

# Maturation of Trauma Center

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Post Doctoral in Research of Trauma Care

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หนักถึงอะไร?

หน่วยกู้ชีพ  
สายด่วน 1791

รอดมั้ย ?

# TRISS; Trauma Score-Injury Severity Score

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- TRISS = the probability of survival ( $P_s$ ) of trauma patient from the RTS and ISS using the following formulae:

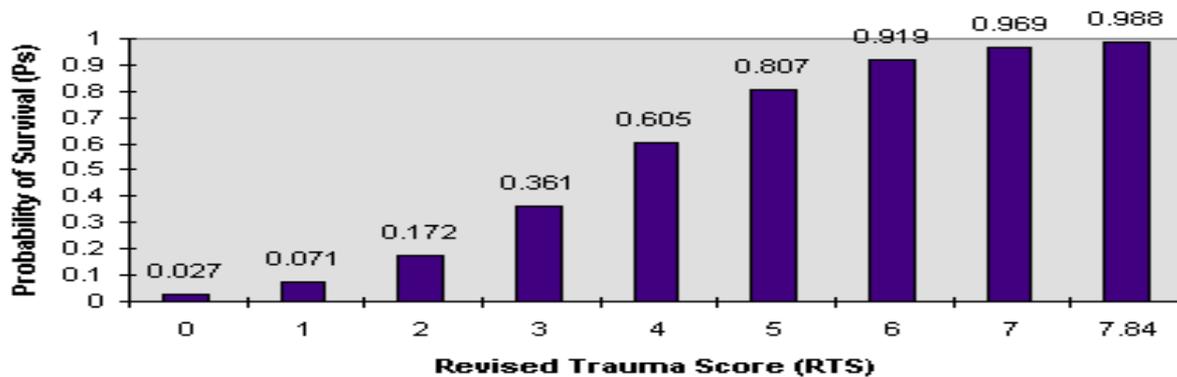
$$P_s = \frac{1}{(1+e^{-b})}$$

# REVISED TRAUMA SCORE

$$RTS = 0.9368 \text{ GCS} + 0.7326 \text{ SBP} + 0.2908 \text{ RR}$$

GCS	SBP	RR	Coded Value
13-15	>89	10-29	4
9-12	76-89	>29	3
6-8	50-75	6-9	2
4-5	1-49	1-5	1
3	0	0	0

Survival Probability by Revised Trauma Score



$$b = b_0 + b_1(\text{RTS}) + b_2(\text{ISS}) + b_3(\text{ageIndex})$$

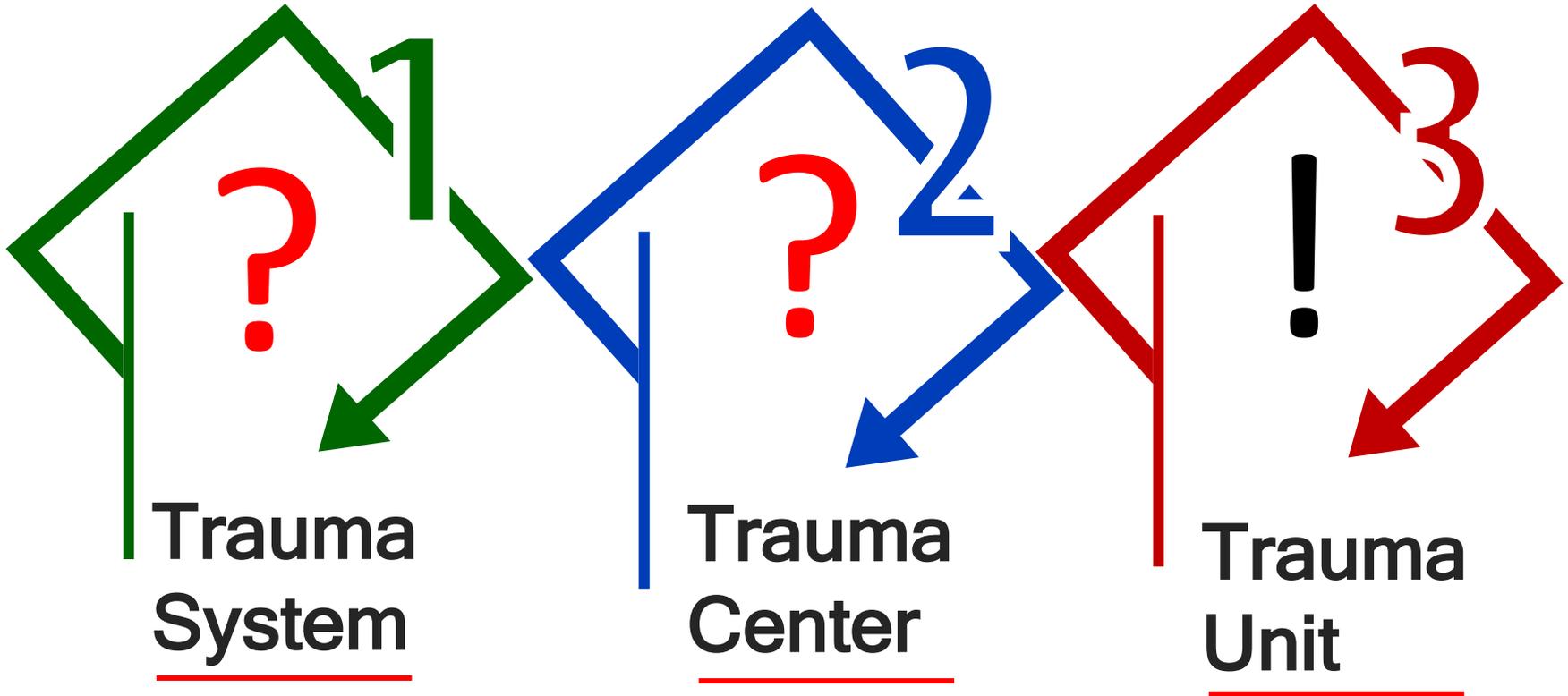
AgeIndex = 0 if the patient is below 54 years

