

**PAN ASIAN TRAUMA OUTCOMES STUDY**

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# **Introduction to PATOS**

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# Agenda

1. PATOS Introduction
2. PATOS Variables
3. PATOS Summary & Updates
4. How to Participate into PATOS?
5. Writing PATOS Proposal



# PART 1: PATOS Introduction

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# Estimated Injury Mortality, Asia

1.7.1. Injuries, estimated mortality rates, 2008



# Where We Are on Trauma Care

- High incidence of severe trauma but underdeveloped Trauma Care System
- No measurement of EMS trauma care except hospital-based trauma database
- Few researched for EMS protocols related with trauma care and extrapolated evidences from hospital-based studies

# Pan-Asian Resuscitation Outcome Study



PAROS clinical research network since 2009

- ❖ Korea, Japan, Singapore, Thailand, Taiwan, Malaysia, UAE (2010-)
- ❖ Observer: Indonesia, China, India, Philippine, Bangladesh, Pakistan (2012)

# Already started from 2013

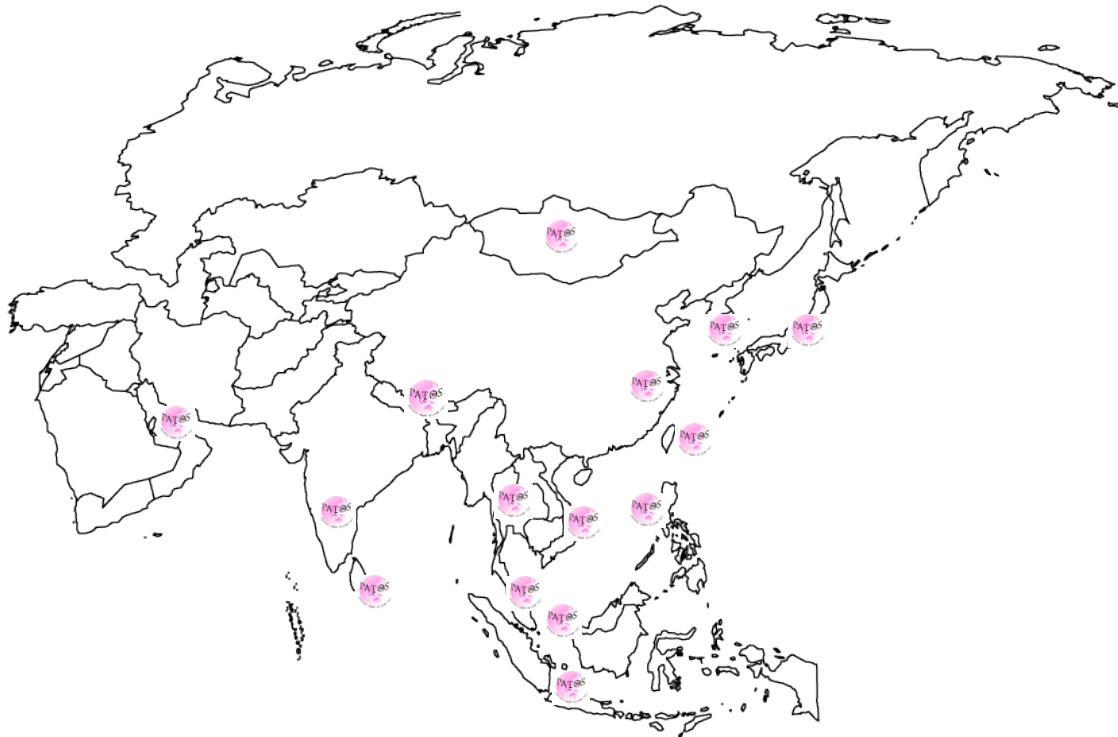
- Working group under the Asian EMS Council
  - Developing Pan-Asian Trauma Outcome Study (PATOS) steering committee
  - Share and exchange ideas
  - Benchmark well-designed trauma research projects
  - Develop PATOS clinical research network in late 2014

# Goals of PATOS

1. Understand trauma as a serious disease in Asia
2. Describe current pre-hospital trauma care systems in the Asian Region
3. Provide international benchmarking and study of best practices
4. Impact community awareness and change attitudes towards severe trauma
5. Improve trauma survival by system and community level interventions



# PATOS Participation Communities



## PATOS CRN

(N=12)

