WHO South-East Asia Regional Workshop on establishing sentinel sites for integrated injury and trauma registry,
in collaboration with Khon Kaen Regional Hospital, WHO-CC for Injury Prevention and Safety Promotion.

Venue: Charoenthani Khon Kaen Hotel. Khon Kaen, Thailand
Date: 14-16 August 2023

Background:

1. Globally, 4.4 million lives were lost due to injury in 2019, and injuries account for 8% of all deaths. Three of the top five causes of death in the 5-29 age group are injury related[1]. Among these deaths, road injuries, self-harm, and interpersonal violence account for the highest number.
2. The 72nd WHA, in 2019, highlighted the importance of emergency care systems for universal health coverage and ensuring timely care for the acutely ill and injured[2]. The resolution provides the framework for the members states and WHO to work on strengthening emergency and trauma care system. It urges the member states to create policies, conduct voluntary assessment, promote governance systems, ensure funding, include both pre-hospital and hospital system as part of the emergency systems, improve health workforce capacity and use of WHO tools to improve data and patient care quality.
3. The lack of standardized case-based data on the initial patient presentation, which incorporates data for integrated injury and trauma, limits opportunities for comparison, aggregation, performance monitoring at facilities, and, more importantly, the development of evidence-based prevention actions. A well-developed injury and trauma care system is crucial in reducing the burden and deaths. Currently, there are gaps in injury and trauma care systems in most SEAR countries. Inadequate facilities at emergency departments and the lack of appropriately trained personnel often result in poor outcomes among injured patients. The availability of good injury and trauma data can support policy decisions in improving emergency and trauma care systems. Examples from countries have demonstrated that effective use of injury surveillance data could support reducing morbidity and mortality through improved prevention, care, and policy development. It can also provide evidence to inform health resource allocation.
4. Based on the discussions at the "Regional Strategy to integrate Emergency and Trauma Care into Primary Health Care (PHC) in SEAR", 23–25 August 2018, Bangkok, Thailand", the HPN department has published "Strategic directions to integrate emergency care services into primary health care in the South-East Asia Region, highlighting the need for having integrated trauma and injury surveillance systems.
5. With the support of WHO, Khon Kaen Hospital successfully conducted a virtual training in 2022, highlighting the importance and roles of capacity building for trauma care doctors and nurses in strengthening hospital emergency and trauma care systems. The participants have requested a focused onsite training workshop and field visit to learn from the best practices at Khon Kaen Hospital.

Objectives :

[1] Preventing injuries and violence: an overview (who.int)
[2] Emergency care systems for universal health coverage: ensuring timely care for the acutely ill and injured (who.int)

- The main Objective is to build the capacity of the program managers and hospital staff on establishing sentinel sites on integrated injury and trauma registry with following specific objectives:
    - To facilitate participants' understanding of different models of injury and trauma management systems, with a particular focus on the Thailand model, and how they can be adapted to their own setting.
    - To provide a platform for participants to share and learn from each other's experiences in planning for and implementing integrated injury and trauma registry in their respective countries
    - To provide hands-on training on the use of relevant WHO tools and adopting these tools for the local setting for establishing integrated injury and trauma registry

Topic Covered during the workshop and key points

1. **Integrating health emergencies that cause mass casualties with systems for managing day to day health emergencies of individuals in SEAR countries**
    - 54% of dealth that occur in LMICs each year are from conditions that could be addressed by organized pre-hospital and facility based emergency care.
    - Four components of trauman care , pre-hospital, care, Hospital care, rehabilitation and information systems are crucial and needs strengthening for successful trauma care systems . The intergrated health system for Day-today emergency patient will impact the survival and also this emegency system will be the baseline system for supporting MCI. The simple emergency care system should be invested to provide a comeplete trauma and emergency care cycle.
    - WHO has developed various emergency and clinical care toold, which can be adopted at the country level .
    - Countries should conduct national level assessment on ECS as a bench mark to evaluate performance and contextualize ECS to diverse geographical context needs.
    - There is need to strenthen all levels of emerfency care systems from HEOC TO PHEOC TO community level ecs network with strong data managment systems.
2. **Thailand injury prevention and safety promotion**

- Injury prevention in Thailand has a new stratagy to tackle with the RTI. The new approach, such as mass public transport encouragement, will established to the same target. Serious law enforcement mechanism will be focused. Beside, multiple agency involvement is a vital to drive the process. Data mangement, including IS, shows the reliable evidence and identifies the gap. Moreover, the trustable organization will gain a support from many relevant stakeholders. The main three factors including knowledge giving/ social movment/ policy implementation will be the principle of the movement.

