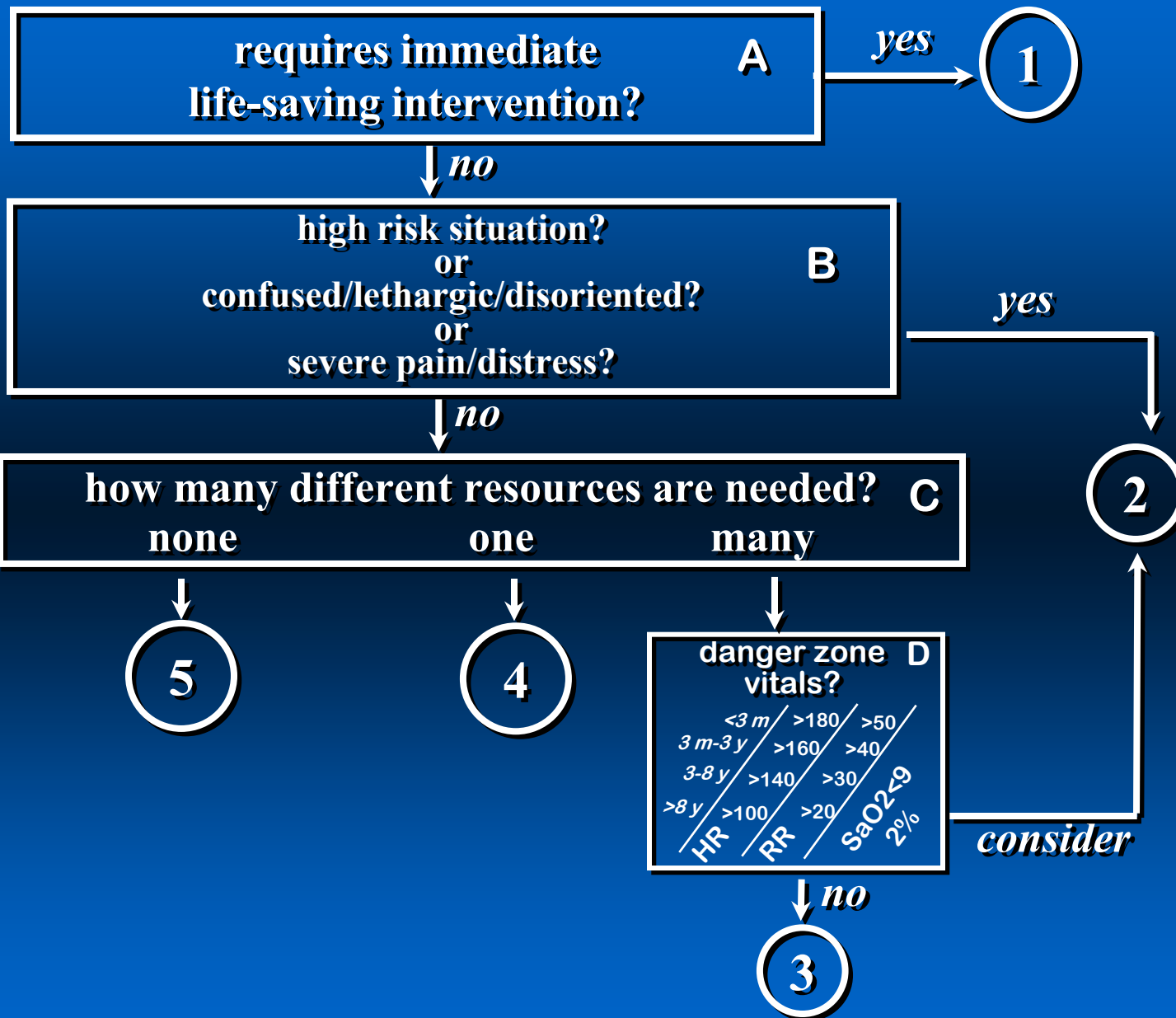


An Overview of the ESI Version 4 Algorithm





Emergency Severity Index (ESI)