Japan

Korea

China

Taiwan

Philippines

Vietnam

Thailand

Malaysia

Singapore

India

Laos

UAE

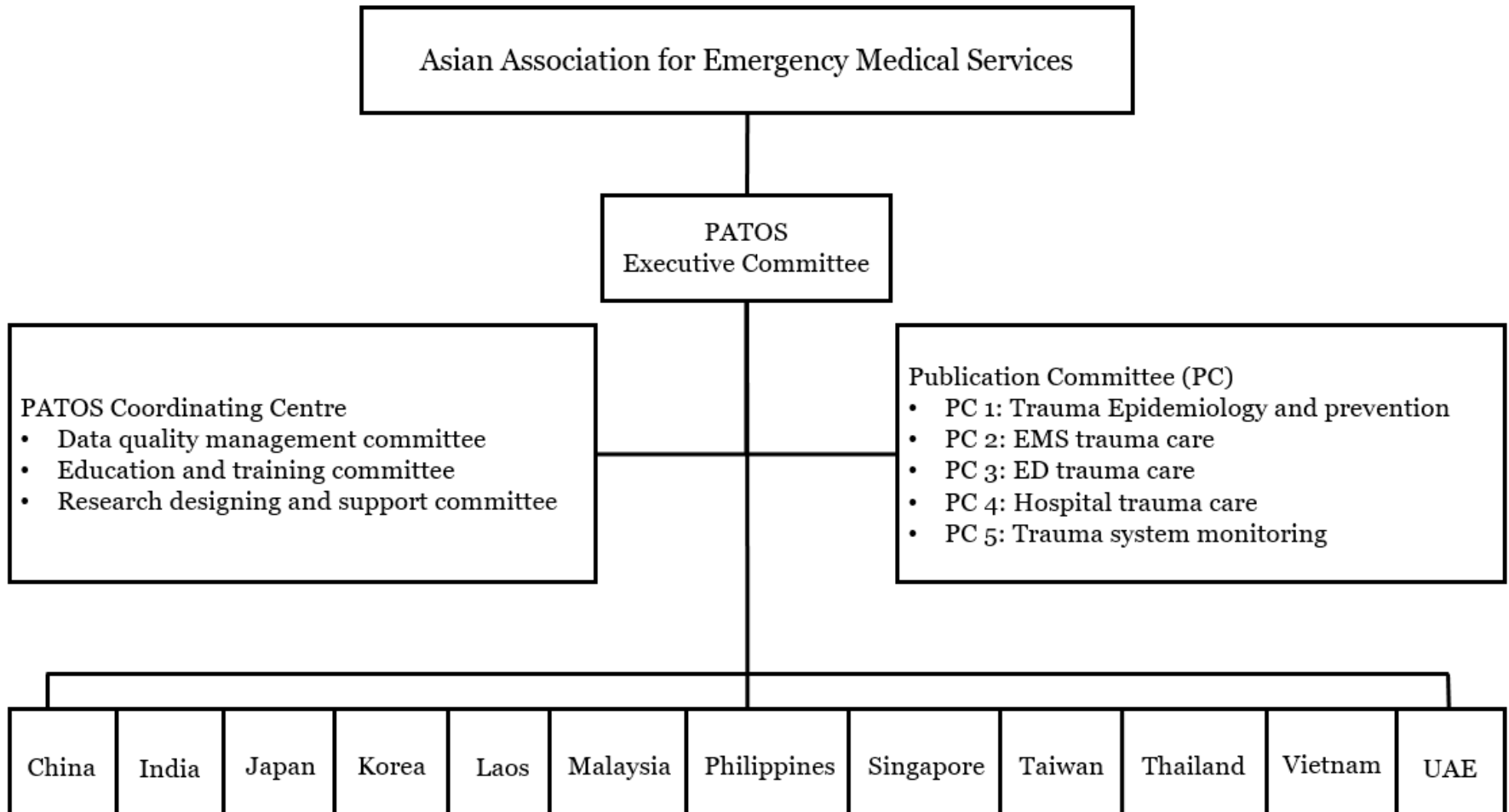
## Observers (N=3)