3. Principle of establishing National trauma registry and injury surveillance system

- Injury serviallance (IS) system began 30 years ago. It was started from some hospital including Khon Kaen hospital, and then, expand across the country (435 hospitals). The key term is a simple and practial IS system because the frontline staff has a lot of work to do. The webbase IS system at the present results in a bigger database across the country.

- The database can be used to provide many demendsions of data used for quality control and improvement.

4. **Khon Kaen Trauma registry (History and system development)**

- The experience from Khon Kaen hospital, the development of IS and trauma registry was establish in 1988 with a supporting fund from WHO and JICA. Trauma center was set up to drive the process. To run this process coordinately, the trauma nurse coordinator is essential to keep monitor the process and control the quality. The database shows the gap and trend of patient illustrating the elderly society is coming for Thailand. This will make us prepare to cope with any condition that may happen from older people. The key success for thailand is the establishment of many law related to RTI and Emergency care.
- The main concept of conduction many works is “Start making it simple in the small area” such as the basic ambulance with a simple essential equipment for Rural EMS area

5. **Thailand status and system regarding Trauma emergency care**

- Conclusive trauma care system consists of prehopital crae, Emergency care, referral system, rehabilitation, quality control and improvement.
- Networking drives a system through monthly meeting.
- Assigned central body to take responsibility for developing policy, direction, planning, implementing, and monitoring and at the local level
    - establishing TEA unit
    - assigning TMD, TNC and training for role and responsibility
    - develop pre-hospital care.
    - Quality improvement in every phase
    - Develop data system for M&E
    - Personnel capacity building

Participant suggestion as Annex

6. **Trauma care and registry system at AIIMS: Systems and Lessons Leant**

- There is a formal trauma care system. Computerized data system is applied along with paper based data collection. The database also provides the opportunity in research area and then the research can drive the improvement. The sustainability of system will

require the support in term of Law and political power such as samaritan law to foster bystander in India to provide first aid more.

- Systematic trauma care and data organisation will be benefit to the system in term of quality of cae and quality controlling.

7. **Trauma care and registry system at NIMHANS: Systems and Lessons Leant**

- Data registry system should be designed to explore the field of interesting data that be needed to monitor and improve. For a begining, the particular area of data may be focused. The expereince from NUMHANS, the registry regarding brain injury was established to monitor and evaluate in this specific area.
- The designation of data registry system is required to fit the desirement of the institute.

8. **Site visit: EMS&CCC; ED and IS; Trauma and critical care center; Simulation training center 30 minute for each site**

- Simulation center is a formal skill training that allow the trainee to experience the procedure before providing to patient.
- EMS and CCC have been being developed over 30 years. We start from a very simple EMS syetem in a small area and then expanding to cover all area. Currently, technology is implemented in term of increasing the capacity of online medical direction.
- ED and IS demonstrated the ED design for trauma and emergency care incuding traige area, resuscitation, fasttrack area, Observe unit and data& IS center.
- Trauma and critical care center is a driven unit for inclusive trauma care system including data monitoring, corrective action, and quaity improvement.

Key dicussion/take away messages

- Direct exposure the operational site can eplict and be inspired participant to process to set up the system in their country.
- Dr.Ratrawee Pattanarattanamolee≫ Conclusion concept ≫Start from Small & Simple ≫ SSS strategy

9. **Trauma nurse coordinator**

- Clinical management to data manegement. Communication is an essential skill. Patient family relationship management is required the trained person to deal and also quality control procedure.

- The training of trauma nurse coordination is a big challenging for SEAR countries. TNC is an important staff to run inclusive trauma care system.

10. **Data registry and clinical tools in ECS (Triage and ER registry)**

- Khon Kaen Hospital changed from 3 level to 5 vevel in order to increase accuracy of triage. At the begining, a regualr training is needed and the annually refreshing course will ensure the accuracy triage. The result from ER registry is a tool that use for monitoring the triage accuracy as well as others service quality dimensions
- Triage competency is needed a regular training and auditing system to monitor the quality.

