Important Issues of Red Case Management

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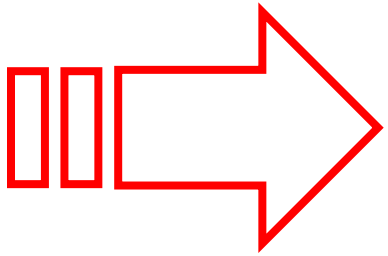
Red case

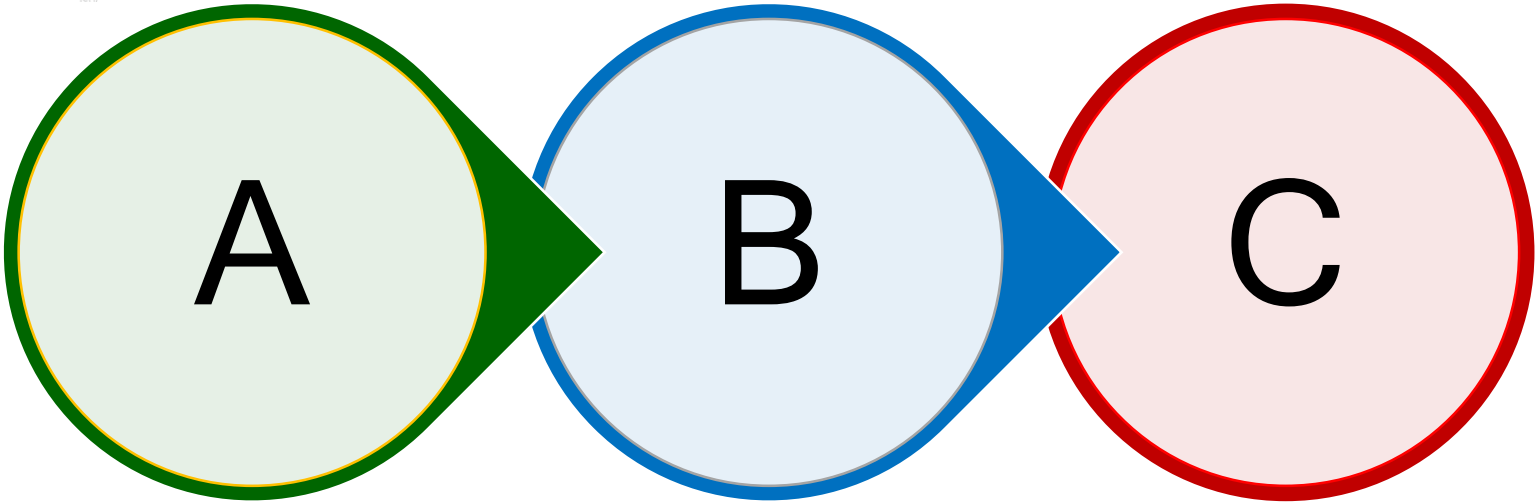


Life threatening Assessment

≤1 นาที

- **Airway**
  - patent airway
  - Obstructed airway
- **Breathing**
  - RR
  - Breath sounds
  - Chest movement
- **Circulation**
  - Full pulse
  - Capillary refill time
  - Signs of shock

≤ 2 นาทีแรกรับ



Oxygenation ↓
Ventilation ↓
Perfusion ↓

- Adequate oxygenation
- Adequate perfusion
- Adequate cerebral perfusion

Red case

A Airway → ทางเดินหายใจอุดกั้น ?
B Breathing → ลักษณะการหายใจ ?
C Circulation → ชีพจร ?

≤1 นาที

Emergent จะเสียชีวิต ถ้าไม่รีบช่วยเหลือ
Urgent ถ้าช่วยเหลือช้า อาจเสียชีวิตได้ใน 30 นาที
Non urgent ถ้าช่วยเหลือช้ากว่า 2 ชม. เกิดอันตรายได้

1

“Alert Team”

- Age
- Gender
- Mechanism of injury
- Lowest BP
- Highest pulse
- Level of conscious
- Apparent injuries

“Preparation”

- Trauma Alert
- Fast Track
- Prepare resuscitation area
- Prepare equipment
- Warm IV
- Resuscitation guideline

