



Practical Point in Trauma Care

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Post Doctoral in Trauma Research Fellowship

RED

- See immediately

AMBER

- See within 10 minutes

YELLOW

- See within 60 minutes

GREEN

- See within 120 minutes

BLUE

- See within 240 minutes

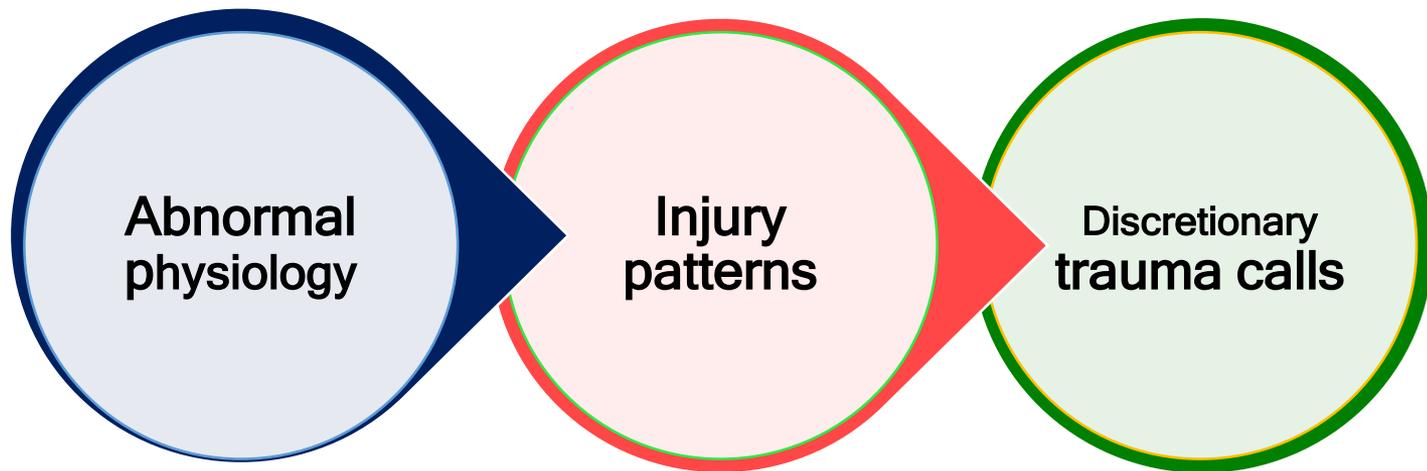
“Alert Team”

- 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

Code Trauma Alert



- A standardize mobilized of trauma team response to receive the injured patients
- Other services may also be notified; radiology, blood bank

Abnormal physiology

- Respiratory rate <10 or >29
- Systolic BP <90 mmHg
- HR >120 bpm
- GCS < 13

Injury patterns

- Penetrating injury to the head, neck or torso
- Flail chest
- Airway obstruction
- Suspected complex pelvic inj.
- ≥ 2 or more proximal long bone fractures
- Traumatic amputation proximal to knee or elbow
- Major crush injury
- Penetrating trauma to a limb with arterial injury
- Crushed, mangled, amputated or pulseless limb
- Paraplegia or quadriplegia
- Major burns
 - >20% in adults (>10% in peds), or airway burns

Discretionary trauma calls

- Fall > 3 meters
- Entrapment > 30 minute
- Cyclist or motorcyclist versus car
- Pedestrian versus car or train
- Relative hypotension
- Ejection from a vehicle
- Fatality in the vehicle
- Patient anticoagulated or on beta blockers
- Elderly patient with moderate trauma
- Pregnant patient with moderate trauma



Acti
For U

Adult Trauma Code Criteria

- A** - Intubated at the scene
 - RR <8 or >15
 - Oral airway bleeding
 - Inhalation injury
 - Facial burn (3rd degree)
- B** - RR <8 or >15
 - Resp arrest
- C** - HR >120, SBP <90
- D** - GCS < 9
 - Open depress #skull
 - Spinal cord injury
- Anatomic** - Penetrating trauma to head, neck, torso, groin
 - Partial / complete amputation of major limb

