# The Emergency Severity Index: Guidelines For Triage

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## Abstract

One of the main challenges encountered by emergency departments around the world is determining how to appropriately triage patients. Although some systems only take into account a single determining factor, such as the amount of time a patient may safely wait before being treated, the Agency for Healthcare Research and Quality maintains a system that considers both the acuity of patients' health care problems as well as the number of resources needed to treat them. This system provides emergency departments with a unique tool to ensure that the most at-risk patients are being seen and treated in the most efficient manner.

## Policy Statement

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## Statement of Learning Need

Statistics have shown that a majority of U.S. patients wait over 15 minutes in a waiting room and that there is crowding in emergency rooms. Triaging quickly and effectively is a way to avoid unsafe waits and to address needed resources. It is important for emergency department clinicians to be trained in triage in order to determine what patients cannot wait to be treated, and to know the difference between a time sensitive issue to treat a life-threatening condition and what can be assigned a lesser critical or urgent need for treatment.

## Course Purpose

To provide health clinicians with knowledge of the Emergency Severity Index guidelines and best practice principles for emergency triage.

## Target Audience

Advanced Practice Registered Nurses and Registered Nurses

(Interdisciplinary Health Team Members, including Vocational Nurses and Medical Assistants may obtain a *Certificate of Completion*)

## Course Author & Planning Team Conflict of Interest Disclosures

Jassin M. Jouria, MD, William S. Cook, PhD, Douglas Lawrence, MA, Susan DePasquale, MSN, FPMHNP-BC – all have no disclosures

## Acknowledgement of Commercial Support

There is no commercial support for this course.

**Please take time to complete a self-assessment of knowledge, on page 4, sample questions _before_ reading the article.**

**Opportunity to complete a self-assessment of knowledge learned will be provided at the end of the course.**

1. **Which of the following rates as a Level 3 on the Emergency Severity Index (ESI)?**

   a. Immediate, life-saving intervention required without delay
   b. Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imaging)
   c. Stable, with only one type of resource anticipated (such as only an X-ray, or only sutures)
   d. Stable, with no resources anticipated except oral or topical medications, or prescriptions

2. **True or False: The triage clinician should separate simple problems from those that are more complex and requiring two or more resources.**

   a. True
   b. False

3. **The reason for triage in an emergency room is**

   a. to prioritize treatments for the patient.
   b. to determine who cannot wait for treatment.
   c. to determine the outcome if treatment is delayed.
   d. All of the above

4. **A vesicular rash is a blister that is on the skin that**

   a. appears on skin where mucus membranes are absent.
   b. is result of a viral infection.
   c. appears only on the torso.
   d. All of the above

5. **A _____ rash is a purple or red spot on the skin that is less than 3 mm.**

   a. purpura
   b. vesicular
   c. petechial
   d. ecchymosis

## Introduction

The Emergency Severity Index provide guidance on how to determine emergency department resources for triaging patients in a non-emergent to a severe and life-threatening condition. These resources include diagnostic tests, therapeutic procedures and treatment. The designated triage clinician can estimate the number of resources needed to provide patient care during an emergency room encounter. Counting two or more needed resources is enough for assignment of an Emergency Severity Index level. The triage clinician does not need to go beyond counting two resources. The guidelines for triaging emergency patients through use of the Emergency Severity Index are discussed more specifically in this course.

## Guidelines For Triaging And Assigning Resources

The triage clinician should separate simple problems from those that are more complex and requiring two or more resources. Resources beyond an examination or involving those outside of the emergency department (ED), such as an X-Ray department, should be taken into consideration. The full encounter for an ED patient can increase through use of the Emergency Severity Index (ESI) and as resource requirements increase, such as with a severe condition requiring emergency intervention, *i.e.*, chest tube insertion, and surgery. Queries to consider related to assigned resources would be, for example, 1) how many laboratory and radiology tests are needed, and 2) the number of treatment interventions required for an emergency situation.

The triage clinician would consider every test and intervention as a type of resource. An example would be if a person needed blood and urine tests, which is one resource. Alternatively, if a person needed blood testing and an X-Ray that would constitute two resources, which a triage clinician would

assign. The following discussion focuses on the types of resources that may be expected to arise in the ED.

| Diagnostic Test | Resource Assigned |
|---|---|
| Blood count and electrolyte panel | One resource – lab test |
| Blood count and chest X-Ray | Two resources – lab test, X-Ray |
| Blood count and urinalysis | One resource – lab test |
| Chest X-Ray, bladder X-Ray | One resource – X-Ray |
| MRI of spine, CT scan of head | Two resources – MRI and CT |

Additional considerations pertain to the fact that some interventions do not count as a resource. Application of a splint, for example, does not count for someone who sprains an ankle. A person with a sprained ankle would be triaged differently than someone requiring an X-Ray and splinting, which would require more resources.

