




Volatility


Uncertainty

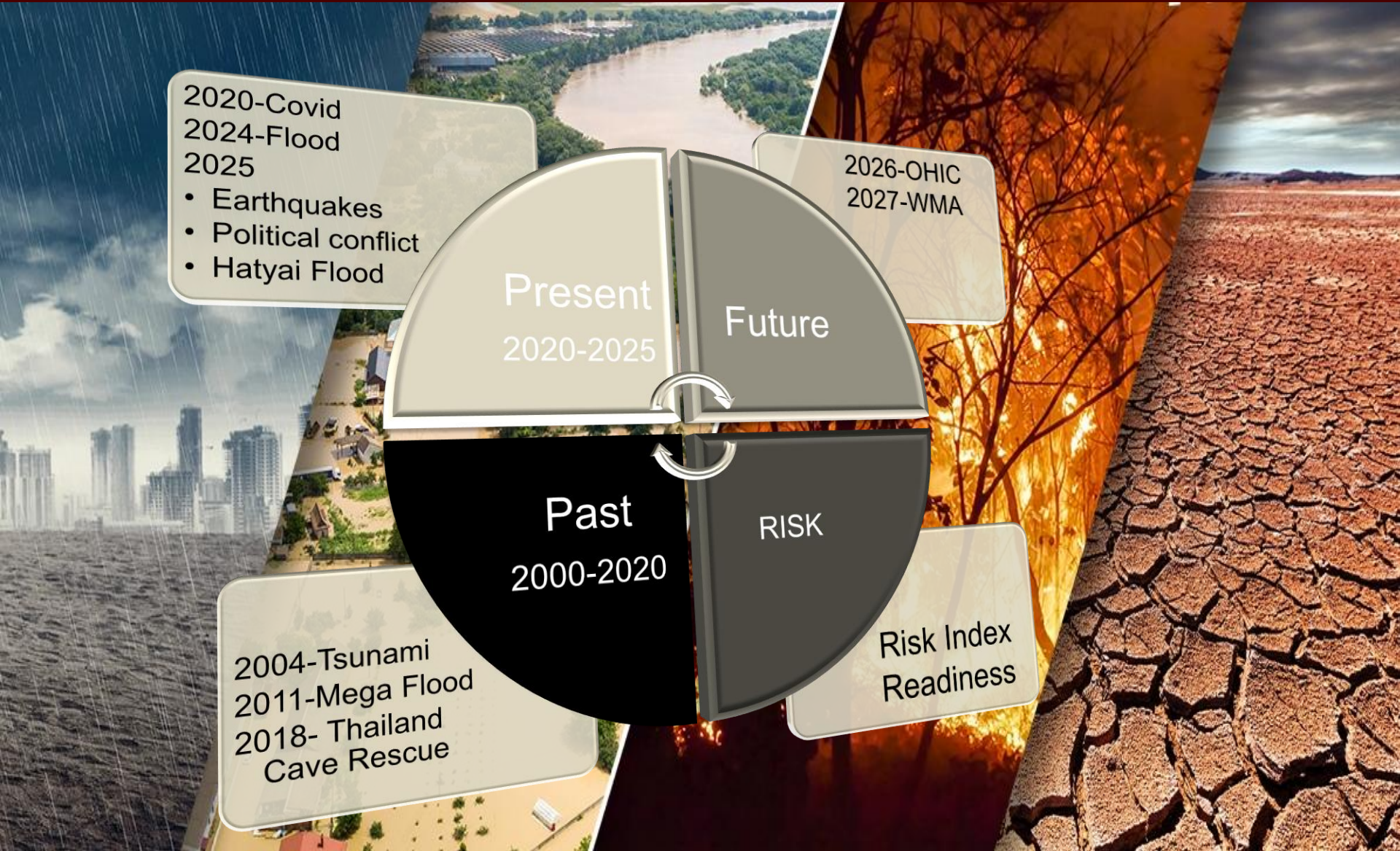

Complexity


Ambiguity

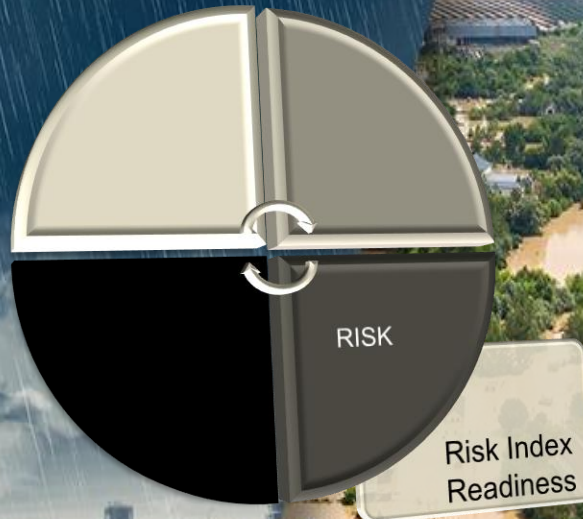


Major Dr. Chanrit Lawthaweewasawat
Secretary General,
The Medical Association of Thailand

“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand



“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand

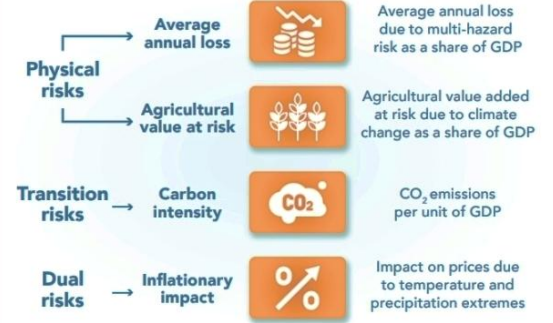


The Concept of the WorldRiskReport



Are Asia-Pacific economies ready to cope with climate change and transition?

