



# THE OPERATION THE WORLD NEVER FORGET

*Lessons Learned from Thai Cave Rescue*

**November 12, 2018 15.45-17.35 hr.**



**FROM**

**DARKNESS**

**COMES LIGHT**

**Maj.Gen. Wutichai Isara**

**Director of Fort Somdej Phranaraesuan Maharaja Hospital**

**Chief Medical Officer; 3<sup>rd</sup> Army Area, RTA**

**Chief Commander of Field Hospital**

**Flight Surgeon ; Army Aviation Center, Alabama; USA**



Capt. Kamonsak Tangchai, RTN,MD.

ARKNESS  
COMES LIGHT

## THE ROLES OF ROYAL NAVY DOCTOR IN THAI CAVE RESCUE

Capt. Kamonsak Tangchai, RTN,MD.

Diving Medical Officer and Flight Surgeon

Chief of underwater and aviation medicine division

Arbhakornkiatiwong Hospital, Sattahip Naval Base



Maj. Chanrit Lawthaweesawat MD.

ARKNESS  
COMES LIGHT



## PREHOSPITAL HYPOTHERMIA MANAGEMENT FOR THAI CAVE RESCUE

Maj. Chanrit Lawthaweesawat MD.

Cardiac Anesthesiologist, Bumrungrad International Hospital,  
Deputy Secretary General, The Medical Association of Thailand



Lt.Col. Thanarat Lumjoun MD.

# ILLNESS BECOMES LIGHT



## PULMONARY CONCERNS DURING AIR EVACUATION IN THAI CAVE RESCUE OPERATIONS

Lt.Col. Thanarat Lumjoun MD.  
Chest physician, Director of Fort Khunchueangthammikkarat Hospital

13

FROM

DARKNESS

COMES LIGHT



# The Remarkably Amazing Procedure Rescue from the cave in Thailand

FROM DARKNESS  
COMES LIGHT



**Maj.Gen. Wutichai Isara**

**Director of Fort Somdej Phranaraesuan Maharaja Hospital**

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***“we should accept to  
lose some  
or finally we’ll lost all”***

FROM

DARKNESS

COMES LIGHT

***But***

***WE SAVE ALL***



# Introduction to Thailand Cave Rescue Panel

## Lessons Learned from Thai Cave Rescue

- **What** : 13 wild boars trapped inside Thailand cave
- **When** : 18 days Timeline for Rescue
- **Where** : Tham Luang – Khun Nam Nang Non Forest Park in Chiang Rai, Thailand
- **How** : Setting Medical plan For Rescue Panel

# Tham Luang Cave, Chiang Rai, Thailand



23<sup>rd</sup> June

- 12 boys+ 1 coach trapped deep inside
- Found bikes, bags, shoes outside

24<sup>th</sup> June

- Start Rescues, Survey, water drainage
- Thai Navy Seal joined

- 
- Request & Rapid Response
  - Set up Field Hospital
  - Jointed Exercise
  - Operation Plan