11. **Global status and WHO strategy regarding trauma and emergency**

- The integrated health emregency care system should not only focus on the trauma care but trauma and all emegrncy condition must be paid attention because NCD is becoming a major concern. The variuos pahse of care ,including Primary care, Prehospital, ED care, operation and definitive care should be worked seamlessly. According to SDGs by UN, Those health system can help to gain at least 10 goals. For this objectivee, universal health coverage is an important factor to support the system. Notably, Acute care action network is set up to support and disseminate WHO courses and tools in order to provide the essential resource for health care developing in countries.
- Universal health coverage is a challenging in many countries to increase the access health care for all citizens.
- WHO generates many tools and courses to contrubute the knowledge. They are available to use.

12. **Injury and trauma data collection tools, trauma scoring and data quality monitoring**

- Trauma scoring can predict patient outcome, Qaulity Control, and supprting research. There is no perfect trauma scoring and there are some limitations in trauma scoring systems. The using of the trauma score result have to be careful. For example, Revised trauma score have a limitation if patient is inyubated before score assessment. Injury serveillance system is designed to collect trauma injury data using for trauma score calculation as well as the data for injury prevention. The completion of data is vital and it will need an assigned staff to monitor its quality.
- There is no the best trauma scoring and it cannot use for clinical decision. Treatment will be designed by clinial guideline.

13. **Data analysis and corrective action**

- Information can improve system not just collect the data. The benefit data is the illustration regarding what and why patient having unfavorable outcome. For example, Data shows the effective of the trauma care so we can adjust our work. Our experience that the corrective action from data can decrease in preventable dead.

- The use fo collected data is a very important. The corrective action will happen when the data is used.

14. **Scenario based exercise (4 group) Data collection/ Trauma scoring/ Data coding / Peer review/corrective action/policy advocacy**

- There are some limitations in trauma score calculation therefore the using of result must be careful. The challenging part is Corrective action including case review and find out what procedure to correct the error. Link to the experience form NIMHANS-objective driven hospital based trauma registry. Your system your design over minimal standard requirement.

15. **Site visit for EMS unit Subdistrict Administrative Organization TAH PHRA,Emergency care and protetic equipment production center at district hospital (Sirinthorn hospital)30 minutes for each site**

- The experience in establishing the EMS unit in Subdistrict level govenor office with minimal trianed staff and minimal equipment ambulance.
- The exerience in the disatrict hospital tat provides Advance EMS ambulance emergency care and prothetic center for rehabilitaion process.

16. **WHO tools and forms/ Emergency Care Systems Assessment (ECSA) ; Clinical Care Training; Clinical Process Tools; Tools for strengthening data and quality improvement**

- Emergency care should be the equal care for everyone. There are various courses and tools that WHO generated to help countries to establish the emergency service.

<u>Disaster response</u>

- Emergency Medical Team aims to response for disaster with well-plan, coordianation. The international standard system is established for ensuring the same standard, which will make trust with affected country. For example, there are formal data collection forms as well as the database system. WHO foster every country to use this standard for domestric EMT. The seamless management will be the expectation for disaster management.

<u>Emergency care</u>

- The minimal require for Ambulance standard such as the minimal EMS staff on ambulance should have 2 (1 driver 1 care giver). In front of the ER, immediate triage will be ready to identify the sever patient (done before maake any registration).
- Current situation, there are some exaples from many countries that found out the gap and fixed it.
- India: Lack of bystander ≫ lack bystander protection. India has a samaritan law≫ increase First Aids operation
- Thailand and Bhutan have already establish the minimal standard for Ambulance.
- However, many gaps still exist including Emergecy call number does not cover all country, Some ambulance are not registered in CCC control system. The minimal number of ambulance that not enough for people. There is no emergency physician in all rotation, using mix staff rotation is common.
- WHO are willing to help countries to identify the gap through clinical registry tool and also provide a local training course with required minimal resource to oraganised. For

example, Nepal and Timor applied the WHO basic emergency care in their country. Some courses are available online. Notably, Trauma check list by WHO has been studied and resulted in this tool reducing more than 50 % mortality. Importanly, if many countries can use WHO registry, it will benefit in term of benchmarking among coubtry. So, you can know where you are. WHO are happy to adjust the tool to fit country's context. The main suggestion is the begining for some specific disease in a small area for feasible set up. Beside, data mornitoring and control is vital to gain the accirate data.

Key dicussion/take away messages

- The distribution of tools and courses is challenging.
- The WHO certiciation is available for which organisation using WHO course for training.