1. Exposure to climate change and transition



2. Macroeconomic coping ability



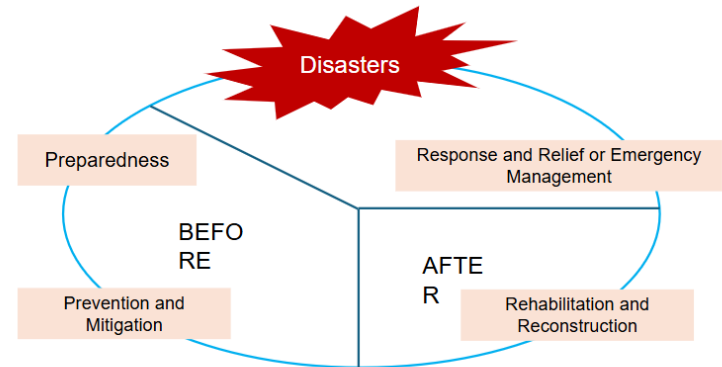
Public Health Emergency and Disaster management



เรืออากาศเอกนายแพทย์ อัจฉริยะ แพงมา
อดีตเลขาธิการสถาบันการแพทย์ฉุกเฉินแห่งชาติ
**Chief Medical Director, ASIA AIR
AMBULANCE**

- Aviation Medicine, Prehospital Emergency Medicine
Chief Medical Director, ASIA AIR AMBULANCE
Former Secretary-General
National Institute for Emergency Medicine

Disaster Cycle and Disaster Management



Source: ASEAN Disaster Risk Management Course;
United Nations Office for the Coordination of Humanitarian affairs (UNOCHA)

Disaster Management System in Thailand

- Constitution of the Kingdom of Thailand B.E.2560
- The 20-Year National Strategy (Security Strategy)
- National Reform Plan (Health Sector)
- Disaster Prevention and Mitigation Act B.E.2550
- Emergency Medical Act B.E 2551
- Disaster Prevention and Mitigation Plan B.E. 2564-2570



Disaster Level and National Responses

Level	Management of	Person Authorized
1	Small – scale disaster	District Incident Commander, Local Government Incident Commander and/or Bangkok Metropolitan Assistant Incident Commander is responsible for directing and/or controlling functions.
2	Medium – scale disaster	Provincial Incident Commander or Bangkok Metropolitan Incident Commander is responsible for directing controlling and commanding functions.
3	Large– scale disaster	National Incident Commander is responsible for directing, controlling and commanding functions.
4	Catastrophic disaster	The Prime Minister or the Deputy Prime Minister whom assigned by the Prime Minister is responsible for directing, controlling and commanding functions.

“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand



สถาบันการแพทย์ฉุกเฉินแห่งชาติ
National Institute for Emergency Medicine

Dealing with Health Impacts of Disaster

- **DISASTER HEALTH MANAGEMENT**
- Disaster management is multidisciplinary.
- Disaster Health Management system of Thailand is considered to be an integrated part of Disaster Management system/framework of the country.



Disaster Health Management

Legal and Regulatory Framework:

- Disaster Prevention and Mitigation Act B.E.2550
- Emergency Medical Act B.E. 2551
- National Plan for Disaster Prevention and Mitigation B.E. 2558
- Disaster Prevention and Mitigation Plan for Medical and Public Health

Operating Agencies: Roles and Responsibilities

- Ministry of Public Health (MOPH)
- National Institute for Emergency Medicine (NIEM)
- Local organization: Bangkok Metropolitan , Provincial , Municipal, Subdistrict, Pattaya
- Civil society: Thai Red Cross, Voluntary foundations, etc.



Disaster Health Management

Emergency Operating Center (EOC)

- MOPH has established the Public Health Emergency Operating Center (PHEOC) in 2019.



Communication System

- NIEM has prepared emergency communication during disasters
- i.e. Communication vehicle, satellite vehicle



Disaster Health Management

Competent personnel on-duty:

- **DMAT** – Disaster Medical Assistance Team
- **MERT** – Medical Emergency Response Team
- **M-MERT** – Military-Medical Emergency Response Team
- **Mini-MERT** – Medical Emergency Response Team (District level)
- **SRRT** – Surveillance and Rapid Response Team (Disease Control)
- **MCATT** – Mental Health Crisis Assessment and Treatment Team
- **I-EMT** – International Emergency Medical Team





2004 Indian Ocean Tsunami

More than 5,000 people in Thailand were killed, nearly ten thousand injured and more than 2,000 missing.



2011 Mega Flood

5,078,477 people, 2,899,329 families, 1 million households were affected.
One airport was submerged. Hospitals were affected.



**Past
2000-2020**

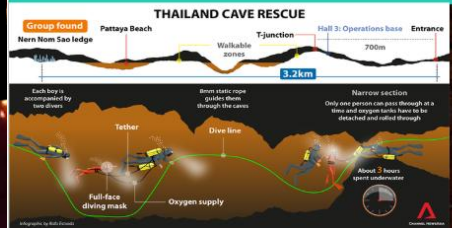
- 2004-Tsunami
- 2011- Floods
- 2018- Thailand Cave Rescue



13 soccer players rescued from tourist hotspot

Reports from the Guardian, Reuters and Channel NewsAsia

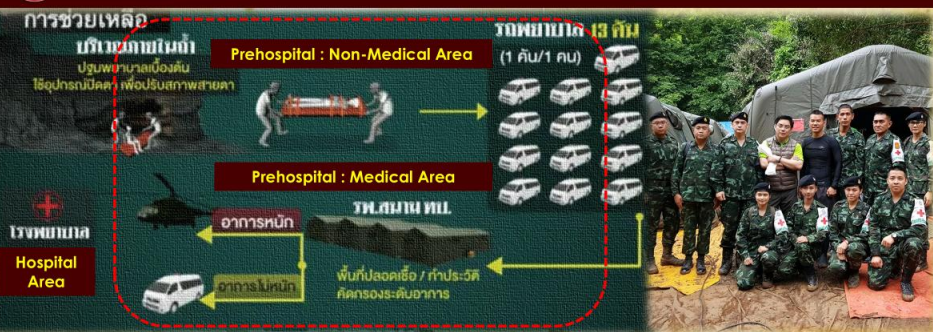
2018: Tham Luang Cave Incident





"ULTRAMODERN IN EMERGENCY MEDICINE 2020"