# Timeline

23<sup>rd</sup> June

- 12 boys+ 1 coach trapped deep inside
- Found bikes, bags and shoes outside

24<sup>th</sup> June

- Start the rescue, survey and water drainage
- Thai Navy Seal joined

28<sup>th</sup> June

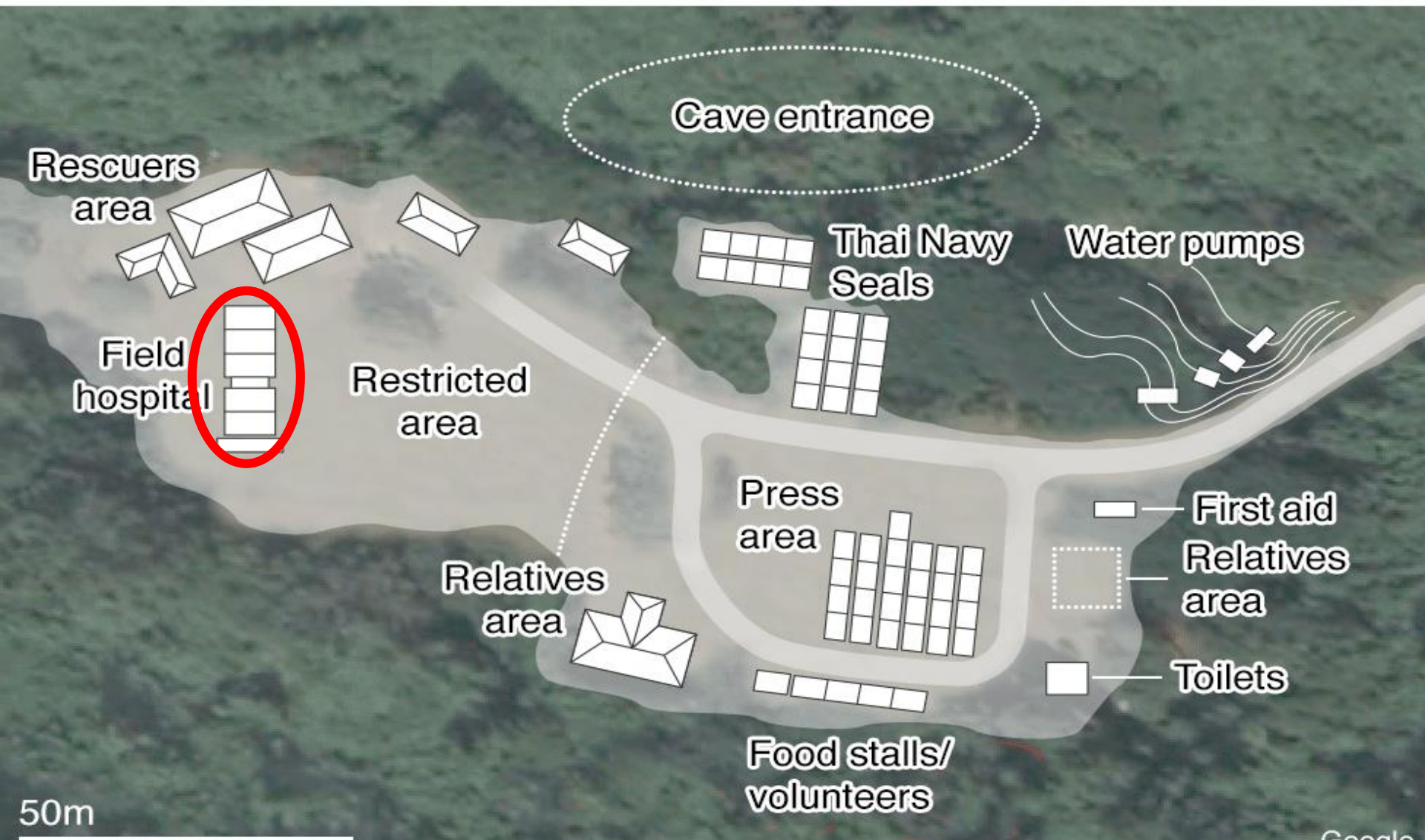
- Set up Field Hospital and Medical Incidence Center
- 3rd Army Area Medical Service, MOPH



מאחזקת : ארת



## Rescue camp



# Timeline

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June

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28<sup>th</sup>  
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- Set up Field Hospital and Medical Incidence Center
- 3rd Army Area Medical Service, MOPH

30<sup>th</sup>  
June

- Joint Exercises

2<sup>nd</sup> July

- 2 British Divers made an incredible discovery



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- 2 British cave divers made an incredible discovery

3<sup>rd</sup> -7<sup>th</sup>  
July

- Doctor from Army Medical Department joined them
- Restore 13 wild boars' physical and mental fitness

8<sup>th</sup> July

- Diver Teams & Thai Navy Seal go inside to rescue
- 4 wild boars came out of Cave (1st Group)



# Timeline

- 12 boys+ 1 coach trapped deep inside
- Found bikes, bags and shoes outside



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- Joint Exercises

- 2 British cave divers made an incredible discovery

- Doctor from Army Medical Department joined them
- Restore 13 wild boars' physical and mental fitness

