INJURY SURVEILLANCE
THAILAND
1995-2011
CONTENTS

• History of Injury surveillance(IS)
• Component of surveillance system
• Data utilization
• Factors of the achievement
BACKGROUND ON THE ESTABLISHMENT OF INJURY SURVEILLANCE

* Road Traffic Injury have been one the important causes of death since 1969

* Major policy of MOPH in 1991 on injury prevention and control

* In 1992, The Epidemiology Division in charging of developing the model and standards for epidemiological operations
Steps in the project for establishment of injury surveillance

• Review related literature, study data systems
• Draft up a model of injury surveillance at provincial level.
• Held a workshop at Khonkaen hospital for injury experts and examine the guidelines, structure
• The draft forms and manual were tried out in 5 model hospitals and improve
• Software for microcomputer was developed and adjusted after the trial.
Steps in the project for establishment of injury Surveillance

- Training curricula were developed for each group of personal whom were assigned function on the system.
- Large 5 general hospitals were selected to be the model hospitals and prepared the personnel by organizing the workshops for executives and trained the operating teams.
- Pilot tested a full scale of the provincial injury surveillance system started from Jan. 1, 1995.
Steps in the project for establishment of injury surveillance

- Bureau of Epidemiology and 4 regional epidemiological centers supervised the model hospitals 1-3 months after data collection started.
- Analyzed data and prepared reports to distribute the information to executives of the hospitals.
- Evaluated the surveillance system after 6 months and 12 months of data collection.
Purposes:

• To establish a database for assessing the quality of acute care and interfacility transfer provided to the injured by hospitals at the provincial level.

• To develop an injury surveillance system that would facilitate injury prevention and control at both local and national levels.
Reporting Criteria

All severely injured cases who have been injured within 7 days, by any of the following external causes (V01 – Y36). Presented within 7 days after occurrence, at emergency rooms of the hospitals include DBA, died in the ER.
Severely injured case

- Observed
- Admitted
- Dead before arrival
- Dead at ER
- Dead at Ward
Categories and their definitions

Use ICD-10 (Chapter 20) as framework and define chapter 20 to classify external cause of injury. Chapter 19 to classify diagnosis and for severity: use BR, AIS 85 (plan for AIS 2005).
External causes

- Unintentional injuries
- Intentional self-harm
- Assault
- Event of undertermined Intent
- Legal Intervention and Operations of Wars
1. Unintentional injuries
   1.1 Transport Accidents (V01-V99)
      • Land Transport accidents
      • Air and space transport accidents
      • Water transport accidents
      • Air and space transport accidents
1.2 Other External Causes of Unintentional Injuries (W00-X59)

- Falls
- Exposure to inanimate mechanical forces
- Exposure to animate mechanical forces
- Accidental drowning and submersion
- Other accidental threats to breathing
- Exposure to electric current, radiation and extreme ambient air temperature and pressure
- Exposure to smoke, fire and flames
- Contact with heat and hot substances
- Contact with venomous animals and plants
- Exposure to forces of nature
- Accidental poisoning by and exposure to noxious substances
- Overexertion, travel and privation
Tools
Program IS win, IS win – alcohol
(windows access 2003)
Program IS win, IS win – alcohol
(windows access 2003)
Injury Surveillance Information System (ISIS)
Flow of data

All injured patients treated at ER

Discharged from ER

Nurses at ER complete all variables in the record form, including diagnosis and outcome

Coding and data analysis by medical record department

Dissemination Information Printout/report distribution

Observed/admitted

Nurses at ER fill out almost all except diagnosis and outcome

Discharged from ward

DX and outcome in the chart recorded in IS form by Medical Record Section or trained ward nurses
Data analysis officer, Report Writers, and the users of the IS information

- Medical Record Librarian
- Statistician/ER head nurse
- Emergency Practitioner
- Provincial Health officer
- Executive both hospital and provincial health office
- Governor
- Road safety Thai Organization under Thai Health Foundation
Frequency of Report Dissemination

- Automated reports
  Provincial level: every 1-3 month according to agreements between the hospitals and the provincial Public Health Office
- Writing Reports
  National level: at least 6 reports a year
Weekly report 27/2014

Update...
1. Demographic data
2. Epidemiological data of injury
3. Risk behavior
4. Transportation to hospital
5. Prehospital care
6. ER Vital Data
7. Diagnosis to Discharge Data
### Personal Demographic data

<table>
<thead>
<tr>
<th>Injury Surveillance Record</th>
<th>Hospital name</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>First name</td>
<td>Last name</td>
<td>HN</td>
</tr>
<tr>
<td>Sex</td>
<td>Date of Birth</td>
<td>Age</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SEX**
- 1 Male
- 2 Female