= 1 if 55 years and over

If the patient is less than 15, the blunt coefficients are used regardless of mechanism.

	Blunt	Penetrating
b0	-0.4499	-2.5355
b1	0.8085	0.9934
b2	-0.0835	-0.0651
b3	-1.7430	-1.1360

ไปไหนดี ?



# ไปไหนดี ?

01.

Trauma  
Patient

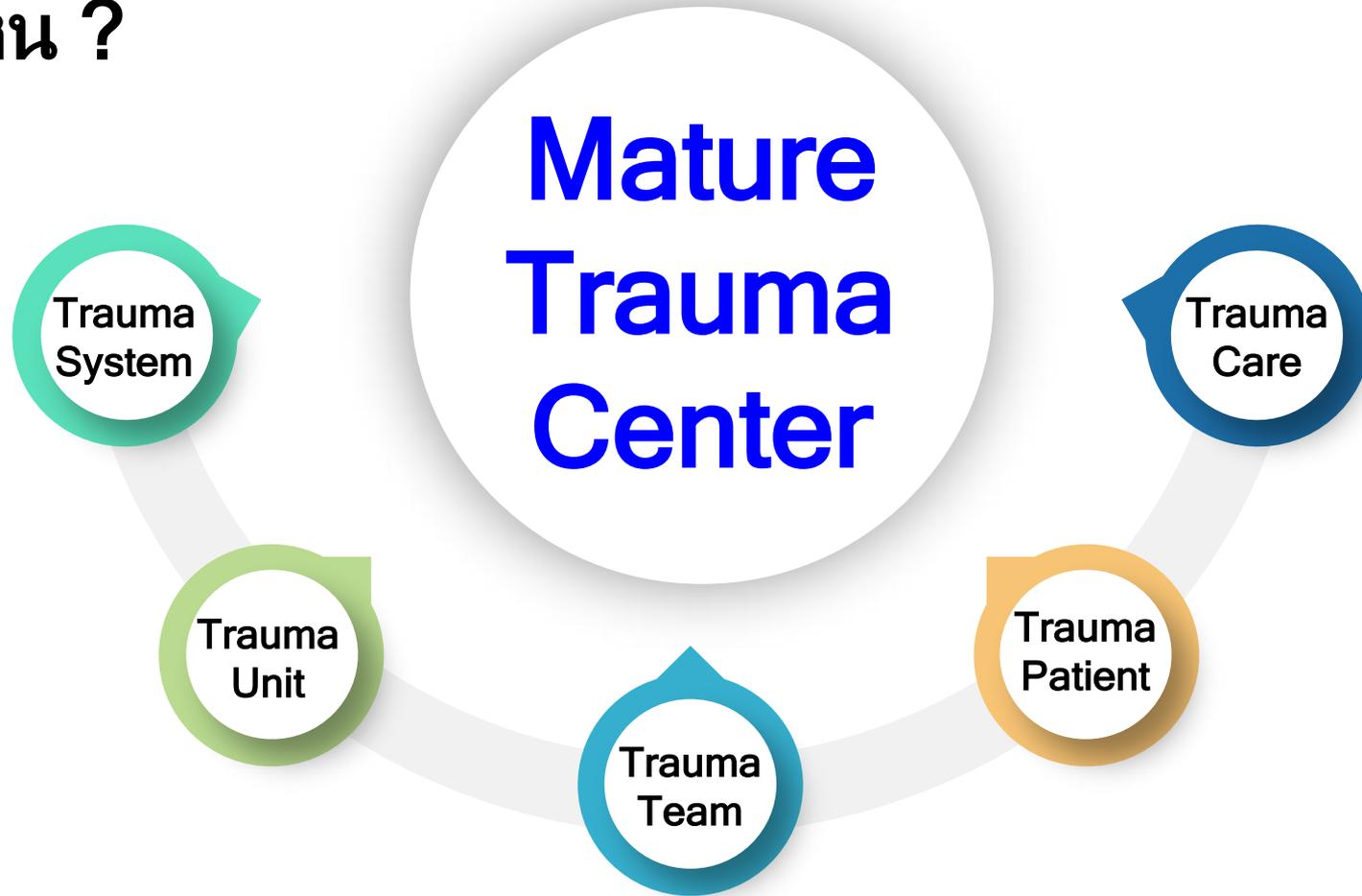
02.