Mongolia

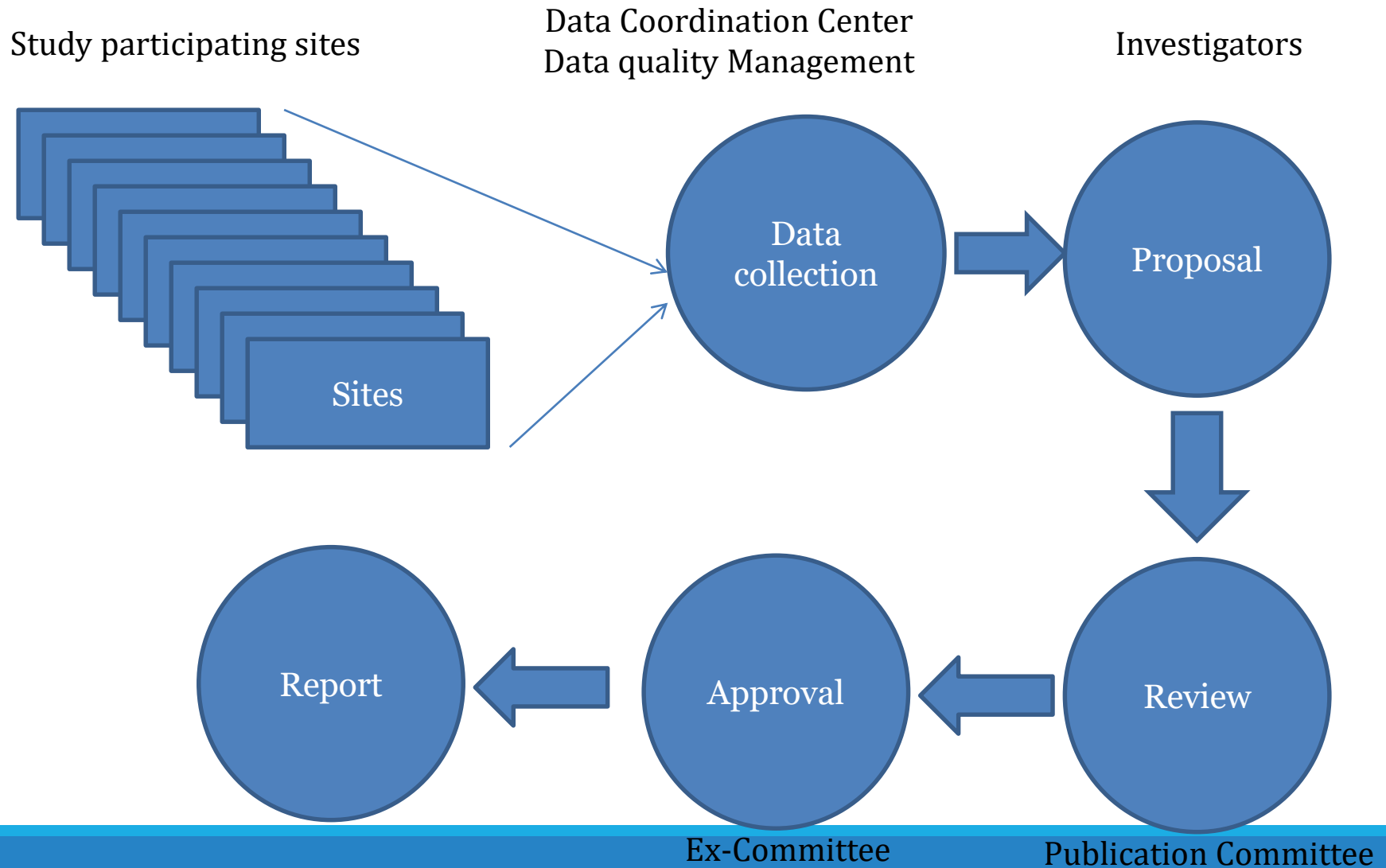
Indonesia

Sri Lanka

# PATOS CRN



# Research process



# PART 2:

# PATOS Variables

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# PATOS Data Dictionary and Variables

- 1. Demographic & Injury Epidemiology
- 2. Prehospital Care
- 3. Inter-hospital Transfer
- 4. ED and Hospital Care
- 5. Outcomes

# Classification of PATOS Data Variables

- **Core Variables**
  - Mandatory
  - Minimal requirements to participate in PATOS
- **Comprehensive Variables**
  - Recommend, not mandatory
- **Optional Variables**
  - Collect, if you want
- Importance, Priority and Feasibility