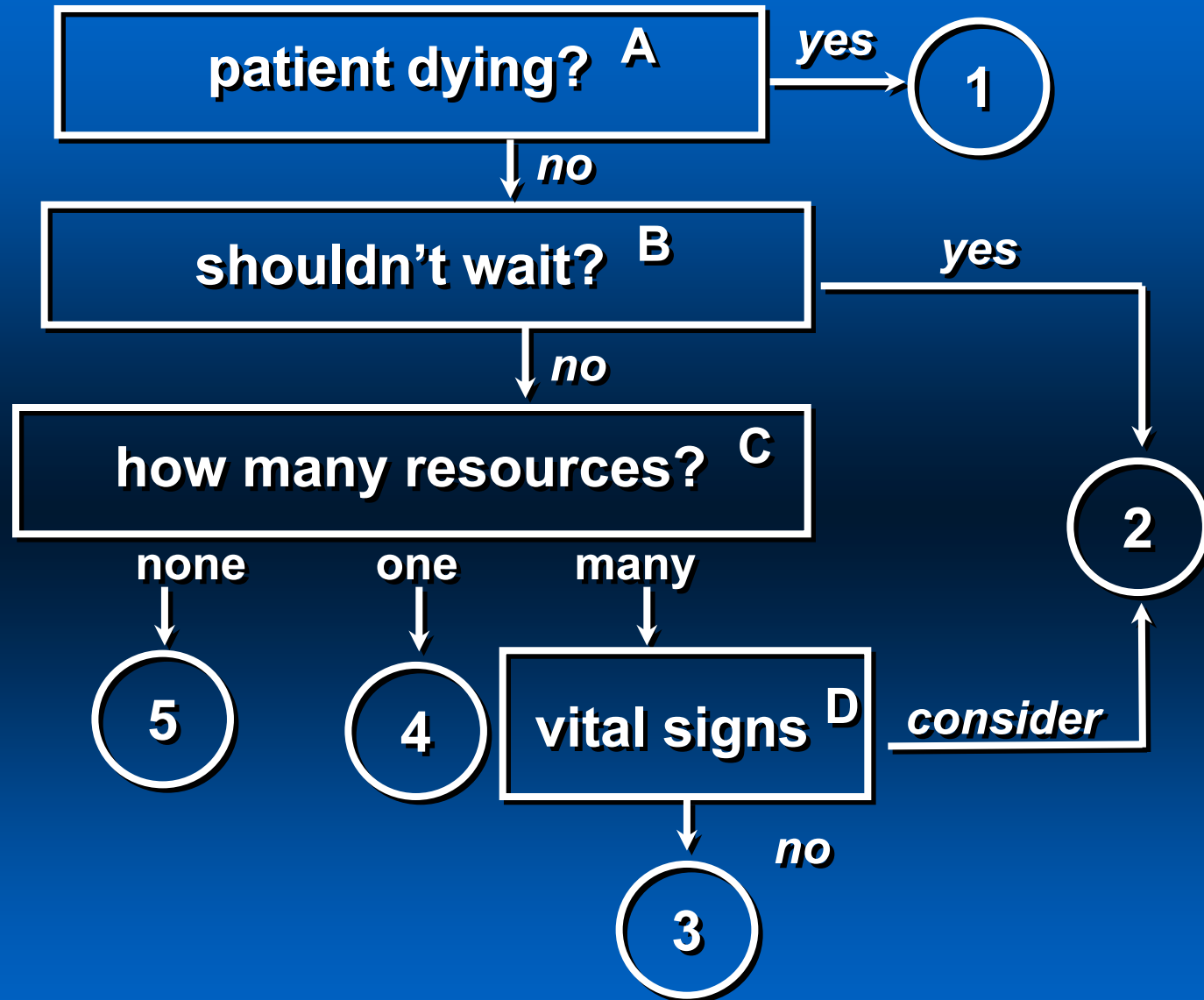
- **Acuity assessment**
 - **Airway, breathing, circulation**
 - **Potential for life, organ or limb threat**
 - **How soon the patient needs to be seen**
- **Expected resource assessment**
 - **Number of resources, as estimated by the triage nurse, that a patient is expected to consume in order for a disposition decision to be reached**

ESI

- **Five explicitly defined categories**
 - **Mutually exclusive**
 - **Allows for rapid sorting**
- **Differs from a complete assessment**
 - **Gathering sufficient information to assign an ESI level**
 - **Quick sorting**

ESI

- **Requirements to maintain the validity and reliability of the instrument**
 - **Experienced emergency department nurse at triage**
 - **Education of each RN prior to implementation**



Is this patient dying? A

yes

1



no

**Does this patient need immediate
life-saving intervention?**

yes

1

no

Decision Point A

Is this patient dying?

