric out-of-hospital cardiac arrest in Singapore and the Asia-pacific region.
- Data will be collected from emergency dispatch records, ambulance patient case notes, emergency department and in-hospital records.
- All completed data will then be collected and sent to the Study Co-ordination Center (Singapore) for data management using Electronic Data Capture (EDC).
- Eligibility

All paediatric OHCA patients, 17 years and below, presenting to EMS '995' or Emergency Departments during the study period as confirmed by the absence of pulse, unresponsiveness and apnoea.

- Assuming that about 20% of the sample size for the study is of the paediatric age-group, we can potentially enroll ~ 2600 paediatric patients in the study.
- The overall epidemiology and outcome (survival from hospital discharge) can be studied from the data
- The predictors of outcome, can also be compared between different region (South East Asia versus Japan/Korea versus Australia), such as bystander CPR rates.
- The etiology of the paediatric cardiac arrests may be collated from the pathological reports if post-mortem conducted, or from the ED case records if cause of death determined at ED.
- The etiologies again can be compared across the region.
- If numbers permit, a cost analysis for the various strategies will be conducted to determine the incremental cost-effectiveness in Singapore for each strategy

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

- Currently, there is not much data on paediatric OHCA in the Asian population.
- By analyzing the predictors of outcome, and the etiology, specific strategies pertaining to improvement of survival and outcome in paediatric Asia-pacific population can be further developed and studied.

Study Proposal S7

1. BASIC INFORMATION	
Name: Benjamin Leong	Designation: Dr
Email: benjamin_sh_leong@nuhs.edu.sg	Country: Singapore

2. TYPE OF REQUEST (Please select one)		
☒ New Study Proposal	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Incidence of VF in Asian OHCA – Sub-analysis

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Suggest "Prevalence" as an alternative to "Incidence" in the study title.

- To compare the prevalence of VF in Asia-Pacific region and North America, and compare the measurable modifiable factors?
- Is there a difference between the outcomes of OHCA patients in the Asia-Pacific region versus North America? If so, are the differences attributable to the difference in population or performance time?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

The management of shockable rhythms (VF and pulseless VT) is a cornerstone of advanced life support. In order to improve response to OHCA in Asia, it is important to understand the epidemiology of VF/VT in Asia. Our objectives are to describe the epidemiology of VF and pulseless Ventricular Tachycardia (VT) in Asia and associated factors including demographics, characteristics of the incident and of the response. The study hypothesis is that VF/VT in Asia is associated with measurable factors, some of which may be modifiable.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

This is a sub-analysis of a prospective multi-centre observational study among members of the PAROS clinical research network of all adult OHCA patients (age >/=16). Descriptive statistics will be reported as means and standard deviations, median and inter-quartile ranges as well as proportions (percentages). Comparisons will be done using Chi-square, t-test and Mann Whitney-U, and ANOVA.

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

Understanding of the incidence of VF in Asian countries and its associated the factors will help identify targets for modification and improvement in the response to OHCA such as EMS resource management, public access defibrillation programmes and public CPR training programmes.

Study Proposal S8

1. BASIC INFORMATION	
Name: Tatsuya Nishiuchi	Designation:
Email: nishiuchi21226@yahoo.co.jp	Country: JAPAN

2. TYPE OF REQUEST (Please select one)		
☐ New Study Proposal	☒ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Regional variation in outcomes of witnessed VF OHCA in Asia

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

- Is there a regional variation in the outcomes of witnessed OHCA VF patients in the Asia-Pacific region?
- Is there a difference in the outcomes when the witnessed OHCA VF patients in the Asia-Pacific region are compared to those from the North America region?
- What are the basic outcomes for witnessed VF (e.g. survival to discharge, functional status, ROSC)?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

- Outcome of patients with witnessed VF OHCA is considered to be a reflection of emergency care in communities because they can be expected to have better outcome if prompt CPR is provided, as symbolized by the term “the chain of survival”.
- Survival of witnessed VF in US is reported to vary, ranging 2% in Chicago from 46% in Seattle
- However, incidence, characteristics and outcomes of witnessed VF OHCA in Asia has not been fully investigated.
- The objective of this study is to clarify regional variation in incidence, characteristics and outcomes of patients with witnessed VF OHCA in Asian countries