The 4th annual meeting of Thai college of Emergency Physicians, 02 October 2020



- ขั้นตอนการค้นหายูทีก**
- การร้องแจ้งและขอรับ (Report)
 - การวางแผนขบวน (Planning)
 - การค้นหายูทีก (Locate)
 - การเข้าถึง (Access)
 - การช่วยเหลือผู้บาดเจ็บตามสถานที่เกิดเหตุ (Stabilize)
 - การนำผู้บาดเจ็บส่งโรงพยาบาล (Transportation)



"ULTRAMODERN IN EMERGENCY MEDICINE 2020"

The 4th annual meeting of Thai college of Emergency Physicians, 02 October 2020



Army Field Hospital

Prehospital Management for Thailand Cave Rescue



"ULTRAMODERN IN EMERGENCY MEDICINE 2020"

The 4th annual meeting of Thai college of Emergency Physicians, 02 October 2020

13

Refer by Air Ambulance
#07.03PM
• Hypothermia & Hypotension

Admit in Chiangrai Procharukroh Hospital
#07.30PM

- Good Conscious
- BP 113/64 HR 70 RR 16
- CXR: PLL infiltration

Setup Hypothermia protocol for Combat Medicine

TRIAGE
Advance TRIAGE protocol
• Red
• Yellow
• Green

Stabilization
• Anesthesiologist: Dr. Chantana
• Radiologic Chest Prof. Dr. Chantana
• Critical Care Prof. Dr. Jantana

Discharge criteria set by
• Anesthesiologist
• Radiologic Chest
• Critical Care

TRIAGE
• Red
• Yellow
• Green

TRIAGE
To minimize interruptions from unauthorised individuals as experienced in Day 1 access to the stabilization area was restricted.

TRIAGE
• Red
• Yellow
• Green

TRIAGE
To minimize interruptions from unauthorised individuals as experienced in Day 1 access to the stabilization area was restricted.



"ULTRAMODERN IN EMERGENCY MEDICINE 2020"

The 4th annual meeting of Thai college of Emergency Physicians, 02 October 2020

COLLABORATION
MANAGEMENT GROUP WORK PROJECT
EMERGENCY MEDICINE COLLABORATIVE
EMERGENCY MEDICINE COLLABORATIVE

communication

Stabilization ABC+H
The hypothermia management was formalized and assigned to the anesthesiologist.

Adequate external and internal rewarming techniques are essential.

The accuracy of core temperature measurement was improved using tympanic membrane temperature monitoring.

Referral: The patients were prepared for transport with clear handover between the transferring medical and Chiangrai hospital with instructions to focus on the ABC+H during transport.

- The After-Action Review (AAR) on Day 1:
- Identified hypothermia and inefficient team coordination as the critical components, resulting in the development of Thai Cave Rescue Protocol that addressed both the medical and non-medical aspects of management.
- The Protocol addressed airway, breathing, circulation and hypothermia management (ABC+H) by an anesthesiologist, chest medicine and pediatric cardiologist.
- **TRIAGE:** Unidentifiable patients who were anesthetized with unclear ketamine doses given by the rescue cave divers and the wetsuit was carefully removed with airway and cervical spine protection.

- **Stabilization ABC+H:** The hypothermia management was formalized and assigned to the anesthesiologist.
- Adequate external and internal rewarming techniques are essential.
- The accuracy of core temperature measurement was improved using tympanic membrane temperature monitoring.
- **Referral:** The patients were prepared for transport with clear handover between the transferring medical and Chiangrai hospital with instructions to focus on the ABC+H during transport.

DATA Verification

Lesson learned for Quality Improvement process

creativity **innovative** **design** **success** **creative** **innovation** **inspiration** **business** **idea** **solution** **imagination**

Data verification is a process in which different types of data are checked for accuracy and inconsistencies after data migration is done. It helps to determine whether data was accurately translated when data is transferred from one source to another, is complete, and supports processes in the new system.

Wild Boar [high risk BT<30c]

1. TRIAGE

- RED
- Yellow
- Green

2. STABILIZE

A. Airway management by Anesthesiologist : Oral AW+Suction clear AW+O2 facemask with bag 10LPM

B. Breathing management by Chest Med. : Spontaneous Breathing

C. Circulation management by Cardio Ped. : IV, Fluid as protocol

* Cardiac & Respiratory Monitor: NIBP+EKG & O2saturation+RR every 5 mins.

D. Hypothermia management:

External Rewarm:

1. **Heater Blanket** [from US, Air Force]...Generate the body heat as normal.
2. **Foil Blanket**...Prevent the body heat loss, the whole body fully wrapped.
3. **Hot Air Blower**...Rewarm specific area: Head & Hand if pulse oximeter waveform analysis error

Internal Rewarm:

1. **Hypothermia & Hypotension:**
Warm 0.9% NSS IV. Loading 100ml then IV, drip until hemodynamic stable + New bag before refer by air ambulance rate 120ml/hr [Total IVF 1500ml. Lung no wheezing, Foley cath, urine 600ml]
2. **Hypoglycemia:** start 5% D NSS IV, drip 40ml/hr
*Body temperature [Ear] Monitor every 5 mins at least 30mins or until BT>35c in rewarm process

3. REFER

Discharge criteria :

- A. Airway clearance
- B. Breathing clearance
- C. Circulation clearance
- D. Hypothermia management : BT>35 c

*Handoff communication Doctor to Doctor[D2D]

Refer by Air Ambulance @06.04PM

Admit in Chiangrai Prachanukroh Hospital @06.34PM

- Good Conscious
- BP 142/89 ,HR 77, RR 15
- BT 36.4c
- CXR: Normal

1. TRIAGE

Advance TRIAGE protocol :