- **Does this patient require immediate life-saving intervention?**

Airway

Obstructed or partially obstructed

Unable to protect their own airway

Breathing

Apneic

Intubated prehospital

Severe respiratory distress

SpO₂ less than 90%

Decision Point A

Is this patient dying?

- **Does this patient require immediate life-saving intervention?**

Circulation

Pulseless or concerned about rate, rhythm or quality?

Drugs

**Hemodynamic interventions
Immediate IV medications
to correct hemodynamic
instability**

Decision Point A

- **Does this patient have an acute mental status change that requires immediate life saving intervention ?**

Examples

- Hypoglycemia needs glucose
- Heroin OD needs Narcan
- Subarachnoid bleed needs airway protection
- **Is this patient a “P” or “U” on the AVPU scale**

A = Alert

V = Verbal stimuli to elicit a response

P = Painful stimulus required for response

U = Unresponsive

ESI Level 1

- **Patient is physiologically unstable**
- **Requires immediate aggressive life-saving interventions**
 - **MD evaluation**
 - **Nursing care**
 - **Team response**
- **Most patients will be hospitalized**

ESI Level 1 Examples - v4

- **Cardiac or respiratory arrest**
- **Overdose with a respiratory rate of 8**
- **Severe respiratory distress with agonal or gasping respirations**
- **Acute SOB with SpO₂ <90%**
- **Anaphylactic shock**

ESI Level 1 Examples - v4

- **Critically injured trauma patient**
 - **GSW to abdomen with a BP 88/palp**
- **Chest pain, pale, diaphoretic**
- **CC dizziness, recent LOC, HR=40**
- **Chest palpitations, HR 180+**
- **Unresponsive with strong odor of alcohol**
- **Severe stroke needs airway protection**