Trauma  
Team

03.

Trauma  
Care

ที่ไหน ?



# Trauma Center Maturation

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- Shorten LOS,
- Lower rate of complications,
- A decreased incidence of preventable deaths,
- A significant increase in unexpected survivors

# Trauma Center Maturation

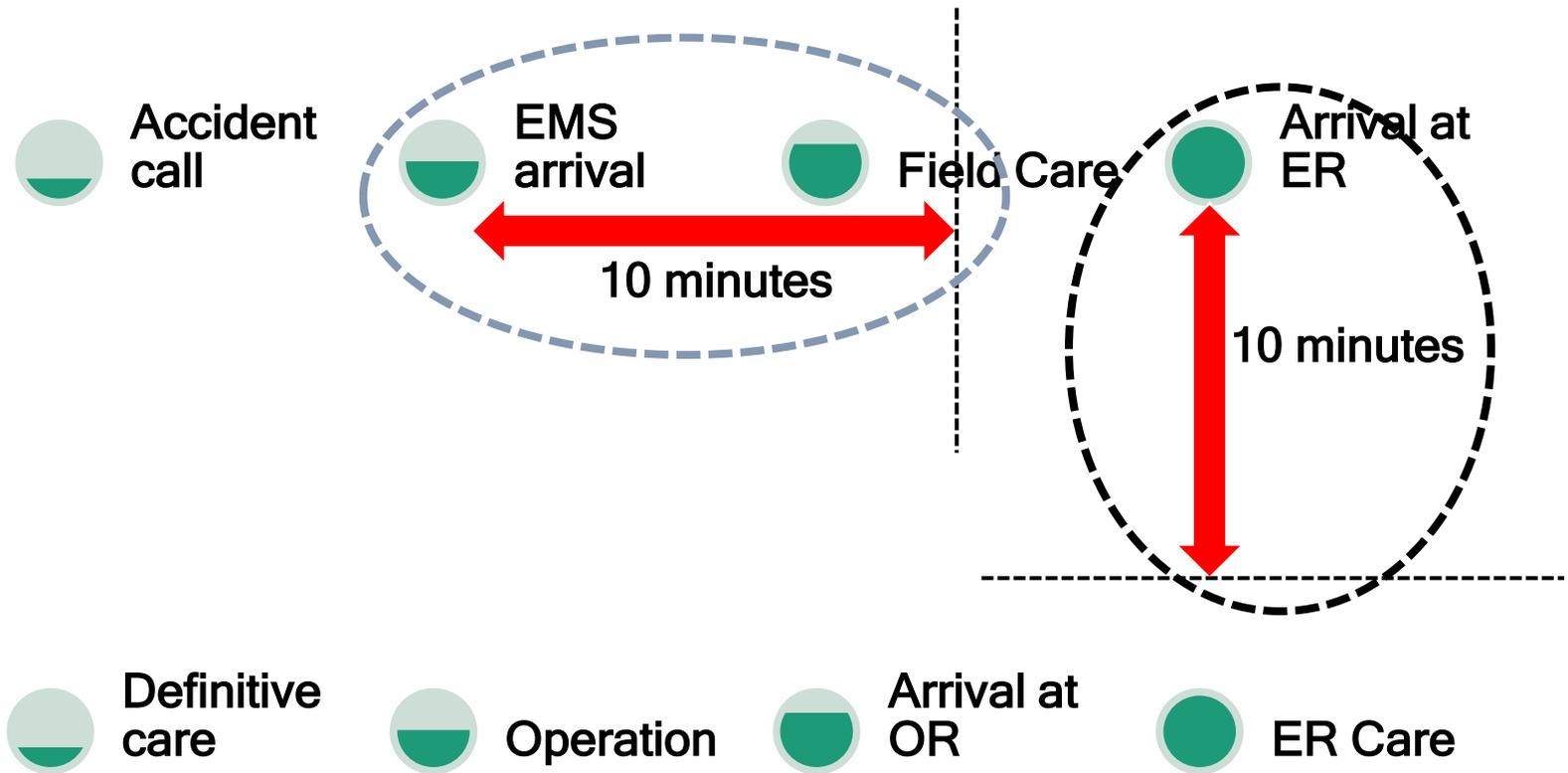