Participant suggestion as Annex

17. **Universal health coverage scheme and UCEP**

- Universal health Coverage (UHC) is a part of SDGs letting everyone access health care without barrier.
- The history of development in term of healtcare financial system. We started from civil staff health benefit 100 yrs ago, 1975 fee examption for the poverty, 1991 Social security Act for health and retirement,2002 political related campaign for UC.
- Current : UHC/SSC/Civil staff Schemme are mainly used to cover whole Thai people haelth cost (70% UHC , 19% SSC, 8% CSC, 3% other). UHC covers for prevention(for all citizens), promotion, treatment and rehabilitation.
- The expense will be controled by essential drug list/ standard price for treatment package (regular revision by national board comittee).
- For RTI, all vehicles must have a compulsary insurance, which will cover the health emergency cost before using their formal health schemme.
- UCEP closes the gap of the emergency patient **who** have an emergency outside their registered hospital area.
- Three main schems were used integratingly to cover over 90 % of Thai people health cost.
- There are several mechanism including law to develop the system.
- Sustainable development goal can be acheive by this schemes
- Start with small budget and then expansion.

18. **Data from trauma registry for Policy advocacy**

- **Target**
    i. Policies and practices of governments and large institutions
    ii. Laws and regulations
    iii. Commercial marketing practices of industries
    iv. Activities of counter-health lobbies
- Tip and tactic

v. Identify likely sources of opposition
beverage shop, company
vi. Anticipate their likely framing fact sheets
vii. Identify barriers (other than direct opponents) political uncomfortable there may lose their popularity.
viii. Identify (and engage) likely supporting partners health personnel in ER, the MC victims
ix. Identify likely political leader - “champions” Minister of MOPH
x. Develop an advocacy strategy bottom up, top down.

- Ideal characteristic of change agent
  i. Strong committed, enthusiasm
  ii. Understanding well of the situation and data in hand
  iii. Experience and continuous learning
  iv. Preparing and planning for advocate the issue.
  v. Seek several alliances groups.
  vi. Have solutions to propose.

Key dicussion/take away messages

- Good correct data have strong power to advocate for right policy direction
- YOU …are the most important person to advocate for the RS policy

1. Group work: Guided action plan development for establishing integrated trauma registry
2. Country Actions

Bhutan

KEY ACTIONS FOR SETTING UP/STRENGTHENING INJURY TRAUMA REGISTRY	EXPECTED CHALLENGES	INDICATE SUPPORT REQUIRED (be more explicit rather than stating TA/ Finance)	TIMELINE
Conduct situational assessment to take stock of current trauma and injury services and map the future course of actions -Formation of team -Tools -Dissemination and advocacy	-Expertise and time to conduct the stock taking exercise -Finance -Leadership and Commitment	**TA and Finance**	Q1 2024
Train healthcare professionals on establishment and use of trauma registry (ICD-11) in the 10 hospitals	-Experts/resource persons -Finance		Q3 2024
Develop/procure software for trauma datasets	-Software fit-for-purpose -Commitment -Finance -Maintenance		Q4 2024
Develop trauma standards and guidelines- case definition	-Commitment -Finance		Q2 2024
-Institute monitoring and reporting system -Research and development	-Tools -Finance		Q2 2024
Conduct **annual national ECS(Emergency Care System) review** reflecting on trauma cases	-Investigation forms -Finance		Q4 2024

India

Challenges	Solution	WHO can do	Key areas
Road Safety Management			
No specific Leadership for road safety. (one of the many functions of transport/police officer). **Overcome lack of inter-departmental coordination** - pose implementation/bureaucratic hurdles	Set-up **one road safety body/coordinating authority with executive powers,** representation from different departments and financing	Provide **Terms of Reference** for establishing the same	Help **countries to develop specific road safety action plans in-line with their resources and capacities to meet second decade targets**. Central and provincial authority for road safety **Annual national and state level road safety**
Lack of **valid, reliable regular and integrated data** sources for data-based implementation	Set-up simple yet **valid and reliable injury surveillance(hospital-based) and risk factor surveillance systems** Set-up **dedicated data (surveillance) (department/unit** for the country /state/district level	Provide **WHO tools and orientation for using the** surveillance tools. Facilitate **visits to best practice sites to catalyze implementation**	