1 Preparation and triage

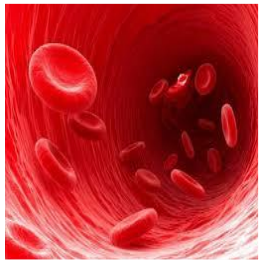
1. Safe practice and Safe care
   - Safe practice; universal precautions, personal protective equipment
   - Safe care; right hospital, right time, right resources
2. Preparation in the trauma room

“ชื่ออะไร เกิดอะไรขึ้น” Look-Listen-Feel

2

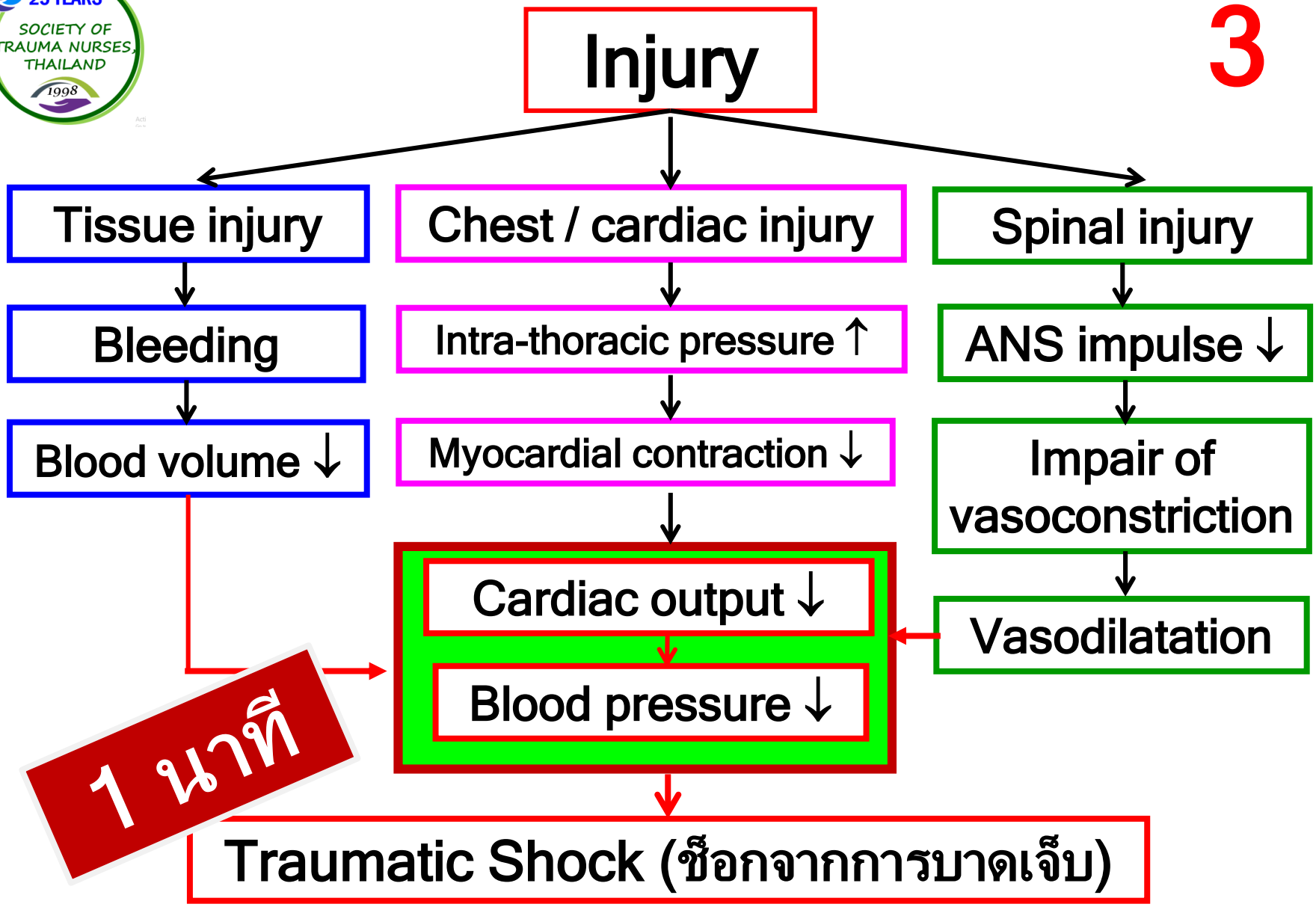
ภาวะออกซิเจน (oxygenation)