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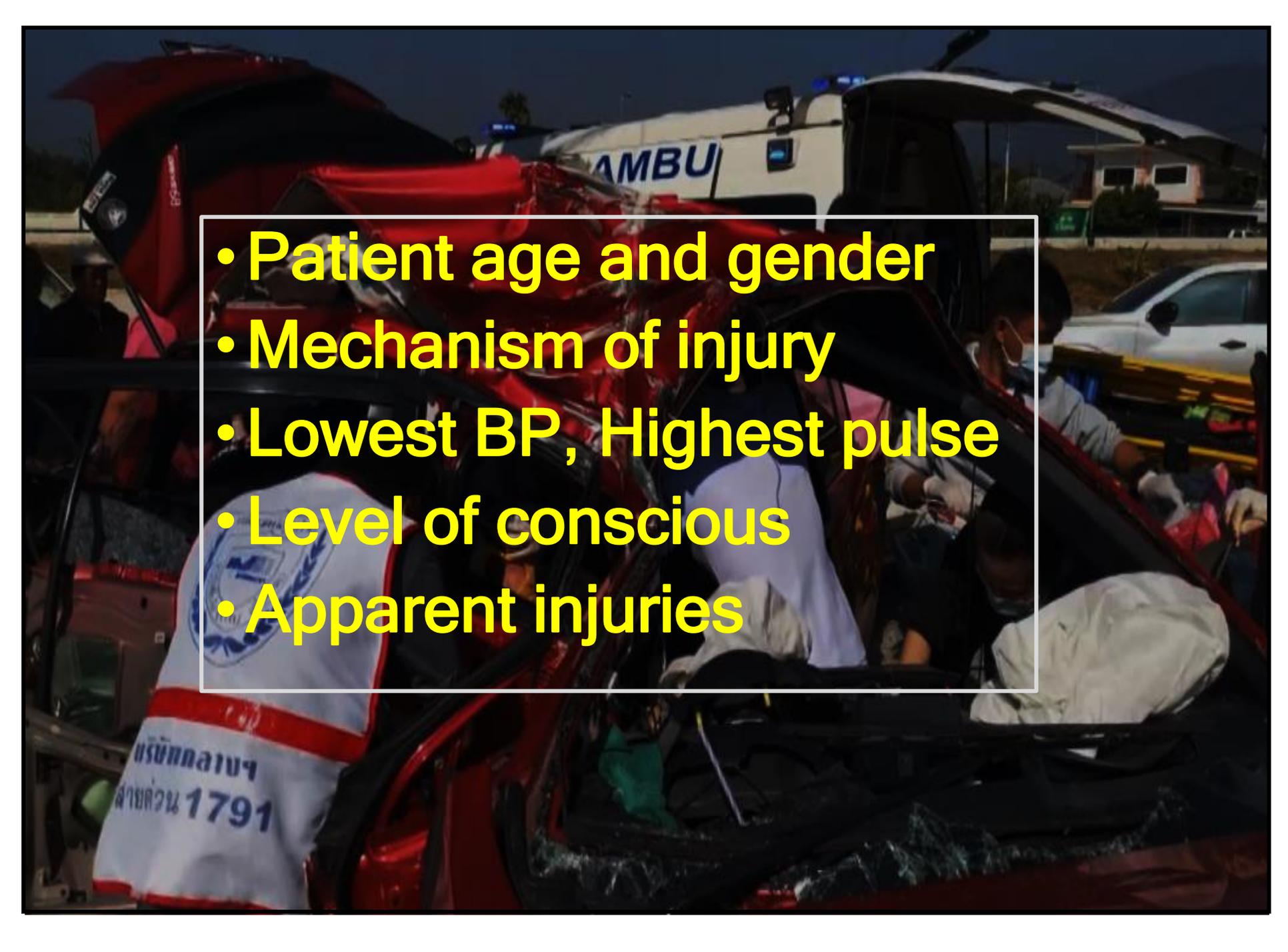
- Standard of Trauma Care
- Trauma Center Accreditation
- Trauma provide the template for trauma center development commitment;
  - Multiple surgical & Medical specialities
  - Nursing services & administration