# PATOS Data Variables

## PATOS Data Dictionary

Demographic  
Injury epidemiology  
Pre-hospital care  
Inter-hospital transfer  
ED and hospital care  
Injury severity and outcome  
Rehabilitation  
Outcome at 6 and 12 mon.  
Death certificate

**Core**

**Comprehensive**

**Optional**

# 1.1 Demographic data

Core	Comprehensive	Optional
<ul style="list-style-type: none"><li>▪ Research institute</li><li>▪ Site ID</li><li>▪ Country</li><li>▪ EMS district or city</li><li>▪ Case ID</li><li>▪ Date of birth</li><li>▪ Age</li><li>▪ Gender</li></ul>	<ul style="list-style-type: none"><li>▪ Residential postal code</li><li>▪ Citizenship</li></ul>	<ul style="list-style-type: none"><li>▪ Patient name</li><li>▪ Phone number</li></ul>

8 Core Demographic variables



# 1.1 Demographic data

core \*\*; comprehensive \*

<b>1 Research institute **</b>	<i>(Auto-filled using your registration information)</i>		
<b>2 Site ID **</b>	<input type="text"/> <input type="text"/> <input type="text"/>	<b>3 Country **</b>	<input type="text"/> <input type="text"/> <input type="text"/>
<b>4 EMS district or city **</b>	<input type="text"/> <input type="text"/> <input type="text"/>	<b>5 Case ID **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <i>(PATOS use only)</i>
<b>6 Date of birth **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year	<b>7 Age **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <i>(only if DOB is missing)</i>
<b>8 Gender **</b>	<input type="checkbox"/> 1 Male <input type="checkbox"/> 2 Female	<b>9 Residential postal code *</b>	<i>(If a site does not have postal code, enter 99999)</i>
<b>10 Citizenship *</b>	<input type="checkbox"/> 1 Citizenship <input type="checkbox"/> 2 No citizenship <input type="checkbox"/> 99 Unknown		

*(Definition of “citizenship” will be determined by Country P.I.)*

# 1.2 Injury Epidemiology

Core	Comprehensive	Optional
<ul style="list-style-type: none"><li>▪ Date/time of injury</li><li>▪ Intent of injury</li><li>▪ Mechanism of injury</li><li>▪ Location of injury</li><li>▪ Type (nature) of injury</li><li>▪ Place of injury</li><li>▪ Activity</li><li>▪ Alcohol use</li><li>▪ Psychoactive drug/substance use</li><li>▪ Arrival type</li><li>▪ Prehospital care provider</li></ul>	<ul style="list-style-type: none"><li>▪ Incident site address</li><li>▪ Incident site postal code</li><li>▪ Occupational injury</li></ul>	<ul style="list-style-type: none"><li>▪ Weather</li><li>▪ Alcohol use of others who were directly involved</li><li>▪ Psychoactive drug/substance use of other who were directly involved</li></ul>

# 1.2 Injury Epidemiology

<b>11</b> <b>Date/time of injury</b> <b>**</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Mo. Day Year <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> hh mm	<b>12 Weather</b>	<input type="checkbox"/> 1 Wet <input type="checkbox"/> 2 Dry <input type="checkbox"/> 3 Snow <input type="checkbox"/> 4 Ice	<input type="checkbox"/> 5 Dark <input type="checkbox"/> 6 Light <input type="checkbox"/> 7 Fog <input type="checkbox"/> 99 Unknown <i>(check all that apply)</i>
<b>13</b> <b>Incident site address *</b>	<i>(The extent of address entered will be determined by country P.I)</i>	<b>14 Incident site postal code *</b>		
<b>15 Intent</b> <b>**</b>	<input type="checkbox"/> 1 Unintentional (accidental) <input type="checkbox"/> 2 Intentional self-harm (suicide, attempted suicide) <input type="checkbox"/> 3 Assault (interpersonal violence) <input type="checkbox"/> 4 Undetermined (awaiting results of investigation)		<div style="text-align: right;"><i>(check one)</i></div> <input type="checkbox"/> 5 Legal interventions <input type="checkbox"/> 6 Operations of war and civil insurrection <input type="checkbox"/> 99 Unknown	
<b>For definition of codes, refer to Appendix I. (Reference ICECI 2004)</b>				

## **Appendix I. Intent of injury**

(Reference: ICECI 2004)

### **1 Unintentional**

An unforeseen incident, where there was no intent by a person to cause harm, injury or death, but which resulted in injury.