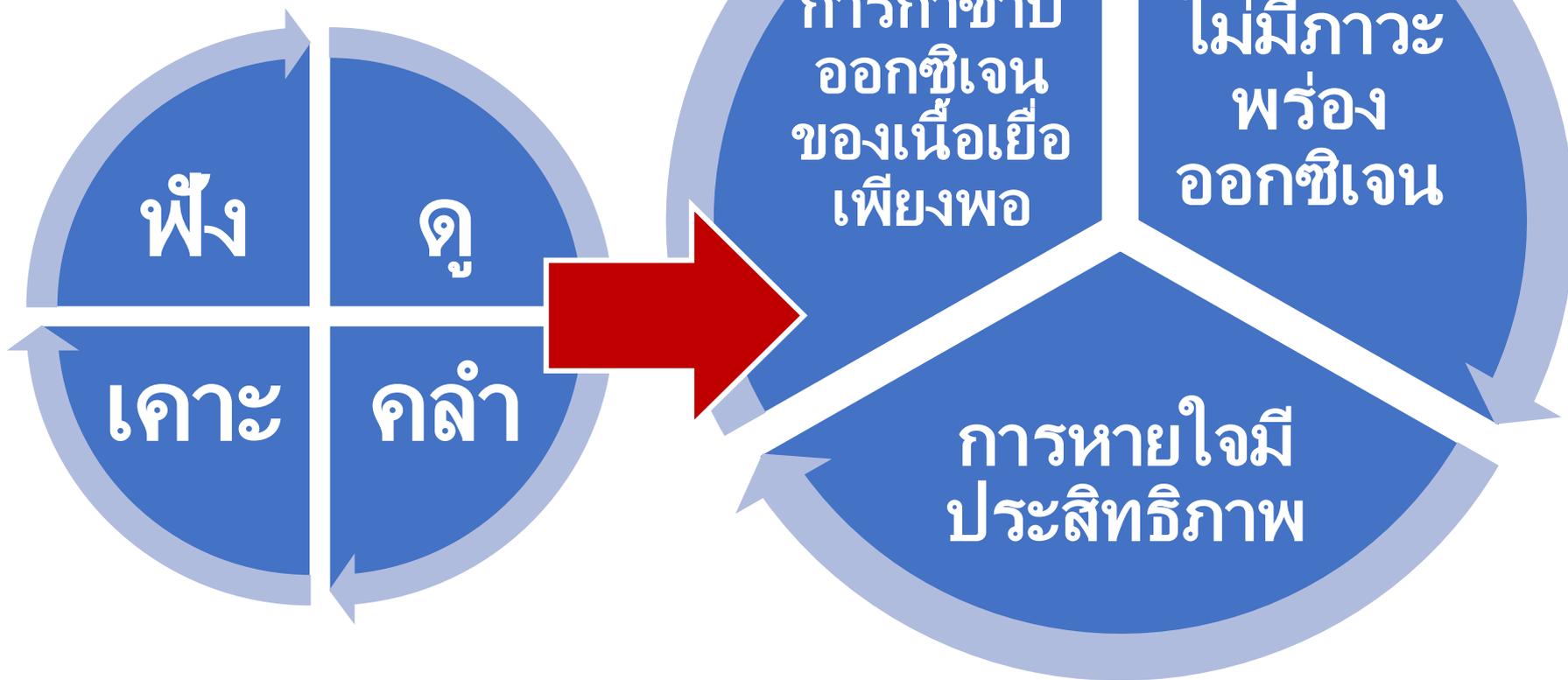
Geriatric Trauma Code Criteria

- A** - Intubated from scene
 - Oral airway bleeding
 - Inhalation injury
 - Facial burn (3rd degree)
- B** - RR <8 or >15
 - Resp arrest
- C** - HR < 60 or > 100
 - SBP < 110
- D** - GCS < 9
 - Open depress #skull
- Anatomic** - Penetrating trauma to head, neck, torso, groin
 - Complete amputation of major limb
- Mechanism** - High risk MVC

Age ≥ 15 Trauma Code Criteria

- A** - Intubated transferred
- D** - GCS 10-13
- Anatomic** - Suspected unstable pelvis without hypotension
 - ≥ 2 proximal long bone fracture
 - Open long bone fracture
 - Severe maxillary facial trauma
 - Burns with ≥ 20% TBSA
- Mechanism** - Fall from height > 20 ft
 - Auto vs pedestrian, MC significant impact >20 mph

Assessment & Monitoring



Tissue Oxygen

**O₂
content**

$$\text{O}_2 \text{ content} = (\text{SaO}_2 \times \text{Hgb} \times 1.34) + (0.003 \times \text{PaO}_2)$$

Normal CaO₂ = 20 ml O₂ / 100 ml blood

**O₂
Delivery**

$$\text{DaO}_2 = \text{SaO}_2 \times \text{Hgb} \times 1.34 \times \text{CO} \times 10$$

Normal DaO₂ = 1,000 ml O₂ / min

**O₂
Consumption**

$$\text{VO}_2 = (\text{SaO}_2 - \text{SvO}_2) \times \text{Hgb} \times 1.34 \times \text{CO} \times 10$$