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

- Subjects: adult patients with witnessed VF OHCA extracted from the database of PAROS
- Analysis: 1) Description of information regarding to patients and resuscitation by EMS by site, 2) Calculation of incidence of witnessed VF OHCA by site, 3) Comparison of survival and neurological outcome (CPC and/or OPC) as primary outcomes by site, 4) Comparison of incidence, survival and neurological outcome between Asian countries and US, wherever feasible.

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

- To know the current status of outcomes of patients with witnessed VF OHCA is the first step for the improvement in emergency care in communities.
- Comparison of data with different EMS systems may lead us to identify factors that can influence outcomes.

Study Proposal S9

1. BASIC INFORMATION	
Name: Kentaro Kajino	Designation:
Email: kajihanapu@yahoo.co.jp	Country: Japan

2. TYPE OF REQUEST (Please select one)		
☒ New Study Proposal	☒ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Impact of supraglottic airways and endotracheal intubation on outcomes following out-of-hospital cardiac arrest

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Consider using propensity scoring.

- Are the outcomes from the use of ETI superior to SGA in OHCA?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

The benefit of advanced airway management including a supraglottic airway (SGA) and endotracheal intubation (ETI) for out-of-hospital cardiac arrest (OHCA) remains to be determined.
Purpose: The aim of this study was to evaluate the effect of advanced airway placement on the survival from OHCA.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

Enroll all persons aged 18 years or older who suffered OHCA of presumed cardiac etiology that is witnessed by bystanders and received advanced airway management by emergency medical service (EMS) .
Data will be prospectively collected by PAROS database.
The primary outcome was discharged arrive.
Multiple logistic regression was used to evaluate the relationship between confounding variables (age, gender, location, bystander CPR, adrenaline use, paramedics status [ETI-certificated or not],
ETI use, presenting rhythm [VF or not], and response time) and outcome.

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

This study can determine about efficacy of the advanced airway management in the pre-hospital setting.

Study Proposal T1

6. BASIC INFORMATION	
Name: Chan-wei Kuo	**Designation: Attending Physician**
Email: erawei@gmail.com	**Country: Taiwan**

7. TYPE OF REQUEST (Please select one)		
☒ New Study Proposal (initial)	☐ Secondary Analyses	☐ Explanatory Analyses

8. STUDY TITLE

Classify Urban/Suburban/Rural Sites for OHCA Research across PAROS Countries

9. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Survey questionnaire can be developed with input from the epidemiology team at the workshop.

- Is population density related to OHCA? (search studies done worldwide, no need to restrict search to particular regions)
- How can population densities in urban, suburban and rural regions be defined? (see if there are varying definitions and devise an applicable one)
- How does population density affect outcomes of OHCA?

10. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

The character of OHCA patients and the outcome of resuscitation are different across urban, suburban, and rural location. However, the definition of urban, suburban, and rural has not been established in OHCA research taxonomy. Different countries may have different definitions. Most of the definitions are related to population density, but not directly linked to OHCA research purpose. For example, an EMS station may be located in a town center of a middle-sized county and can be classified as either suburban or rural one according to different definitions.

In our previous study in Taoyuan County, OHCA volume of each fire/EMS station was highly related to the population density. The more OHCA cases managed in a given period of time, the larger population the station served. We could draw a clearly-cutting line between urban/suburban and suburban/rural sites on the graph of EMS stations ranking in order of OHCA volume. Thus we hypotheses that our experience is also applicable in other study sites of PAROS.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

Include all study sites of PAROS. Create graphs of EMS stations ranking in order of OHCA volume in each study site. The principle investigators of each site have to fill the questionnaire listed below,

1. In my study site, which of the following is more accurate to describe different EMS stations?
   a. All urban
   b. Urban/suburban

c. Urban/suburban/rural
d. Others_____

2. Can I draw a clearly-cutting line on the graph to distinguish different types of stations?
   a. Yes
   b. No, the reason is _____

3. If the answer of question 2 is yes,
   How much volume is there in my urban area? More than _____ cases/month
   How much volume is there in my suburban area? Between _____ and _____ cases/month
   How much volume is there in my rural area? Less than _____ cases/month

With the analysis of questionnaire, we can classify urban/suburban/rural sites for OHCA research across PAROS countries.