- Diver Teams & Thai Navy Seal go inside to rescue
- 4 wild boars came out of the cave (1st group)

- 4+5 wild boars, 3 Navy Seal, 1 Doctor came out of the cave
- successfully rescued the wild boars



23<sup>rd</sup>  
June

24<sup>th</sup>  
June

28<sup>th</sup>  
June

30<sup>th</sup>  
June

2<sup>nd</sup>  
July

3<sup>rd</sup> -7<sup>th</sup>  
July

8<sup>th</sup> July

9<sup>th</sup> -  
10<sup>th</sup>  
July





# The stress

- High expectation
- Limited medical data and no communication
- making good (not best) medicine in bad situation
- Not only medical data was used to make decision but it is also a military mission under the Government order and finally, under the perception of the world



# Field Hospital



- **Medical Incidence Command**

- 10 Military hospitals, 3<sup>rd</sup> Army Area
- Medical Department supervisors and equipment
- Navy medical team
- MOPH province senior medical director and supporting team from the regional general hospital

- **Responsibility**

- **Military medical Team** - The boys, coach and Navy seal
- **MOPH team** - Other supporters and the boy's family

# Field Hospital



- Evacuation Team ( one team: one kid)
  - 4 Army medical Teams ( 4 Ambulances )  
and 2(4) air evacuation teams
  - 5 MOPH medical teams
  - 4 police medical teams  
(2 air evacuation)












## Ready to rescue

 Rescuers have begun final preparations to bring the 12 trapped children and their football coach out of the Tham Luang caves. [UPDATE](#)

8 Jul 2018 at 10:49





# The Most wonderful Guy



**Dr. Richard Harris; Anesthesiologist**

# First meeting



“ First I have to let you know that the procedure we are talking about, *it has never been done before in this world,*

but we have experience it and practiced it many times.”

# Decision making



- Authority
- Base on limited and unreliable data
- Perfect time (Now is better)
- Good procedure (not best)
- Good practice (many times)
- Leave no one behind

# Why we chose this procedure?

- **Basic concept of rescuing**  
“Rescue come first, victim comes later”
- **Golden term**  
“*we should accept to lose some or finally we'll lost all*”

# The procedure

- Prepare supplies
  - Logistic equipments (when and where )
  - Expert cave diver team and authority in situation
  - Evacuation team (Navy seal, Medical team)
- Sedate the boys by medications
- Restrain and use Full Face Mask technique
- Evaluate the boys and Oxygen level in each chamber
- Urgently sent them to Field hospital under the care of the medical team
- Keeping them warm, Resuscitations and Evacuation