- Low-volume TCs (<140 patients /2 years) had higher mortality rates than higher-volume TCs (>200 patients /2 years)
- A seriously injured patient's chance of dying was 30% greater at low-volume TC

Chicago Trauma System

# Golden 1 hour and platinum 10 minutes



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

หน่วยกู้ชีพ  
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# ER Preparation

- Alert team
- Prepare resuscitation area
- Prepare equipment
- Warm IV
- Resuscitation guideline



# ISS

AIS Score	Injury
1	Minor
2	Moderate
3	Serious
4	Severe
5	Critical
6	Survivable

**ISS = sum of 3 highest<sup>2</sup>AIS**  
**(ตำแหน่งการบาดเจ็บ)**

Region	Injury Description	AIS	Square Top Three
Head & Neck	No injury	0	0
Face	No Injury	0	0
Chest	Flail Chest	<b>4</b>	16
Abdomen	Minor Contusion of Liver Complex Rupture Spleen	<b>2</b> <b>5</b>	25
Extremity	Fractured Acetabulum	<b>3</b>	9
External	No Injury	0	0
Injury Severity Score:			50

# Injury Severity Score

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ISS Score

Severity

0-9

Minor

10-15

Moderate

16- 24

Serious

25-49

Severe

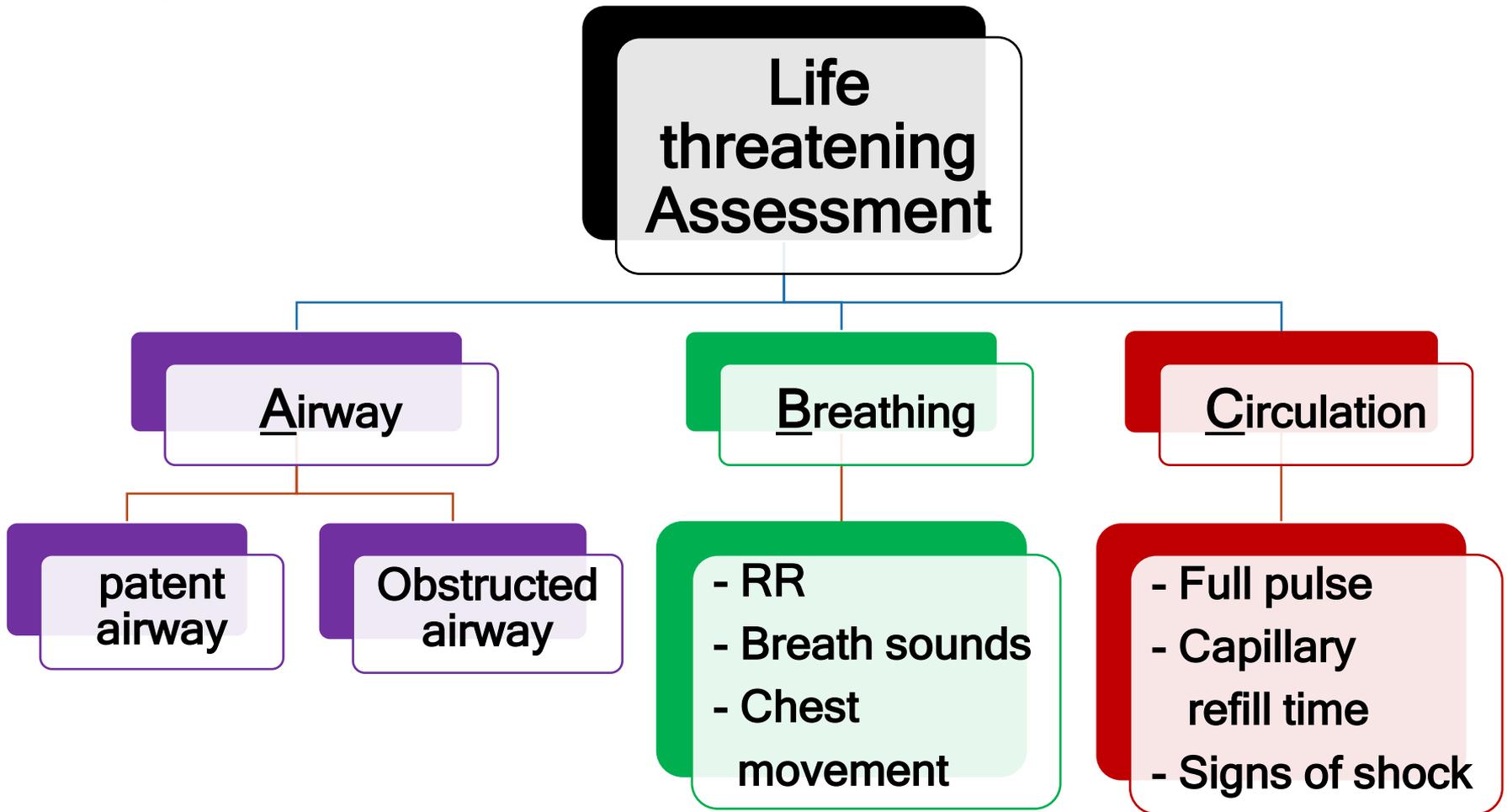
50-74

Critical

75

Maximum

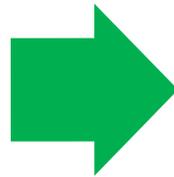
# Triage



# Triage

ER

A Airway  
B Breathing  
C Circulation



ทางเดินหายใจอุดตัน ?  
ลักษณะการหายใจ ?  
ชีพจร ?