	Integrate Road crashes into existing disease surveillance mechanisms, if existing!	/capacity building. Help countries develop annual Report of road safety status - with state-level or district level status	**reports with core set of indicators (2 nd decade targets**) Basic injury information systems at secondary and tertiary facilities
There are no constitutional mandate and there exists **competing priorities (child health, maternal health, NCDs & others)**. Perception road crash injuries are not a major issue	Develop **road safety policy and action plan in-line with second decade** which more specific to the country. Advocacy meetings with ministries of health, transport and home/police	Help **countries to develop specific road safety action plans in-line with their resources,** capacities to meet second decade targets	
Lack of clear operational definitions for injuries, fatalities and risk factors /assessment modes	Uniform definition discussion & government acceptance.	Coordination meetings	
Geographical access related challenges (mountain regions, islands, delta) for implementing road safety and post-crash care	**Develop capacities for road safety management to local governance (panchayat**) and train community lay - responders for immediate care and transportation **Develop innovative transportation methods – water ambulances, trolley systems etc**		
Enforcement is very slack in most places	**Automated enforcement methods with focus in high penalties and recovery of penalties**	Provide visits to best practice sites	Automated enforcement methods with focus in high penalties and

	Integration of transport and traffic /police databases	Access to technology providers	recovery of penalties

Challenges	**Solution**	**WHO**	**Key areas**
SAFER VEHICLES			
No **national vehicle safety regulations or standards (production, import, sale)**	Develop and **implement minimum safety norms and regulations**	Information sharing from other countries	**Enabling environments for adoption and use of safety technology in low resource countries** Create **public demand for safer vehicles by repeated advocacy efforts** **Dentralising / privatizing/out-sourcing**
High **cost of safety technology and safer vehicles**	Facilitate **local manufacturing incentives, trade policies revision, flexible loans for customers.** Enable **access to safer vehicles by revisions in taxation, duties, patent removal,**	To advocate with governments and inter-governmental agencies	
Lack of **speed restriction in commercial and personal vehicles**		Coordinate with national leaders and safety providers	
Ensuring optimal safety of vehicles used for school transit, for workplaces and public transport (no rules, old vehicles, not regulated or monitored), posing a risk for mass incidents. **Regulation of private transport lobbies is a big challenge**	Adopt guidelines for vehicle safety and standards for these vehicles. Involve users and governments bodies in monitoring (example – parents , teachers and police) **Insurance for all users to be made mandatary for public transport providers**	Advocacy with governments	

Challenges	**Solution**	**WHO**	**Key areas**
POST CRASH CARE			

Ensuring **universal access to emergency care due to geographical, affordability related, cultural issues , in low resource settings**	In hilly mountain /island terrains , **enable telemedicine / mobile / other virtual methods for enabling capacities to provide initial care** Pilot risk pooling based models as successful in other countries Road safety fund from penalties to finance ppst-crash care Taxation(Cess) on tobacco/alcohol to finance post-crash care	Provide support to implement basic three colour triage and transfer in all remote facilities Facilitate networking with insurance providers and other country models	**Universal accident and emergency insurance for all citizens** **Demonstration sites visit** **Set up a WHO Medical Academy for LMICs / poor countries in each Region**
Providing rehabilitation sub-district levels	**Community based Rehabilitation (CBR) projects in rural areas**	**Collaboration with other UN agencies and international NGOs for CBR**	
Lack of technical material, Algorithms, guidelines	Community lay responder training	Feasible to implement interventions training	
Shortage of trained specialist manpower	Establish a pool of trained specialists and super-specialists in district level	**Facilitate exchange of specialists between countries for short-term assignments** **Develop inter-country mechanisms for training of deputed doctors/nurses** **Set up a WHO Medical Academy**	

		for LMICs / poor countries in each Region Develop mechanisms to reduce brain-drain of trained manpower to other nations	
Challenges	**Solution**	**WHO**	**Key areas**
SAFE ROADS			
Setting-up constitutional and Institutional mechanisms for road design and safety --- not existing in many countries	Set-up uniform road construction standards for ensuring safety		Set-up **uniform road construction standards for ensuring safety** **Train in iRAP Conduct Star ratings of new roads and monitor**
Technical capacities are limited to build, operate and maintain safe roads	Build capacities		
Ensuring safe Inter-sections and interaction points (exits/entries) in urban areas and highways	Learn from experts from other countries who have used low-cost intervention methods for safer inter-sections	Visit to demonstration sites for leadership	
Conducting road safety audits on a regular basis is a challenge; as no system exists	Train in iRAP Conduct Star ratings of new roads and monitor	Audit support from other countries iRAP forms	
Challenges	**Solution**	**WHO**	**Key areas**
SAFE ROAD USER			
No strict graduate driver license training	Establish graduated driver licensing training systems and also upgrade existing licensing system with latest AI/electronic technology		**License process out-sourcing** **Develop mechanisms to measure preparedness of**