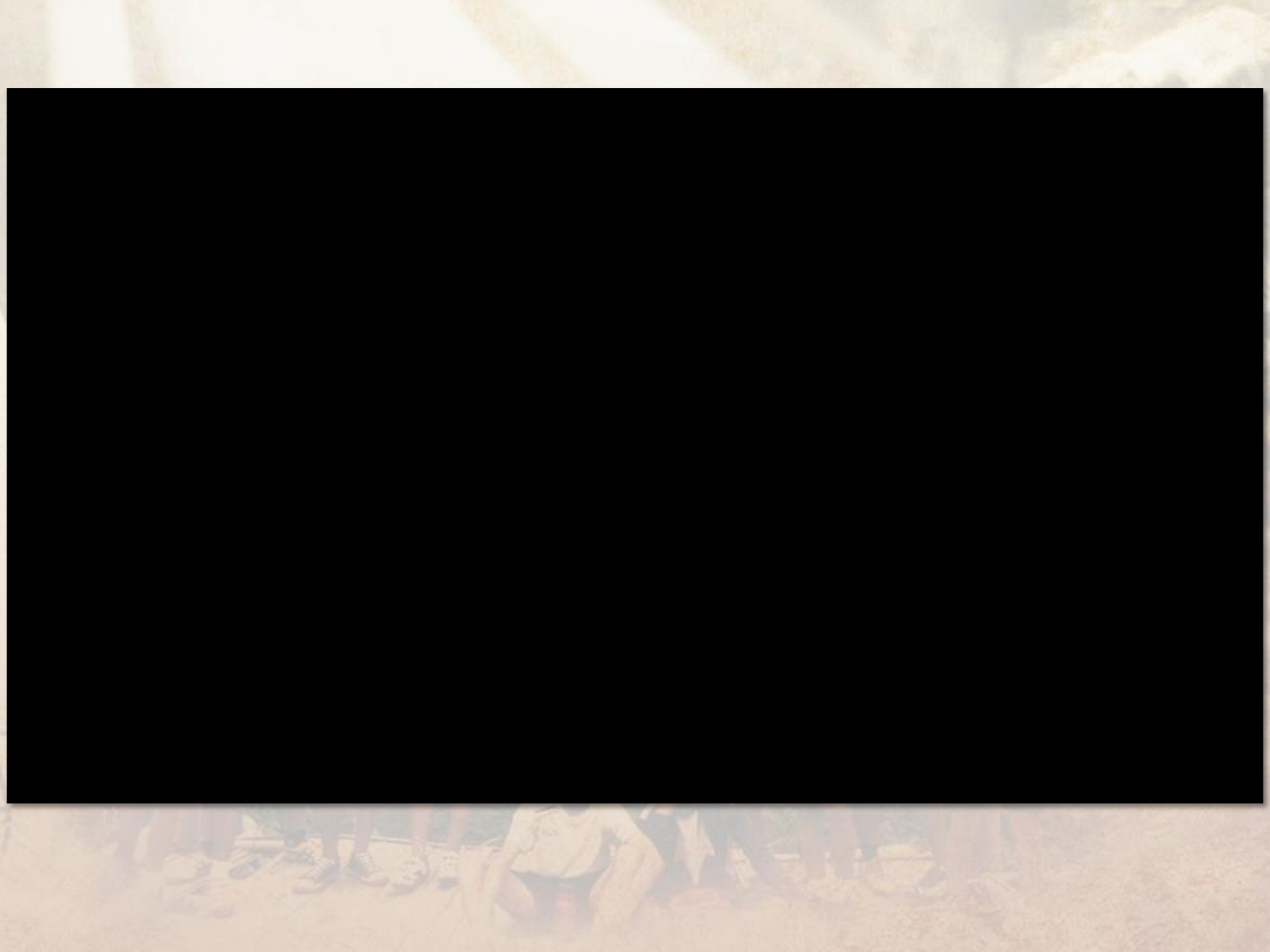












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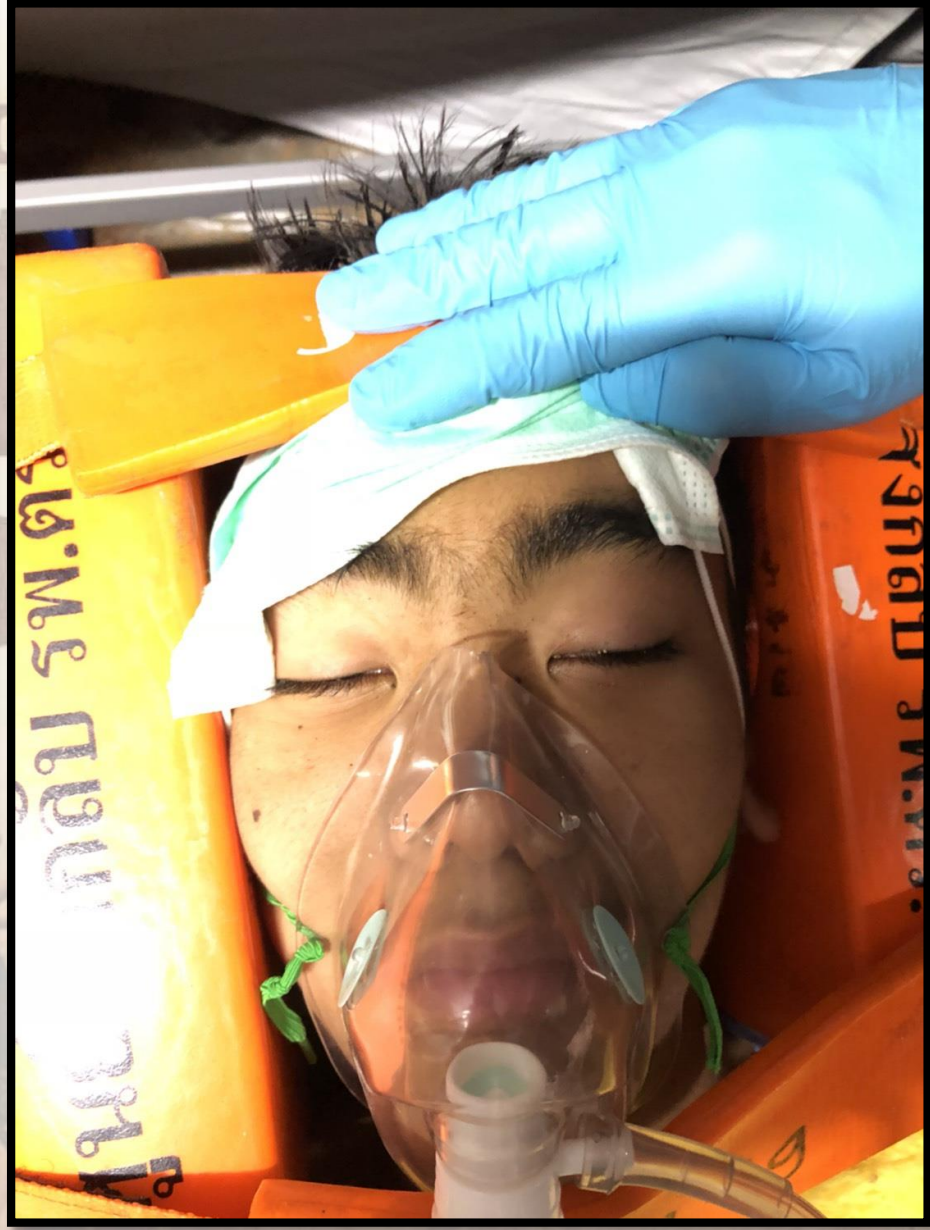
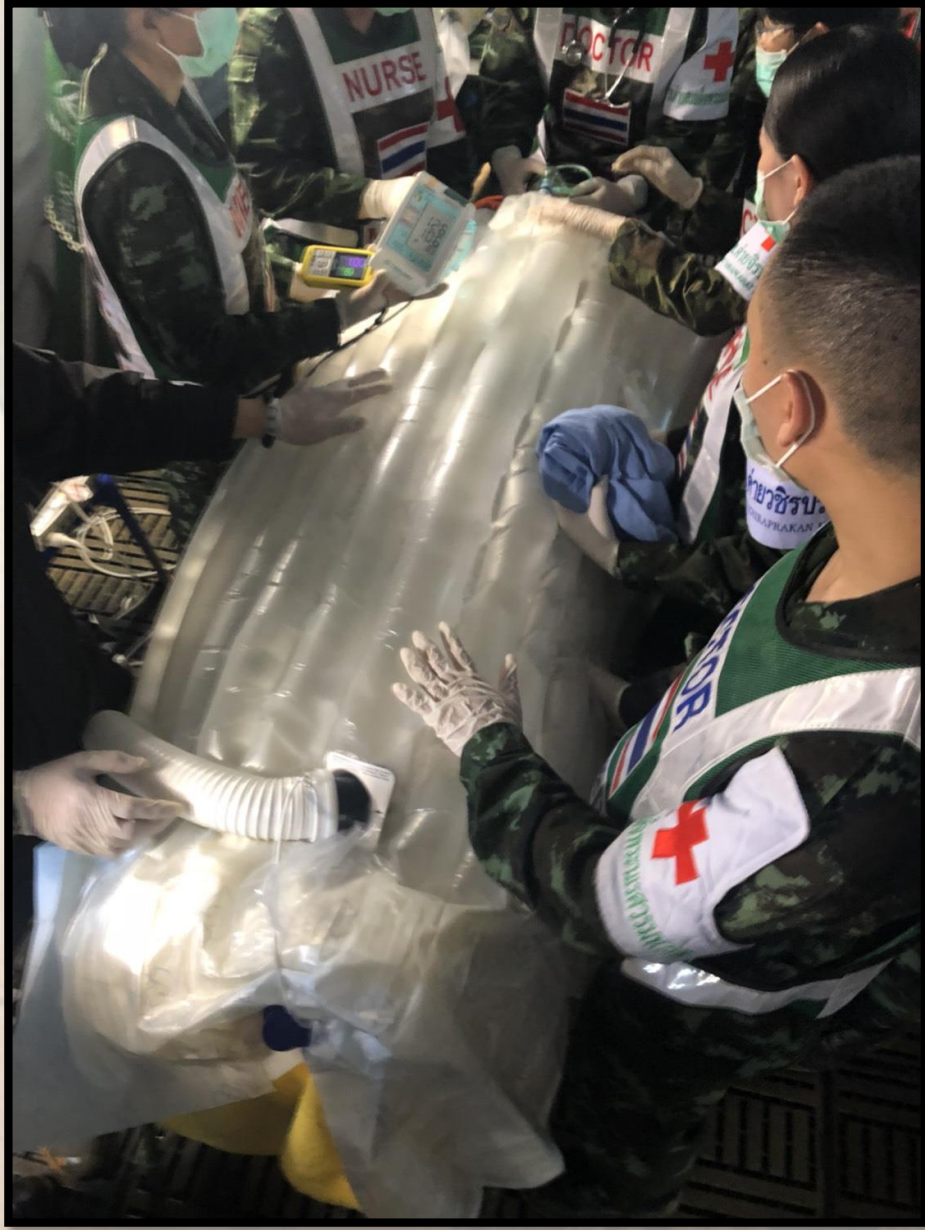
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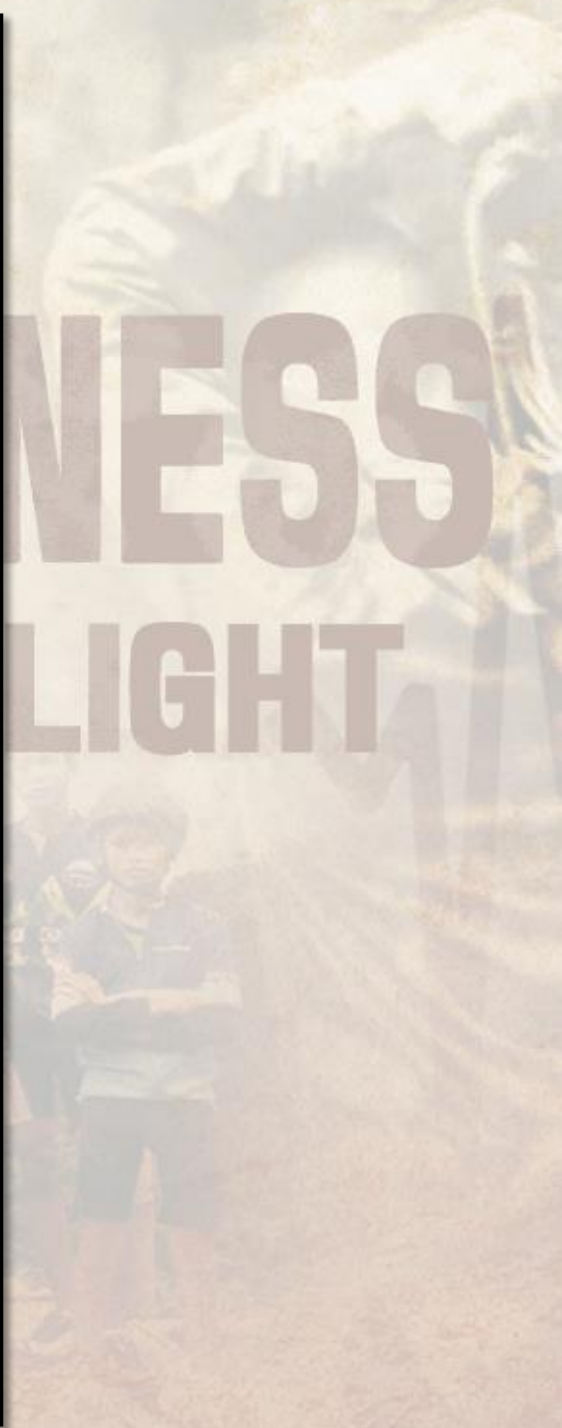
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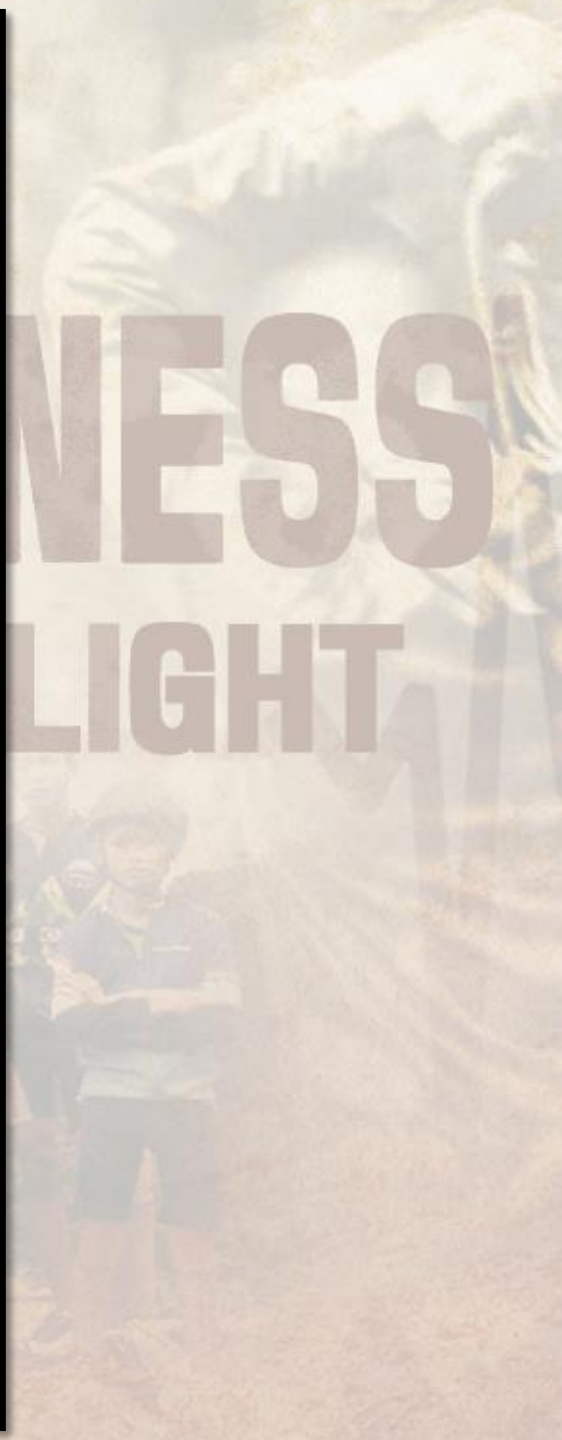




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2 persons I concern most





**WE SAVE ALL**

A group of 14 young boys and one man are posed in a hospital ward. The man, wearing a dark uniform and glasses, stands in the back row, surrounded by the boys. Most boys are wearing white hospital gowns with a blue pattern, while two boys in the front row are wearing green gowns. They are standing in a ward with blue curtains and metal railings. The text "WE SAVE ALL" is overlaid at the bottom in a stylized font.

**WE SAVE ALL**





# Amazing Benefits

## • The medications used

- **Tachycardia** counteract the side effect of **Bradycardia** from serious **Hypothermia**
- Being *a kid* helps (in Tachycardia)
- Sedation prevents **Psychological trauma** while passing the jeopardy cave.

# Amazing Benefits

FROM

- Everyone that they are proud to be known as
- New field
- Field hygiene



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proud to  
*ing hero*  
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FROM

DARKNESS

COMES LIGHT