การกำซาบเลือดของเนื้อเยื่อ (perfusion)

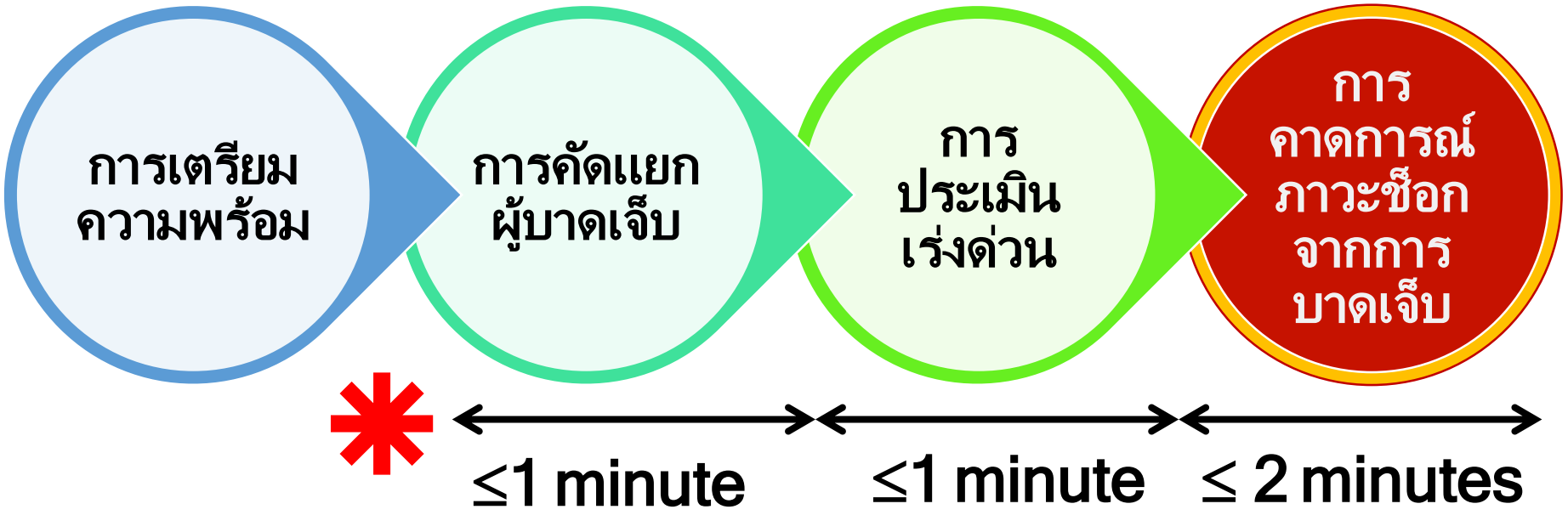


การกำซาบเลือดของเนื้อสมอง (cerebral perfusion)

A-B-C-D
10 วินาที


Injury
Tissue injury
Bleeding
Blood volume ↓
Chest / cardiac injury
Intra-thoracic pressure ↑
Myocardial contraction ↓
Spinal injury
ANS impulse ↓
Impair of vasoconstriction
Vasodilatation
Cardiac output ↓
Blood pressure ↓
1 นาที
Traumatic Shock (ช็อกจากการบาดเจ็บ)

The first 4 minutes



Primary survey (ABCDE) with resuscitation adjuncts (FG)

A - Airway maintenance with restriction of cervical spine (c-spine) motion

B - Breathing and Ventilation

C - Circulation with hemorrhage control

D - Disability (neurologic evaluation)

E - Exposure / Environment Control

F - Full set of V/S and Family presence

G - Get resuscitation adjuncts

G - Get resuscitation adjuncts

L - Laboratory: ABGs
M - Monitor cardiac rate and rhythm
N - Naso/orogastric tube
O - Oxygenation and ventilation assessment: SpO2, $ETCO_2$
P - Pain assessment and management

4 Reevaluation (consideration transfer)

Portable Radiograph

1. A portable A-P chest and pelvis
2. Consider the need for patient transfer

≤ 60 min

การเตรียมความพร้อม (Preparation)

การคัดแยกผู้บาดเจ็บ (Triage)

แรกรับผู้บาดเจ็บ (Approach to the injured patient)

การประเมินภาวะคุกคามชีวิต (Life threatened assessing)

การประเมินเบื้องต้นและการช่วยชีวิต (Primary survey & resuscitation)