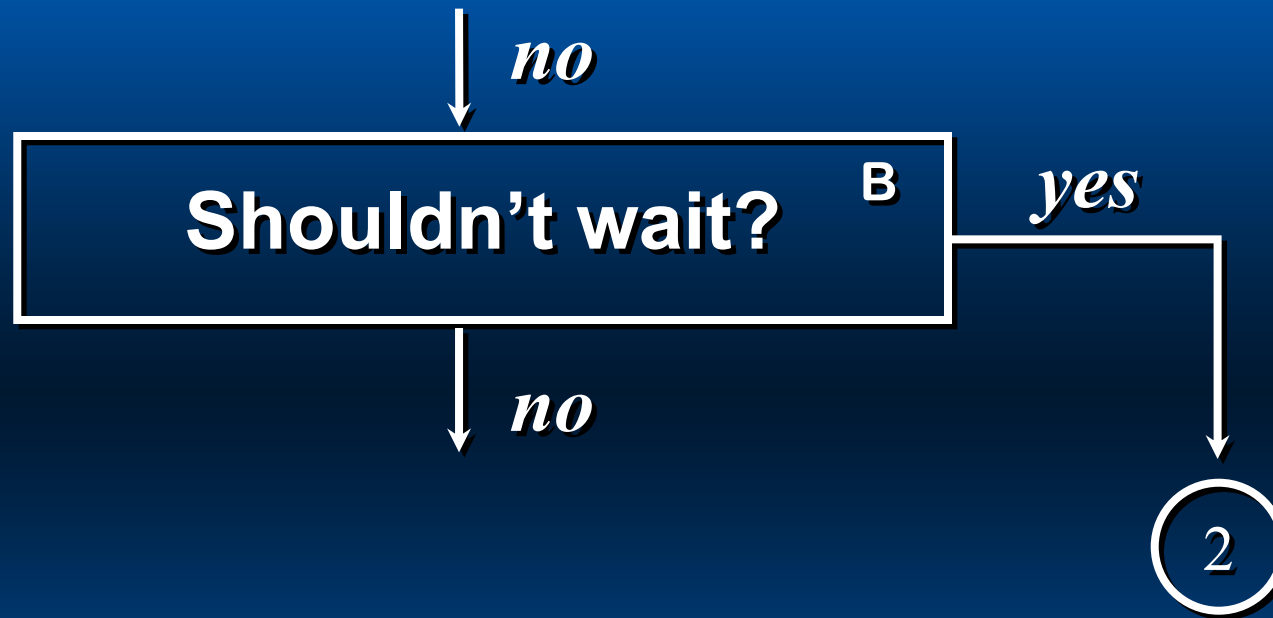
Aggressive Life-saving Interventions

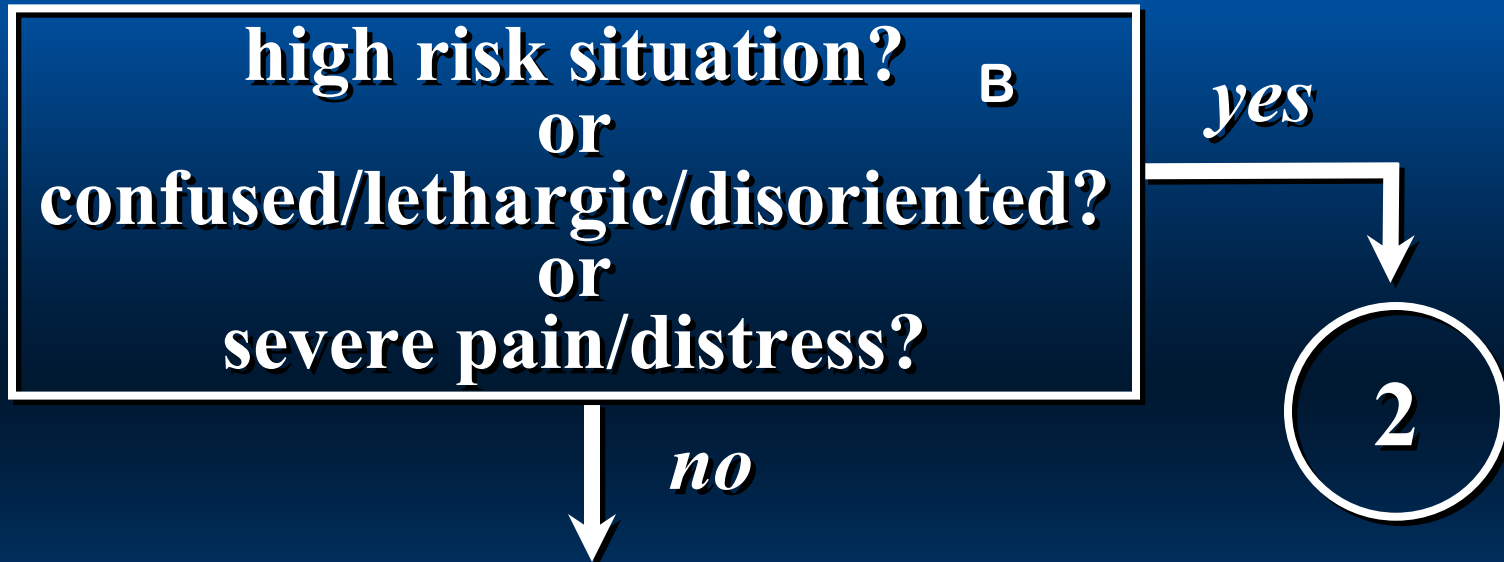
Will this intervention save this person's life?

- **Airway and Breathing**
 - **Intubation**
 - **Surgical airway**
 - **CPAP, BiPAP**
 - **Bag Valve Mask Ventilation**
- **Defibrillation**
- **External Pacing**
- **Chest needle decompression**
- **Hemodynamics**
 - **Significant IV fluid resuscitation**
 - **Blood administration**
 - **IV medications**
 - **vasopressors**
- **Control of major bleeding**

Interventions: Not Life Saving

- **Diagnostic Tests**
 - **ECG**
 - **Lab studies**
- **Oxygen**
- **Monitor**
- **IV access**
- **Medications**
 - **ASA**
 - **Nitroglycerine**
 - **Pain medications**
 - **Antibiotics**
 - **Heparin**





Decision Point B

Is this a high risk situation?

