HEALTH SERVICES SYSTEMS (THAI)

- 63 M.pop = U.C.
- 47 M. - National Health security Schemes By NHSO.
- 10 M. - Social Security Schemes By NSSO
- 6 M. - Civil servants security Schemes By Governments (min.of finance)
GUARANTEE TO ACCESS TO CARE

• 1°CARE HEALTH CENTER (5 – 15 min)
• 2°CARE DISTRICT HOS. (10 – 60 min)
• 3° CARE GENERAL HOS. & SPECIALIST (30 – 90 min)
• EXCELLENT CENTERES SUBSPECIALIST HOS. (1.5 – 2.5 hr.)
Thailand 62.7 miln. pop
- 76 Provinces
- 850 Districts
- 8420 Subdistricts
- 76892 Villages

Private Hos 344

Public Hos 884

Volunteer 980,000

Beds. 144456/62.7 mll. pop

Total Hos Beds:
- Public: 105850 /Beds. 144456/62.7 miln. pop
- Private: 35806

Doctors: 25449
EMS SCOPE

- RECOGNITION OF EMERGENCY LIFE THREATENING
- TELEPHONE ACCESS, DISPATCH
- PROVISION OF PRE HOSPITAL CARE
  - TRANSPORTATION
  - FIRST AID, SUGGESTION
  - RIGHT METHOD, RIGHT HOSPITAL
- DEFINITIVE CARE IN HOSPITAL
- RESPONSE TO DISASTERS
- MEDICAL COVERAGE AT MASS GATHERING
- INTERFACILITY TRANSFER OF PATIENTS
FACTS IN EMERGENCY DATA

- 150 million outpatient visits in Thailand annually
  - ER ~ 13 million visits
  - Emergency 28%
  - Urgency 3%

\[ \approx 4 \text{ million visits} \]

- Deaths from emergency
  - ~ 60,000 / y
  - 14,000 from traffic accidents
  - 13,000 from non-traffic accidents
  - ≥ 32,000 from emergency diseases
FACTS IN EMERGENCY DATA

- PROJECTED NEEDS OF PREHOSPITAL CARE
  ~ 4 MILLION / YEAR

- NOW [2008] PROVIDED
  ~ PHC SERVICES
  ~ 780,000 /YEAR
  ~ ONLY 21% OF TOTAL REQUIREMENT

Resources for EMS providers

- Basic First Aid Community Volunteer
  - Community networks
  - Sub-district EMS units
  - Hospital EMS units

- First Responders
  - Modified Pick-up Trucks

- Basic level Community Volunteer
  - Basic level Community Volunteer

- EMTs-B
  - Intermediate level Ambulances (ALS)

- EMTs-I
  - Emergency Physicians

- Intermediate level Care by basic EMS providers (BLS)
  - Intermediate level Care by advanced EMS providers (ALS)

- Advanced level Ambulances (ALS)
  - Advanced level Ambulances (ALS)

- Hospital EMS units
  - Hospital EMS units

- Basic level Modified Ambulances (BLS)
  - Basic level Modified Ambulances (BLS)
Emergency Medical Service Committee

Administration
Comm. and Information
Human Resource
Equipment and Technology

Administration Regulation, Quality improvement
Comm. and Information System, Public Relation & Education
Human Resource Development
Ambulance, equipment, and technology

TEACH-VIP Components
Communication
Transportation
Human Resource & Training
Medical Direction
Public Education
Legislation
Quality Improvement

Source: Witaya Chadbunchachai
Source: TEACH-VIP

FR level ambulance, Sub-district EMS unit
Basic level ambulance, Hospital EMS unit
Advanced level ambulance, Hospital EMS unit
Command and Control Center, KKRH

Radio Center, Community Hospital

Radio Center, Sub-district EMS unit

Radio Receiver, Ambulance Mobile radio for individual

Khon Kaen EMSS

EMS units (Advance or Basic or First Responder)
TOTAL AMOUNT OF VARIOUS TYPE PRE-Hos.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALS</td>
<td>1,018</td>
</tr>
<tr>
<td>BLS 1</td>
<td>24</td>
</tr>
<tr>
<td>BLS 2</td>
<td>1,293</td>
</tr>
<tr>
<td>FR</td>
<td>4,997</td>
</tr>
</tbody>
</table>

DATA ON 20 March 2009

HEALTH PERSONNELS IN PRE-HOS. ON 20 MARCH 2009

<table>
<thead>
<tr>
<th>TYPE OF PERSONNELS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EMERGENCY PHYSICIANS</td>
<td>402</td>
</tr>
<tr>
<td>2. GENERAL PHYSICIAN SHORT COURSE TRAINED</td>
<td>1,102</td>
</tr>
<tr>
<td>3. Paramedic Nurse</td>
<td>16,873</td>
</tr>
<tr>
<td>4. EMT-I</td>
<td>976</td>
</tr>
<tr>
<td>5. EMT-B</td>
<td>4,711</td>
</tr>
<tr>
<td>6. FR.</td>
<td>69,943</td>
</tr>
<tr>
<td>TOTAL</td>
<td>94,010</td>
</tr>
</tbody>
</table>
PERFORMED PRE-HOS CARE
FY 2003-2008

ALL PUBLICS EMERGENCY NUMBER

เข้าเเนะทรวงอก
อุบัติเหตุจราจร
ไฟไหม้
สารเคมีรั่วไหล
ทะเลาะวิวาท
กลิ่นดีมันไม่มีพลังอาไฟ

POLICE 191
DOCTOR 1669
CHEMICAL HARZARD
FIRE 199
ELECTRICITY
## Dispatch: EMS Access

<table>
<thead>
<tr>
<th>Country</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>9-1-1</td>
</tr>
<tr>
<td>China</td>
<td>1-2-0</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>9-9-9</td>
</tr>
<tr>
<td>Australia</td>
<td>0-0-0</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1-1-1</td>
</tr>
<tr>
<td>Thailand</td>
<td>1669</td>
</tr>
</tbody>
</table>

## ALL EUROPE 112
DISPATCH CENTER AND OTHER DEVELOPMENTS

PERSONNEL
COMMUNICATION
MIS
MEDICAL OVERSIGHT
FINANCE
PROTOCOLS

PUBLIC RELATION AND AWARENESS

road side signboards
CO-ORINATION AND COMMUNICATION

MONITOR: WHERE IS RESCUE TEAM?