การเสริมการรักษาระยะการประเมินเบื้องต้น (Adjuncts and other considerations to primary survey)

การพิจารณาการส่งต่อผู้บาดเจ็บ (Consider of the need for patient transfer)

การประเมินระยะที่ 2 (Secondary survey)

การเสริมการรักษาในการประเมินระยะที่ 2 (Adjuncts to the secondary survey)

การเฝ้าระวังหลังการช่วยชีวิตและการประเมินซ้ำ (Continued post-resuscitation monitoring & re-evaluation)

การส่งต่อเพื่อการรักษา (Transfer to definite care)

ATCN, 2022

5 Secondary survey (HI) with reevaluation adjuncts

1. Mnemonic MIST
   a. MOI
   b. Injuries sustained
   c. Signs and symptoms (in the field)
   d. Treatment (in the field)
2. Patient history; SAMPLE
3. H; Head -to-toe assessment
4. I; Inspect posterior surfaces
5. Reevaluation Adjuncts

6 Reevaluation and post resuscitation care

Post resuscitation care include;

1. Components of primary survey; ABCDE
2. Vital Signs
3. Pain and response to pain medications
4. All identified injury and the effectiveness of the treatments & interventions

6 Definite care or Transfer to an appropriate trauma center

1. The need for specific subspecialty care
2. The need for monitoring and care in ICU
3. The need for evaluation and operative intervention

Value of Trauma Care

- ไม่ตายโดยไม่สมควรตาย
  - No Miss Dx
  - No Delay Rx
- ไม่เกิดการบาดเจ็บซ้ำซ้อน
  - Time to assess
  - Time to treat
  - Total Spent Time
- ได้รับการดูแลที่เหมาะสม
  - Definite care
  - Safe transfer

In 2030, all of the baby boomers will be 65 and older

↓

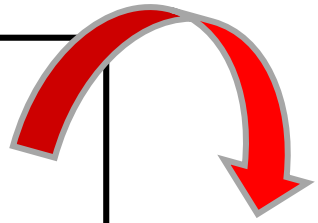
Traumatic injury in the geriatric ↑ higher mortality and morbidity

↓

Development of geriatric specific care and protocols

The most common cause of fatal & non-fatal injury; ≥ 65 years of age

- Falls (syncope)
- Motor vehicle crashes
- Neglect - Assaults



Geriatric guidelines

- Delirium
- Pain management
- Elder Abuse

Blunt trauma patient ≥65 years, mortality increase;
SBP drips below 110 mmHg,
Heart rates exceed 90 BPM

Pulmonary

Respiratory reserve ↓

Changes	Limited
- Capacity ↓ - Force expiratory volume ↓ - Smaller alveolar surface area - Chest wall compliance ↓	- the ability to adapt compensatory physiologic processes to hypoxia, hypercarbia and correct metabolic disturbances

- Respiratory failure
- Atelectasis

Cardiac

- Cardiac reserve ↓
- V/S may not reflect severity of injury

Changes	Limited
- Cardiac output ↓ - Sensitivity to catecholamines ↓	- Ability to contract - Responsive to neurohumoral effects - Response to compensate and maintain homeostasis; Polypharmacy

Occult shock

Occult shock

RASI > 1.3

$$\text{RASI} = \text{Shock Index} \times \frac{\text{RR}}{10}$$

(Respiratory Adjusted Shock Index)

Renal

- Risk of traumatic injury ↑
- Susceptibility to fluid overload ↑
- Clearance of medication ↓

Changes	Limited
- Glomerular filtration rate ↓ - Renal mass ↓	- Clearance of solute and reabsorption of water - Renin-angiotensin-aldosterone system is downregulated - Less responsive to hypoxia - Less production of erythropoietin

- Disturbances in fluid and electrolyte homeostasis
- Osteomalacia and osteoporotic fractures

Hepatic

Clearance of curtained medication ↓

Chances	Limited
- Hepatic function ↓	- Parenchymal mass and blood flow - Ability to make proteins - Hepatic production of thrombopoietin

- Hypoalbuminemia
- Thrombocytopenia
- coagulopathy

Gastrointestinal

Potential for significant abdominal injury without peritoneal signs

Changes	Limited
Gastrointestinal; - Pain sensation ↓ - Laxity of abdominal wall musculature ↑	- Responsive to neurohumoral and endocrine stimuli ↓ - Higher risk of reflux and constipation