Ensuring behaviour change is a major challenge	Develop locally relevant BCC strategies	Advocacy with governments to recommend BCC strategies	**enforcement for speed, helmet, seat-blet and drink-drive systems (objectively) for the region** **Push countries to develop national level reports which would have indicators for each state** **Facilitate access to low-cost safety technology** **Advocate for uniform standards for BAC levels, helmet - type/standard / urban/highway speeds across the region**
Ensuring stricter compliance to helmet, set-belt , speed	Enabling enforcement environment involvement of civic bodies in enforcement support Automated enforcement with higher penalty recovery ratios	Develop **mechanisms to measure preparedness of enforcement systems (objectively) for the region**	
Ensuring **low-cost access to safety devices (helmets, harness, speed guns, ABS, & others)**	**Government policies to reduce cost – (subsidies, local manufacture , etc)**	**Advocacy & networking with governments and equipment providers** **Raise**	

Nepal

KEY ACTIONS FOR SETTING UP/STRENGTHENING INJURY TRAUMA REGISTRY	EXPECTED CHALLENGES	INDICATE SUPPORT REQUIRED (be more explicit rather than stating TA/ Finance)	TIMELINE
Human Resource	- Dedicated data entry person - Training to ER staff on using clinical form - Too busy emergency - Staff motivation	• Funding for HR/ trainings/meetings for staff • Technical support / exchange visits with national and international centers of excellence	
National Policy and governance	• No provision of trauma registry in national policy/strategies • National Focal Person	• Policy advocacy	
Infrastructure	• DHIS2 need to set up a tracker • Data storage and protection • National authorities hesitate to share national data into servers hosted outside country	• set up data management system with in country data server	
Quality improvement initiative	• Completeness of data • Technical capacity data management • Resources to take corrective measures as required • Support from senior management	• Capacity building of national team	
Emergency and trauma care system	• Entire trauma care system is at initial stage of reform • Need a holistic system reform initiative	• Support to organize advocacy and policy dialogue	

Thailand

KEY ACTIONS FOR SETTING UP/STRENGTHENING INJURY TRAUMA REGISTRY	EXPECTED CHALLENGES	INDICATE SUPPORT REQUIRED (be more explicit rather than stating TA/ Finance)	TIMELINE
Improvement coverage of IS using in regional and general hospitals by using technologies	All regional and general hospitals using IS	Financial for develop application for data integration and utilization	2024
Improvement quality of IS in regional and general hospitals by using technologies	At least 80% of data are complete and correct	Financial support for data collection Technology for monitoring and evaluation	2024
Integrated injuries data with other organization in Thailand	5 province in Thailand (every region)	Financial support for data management Technician for develop and maintenance technology for manage data and database Server for data storage	2024
In Chiangrai hospital: Trauma system including pre-hospital trauma care, in-hospital trauma care and rehabilitation We have record all information in trauma registry, but in many programme and many databases	We try to develop one database that can collect trauma data (prehos data, inhos data, poshos data)	money budget and programmer for developing programme to collect and analyze data	2023-2024 develop database 2025 start using programme

Timor Leste

Key actions for setting up/Strengthening Injury Trauma Registry	Expected Challenges	Indicate Support Required(Be more explicit rather than stating TA/Finance)	Timeline
Building the team and team engagement	Onboarding	Finance Ask for WHO guidance	1- 2 months
Advocacy of the stake holders	Time, motivation, guidelines	Good guidance, technical PPT from WHO	2 months
• Man power for trauma registry ED doctor and ED nurse • Designate trauma Registry in charge	Time, continuity	Emergency Form for trauma from WHO	2-3 months
• Training for Man power	▪ Time ,motivation, training material	training material from WHO, training for trainers.	3 months
• Getting Supply/products (manual and computerized)	▪ Finance ▪ sustainability	Standard forms, WHO Online clinical registry	2 months
• Regular monitoring and evaluation	Time, continuity, Finance	WHO audit forms, training from WHO	2 months
• Post Crash Training	Finance	WHO	1 Weeks