- **Determination is based on a brief patient interview, gross observations, “sixth sense”**
- **Do not require a full set of vital signs**
- **Unsafe for the patient to wait**
 - **Suggestive of a condition that could easily deteriorate**
 - **Symptoms of a condition that’s treatment is time sensitive**
 - **Potential major life or organ threat**

Examples of “High Risk”

- **Episode of chest pain, denies other symptoms, known cardiac history**
- **R/O PE**
- **Newborn with a fever**
- **Rule out ectopic pregnancy**
- **Neutropenia with a fever**
- **Suicidal/homicidal**
- **Needlestick in a healthcare worker**

Decision Point B

Is the patient confused, lethargic or disoriented?

- **Is there an acute change in level of consciousness?**
- **Is this a situation where the brain is structurally or chemically compromised?**

Examples

- **New onset of confusion in an elderly patient**
- **30 year old with a known brain tumor whose wife reports that he is confused**
- **Adolescent found confused and disoriented**

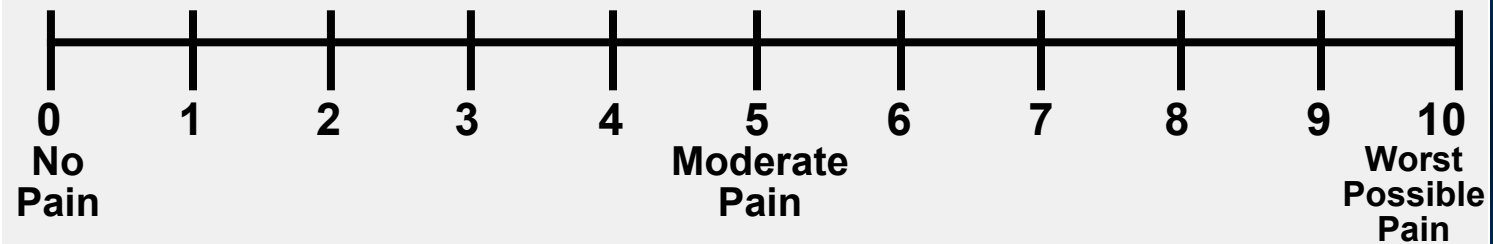
Decision Point B

Is this patient in severe pain or distress?

- **Is this patient currently in pain?**
 - **Pain is subjective**
It is what ever the patient says it is!
 - **How can we quantify it?**
 - **Research based**
 - **Documented on all ED patients**

Pain Scale

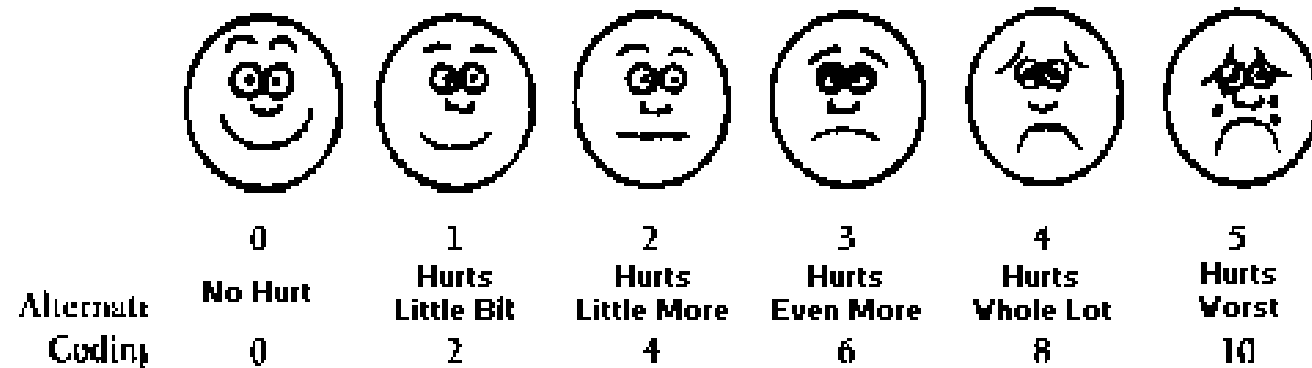
0-10 Numeric Pain Intensity Scale



Source, Acute Pain Management Operative Medical Procedures and Trauma, Clinical Practice Guideline No. JAH CPR Publication No. 92-0032, Rockville, MD: AHCPR Feb. 1992

Pain Scale

Wong-Baker FACES Pain Rating Scale



From Wong D, Hockenberry-Eaton M, Wilson D, Wickerstein M, Ahmann B, DiVito-Thomas, PA: Whaley and Wong's Nursing Care of Infants and Children, ed 6, St. Louis, 1999, Mosby, P 1153, Copyright Mosby. Reprinted by permission.