Musculoskeletal

Risk of fracture ↓

Chances	Limited
- Loss of muscle mass - Osteoporosis	- Thermoregulation - Demineralization processes - Bone density

- **Hypothermia**
- **Skin tears**

Neurologic

- Susceptibility to injury from cerebral perfusion decrease ↑
- Risk of occult injury ↑

Chances	Limited
- Autoregulatory capability ↓ - Brain atrophy	- Neurohumoral responses - Sensation to nervous stimuli - Ability to auto-regulate blood flow - Co-morbidities

- Drowsiness, loss of energy, oversedation, loss of balance and memory
- Skin tears

Immune

Risk of infection ↓

Chance	Limited
- Impaired immune response	- Generalized malnutrition with vitamin and mineral deficiencies

Geriatric Trauma Program Goals

1. 30 minutes from ED presentation to trauma service evaluation
2. 4 hours from ED presentation to inpatient room
3. 36 hours from ED presentation to OR
4. 5 days from ED to safe and appropriate discharge/ disposition

STN, retrieved Nov 2, 2022

Physical

- Mental status
- Vital signs
- Blood pressure and pulse
- Polypharmacy.
- Comorbid conditions
- Airway, Breathing, and Circulation,
- Complete head to toe physical examination

FRAIL scale

Where Fatigue, Resistance, Ambulation, Illnesses and Loss of weight make up the questions

A score of 0 is best and 5 is worst

0 = good health

1-2 = pre-frail

3-5 = frail

GTOS

The Geriatric Trauma Outcome

= (age) + (2.5 × ISS) + 22 (if packed RBC transfused within ≤24 hours of admission)

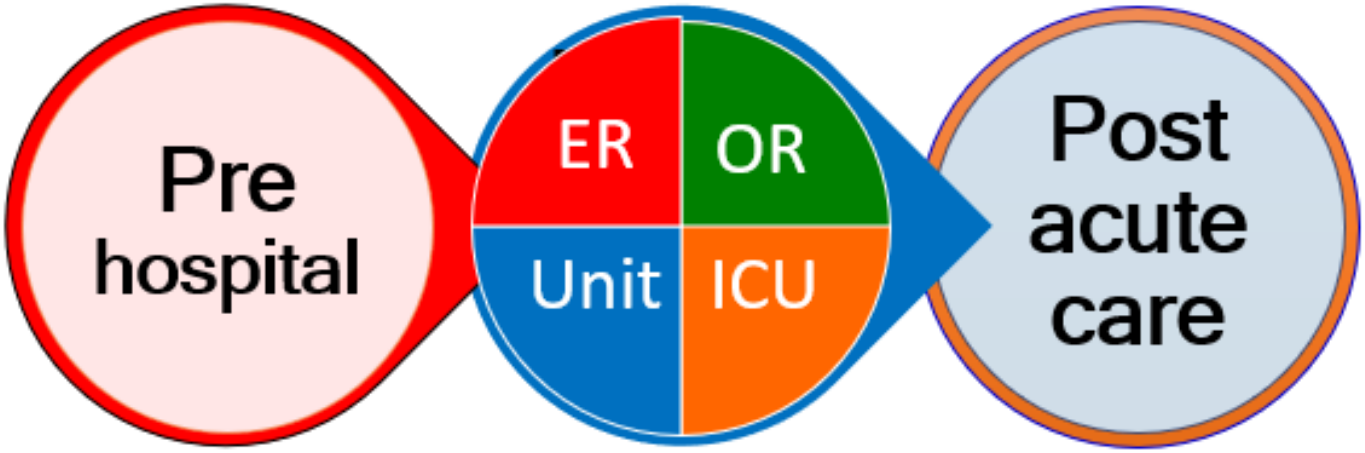
Discharge Planning

**Within 24 hours of admission,
all must have a pre-planned disposition,
agreed upon by the patient,
and/or family
and the admitting physician**

STN, retrieved Nov 2, 2022

Practical point of Trauma Care

- Survival rate of trauma patients with TRISS> 0.75 (100%)
- Mortality rate of severe trauma patients with ISS 16-24 (< 5%)
- Mortality rate of higher very severe trauma patients with ISS > 24 (< 25%)




25 YEARS
SOCIETY OF
TRAUMA NURSES,
THAILAND
1998