Indonesia

Country/Hospital Priority Actions and Indicators

KEY ACTIONS FOR SETTING UP/STRENGTHENING INJURY TRAUMA REGISTRY	EXPECTED CHALLENGES	INDICATE SUPPORT REQUIRED (be more explicit rather than stating TA/ Finance)	TIMELINE
Integrated Road Safety Management crash data awakening System (IRSMS) by National Police	An Integrated Emergency Management System (SPGDT) is urgently needed in Indonesia due to the high mortality from traffic accident, limited access to ambulances and beds, there is an epidemiological transition and Indonesia is a disaster laboratory country.	All health serivce fasility have data of injury and traumay registry	September - Desember 2023
The current response time setting is 10 to 15 minutes.	SPGDT aims to improve quality, access and response time for emergencies through PSC 119. All Regencies/Cities have PSC 119	Full support fund form all Regencies/Cities	2024-2026
The SISRUTE application can facilitate communication with hospitals before receiving referrals, identify patient needs or medical indications quickly, service effectiveness and efficiency, and patient safety	Currently, there are 291 regencies/cities that have PSCs and 120 of them have been integrated with the NCC. The current response time setting is 10 to 15 minutes.	Cross program collaboration and synergy at national dan regional levels for an integrated traffic ccident and trauma data system	2023-2035
Currently, there are 291 regencies/cities that have PSCs and 120 of them have been integrated with the NCC	223 Regencies/Cities do not yet have PSCs. PSC 119 needs to be strengthened in relation to human resources, services, and referral systems.	Strengthening advocacy to local governments	2023-2024
Socialization pocket book on first aid for road accidents has been prepared to all objective	Behavior and public awaness in first aid accidenrts increased	• Coopeartion wirh National Police and relation of Ministry • Use social media and online/darin meeting	2023-2024

World Organ

Bangaladesh

Country/Hospital Priority Actions and Indicators

KEY ACTIONS FOR SETTING UP/STRENGTHENING INJURY TRAUMA REGISTRY	EXPECTED CHALLENGES	INDICATE SUPPORT REQUIRED (be more explicit rather than stating TA/ Finance)	TIMELINE
Upgradation of the Registration System & Reporting	• Need to build up a separate emergency room dedicated for trauma patient at primary & Seconadry level.	Funds & Good Demonstration support.	By 2025 to establish the whole system in a single hospital like Dhaka Medical College Hospital as Piloting Model.
	• Lack of trained paramedics & nurses to enrich the data system.		By 2030, developed a integrated trauma registry system nationally for all level of hospitals.
Upgradation of the existing facilities of emergency room in all level of hospitals.	• Need a separate structure in the hospital complex.	Funds & Good Demonstration support	
	• Skilled Manpower shortage.		

World Health Organization

ANNEX

Participant suggestion from Thailand status and system regarding Trauma emergency care

Expert suggestion

Capacity building

Training for the trainers in terms of Trauma Medical coordinator in role and responsibility; Traum Nurse coordinator in role and responsibility; Pre hospital care personnel (Paramedic, AEMT, EMT,EMR,First Aid); local training course integrated to WHO course under WHO certification (On-scence trauma care, Khon Kaen Advance trauma and Emergency care, Pre-hospital emergency nurse, basic disaster health response; Fellowship training such as in Khon Kaen regional hospital , IS and trauma registry training; and establishing Simulation training center.

Pre hospital care development

Developing Pilot model in small are with simple system.

ER

Design renovate structure of ED with clear zoning, essential equipments, Trauma emegrncy care guideline , KPI setting, M&E, and having Emergency physician in ER

Data management

TR development/ WHO clinical data registry implementation

National status report for road safety

Goal :- Establishing Sentinel Sites for integrated Injury and Trauma Registry

Definitive care

Encouraging Trauma fast track program in hospital by integrated care model .. not SILO system.

Participant suggetion

SEARO Learning and Sharing forum : online, on-site

Strategy for communication and connection

Platform for report progression

Following up meeting next year or 2 years

Multicenter research

SEARO and member countries have to set priority actions from the recommendation.

Participant suggestion from WHO tools and forms/ Emergency Care Systems Assessment (ECSA) ; Clinical Care Training; Clinical Process Tools; Tools for strengthening data and quality improvement

- The integartion between WHO cousres and tool with the existing course and tools in country.
- WHO international certificate can provide by WHO.
- Thailand: structure and leader to drive such as TNC, start from small area and simple technique then expand later.