Decision Point B

Is this patient in severe pain or distress?

Is this patient currently in pain?

- Pain intensity rating
- Chief complaint
- PMH, medications
- VS, Physical assessment findings

Assign ESI Level 2 if and only if:

- Self reported 7/10 or greater
- AND
 - RN cannot intervene AND they require immediate intervention
 - Do you want to give your last bed to this patient???

ESI Level 2 Pain Examples

- **Kidney stone**
- **Burn victim**
- **Oncology patients**
- **Possible dislocated shoulder**
- **? Compartment syndrome**

Decision Point B
Is this patient in distress?
Physiological or Psychological

Sexual assault victim

Combative patient

Homicidal/suicidal patient

Bipolar patient who is manic

Acute grief reaction

**Known alcoholic with minor head
trauma**

Examples of ESI Level 2

- **Patient with severe flank pain, vomiting with a hx of renal colic**
- **Patient with burns to both arms**
- **Patient with a dislocated shoulder, pain rated as a 10+, diaphoretic, tearful**
- **Psychiatric patient who is screaming obscenities**

ESI Level 2

- **With ESI v3 25-35% of patients**
- **50-60% are hospitalized**
- **Many require ICU or telemetry beds**

Decision Point C

How many resources?

- **Determined by the experienced ED RN at triage**
- **Based on the standard of care**
- **Independent of type of hospital, location, physician on duty, acuity of the department**