- RED
- Yellow
- Green

***Rapid Airway Assessment to a definitive care before remove wetsuit and change spinal board**

2. STABILIZE

A. Airway management by Anesthesiologist : O2 facemask, Oral AW, Intubation if indicated by Succinyl 1,5mg/kg

B. Breathing management by Chest Med. : Ventilator setting : Tidal vol.7ml/kg, RR 20bpm,PEEP 5,Pmax 30

C. Circulation management by Cardio Ped. : Atropine, Levophed, Adrenaline and Defibrillator as PALS protocol

* Cardiac & Respiratory Monitor: NIBP+EKG & O2saturation+RR every 5 mins

D. Hypothermia management :

External Rewarm:

1. **Heater Blanket** [from US, Air Force]...Generate the body heat as normal.
2. **Foil Blanket**...Prevent the body heat loss, the whole body fully wrapped.
3. **Hot Air Blower**...Rewarm specific area: Head & Hand if pulse oximeter waveform analysis error.

Internal Rewarm:

1. **Hypothermia & Hypotension :**
Warm 0.9% NSS IV. Loading 100ml then IV, drip until hemodynamic stable +New bag before refer by air ambulance
2. **Hypoglycemia :** start 5%D NSS IV, drip
□ Monitor Body Temperature: Tympanic membrane[Ear] Every 5 mins until BT>35 c in rewarm process x 4 readings

3. REFER

Discharge criteria :

- A. Airway clearance by Anesthesiologist
- B. Breathing clearance by Chest Med.
- C. Circulation clearance by Cardio Ped.
- D. Hypothermia management : BT>35 c stable in rewarm process

*Handoff communication: Doctor to Doctor[D2D]

Day3-Wild Boar 9

[Hypothermia BT< 30c+Unshivering+Unresponse to Verbral]

1. TRIAGE

- RED
- Yellow
- Green

Triage zone @04.10PM

- Responsive to painful stimuli
- ESV2M4
- AW + Breathing normal

2. STABILIZE

A. Airway management by Anesthesiologist : Oral AW+Suction clear AW+O2 facemask with bag 10LPM

B. Breathing management by Chest Med. : Spontaneous Breathing

C. Circulation management by Cardio Ped. : IV, Fluid as protocol

* Cardiac & Respiratory Monitor: NIBP+EKG & O2saturation+RR every 5 mins.

D. Hypothermia management:

External Rewarm:

1. **Heater Blanket** [from US, Air Force]...Generate the body heat as normal.
2. **Foil Blanket**...Prevent the body heat loss, the whole body fully wrapped.
3. **Hot Air Blower**...Rewarm specific area: Head & Hand if pulse oximeter waveform analysis error

Internal Rewarm:

1. **Hypothermia & Hypotension:**
Warm 0.9% NSS IV. Loading 100ml then IV, drip until hemodynamic stable + New bag before refer by air ambulance rate 120ml/hr [Total IVF 1500ml. Lung no wheezing, Foley cath, urine 600ml]
2. **Hypoglycemia:** start 5% D NSS IV, drip 40ml/hr
*Body temperature [Ear] Monitor every 5 mins at least 30mins or until BT>35c in rewarm process

3. REFER

Discharge criteria :

- A. Airway clearance
- B. Breathing clearance
- C. Circulation clearance
- D. Hypothermia management : BT>35 c

*Handoff communication Doctor to Doctor[D2D]

Full Discharge criteria @06.40PM

Refer by Air Ambulance @06.04PM

Admit in Chiangrai Prachanukroh Hospital @06.34PM

- Good Conscious
- BP 142/89 ,HR 77, RR 15
- BT 36.4c
- CXR: Normal

Time	Temp	NIBP	HR	SpO2	RR	TPK
0	30.6		12	100	100	
5	30.8	122/124	12	98		
10	30.4	122/127	10	85		
15	30.8	142/96	85	12	98	
20	31.6	144/104	82	16	100	
25	31.7	160/104	78	22	100	
30	32.5	156/101	81	13	99	
35	32.5	156/91	81	16	100	
40						
45	32.9	136/93	82	15	100	
50	33.5	133/100	81	14	100	
55	33.6	135/100	81	18	100	
60	34.1	133/93	81	16	100	
65	34.6	169/98	83	13	100	
70	34.8	134/89	78	13	99	
75	35.3	147/85	75	16	100	
80	34.9	134/92	73	21	99	
85	35.3	130/80	80	20	100	
90	35.5	139/85	85	18	99	

Summary Hypothermia Management Day1-3

Day I

Day II

Day III

Improvement Intervention

Chiangrai Prachanukroh Hospital

Day	Time	Temp	NIBP	HR	SpO2	RR	TPK
Day 1	1 19:30	36.4	16	68	125/82	8	Normal
	2 19:30	34.8	16	70	113/64	8	LLL infiltration
	3 20:55	35.5	20	60	121/63	8	Normal
	4 21:37	34.9	16	66	107/83	8	Rt hilar infiltration
Day 2	5 17:40	35.6	20	85	120/89	8	Normal
	6 20:04	34.9	16	49	110/89	8	Normal
	7 20:06	36.4	34	72	15	100	Normal
Day 3	8 20:30	35.5	17	73	144	100	Normal
	9 18:34	36.4					
	10 19:05	36.9					LLL infiltration
	11 19:10	38.5	18	86	137/54	8	Normal
	13 20:42	36.9	17	82	123/69	8	Normal
12 20:56	37.0	13	87	117/74	8	Normal	

Day3: BT>35c No Hypothermia

External Rewarm:

1. **Heater Blanket**
2. **Foil Blanket wrap**
3. **Hot air blower:** Head & Hand

Internal Rewarm:

1. **Hypothermia & Hypotension :**
Warm 0.9% NSS IV. Loading 100ml then IV, drip until hemodynamic stable + Change new Warm 0.9% NSS
2. **Hypoglycemia :** start 5%D NSS IV, Drip

□ Monitor Body Temperature: Tympanic membrane[Ear] Every 5 mins until BT>35 c in rewarm process x 4 readings

Dear Dr. Harris,

Q1: What-What is Sedation protocol for this Operation? I refer from your hand writing, the doses are right?