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

After the definition being confirmed, we can proceed with secondary analysis that how urban, suburban, and rural locations affect the outcome of OHCA resuscitation, and find out the better strategy of each location to improve the performance.

Study Proposal T2

1. BASIC INFORMATION	
Name: Chiang Wen-Chu 江文莒	Designation:
Email: drchiang.tw@gmail.com	Country: Taiwan

2. TYPE OF REQUEST (Please select one)		
☒ New Study Proposal (initial)	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

EMS Response time in resuscitation of OHCAs: The sooner, the better?
Re-exploration of EMS response time to the survival of OHCAs in Asia.

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

- Is response time related to the outcomes of OHCA (e.g. survival)?
- How can "response time" be defined and which definition is most applicable to the EMS setting?
- Is there a difference between the correlation between response time and outcomes of OHCA in Asian countries vs North America?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

- Although it is a general agreement that the response time (i.e. from call receiving to arrival at scene) is associated with survival of OHCAs, explained by worldwide EMS operators into a goal of an 8-min response time or less, currently medical research does not actually provide adequate evidences on this dogma. In the other hand, some research did show the controversial result (Pons PT, *Acad Emerg Med*,2005).
- Shortening of response time has been addressed by international guidelines of CPR/ECC and has become a sine qua non of systemic optimization of EMS planning worldwide. However, achieving response time goal within 8-mins or even shorter requires substantial efforts and abundant financial support.
- The objective of this study was to exam the correlation of EMS response time and the survival of OHCAs in Asian cities, and try to determinate an appropriate cut-point of "best response time" (if existed) in Asian countries.
- Our hypotheses: The EMS response time in Asian cities positively correlates to the survival of OHCAs, but the benefits of a response time reduction becomes inefficiently if shorter than a threshold, defined as "the best response time".

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

- Setting: the secondary analysis of PAORS databank
- Inclusion: adult non-traumatic OHCA
- Exclusion: OHCA caused by definite asphyxia, including submission, foreign-body airway

obstruction, and anaphylaxis.

- Exposure measurement: response time in calls for OHCAs, level of EMT, bystander CPR, initial arrest rhythm, transport time.
- Outcome measurement: ROSC rate, survival to admission, survival to discharge, CPC at discharge.
- Statistic plan: (1) Correlation analysis (2) Multivariate logistic regression

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

- Provide the evidence of benefit of shortening response time for Asian EMS in resuscitation of OHCAs.
- Provide suggestion to international CPR/ECC guidelines on the goal of the best response time by Asian data.
- Being a basis of cost-benefit analysis of systemic optimization of EMS by shortening response time.

Study Proposal T3

1. BASIC INFORMATION	
Name: Chiang Wen-Chu 江文莒	Designation:
Email: drchiang.tw@gmail.com	Country: Taiwan

2. TYPE OF REQUEST (Please select one)		
☒ New Study Proposal (initial)	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Does the advanced airway benefit the EMT-resuscitated OHCAs?
A secondary analysis of PAORS to compare the outcomes of EMT-resuscitated OHCAs ventilated by using Bag-Valve-Mask (BVM) vs. advanced airway, and to explore the interaction with transport-time in Asia.

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

Suggestion to combine with Study Proposal S9 *"Impact of supraglottic airways and endotracheal intubation on outcomes following out-of-hospital cardiac arrest"* from Singapore Meeting. See section 4 in S9.