- **Emergent** จะเสียชีวิตถ้าไม่รีบช่วยเหลือ
- **Urgent** ถ้าช่วยเหลือช้า อาจเสียชีวิตได้ใน 30 นาที
- **Non urgent** ถ้าช่วยเหลือช้ากว่า 2 ชม. เกิดอันตรายได้

**RED**

- See immediately

**AMBER**

- See within 10 minutes

**YELLOW**

- See within 60 minutes

**GREEN**

- See within 120 minutes

**BLUE**

- See within 240 minutes

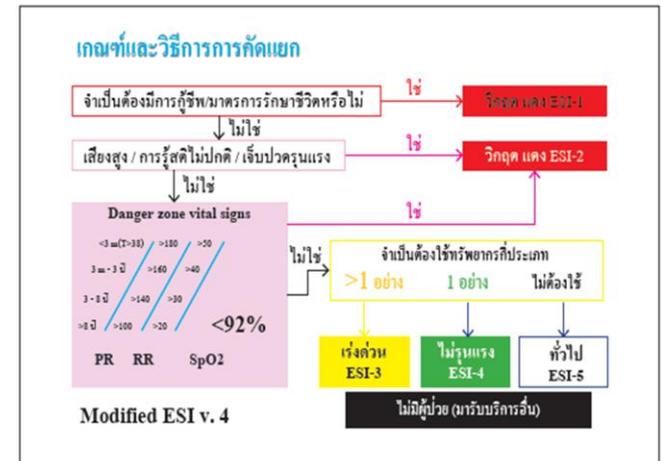