A1: These doses are correct: Premedication: Alprazolam 0.5mg PO.
 + Atropine 20mcg/kg IM.
 [I think the atropine was a good idea to stop hyper salivation]
 + KETAMINE: Loading dose: 5mg/kg and Rescue doses: 2.5mg/kg
 [But I would call this general anaesthesia not conscious sedation]

Q2: When-When does the Rescue consider to provide?

A2: I made a very clear plan with the divers. How to decide if the child needs more ketamine. How to decide on the dose. How to give the injection. The British and "Eurodivers" did an amazing job and must be congratulated.

Q3: Where-Where is the area that provide the Rescue dose?

A3: The first check was in chamber 8 after the 350m dive. Most kids needed another dose somewhere in this chamber. After that I am not sure exactly where the kids were inspected or re-dosed. The oximetry of the kids as never checked.

Q4: Why- Why KETAMINE is the best option for this Operation? (Non-Anesthesiologists might concern and want to know)

A4: I think ketamine is the only viable option as it maintains respiration, blood pressure and some airway responses in the unconscious patient. All other drugs are a problem in this regard.



A plan was developed and implemented using a ketamine based anaesthetic technique and a positive pressure full face mask. Under ketamine anaesthesia, the boys were swum out of the cave wearing poorly fitting wetsuits in approximately 20 degrees Celsius water.

Deep anaesthesia: The Thailand cave rescue and its implications for management of the unconscious diver underwater

Hanna van Waart¹, Richard J Harris², Nicholas Gant³, Xavier Ce Vrijdag⁴, Craig J Challen⁴, Chantit Lanthaveeasawat⁵, Simon J Mitchell¹ & R J

Abstract

Introduction: In 2018 12 children and one adult were anaesthetised before being extricated through over a kilometre of flooded cave in Thailand. Full face dive masks (FFM) putatively capable of maintaining constant positive airway pressure (CPAP) were employed. Here we describe the anaesthetic intervention and investigate the CPAP capability of the FFM.

Methods: Pressure was measured inside and outside the Interspiro Diver FFM during 10 tidal and 10 vital capacity breaths in divers at the surface and submerged with the mask deployed on open-circuit scuba (10 divers) and a closed-circuit rebreather (five divers). Relative in-mask pressure was calculated as the difference between inside and outside pressures. We also measured the in-mask pressure generated by activation of the second stage regulator purge valve in open-circuit mode.

Results: Mean submerged in open-circuit mode the mean relative in-mask pressure remained positive in normal tidal breathing (inhalation 0.6 kPa [95% CI 0.3-0.9]; exhalation 1.1 [0.8-1.4]) and vital capacity breathing (inhalation 0.8 [0.4-1.1]; exhalation 1.2 [0.9-1.4]). As expected, the relative in-mask pressure was predominantly negative when used on closed-circuit with back mounted counter-lungs due to a negative static lung load. Mean in-mask pressure during purge valve operation was 3.99 kPa (approximately equal to 40 cmH₂O) (range: 2.56 to 5.3 kPa).

Conclusions: The CPAP function of the Interspiro Diver FFM works well configured with open-circuit scuba. This may have contributed to the success of the Thailand cave rescue. Caution is required in generalising this success to other diving scenarios.

Prehospital Care of the 13 Hypothermic, Anesthetized Patients in the Thailand Cave Rescue

Chantit Lanthaveeasawat¹, Richard Harris², Wutichai Isang³, Kiri Pongpipit⁴

Abstract

Managing accidental hypothermia: a UK-wide survey of prehospital search and rescue providers. Freeman S, Deakin CD, Nelson MJ, Boatland D. Emerg Med J. 2018 Nov;35(11):652-656. doi: 10.1136/emmed-2017-207176. Epub 2018 Jul 15. PMID: 30205915

[Treatment of the hypothermic patient]. Kijergard B, Rutstein SF, Lucas A, Hojgaard HD. Ujgurgar Lezger. 2008 Jun 21;7(2):30205-10. PMID: 18534162. Review. Danish.

Severe Hypothermia Management in Mountain Rescue: A Survey Study. Poonboon P, Darone T, Kouriki S, Saeag K, Zepelwicz M, Sarak T, Turner R, Brugger H. High Alt Med Biol. 2017 Dec;18(4):411-416. doi: 10.1089/hmab.2017.0090. Epub 2017 Oct 2. PMID: 28981652. Free PMC article.

Delayed and intermittent CPR for severe accidental hypothermia. Gordon J, Paal P, Bierlein A, Brugger H, Paal G, Zoller C. Resuscitation. 2015 May;96(4):491-491. doi: 10.1016/j.resuscitation.2015.02.017. Epub 2015 Feb 25. PMID: 25273297. Review.

Ketamine is a good first-line option for severely agitated patients in the prehospital environment. Moore JS. Am J Emerg Med. 2018 Mar;36(3):501-502. doi: 10.1016/j.ajem.2017.12.015. Epub 2017 Dec 7. PMID: 29529930. No abstract available.

"Deep Anaesthesia: The Thailand Cave Rescue and its implications for management of the unconscious diver underwater"
Diving and Hyperbaric Medicine, 01 Jun 2020

The Protocol focused on three major steps: **Triage, Stabilization ABC+H, and Referral**

KEY POINTS

- Rescuers gave the 12 boys trapped in the cave ketamine to help protect them from hypothermia.
- The medical team described their efforts in a letter to the New England Journal of Medicine.
- Ketamine is an anesthetic that has soothing effects.