**AGE**

**Present address**
- In this province
- Not in this province
- Unknown

**Present address > 3 month**
### Epidemiological data of inj.

<table>
<thead>
<tr>
<th>Date occurred</th>
<th>Time occurred</th>
<th>Intention</th>
<th>Occupational Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date arrived at hospital</td>
<td>Time arrived at hospital</td>
<td>1 Accident</td>
<td>1 Yes</td>
</tr>
<tr>
<td>Location District</td>
<td>Province</td>
<td>2 Self-harm</td>
<td>0 No</td>
</tr>
<tr>
<td>1 Home</td>
<td>2 Residential institution</td>
<td>3 Assault</td>
<td>9 Unknown</td>
</tr>
<tr>
<td>3 School, Public Admin Area</td>
<td>4 Sport, athletic area</td>
<td>4 Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>5 Street/Hi-way</td>
<td>6 Trade and service area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Industrial and construction area</td>
<td>8 Farm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Others</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### External causes of injury

- **1 Transport accidents**
  - **1.1 Type of injured person**
    - 1 pedestrian
    - 2 Driver
    - 3 Occupants
    - 4 Unknown
  - **1.2 Vehicle of the injured**
    - 1 Bi/tricycle
    - 2 Motorcycle
    - 3 Motor-tricycle
    - 4 Personal car
    - 5 Pick up/Van
    - 6 Heavy truck
    - 7 Trailer-Truck
    - 8 Mini-Bus
    - 9 Buses
    - 10 Others (Specified)
  - **1.3 Injured due to**
    - 20 Fall from vehicle
    - 21 Vehicle over turned, sank etc.
    - Collision with
  - **2 Others injuries (Specified)**
  - **3 Unknown**
<table>
<thead>
<tr>
<th>Risk behaviors</th>
<th>Mobile phone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Alcohol</strong></td>
<td><img src="image" alt="Alcohol" /></td>
</tr>
<tr>
<td>1 Use</td>
<td><img src="image" alt="1 Use" /></td>
</tr>
<tr>
<td>0 Not use</td>
<td><img src="image" alt="0 Not use" /></td>
</tr>
<tr>
<td>Unknown</td>
<td><img src="image" alt="Unknown" /></td>
</tr>
<tr>
<td><strong>2. Drugs/ Medication</strong></td>
<td><img src="image" alt="Drugs/ Medication" /></td>
</tr>
<tr>
<td>1 Use (Specified)</td>
<td>![1 Use (Specified)]</td>
</tr>
<tr>
<td>0 Not use</td>
<td><img src="image" alt="0 Not use" /></td>
</tr>
<tr>
<td>Unknown</td>
<td><img src="image" alt="Unknown" /></td>
</tr>
<tr>
<td><strong>3. Seat belt</strong></td>
<td><img src="image" alt="Seat belt" /></td>
</tr>
<tr>
<td>1 Use</td>
<td><img src="image" alt="1 Use" /></td>
</tr>
<tr>
<td>0 Not use</td>
<td><img src="image" alt="0 Not use" /></td>
</tr>
<tr>
<td>Unknown</td>
<td><img src="image" alt="Unknown" /></td>
</tr>
<tr>
<td><strong>4. Helmet</strong></td>
<td><img src="image" alt="Helmet" /></td>
</tr>
<tr>
<td>1 Use</td>
<td><img src="image" alt="1 Use" /></td>
</tr>
<tr>
<td>0 Not use</td>
<td><img src="image" alt="0 Not use" /></td>
</tr>
<tr>
<td>Unknown</td>
<td><img src="image" alt="Unknown" /></td>
</tr>
</tbody>
</table>
Transportation of the injured to hospital

1. From injured
   - Site or others
   - Person who transport
     - No
     - Not known
     - 1 EMS
     - 2 Charitable Volunteers
     - 3 Police
     - Others

2. From health facility: Name
   - Province

   2.1 By
      - Ambulance
      - With person to take care
        - Specified professional
        - No person taking care
      - Not ambulance

   2.2 With referral letters
      - Yes
      - No
### First aid / care while transport

<table>
<thead>
<tr>
<th>Breathing care</th>
<th>Bleeding care</th>
<th>Splint / Slab</th>
<th>IV fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Yes-appropriate</td>
<td>1 Yes-appropriate</td>
<td>1 Yes-appropriate</td>
<td>1 Yes-appropriate</td>
</tr>
<tr>
<td>2 Yes but not appropriate</td>
<td>2 Yes but not appropriate</td>
<td>2 Yes but not appropriate</td>
<td>2 Yes but not appropriate</td>
</tr>
<tr>
<td>3 Not needed</td>
<td>3 Not needed</td>
<td>3 Not needed</td>
<td>3 Not needed</td>
</tr>
<tr>
<td>0 No</td>
<td>0 No</td>
<td>0 No</td>
<td>0 No</td>
</tr>
</tbody>
</table>

### C-Spine care

- 1 Yes-appropriate
- 2 Yes but not appropriate
- 3 Not needed
- 0 No
### ER Vital Data & Type of Injury