# Triage Nurse

- ER Nurse; 2 years experience of trauma care in ER
- Triage  $\leq 2$  minutes

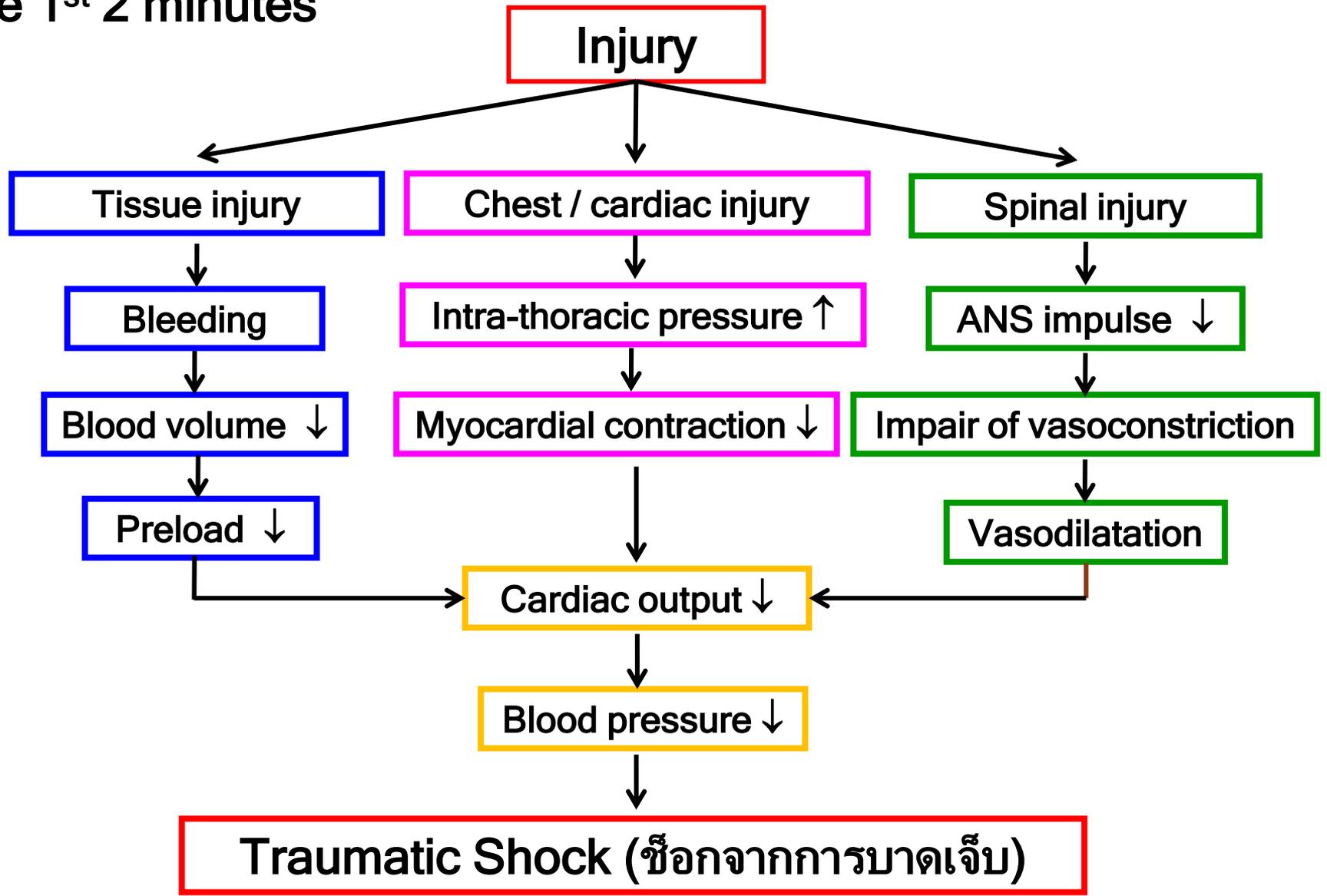
Right area

Right scale

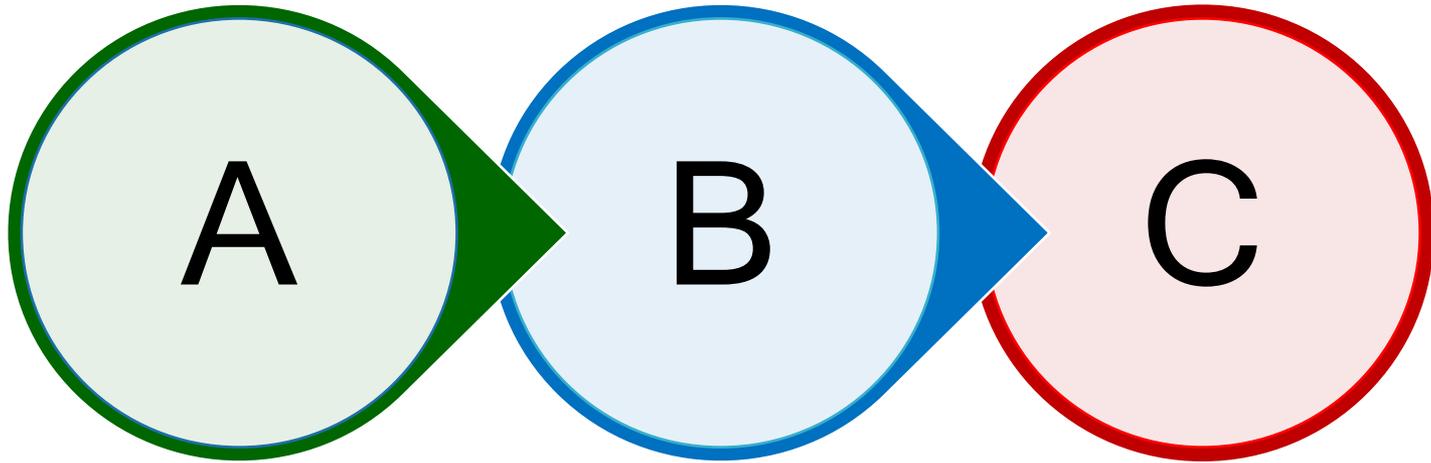
Right record



# The 1<sup>st</sup> 2 minutes



# Problems Identification



Oxygenation ↓

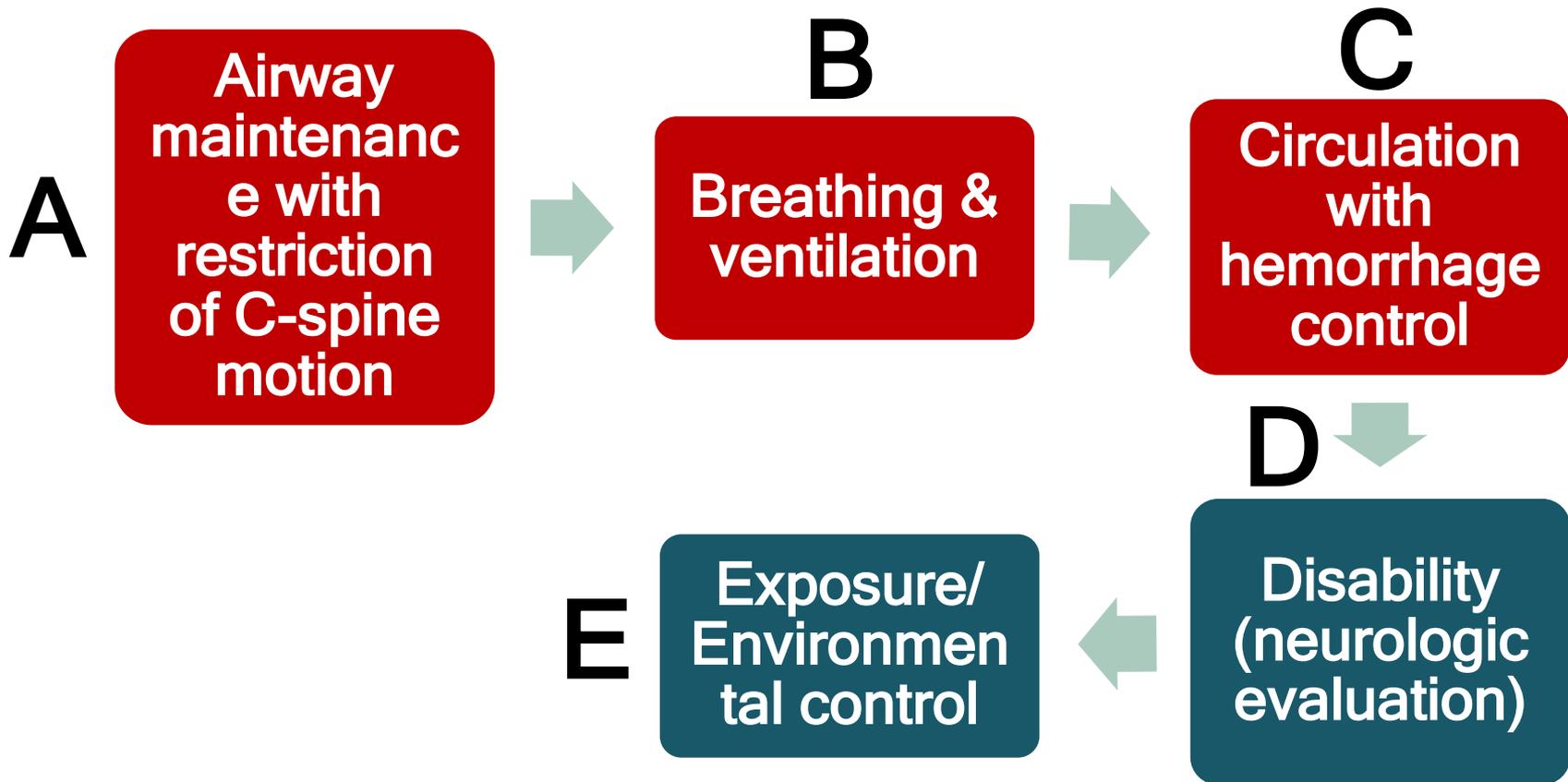
Ventilation ↓

Perfusion ↓

- Adequate oxygenation
- Adequate perfusion