KEY POINTS

- The second boy to leave the cave did end up developing hypothermia, despite the preventive measures and being given a blanket upon his release.
- Reports at the time noted that the children had clearly been sedated during the operation, but officials were vague with details.
- "We had to use the means that could keep the children not to be panicky while we were carrying them out."

KEY POINTS

- The first four boys were given goggles to protect their eyes because they had not been exposed to the sun for more than two weeks, and their heads and necks immobilized in case of spinal injury during the journey through the narrow channels in the cave. Finally, the patients were wrapped in blankets to ward off hypothermia.
- The letter said the second boy to leave the cave had a body temperature of 35 degrees Celsius (95 Fahrenheit) when he came out and developed hypothermia on his way to the hospital. Hypothermia can cause damage to vital organs, including the heart and kidneys, and the nervous system.

KEY POINTS

- The harrowing rescue of 12 boys and their coach from an underground cave in Thailand captured the world's attention last summer. But after the extraordinary feat to get them out of the cave, the work was far from over: The boys and their rescuers needed urgent medical care to prevent the occurrence of critical health threats, such as hypothermia, according to a new report.
- The brief report, published today (April 3) in the New England Journal of Medicine, describes how the boys and their coach were treated immediately after they were pulled from the cave, before they were transported to a hospital via helicopter or ambulance.

"Prehospital Care of the 13 Hypothermic, Anesthetized Patients in the Thailand Cave Rescue"
 New England Journal of Medicine, 04 April 2019

TINTINALLI'S EMERGENCY MEDICINE
 A COMPREHENSIVE STUDY GUIDE
INTERNATIONAL EDITION

JUDITH E. TINTINALLI, Editor-in-Chief

O. JOHN MA
DONALD M. YEALY
GARTH D. MECKLER
J. STEPHAN STAPCZYNSKI
DAVID M. CLINE
STEPHEN H. THOMAS

9TH EDITION

Chapter 37: Procedural Sedation and Analgesia in Adults

REFERENCES

1. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

2. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

3. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

4. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

5. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

6. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

7. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

8. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

9. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

10. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

11. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

12. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

13. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

14. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

15. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

16. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

17. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

18. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

19. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

20. American Society of Anesthesiologists. ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia. *ASA Practice Guidelines for Sedation and Deep Sedation/General Anesthesia*. Washington, DC: American Society of Anesthesiologists; 2018.

"Prehospital care of the 13 hypothermic, Anesthetized patients in the Thailand cave rescue"
Tintinalli's Emergency Medicine Textbook, 9e-2020
 Chapter 37:Procedural Sedation and Analgesia in Adults, Reference #170



Ben Horowitz’ book

is about being a CEO in struggling tech companies, and what he learnt the hard way

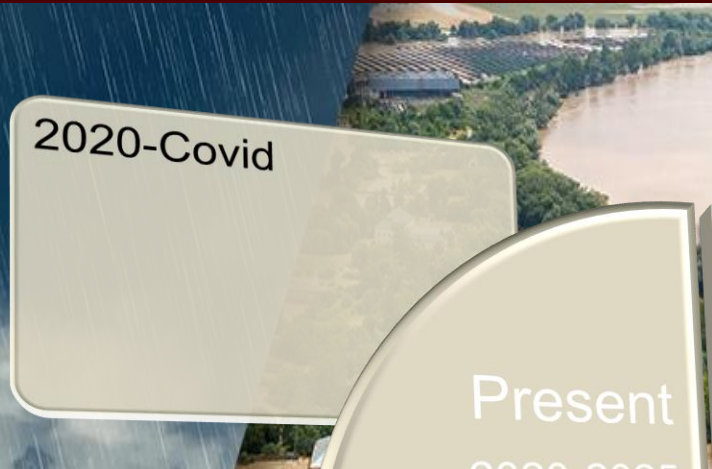
The “Peacetime CEO” has quite a different profile than the “Wartime CEO”

There are very different challenges when managing a successful, growing company, compared to a company in crisis.



A company at war must have a “Wartime CEO”

➤ Wartime CEO trains her employees so they don’t get their asses shot off in battle”



วันที่ 16 มีนาคม 2563 ศ.เกียรติคุณ นพ.อมร ลีลารักษ์ ศ.เกียรติคุณ พญ.สมศรี เผ่าสวัสดิ์ และ ศ.พ.รชชัช คงสมบูรณ์ ได้เข้าร่วมประชุมกับนายกรัฐมนตรี พลเอกประยุทธ์ จันทร์โอชา




Medical Association

The role of MAT (established 1921)

1. Promotion and maintain the Professional Ethics
2. Promotion of the Professional solidarity.
3. Promotion of Medical Education, Researches & Services.
4. Promotion of member welfare.
5. Cooperate & collaborate with governmental & private organizations.
6. Advocate Medical & Health education to public.
7. Collaborate with international organizations to leverage the global Health Care.



The Medical Association of Thailand & COVID-19



Summary Report
Seminar on Prevention & Treatment of COVID-19: Experiences from China
7th April 2020



MAT mission:
To collaborate with International organizations to leverage the global healthcare

Medical Association of Thailand

“COVID-19 The Giant World Disruptor”
EMERGENCY PLANNING IN A DISRUPTIVE WORLD



Discussion and Question: Many useful discussions and questions from different countries have been answered, such as questions of major concerns of HCWs and preparation for surgical cases of COVID-19 outbreaks in Thailand from Dr. Charut Lawhaweewong, Deputy Secretary-General of MAT and the Royal College of Anesthesiologists of Thailand.

Summary Report Seminar Experiences from China



วันที่ 3 มีนาคม 2563 ศ.เกียรติคุณ นพ.อมร ลีลารักษ์ ให้สัมภาษณ์ เรื่อง COVID-19 ในรายการต่างคนต่างคิด ทางช่อง อีวันทีวีทีวี




Medical Association

The role of MAT (established 1921)

1. Promotion and maintain the Professional Ethics
2. Promotion of the Professional solidarity.
3. Promotion of Medical Education, Researches & Services.
4. Promotion of member welfare.
5. Cooperate & collaborate with governmental & private organizations.
6. Advocate Medical & Health education to public.
7. Collaborate with international organizations to leverage the global Health Care.