Includes:

- accidental injury event

### **2 Intentional self-harm**

Deliberate use of physical or other force or agent against oneself, with the intent to cause harm, injury or death.

Includes:

- suicide
- parasuicide (incomplete suicide attempt)
- self-mutilation

### **3 Assault**

An act of fatal or non fatal violence where physical or other force is used with the intent to cause harm, injury or death to another person.

Excludes:

- legal intervention (5)
- operation of war or civil conflict (6)

# 1.2 Injury Epidemiology

- **16 Mechanism of injury \*\***

*(check one)*

- 1 Traffic injury
- 2 Sexual assault
- 3 Fall
- 4 Struck/hit by person or object
- 5 Stab or cut
- 6 Gun shot
- 7 Fire, flames or heat
- 8 Choking or hanging
  - 8X Other
  - 80 Physical over-exertion
  - 81 Cooling
  - 82 Exposure to (effect of)  
weather, natural disaster or other  
force of nature
  - 83 Complications of health care

- 84 Corrosion by chemical or other substance
- 88 Other mechanism of injury
- 9 Drowning or near-drowning
- 10 Poisoning
- 99 Unknown

**For definition of code, refer to Appendix II  
(Reference ICECI 2004)**

## **Appendix II. Mechanism of injury**

(Reference: ICECI 2004)

### **1 Traffic injury**

Traffic injury is any land transport vehicle incident occurring on the public highway [ie. originating on, terminating on, or involving a vehicle partially on the highway] and resulting in injury. Public highway includes an trafficway, street, or road that is open to the public for purposes of moving persons or property from one place to another.

Non-traffic injury is defined as any land transport vehicle incident occurring entirely in any place other than a public highway and resulting in injury. Incidents involving only off-road vehicles are classified as non-traffic events, unless specified to have been traffic events.

#### **1.1 Transport injury event**

Includes:

- Crashes and other injurious events occurring in the course of transportation
- Injury resulting from events involving a device being used primarily for conveying persons or goods from one place to another

NOTE: The inclusion criterion differs from the ICD-10 criterion by excluding injury from vehicles *not associated with their transport function*.

##### **1.1.1 Vehicle occupant**

##### **1.1.2 Pedestrian**

##### **1.1.3 Pedal cyclist**

##### **1.1.4 Motorcyclist/ motorcycle rider**

##### **1.1.8 Other transport injury event**

Includes:

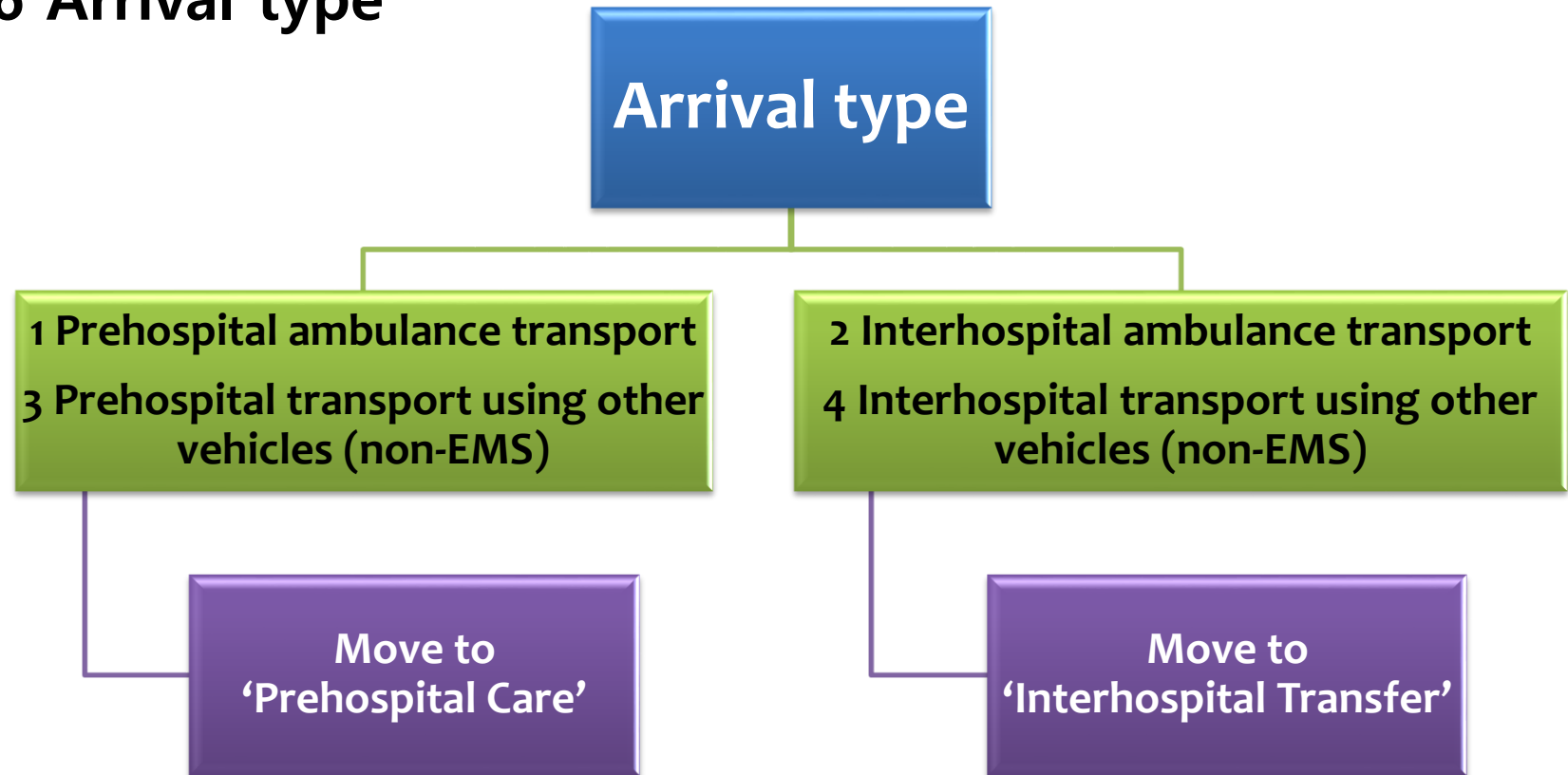
- cases in which it is unknown whether the injured person was a *vehicle occupant, pedestrian, pedal cyclist, or motorcycle rider*

### **2 Sexual assault**

An act of fatal or non fatal sexual violence where physical or other force is used with the intent to cause harm, injury or death to another person.

# 1.2 Injury Epidemiology

- 26 Arrival type \*\*



- Code 3 & 4 are applicable to countries that have no or underdeveloped EMS system
- Countries with EMS systems in place should only include EMS-transported patients in the study (Code 1 & 2)

## 2. Prehospital Care

Core	Comprehensive	Optional
<ul style="list-style-type: none"><li>▪ Mode of arrival</li><li>▪ Date/time call received</li><li>▪ Date/time ambulance departed from</li><li>▪ Date/time ambulance arrived at accident site</li><li>▪ Date/time ambulance left accident site</li><li>▪ Date/time ambulance arrived at hospital</li><li>▪ Prehospital CPR</li><li>▪ Prehospital BP</li><li>▪ Prehospital HR</li><li>▪ Prehospital RR</li><li>▪ Prehospital O2Sat</li><li>▪ Prehospital mental status</li></ul>	<ul style="list-style-type: none"><li>▪ Incident No.</li><li>▪ Ambulance No.</li><li>▪ Prehospital airway</li><li>▪ Prehospital oxygen</li><li>▪ Prehospital immobilization</li><li>▪ Prehospital fluid access</li><li>▪ Medications given during prehospital phase</li></ul>	<ul style="list-style-type: none"><li>▪ Pain control during prehospital phase</li><li>▪ Prehospital procedure for thoracic cavity</li><li>▪ Prehospital diagnosis</li><li>▪ Decontamination</li></ul>



## 2. Prehospital Care

<b>28 Incident no. *</b>		<b>29 Ambulance no. *</b>	
<b>30 Mode of arrival **</b>	<input type="checkbox"/> 1 Road ambulance <input type="checkbox"/> 2 Helicopter <input type="checkbox"/> 3 Ship		<input type="checkbox"/> 88 Other <input type="checkbox"/> 99 Unknown <i>(check one)</i>
<b>31 Date/time call received **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> hh mm	<b>32 Date/time call ambulance departed from **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> hh mm
<b>33 Date/time ambulance arrived at accident site **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> hh mm	<b>34 Date/time ambulance left accident site **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> hh mm
<b>35 Date/time ambulance arrived at hospital **</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> hh mm	<b>36 Prehospital CPR **</b>	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 0 No <input type="checkbox"/> 99 Unknown