How many different resources are needed? ^C

None

One

2 or more



5



4

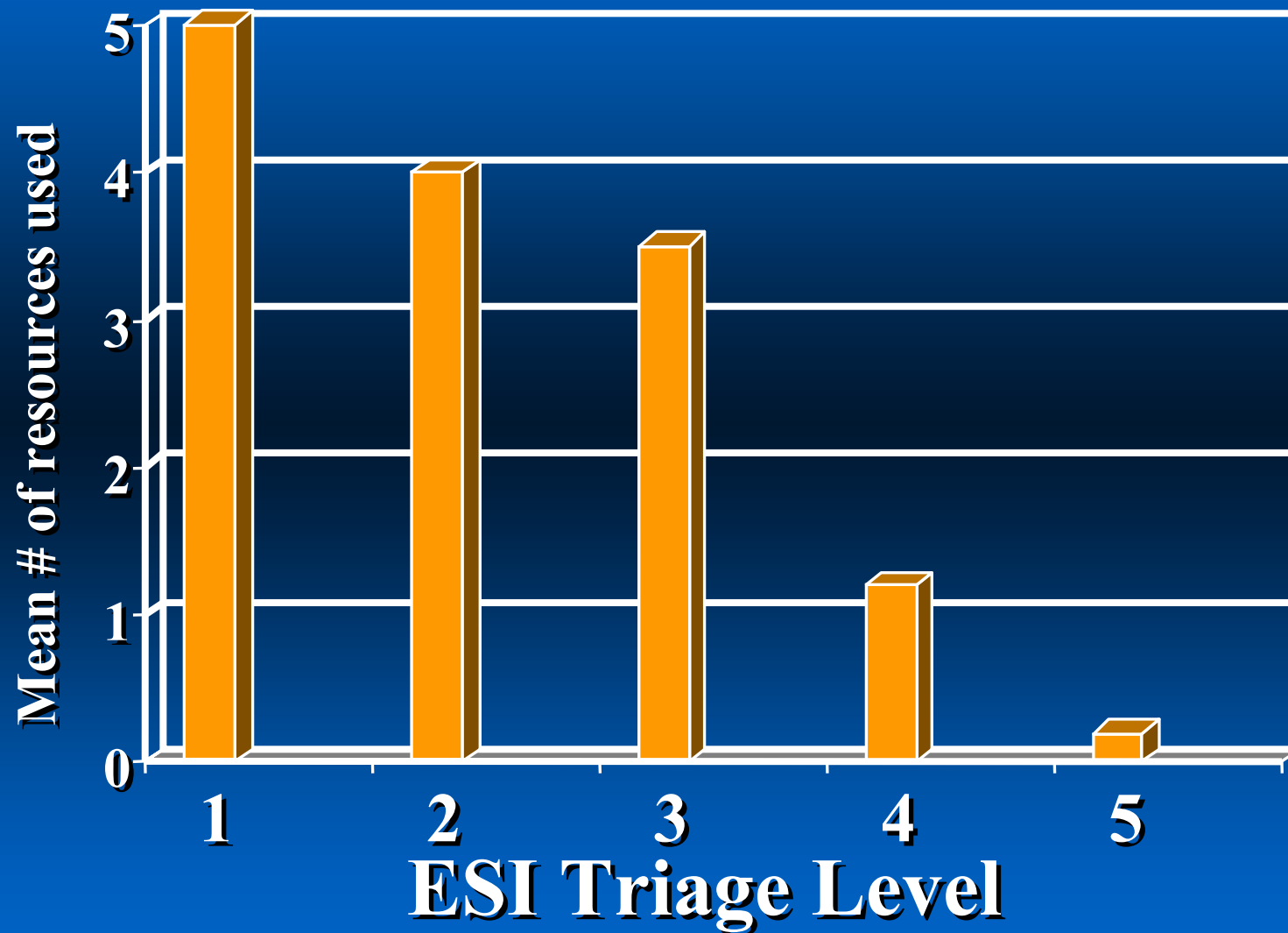


Vital Signs



3

Mean Resources Used Per Triage Category



Resources: Count number of *different types* of resources, not individual tests or x-rays (ex: CBC, electrolytes, and coags equal one resource; CBC plus chest x-ray equals two resources.)

Resources	Not Resources
Labs (blood, urine) ECG, x-ray CT, MRI, ultrasound, angiography	History & physical (including pelvic) Point-of-care testing
IV fluids (hydration)	Saline or heparin lock
IV or IM or nebulized medications	PO medications Tetanus immunization Prescription refills
Specialty consultation	Phone call to PCP
Simple procedure = 1 (lac repair, foley cath) Complex procedure = 2 (conscious sedation)	Simple wound care (dressings, recheck) Crutches, splints, slings

ESI Level 5

- **No resources**
- **Examples**
 - **Healthy 10 year old with “poison ivy”**
 - **Healthy 52 year old who ran out of his blood pressure medicine yesterday**
 - **22 year old, involved in a car accident 2 days ago, wants to be checked. Nothing hurts.**
 - **46 year old with a cold**

ESI Level 4

- **Stable, can safely wait hours to be seen**
- **Care by mid-level providers in fast track or express care setting**
- **Requires a physical exam and one resource**

ESI Level 4

- **Examples**
 - **Healthy 19 year old with a sore throat and fever**
 - **Healthy 29 year old with a UTI, denies vaginal discharge**
 - **Healthy 43 year old with a stubbed toe**
 - **“I think I broke it!”**
 - **Healthy 12 year old with a minor thumb laceration**

ESI Level 3

- 30-40% of patients seen in the ED
- Require in-depth evaluation
- Long length of stay
- Before assigning a patient to ESI Level 3 the nurse must consider the patients vital signs

Decision Point D

What are the patient's vital signs?

- consider the vital signs
 - Are they outside the acceptable parameters for age?
 - If unacceptable consider up-triage to ESI Level 2

Danger Zone Vitals?

< 3m	> 180	> 50	SaO ₂ < 92%
3m-3y	> 160	> 40	
3-8y	> 140	> 30	
> 8y	> 100	> 20	
	HR	RR	

3

Pediatric Fever Criteria

- **1 to 28 days of age: assign at least ESI 2 if temp >38.0 C (100.4F)**
- **1-3 months of age: consider assigning ESI 2 if temp >38.0 C (100.4F)**
- **3 months to 3 yrs of age: consider assigning ESI 3 if: temp >39.0 C (102.2 F), or incomplete immunizations, or no obvious source of fever**

Frequently Asked Questions

**Do I have to upgrade a
patient's triage level if the
pain rating is 7/10 or
greater?**

ESI Level 3, 4, or 5 Examples

- **ESI Level 3**
 - **Fracture ankle**
 - **Abdominal pain**
 - **Most migraines**
- **ESI Level 4**
 - **Sprained ankle, toe**
 - **Abscess**
- **ESI Level 5**
 - **Toothache**