1. Promote of members welfare

On September 5, 2024, Prof. Dr. Praklapan Thamfitchong, President of the Medical Association, Lt. Col. Dr. Charnrit Lotaweewasawat The Secretary General of the Medical Association and Dr. Posawat Wuttikrawit (JDN) visited to encourage the people affected by the floods in Chiang Rai Province.



Floods in Thailand 2024-2025

1. Promote of members welfare

On November 28-30, 2025, the MAT Secretary General, in coordination with the Thai government, launched a **pilot project for ICU volunteer doctors** to reduce the heavy workload of doctors caring for critical patients in the ICU of two major hospitals that have referred more than 100 cases on ventilators from the Hatyai Mega Flood.



2. Coordinate and cooperate with public and private organizations

The Secretary General of the Medical Association of Thailand presented his pilot project to the government representatives. Regarding medical and public health problems in the Great Flood in the Southern Region, he was invited to travel with the government delegation to adjust the solution plan for hospitals in need of opportunities and assistance urgently.



**“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand**

1. Promote of members welfare

On September 5, 2024, Prof. Dr. Prakritpan Thamtitchong, President of the Medical Association, Maj. Dr. Chanrit Lawthaweewasawat The Secretary General of the Medical Association and Dr. Posawat Wuttikrawit (JDN) visited to encourage the people affected by the floods in Chiang Rai Province.



“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand

2. Coordinate and cooperate with public and private organizations

The MAT's Secretary-General presented his pilot project to the government representatives. Regarding medical and public health problems in the Great Flood in the Southern Region, MAT was invited to survey with the government delegation to adjust the solution plan for hospitals in need of opportunities and assistance urgently.



“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand



2. Coordinate and cooperate with public and private organizations

The Medical Association of Thailand has collaborated with CPF to provide timely assistance to doctors and the public by arranging a project to establish the **"Kitchen of the Medical Association and CPF"** will be the center for providing food and drinking water support to medical personnel who are on duty to take care of the victims of the Great Flood in the Southern Region. It was the Pilot Project which can help other hospitals until the end of the mission.

วันที่ 126/2567 | วันจันทร์ ที่ 21 พฤศจิกายน พ.ศ. 2567
โรงพยาบาลปัตตานี
วิสัยทัศน์ : ศูนย์กลางสุขภาพที่มีระดับแนวหน้า ประชาชนเชื่อมั่น ก้าวทันเทคโนโลยี

ศูนย์ประสานงานออกกภัย
โรงพยาบาลปัตตานี

แพทยสมาคมแห่งประเทศไทย ร่วมกับ
สนับสนุนวัตถุดิบให้กับโรงพยาบาลปัตตานีในเมืองต้น
ได้ส่งมอบไป จำนวน 10,000 พวง
เพื่อใช้ในการบรรเทาทุกข์ แก่เจ้าหน้าที่ และประชาชนที่ประสบภัยจากอุทกภัยร้ายแรงในจังหวัดปัตตานี
ครอบคลุมหลายพื้นที่ ก่อให้เกิดความเสียหายต่อชีวิตและทรัพย์สินเป็นจำนวนมาก

มูลนิธิเจริญโภคภัณฑ์ (ซีพี) ผนึกกำลัง
มอบอาหารทันที 42 - แพทยสมาคมแห่งประเทศไทยฯ
ช่วยเหลือผู้ประสบภัยน้ำท่วม

จ.สงขลา
จ.ปัตตานี
จ.ยะลา
จ.นราธิวาส

"Disaster Medical Support by The Medical Association of Thailand and CPF" Pilot Project

ของแอมคน
มูลนิธิเจริญโภคภัณฑ์ (ซีพี)
อาหาร จำนวน 715 กิโลกรัม

เพื่อใช้ในการบรรเทาทุกข์ แก่เจ้าหน้าที่ และประชาชน ที่ประสบภัยจากอุทกภัยร้ายแรงในจังหวัดปัตตานี
ครอบคลุมหลายพื้นที่ ก่อให้เกิดความเสียหายต่อชีวิตและทรัพย์สินเป็นจำนวนมาก

https://www.pattanihos.com | 073 711 010
โรงพยาบาลปัตตานี อ่าวและอ่าวพันธุใหญ่ | Pattani Hospital | หน่วยงาน : งานเสกทัศน์ศูนย์โรงพยาบาลปัตตานี

https://www.pattanihos.com | 073 711 010
โรงพยาบาลปัตตานี อ่าวและอ่าวพันธุใหญ่ | Pattani Hospital | หน่วยงาน : งานเสกทัศน์ศูนย์โรงพยาบาลปัตตานี

"Disaster Medical Management in VUCA World"
Lesson Learned from The Medical Association of Thailand



1. Promote of members welfare

On November 28-30, 2025, the MAT Secretary General, in coordination with the Thai government, launched a **pilot project for ICU volunteer doctors** to reduce the heavy workload of doctors caring for critical patients in the ICU of two major hospitals that have referred more than 100 cases on ventilators from the Hatyai Mega Flood.



“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand

2025

- Earthquakes

Present
2020-2025



The MERT training was rapidly concluded, and participants rushed back to Bangkok, with reports on the collapse of a 30-story building under construction in Bangkok's Chatuchak District bringing an added sense of urgency. The same evening, an on-site Incident Command Post was established in Chatuchak, supported by national Urban Search and Rescue (USAR) experts and Military and Civilian MERTs, to both coordinate rescue operations and stand by for the provision of urgent medical care.

As, the situation continues to evolve in both Thailand and Myanmar, including reports of additional deaths, injuries, and of people who are unaccounted for, in Thailand, significant mental health support has also been provided to affected communities through dedicated Mental Health Crisis Assessment and Treatment (MCAT) Teams.