Normal VO₂ = 180-200 ml / min

Traumatic Wound Healing

D 0

Inflammation

- Polymorphs
- Macrophages
- Vasodilated blood vessel

D+2

Destruction

- New blood capillaries
- Localized edema
- Fibroblasts

D+5

Proliferation

- Granulation tissue
- Collagen fibers
- Epithelial cell bridge walls

D+7

**Epithelialization
& maturation**

- Vascularity decreases
- Epithelial new complete
- Avascular scar tissue



ISS (Injury Severity Score)

Body Region	Injury Description	AIS score	ISS (AIS ²)
Head & Neck	- Lacerated wound Lt. neck	3	9
Face	(None)	0	
Chest	- Flail Chest	4	16
Abdomen	- Minor Contusion of Liver	2	4
	- Complex Rupture Spleen	5	25
Extremities	(None)	0	
External	- Contusion abdominal wall	1	1
Injury Severity Score:			50



ISS

ISS Score

Severity

0-9

Minor

10-15

Moderate

16- 24

Serious

25-49

Severe

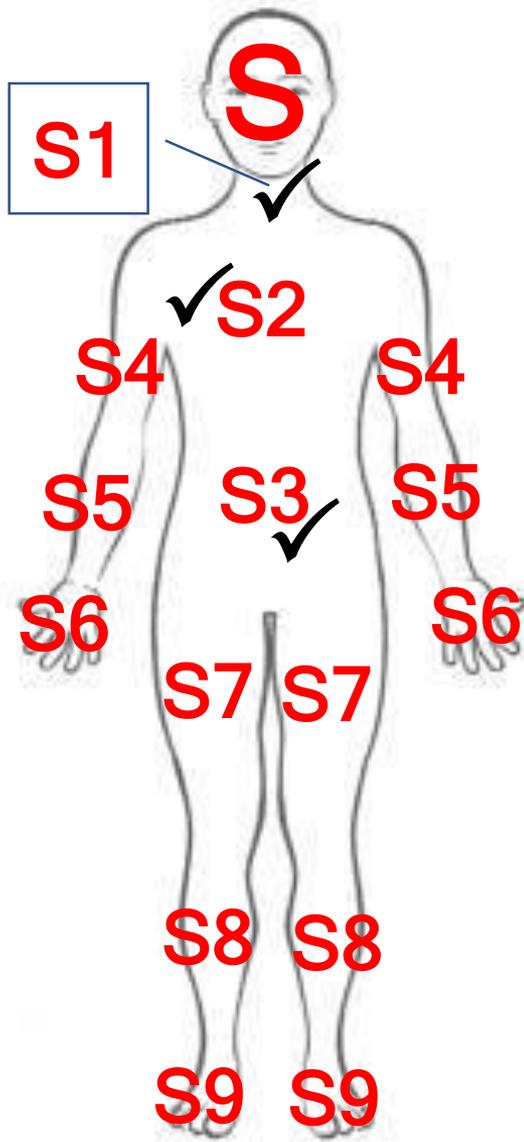


50-74

Critical

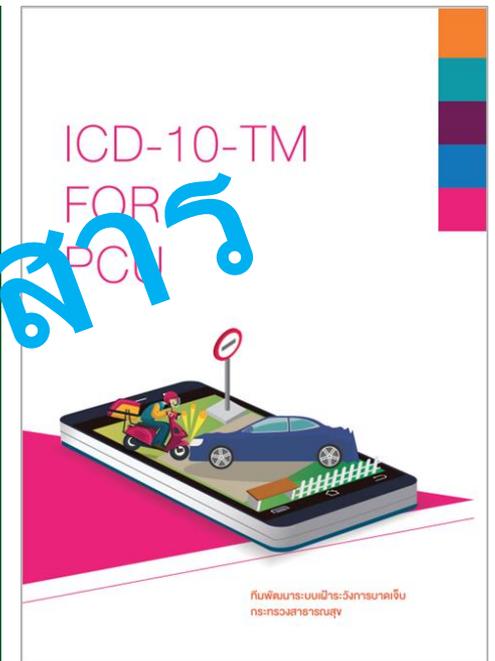
75

Maximum



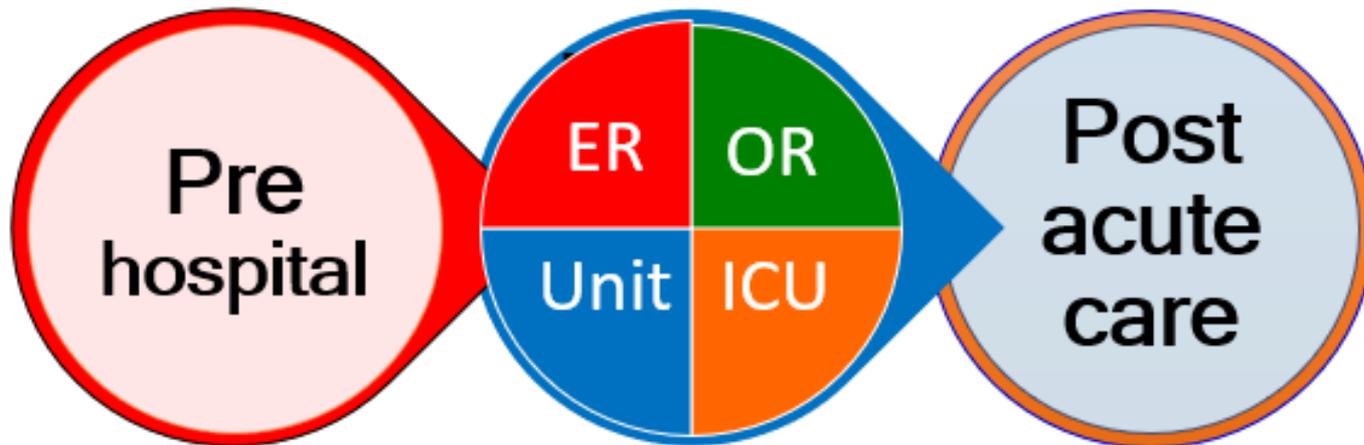