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

- Many studies now favor compression-only CPR for bystander. However, for a health-care provider (HCP) like EMTs, there was no evidence to show if it is **NOT** necessary to perform ventilation.
- According to ACLS 2005, ventilation by BMV is as effective as advanced airway (including LMA, combitube, and endotracheal tube) in the early stage of cardiopulmonary resuscitation (CPR). However, the current training curriculum of EMTs all over the world put more emphasis on use of advanced airway in resuscitation of OHCAs.
- Our hypotheses: (1) The advanced airway used by EMTs in resuscitation of OHCAs benefits the outcome in comparing to BVM only (2) The advantage will be more obviously if the transport time is longer.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

- Setting: the secondary analysis of PAORS databank
- Inclusion: adult non-traumatic OHCA
- Exclusion: OHCA caused by definite asphyxia, including submission, foreign-body airway obstruction, and anaphylaxis.
- Exposure measurement: type of resuscitative ventilation, level of EMT, bystander CPR, initial arrest rhythm, response time, transport time.
- Outcome measurement: ROSC rate, survival to admission, survival to discharge, CPC at discharge.
- Statistic plan: (1) Multivariate logistic regression (2) Propensity score

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

- Provide the evidence of ventilation for EMS in resuscitation of OHCAs.
- Guide the ALCS recommendation for the ventilation in OHCA in rural vs. urban EMS area (where there were much difference in transport time)

Study Proposal T4

1. BASIC INFORMATION	
Name: Youngsun Ro	Designation: Emergency Physician
Email: Ro.youngsun@gmail.com	Country: Korea

2. TYPE OF REQUEST (Please select one)		
☒ New Study Proposal (initial)	☐ Secondary Analyses	☐ Explanatory Analyses

3. STUDY TITLE

Non-cardiac OHCA in PAROS

4. RESEARCH QUESTIONS TO GUIDE LITERATURE REVIEW SEARCH

- What is the epidemiology of non-cardiac OHCA?
- What are the predictors of survival outcomes in non-cardiac OHCA?
- Is there a difference between the epidemiology and predictors of survival outcomes in non-cardiac OHCA in Asian countries vs North America?

5. ABSTRACT OF STUDY PROPOSAL

In no more than 350 words, describe the study under the given headings below.

Objectives/Hypotheses

Survival from non-cardiac OHCA is poor, and some consider resuscitation of this patient group futile. It is reported that 20% to 50% of adult OHCAs are of non-cardiac origin, most of which involve respiratory compromise such as drowning or asphyxia. Patients who had had cardiac arrest as a result of trauma, burns, hanging, traumatic asphyxia, electrocution and drowning were also non-cardiac origin. Basic and advanced care of non-cardiac OHCA patients always has been an important aspect of prehospital and immediate in-hospital emergency medicine. However, evidence of the effect of predictors, such as bystander CPR or witness or response time or EMS system or ED volume, for patients suffering OHCAs of non-cardiac origin is scarce. Also, the effect of predictors for outcome may be different depending on the etiology such as trauma and asphyxia. We aimed to describe the epidemiological features and to determine the predictors for survival outcome according to etiology from non-cardiac cause OHCA in PAROS.

Methodology (To include sample size, settings, inclusion & exclusion criteria, etc. For secondary & explanatory analyses: include statistical plan, type of analyses, measurement, etc.)

Include all study sites of PAROS. Patients who had had cardiac arrest as a result of non-cardiac cause are included. Primary outcome is good neurologic outcome, secondary outcome is survival to discharge and tertiary outcome is ROSC. Outcomes are compared by the etiology from non-cardiac cause OHCA, trauma vs asphyxia (conflagration, drowning, electrocution, traumatic asphyxia, hanging, other). Multivariable analyses are used to assess the contribution of predictors to better outcomes.

Significance of the study (e.g. provide brief description on how the study can improve current systems, its benefit to patients and how it can be implemented)

After this survey, we can understand of the patient's outcomes of non-cardiac OHCA in Asian

countries and its associated factors according to etiology from non-cardiac cause OHCA. Comparison of data from different EMS systems may lead us to identify factors that can influence outcomes and to improve the performance.