CNN World

Sign in

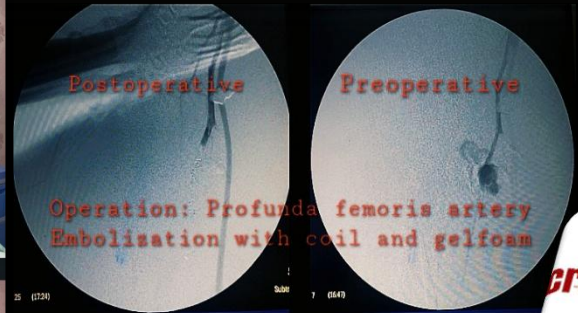
On 28 March 2025, an under-construction building for the State Audit Office collapsed in Bangkok, following a devastating earthquake that occurred in Myanmar, **The skyscraper was the only building affected by the earthquake in Thailand**, Investigators focused on whether "the construction quality, materials used".

March 28, 2025: Magnitude 7.7 earthquake in Myanmar

By Ross Adkin, Lex Harvey, Edward Szekeres, Hassan Tayir, Todd Symons, Rob Picheta, Sophie Tanno, Olivia Kemp, Elise Hammond and Max Saltman, CNN
Updated 9:11 PM EDT, Fri March 28, 2025



Best practice bleeding control in combat surgery "Military Tourniquet & Lifesaving Embolization" In war surgery, embolization is a minimally invasive technique used to control bleeding from damaged blood vessels, particularly in solid organs, extremities...."Saving Limb to Save Life"



Endovascular Embolization of a Profunda Femoris Artery Injury Following Battlefield Tourniquet Application; a case report

Sineetorn Boonyatikarn, MD¹, Krit Wangkeeratikarn, MD¹, Chawamai Suebnukarn, MD², Pakarat Sangkla, MD³, Nawin Kuntaraksa, MD¹, Chanrit Lawthaweewasat, MD⁴

¹ Department of Surgery, Surin Hospital, Surin, Thailand; ² Director, Surin Hospital, Surin, Thailand; ³ Deputy director, Surin Hospital, Surin, Thailand; ⁴ Medical Association of Thailand, Bangkok, Thailand



extremity remains a major cause of preventable death in profunda femoris artery (PFA) injury is rare due to its deep arteries in military settings can cause extensive soft tissue and diagnosis and hemorrhage control challenging. In such

Lessons learned from this report and the truth from Thailand:

Under the Geneva Conventions, hospitals must be protected at all times. However, when a BM-21 rocket struck the Thai Border Hospital, the only facility able to provide care for civilians from both sides, our patient arrived at the same time. The lives of victims from both countries, cared for by Thai doctors, civilian and military, were immediately at risk.

This case not only points out the truth from Thailand, which did not initiate the conflict, but also the commitment of Thai doctors to save lives regardless of ethnicity, even under direct threat. It demonstrates continuous efforts from the point of injury, through life-saving battlefield tourniquet application and pragmatic bleeding control, to successfully preserve life and limb. "Saving limbs to save lives."

The Medical Association of Thailand (MAT) immediately issued a statement: "We condemn the violent and inhumane acts of warfare involving the use of weapons of war in hospital areas and civilian residential areas." We recognize that disasters from political conflict or war are man-made. A comprehensive response process, covering humanitarian, health, and safety dimensions, as well as rehabilitation, is needed to reduce the physical and psychological impact on disaster victims and give them the opportunity to return to a time of peace.

Disaster Medical Management requires both science and art in limited resources to provide the best possible care for a large number of injured people. the searching and rescue protocol from Prehospital non-medical area to the medical are at the scene, transportation protocol to the destination hospital. Creation of a database, analysis, learning develop better disaster management methods in the future



Volatility



Uncertainty



Complexity



Ambiguity

**Review of practices
After Action Review: AAR**

**Review knowledge and develop into
Guidelines / Best Practices**

**Disaster
Medical
Management**



- **Disaster Medical Management** requires both science and art in limited resources to provide the best possible care for a large number of injured people.
- **The table top exercise**, it will show the searching and rescue protocol from Prehospital non-medical area to the medical are at the scene, transportation protocol to the destination hospital.
- **Disaster Workshop**, knowledge will be used to
 - Practice to understand protocol, learn to coordinate teamwork.
 - Creation of a database, analysis, learning
 - Develop better disaster management methods in the future.

**“Disaster Medical Management in VUCA World”
Lesson Learned from The Medical Association of Thailand**



**4th OHIC Bangkok 2026:
3rd-4th December**

**WMA General Assembly
Bangkok 2027:
20th-23rd October**

4th One Health International Conference
December 3rd – 4th, 2026
at the Centara Grand at Central Plaza Ladprao
Bangkok, THAILAND

Keynotes

- Food Safety and Security
- Disaster Management and Preparedness
- One Health Education and Workforce Development
- Open Topics in One Health, including environmental health, antimicrobial resistance, zoonoses, and more.

CONTACT

Email: ohic2026bangkok@gmail.com

Website: ohic2026bangkok.com

2026-OHIC
2027-WMA

WMA WORLD MEDICAL ASSOCIATION

Search...

EN ES FR **Join Us**

Connect with us:

What We Do / Events / WMA General Assembly, Bangkok 2027

A- A+

WMA GENERAL ASSEMBLY, BANGKOK 2027

Start Date: October 20, 2027
End Date: October 23, 2027
Location: Bangkok, Thailand

OHIC Bangkok 2026 - 4th One Health International Conference

This year's OHIC theme centers on strengthening intersectoral collaboration to address some of the most pressing global health challenges under the One Health approach. The conference will feature high-level keynote speakers, expert panels, and cross-disciplinary discussions in the following key areas:

- Food Safety and Security
- Disaster Management and Preparedness
- One Health Education and Workforce Development
- Open Topics in One Health, including environmental health, antimicrobial resistance, zoonoses, and more.