- Adequate cerebral perfusion

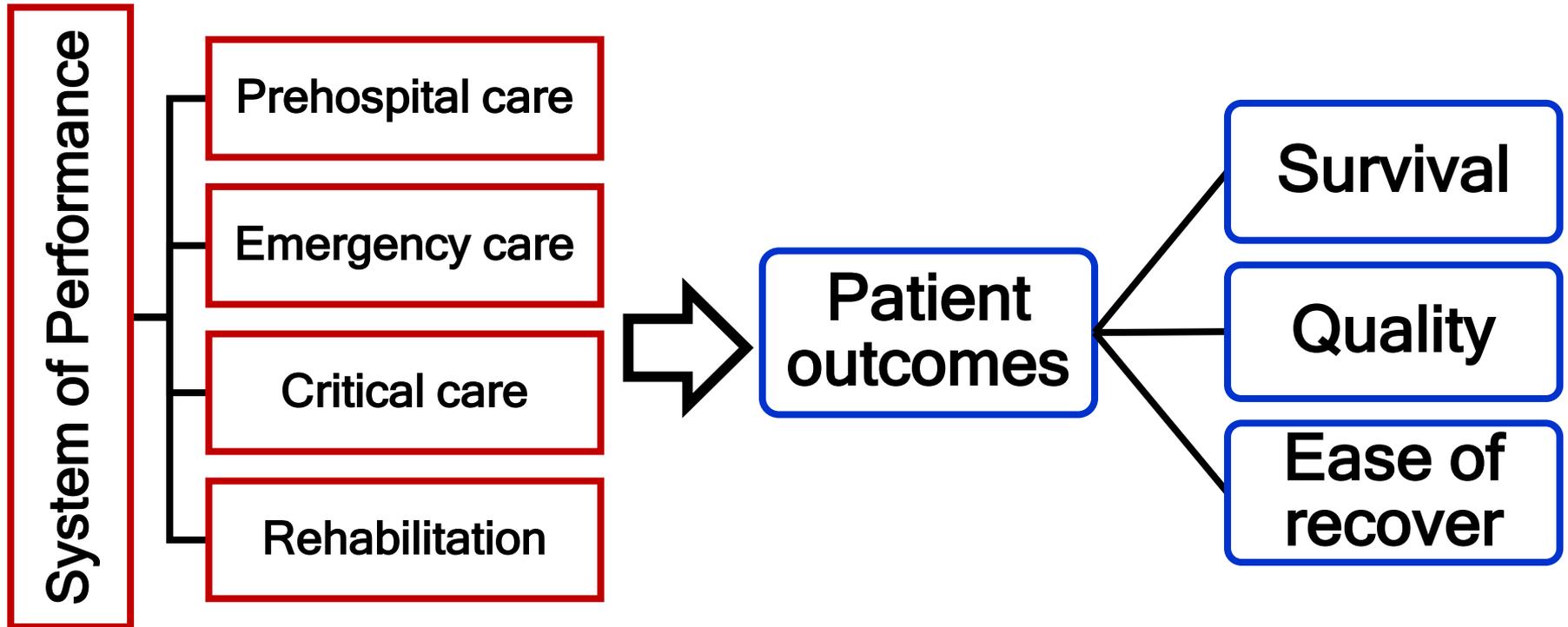
# Assessment & Resuscitation

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# Goal Attainment in Trauma Care

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# Know Our Patients

- Demographic data,
- Injury patterns,
- RTS,
- ISS,
- Admission BP,
- LOS,
- Complications,
- Survival,
- Condition at disposition