EMERGENCY RESPONSE
Control Command Center

Tracking System for our Team

AEROMEDICAL TRANSPORTATION

MILITARY ASSIST TRANSPORTATION ( MAST PROGRAM)
MILITARIES ASSIST TRANSPORTATION PROGRAMS.
(MASTp)
“Thailand Risk Areas”

Risk chances

Earthquake
Landslide
Industry hazard
Terrorisms

Spectrum of Disaster Response

MIS. telecommunication
➢ ORG. to responsibility
➢ ORG. to warning system
➢ ORG. to preparedness and incident command system

Audit and ready
Warning
Notification
Response to event ICS.
Engagement

High loss
Medium loss
Lowest loss
RISKS OF DISASTER IN THAI

- อุทกภัย และดินถล่ม (FLOOD LANDSLIDE)
- ไฟไหม้ สารเคมี สารพิษ (FIRE CHEMICAL POISONING)
- ไข้หวัดใหญ่ (นก) ติดต่อจากคนสู่คน (AVIAN FLU. HUMAN. TO HUMAN)
- กองกำลังรบ สงคราม (WAR TERRORIST)

NAVY AMBULANCES
Team from P.I.H.

Only The Body
TERRORISMS
Blast Pathophysiology

- Intentional Shrapnel
- Ball bearings, nuts, bolts, nails etc.
  - Penetrating injuries similar to multiple small arms fire
  - Hundreds of objects may be seen on x-ray
  - Significant internal injuries
    - Objects may enter brain, spinal column
  - Nails enter head first (unlike bullets)
  - Objects are commonly retained in victims
    - Lifetime impairments
    - Long term disabilities
Blast Pathophysiology

- Blast forces and winds
  - Direct tissue trauma

Blast Pathophysiology

- Amputations
- Tourniquet may be necessary
Blast Mechanics
Thermal Burns
– Few victims admitted to burn centers
– Little skin grafting needed

Management of Blast Situations
• Scene operations
  – Evidence preservation
National Civil Defense Organization

Cabinet

- National Civil Defense Committee
  - Ministry of Defense
  - Ministry of Interior
  - National Civil Defense Operations Centre (NCDOC)
  - Regional Military Command
  - Regional CDOC (As required)
  - Bangkok Metropolitan Administration
  - Government Officers and others at Province and BMA Level

Other Ministries Departments and Organization

- Other Ministries

National Civil Defense Committee

- Regional Military Command
  - Regional CDOC (As required)
  - Province
    - District
    - Municipal

LOCAL GOVERNMENT PROVIDED PRE-HOS. CARE
การดำเนินการให้องค์การปกครองส่วนท้องถิ่นเป็นผู้ดำเนินการให้บริการการแพทย์ฉุกเฉิน

องค์การบริหารส่วนจังหวัดอุบลราชธานี
๖ ตุลาคม ๒๕๔๙

VOLUNTEERS FOR PRE-HOS. IN RURAL AREA

ตําบลกุดหวา อําเภอกุฉินารายณ์ จังหวัดกาฬสินธุ์
RISKS
EMS IN THAI

ACCIDENTS
BURN
FALLING
OB-GYN
BLEEDING
TOXICOLOGY
ENT
DROWNING
CONVULSION
CARDIAC
PHYSICIATRY
EMERGENCY in
MEDICINES
DISASTER

EMD
SERVICE
COMMUNICATION

ALS
BLS
FR

Standing order
Medical protocol
(Medical Director)
ER DOCTORS
TOXICOLOGY
MIS DRUGS
CARDIAC CENTER
DRUG ADDICTION
PHER.

MECHANISM USED IN DEVELOPING KK EMS

LAW, REGULATIONS

การประชุมแพทย์และสร้างเครือข่าย
MoPH executives agreed to establish the EMS system for the whole country in 2001.

It was implemented in 7 leading provinces including Petchaburi, Nakornsawan, Khon Kaen, Bangkok, Lampang, Korat and Songkla.
Proportion of the cases transferred by KKH EMS from November 2007 to April 2008

Source: Khon Kaen Hospital Database

The percentage of EMS missions classified by time spent in each process in FY 2006-2007

Source: Khon Kaen Hospital Database
INCIDENT VICTIMS (MINE) IN 5 YEARS (source: TMAC)

<table>
<thead>
<tr>
<th>Year</th>
<th>Injuries (case)</th>
<th>Dead (case)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>42</td>
<td>N/A</td>
</tr>
<tr>
<td>2004</td>
<td>39</td>
<td>4</td>
</tr>
<tr>
<td>2005</td>
<td>37</td>
<td>1</td>
</tr>
<tr>
<td>2006</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>2007</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Narendhorn Center
The percentage of EMS missions classified by type of patients

Source: Narendhorn Center

Star of Life

- Detection
- Transfer to Definitive Care
- Care in Transit
- Report
- Response
- On Scene Care