คะแนนตามตำแหน่งการบาดเจ็บ (AIS);

- 3 Lacerated wound Rt. neck
- 4 Flail chest
- 2 Minor Contusion of Liver
- 5 Complex Rupture Spleen
- 1 Contusion abdominal wall



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%)



- Patient age, gender
- Mechanism of injury
- Lowest BP, Highest pulse
- Level of conscious
- Apparent injuries

Prehospital data

การบาดเจ็บ
กลไกการบาดเจ็บ

การช่วยเหลือเบื้องต้น
ที่จุดเกิดเหตุ

อาการผู้บาดเจ็บ
ระหว่างการนำส่ง

การเตรียมความพร้อม
Preparation

5 นาที
ก่อนถึง รพ.

In hospital

ทีม

สถานที่

อุปกรณ์
เครื่องมือ

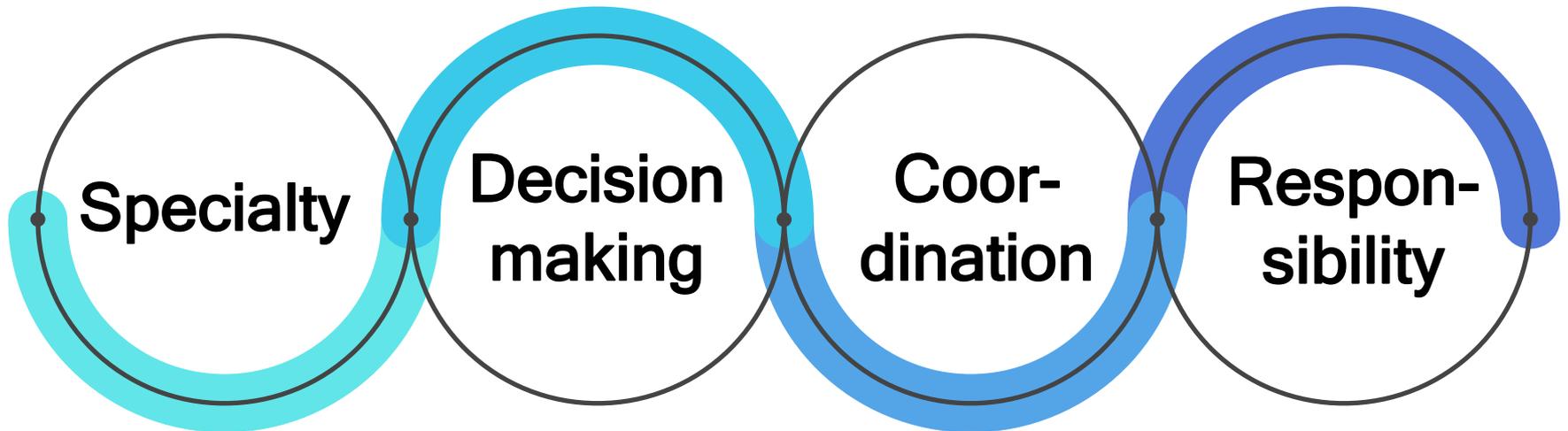
The 1st hour of trauma care

1. Important data from the scene
2. ER preparation
3. Triage
4. Assess life threatened
5. Primary survey & resuscitation
6. Decision of Definite care
7. Secondary survey & Diagnostic tests
8. Post resuscitation monitoring & reevaluation
9. Definite care



TEAM

Together-Everyone-Achieves-More



Quality of trauma care process



25 YEARS

**SOCIETY OF
TRAUMA NURSES,
THAILAND**