<table>
<thead>
<tr>
<th>Seen At. ER (Record only patients who are to be R/O Head injury / Observe / Admit / Dead at ER., Refer)</th>
<th>Type of injury cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital sign BP ................................ mm/Hg  Pulse ............................./ min  R.R  ......................./ min</td>
<td>1 Blunt  2 Penetrating</td>
</tr>
<tr>
<td>Consciousness description ........................................................................................................</td>
<td>3 Blunt and penetrating</td>
</tr>
<tr>
<td>Coma Scale ................................................................................................................................</td>
<td>Others</td>
</tr>
<tr>
<td>Date Disposition from ER. ........................................................................................................</td>
<td>Time .................................................</td>
</tr>
<tr>
<td>By  1 D.B.A.  2 D/C  3 Refer  4 Against advice  5 escape  6 Dead at ER.  7 Admission to ...............</td>
<td></td>
</tr>
</tbody>
</table>
Diag. & D/C Data

DIAGNOSIS (Specified organ and injury in detail) If admitted, do not fill at ER.
1. (BR......AIS......) 4. (BR......AIS......)
2. (BR......AIS......) 5. (BR......AIS......)
3. (BR......AIS......) 6. (BR......AIS......)

Date Discharged from ward

Outcome 1 Improve 2 Refer 3 Against advice 4 Escape 5 Dead
6 Ask to go back to die at home
Data utilization

National Level

IS: Injury Surveillance
| 2003, IS report on severely injured child from riding on MC, non-helmeted, alcohol | Policy on child MC helmets and technical support for production of standard child helmet |
| Child helmet promotion campaign 2004-2005 in 15 pilot provinces (US $ 400,000) |
compulsory to wear a seat belt in the front seats  Year 1996
Alcohol Consumption Control Policy, Alcohol Consumption Control Unit under the Ministry of Public Health. Ministry of Public Health: Core of activities

LAW Drunken don’t drive year 2000
Fine and Jail drunk driving 2010

Campaign No alcohol in Khao Panxa period year 2002
Alcohol label have the warning on driving 2003

No alcohol in Kathin (Buddhist Merit festival after Khao Panxa period) year 2009
Support data of alcohol among festival for the centre for Alcohol Studies
The core for alcohol related knowledge 2009-2011

IS: Injury Surveillance
MOPH - FDA regulations for mandatory warnings on alcoholic beverage labels. RE: driving after drinking 1995

BAN the alcohol advertisement on TV sport game
• No Mobile phone while driving Legislation
Year 2008

IS: Injury Surveillance
National policy in pre-hosp. care, year 1995-20

Source: Udonthani hospital
Example of ISS from IS

Percentage of patients hospitalized for road traffic injuries who died

ISS 1-15 | >15-30 | >30-45 | >45-60 | >60-75
-------- |-------- |-------- |-------- |--------
10.74 | 28.27 | 56.48  | 86.23  | 94.02
13.74 | 24.22 | 70.43  | 94.02  | 95.74

AVERAGE 5 Yr (2005-2010) 2010
SONGKRAN FESTIVAL IN THAILAND
RISK NOTIFICATION AND CASE DEFINED IN RTI
1. Less people wear Helmet
2. Drink drive almost 2 times than normal period
3. Injured cases almost 90% are people in that province
Number of road traffic injuries and death among Songkran festival 2011 according to the residence

Source: 28 sentinel hospitals, Injury surveillance, Thailand 2011
NUMBER OF ROAD TRAFFIC INJURIES AND PERCENTAGE OF ALCOHOL DRINKING AMONG SONGKRAN FESTIVAL 2011

Source: 28 sentinel hospitals, Injury surveillance, Thailand 2011
IMPROVING EMS AND REFERRAL SYSTEM
- MAGNITUDE AND TREND MONITOR RISK FACTOR FOR PREVENTION
- IMPROVING THE HEALTH SERVICE AND CARING SYSTEM IN TRAUMA CENTRE
- POLICY AND RESOURCE ALLOCATION

Continuing the IS system

Budget: BOE

Personnel:
- BOE
- DPC 1-12
- NCD
- SENTINEL HOSPITALS / TRAUMA CENTRE
Budget Estimation

- Salary: 30,000 Baht or 1,000 US dollars /month
  *4 persons directly work on IS center
- IS National Seminar: 700,000 baht or 23,000 US dollars
- Supervisor cost /one sentinel hospital:
  40,000 baht or 1,300 US dollars / 8 places per year

Total: around 32,000 US dollars/year
Achivement on system establishment

Prepare Knowledge Review with the team
Act and work together
Supervise
Support
LET’s change the idea...
We stay together

Sentinel hospitals are important partners:
We sweat together...
We starved together...
We learned together....
We proved things together...
And we’ve saved more lives together......
THAILAND ‘S FLOOD CRISIS
VS
STORM OF THE GIVING HEART
Inspiration can change one’s life that this is only possible once it has been happened for one whole’s being and makes one “feel” things can change for the better and something can actually be “done” to that effect.

THANK YOU our sentinel hospitals and all IS persons