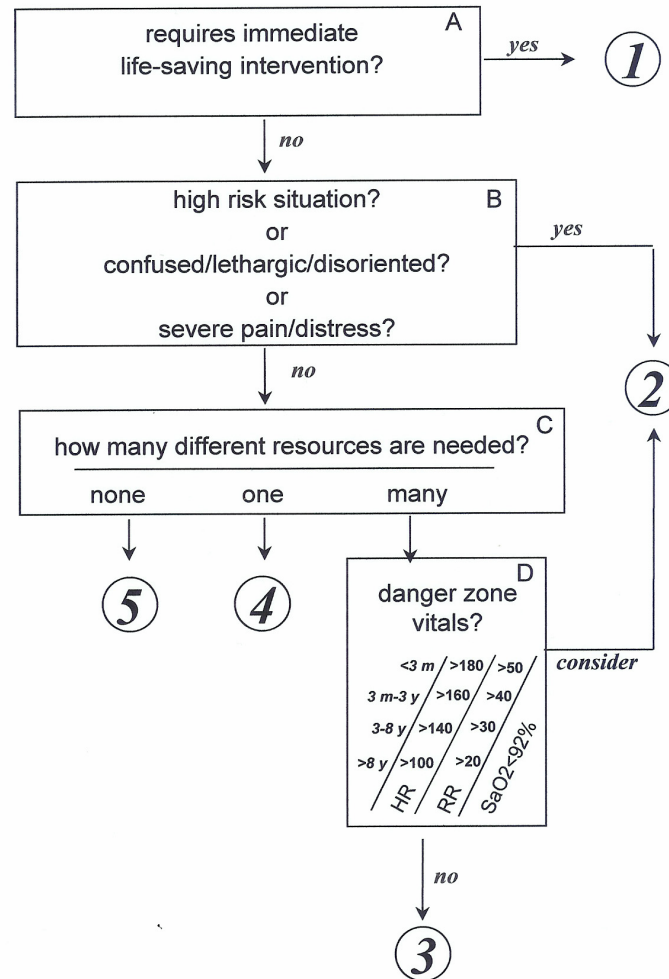
**Do I have to upgrade the
patient's triage level if their
heart rate is 104?**

**If my patient is always
confused are they
automatically assigned ESI
Level 2?**

**Does ESI identify time to
reassessment for each
triage level?**

What do I do with ambulance patients? Does their triage score change if I don't want them in the waiting room?

ESI Triage Algorithm, v4



Notes:

- A. Immediate life-saving intervention required: airway, medications, or other hemodynamic interventions; or any of the following clinical conditions: intubated, apneic, pulseless, severe respiratory distress, SpO₂<90, acute mental status changes, or unresponsive.
Unresponsiveness is defined as a patient that is either:
(1) nonverbal and not following commands (acutely); or
(2) requires noxious stimulus (P) or unresponsive (U) on AVPU) scale.
- B. High risk situation is a patient you would put in your last open bed.
Severe pain/distress is determined by clinical observation and/or patient rating of greater than or equal to 7 on 0-10 pain scale.
- C. Resources: Count the number of *different types* of resources, not the individual tests or x-rays (examples: CBC, electrolytes and coags equals one resource; CBC plus chest x-ray equals two resources).

<i>Resources</i>	<i>Not Resources</i>
•Labs (blood, urine) •ECG, X-rays •CT-MRI-ultrasound-angiography	•History & physical (including pelvic) •Point-of-care testing
•IV fluids (hydration)	•Saline or heparin lock
•IV or IM or nebulized medications	•PO medications •Tetanus immunization •Prescription refills
•Specialty consultation	•Phone call to PCP
•Simple procedure =1 (lac repair, foley cath) •Complex procedure =2 (conscious sedation)	•Simple wound care (dressings, recheck) •Crutches, splints, slings

D. Danger Zone Vital Signs

Consider uptriage to ESI 2 if any vital sign criterion is exceeded.

Pediatric Fever Considerations

1 to 28 days of age: assign at least ESI 2 if temp >38.0 C (100.4F)

1-3 months of age: consider assigning ESI 2 if temp >38.0 C (100.4F)

3 months to 3 yrs of age: consider assigning ESI 3 if: temp >39.0 C (102.2 F), or incomplete immunizations, or no obvious source of fever