## 2. Prehospital Care

<b>42</b> <b>Prehospital</b> <b>airway *</b>	<input type="checkbox"/> 20 Oropharyngeal airway <input type="checkbox"/> 3X Supraglottic Airway <input type="checkbox"/> 31 Combitube <input type="checkbox"/> 32 Laryngeal tube <input type="checkbox"/> 33 Laryngeal mask airway <input type="checkbox"/> 34 Other types	<i>(check all that apply)</i> <input type="checkbox"/> 40 Endotracheal tube <input type="checkbox"/> 88 Other	<input type="checkbox"/> 10 None <input type="checkbox"/> 99 Unknown
<b>43</b> <b>Prehospital</b> <b>oxygen *</b>	<input type="checkbox"/> 2 Nasal <input type="checkbox"/> 3 Venturi mask <input type="checkbox"/> 4 Facial mask (breathing or non-rebreathing)	<i>(check all that apply)</i> <input type="checkbox"/> 5 BVM <input type="checkbox"/> 6 Mechanical ventilator <input type="checkbox"/> 88 Other	<input type="checkbox"/> 1 None <input type="checkbox"/> 99 unknown
	<b>Amount</b> <input type="text"/> <input type="text"/> <input type="text"/> litres per minute		
<b>44</b> <b>Prehospital</b> <b>immobiliza</b> <b>tion *</b>	<input type="checkbox"/> 2 Backboard <input type="checkbox"/> 3 Scoop <input type="checkbox"/> 4 Femur traction splint <input type="checkbox"/> 5 Other extremity splint	<i>(check all that apply)</i> <input type="checkbox"/> 6 Bandaging <input type="checkbox"/> 7 Pelvic binder <input type="checkbox"/> 8 C-spine <input type="checkbox"/> 88 Other	<input type="checkbox"/> 1 None <input type="checkbox"/> 99 Unknown

# 3. Interhospital Transfer

## Core

- Level of referring hospital

## Comprehensive

- Mode of interhospital transfer
- Reason for transfer
- Transfer from where
- GCS at referring hospital prior to transfer

## Optional

- Name of referring hospital
- Date/time of arrival at referring hospital
- Date/time of departure from referring hospital
- Intervention before transfer

# 3. Interhospital Transfer

<b>51 Level of referring hospital **</b>	<p style="text-align: right;"><i>(check one)</i></p> <input type="checkbox"/> 1 Level I trauma center <input type="checkbox"/> 2 Level II trauma center <input type="checkbox"/> 3 Level III trauma center or below <input type="checkbox"/> 99 Unknown	<b>52 Name of referring hospital</b>	
<b>53 Date/time of arrival at referring hospital</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> hh mm	<b>54 Date/time of departure from referring hospital</b>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Mo. Day Year <input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/> hh mm
<b>55 Mode of interhospital transfer *</b>	<input type="checkbox"/> 1 Road ambulance <input type="checkbox"/> 2 Helicopter <input type="checkbox"/> 3 Ship	<p style="text-align: right;"><i>(check one)</i></p> <input type="checkbox"/> 88 Other <input type="checkbox"/> 99 Unknown	

# 4. ED and Hospital Care

## Core

- BP at triage
- HR at triage
- RR at triage
- Temperature at triage
- O<sub>2</sub>Sat at triage
- Mental status at triage (GCS)
- DOA
- Date/time of arrival at ED
- Date/time of disposition from ED
- ED disposition
- Hospital discharge disposition
- Date/time of hospital discharge
- Total length of stay in ICU
- Airway management
- Preexisting disability (GOS)
- Modified Rankin Scale at discharge

## Comprehensive

- Transfusion
- Surgical airway
- Tension PNTX decompression
- Non-surgical external bleeding control
- Cardiocentesis
- Thoracotomy
- Positive ventilation
- Non-surgical immobilization
- CPR
- Operation
- Operation date/time

## Optional

- First angiography scan
- First angiography scan – date/time
- Embolization
- Embolization date/time
- Pre-existing comorbidity
- Pediatric patient
- Pediatric - weight
- Pediatric - airway
- Pediatric - level of consciousness
- Pediatric - fracture
- Pediatric - wound