Another example of a procedure that would not require assignment of a resource is application of a sling. This takes time but is not considered a resource for the ESI method. The ESI method focuses on moving the patient along to the right group within the emergency department and does not count each and every procedures as a resource. Another example of someone who does not meet high level triage requirements would be the common issue of a patient who needs suturing and a tetanus shot.

There are situations that the ESI assigned would vary depending on the nature of the problem, even though the intervention may be the same. For example, a chemical splash to the eye does not meet level 3 requirements but is at level 2 with the major intervention of eye irrigation. This would be

assigned level 2 because of the nature of the medical problem. Immediate attention is needed as compared to, for example, dust in the eye where the risk is not as high. The eye irrigation is still used for dust in the eye but has a designation of level 4.

An example where resources are not considered include physical exams and point of care tests. These do not increase the length of stay in an ED. All patients in an emergency room should get a physical exam and history. In the case of Level 3 patients, determination is made based on an increase in the complication of care. Patients placed at level 3 may be someone who:

- is 80-years old.
- has a urinary catheter.
- has a fever and cough.
- needs blood and urine tests.
- needs a chest X-Ray.
- needs two or more resources.

While varying practices exist in different emergency departments, the triage rating may stay the same. For example, some emergency departments send patients to a laboratory for a pregnancy test while other emergency departments do the test within the department. Such patients will probably need two or more resources plus the pregnancy test, so placing them at a level needing two or more resources would be customary in each group.

Other common examples would be patients with a sore throat and an ankle injury. One emergency department may take a throat culture for one resource at level 4, while another would take no throat culture for zero resources at level 5. For an ankle injury, some emergency departments take an X-Ray for an ankle injury while others do not, placing a patient at level 4 for one

resource and level 5 for no resources. There are minor variations based on ED practices in terms of how resources are assigned.

Despite the variation pointed out in different emergency departments, there are guidelines that exist to develop a focus on resources assigned. This is an important part of the ESI system. Clinicians are expected to perform what is both customary and prudent. A review of the ESI triage system is shown in the following tables that describe Levels 1 – 5, and, more specifically, the less life-threatening Levels 2 - 5.[91,92]

| Level | Name | Description | Examples |
|---|---|---|---|
| 1 | Resuscitation | Immediate, life-saving intervention required without delay | Cardiac arrest<br>Massive bleeding |
| 2 | Emergency | High risk of deterioration, or signs of a time-critical problem | Cardiac-related chest pain<br>Asthma attack |
| 3 | Urgent | Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imaging) | Abdominal pain<br>High fever with cough |
| 4 | Less Urgent | Stable, with only one type of resource anticipated (such as only an X-ray, or only sutures) | Simple laceration<br>Pain on urination |
| 5 | Non Urgent | Stable, with no resources anticipated except oral or topical medications, or prescriptions | Rash<br>Prescription refill |

A review of how to identify characteristics for level 2 to 5 patients is included in the following Table.

| Level | Name | Description |
|---|---|---|
| 2 | Emergency | High risk of deterioration, or signs of a time-critical problem |
| 3 | Urgent | Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imaging) |
| 4 | Less Urgent | Stable, with only one type of resource anticipated (such as only an X-ray, or only sutures) |
| 5 | Non Urgent | Stable, with no resources anticipated except oral or topical medications, or prescriptions |

The following table provides a review of how to identify qualifications for levels 2-5 based on the number of resources needed.

| Level | Name | Resources |
|---|---|---|
| 2 | Emergency | Many |
| 3 | Urgent | Two or more |
| 4 | Less Urgent | One |
| 5 | Non Urgent | None |

Further, what is and is not considered a resource to help determine a level designation needs to be understood by triage clinicians. As a reference point, two or more resources are needed for a Level 3 designation. For a Level 4 designation one resource is needed, and there are no resources needed for Level 5. The Table below highlights resources versus non-resources referenced for ESI level designation.

| Resources | Not Resources |
|---|---|
| Labs (blood, urine) | History and physical (including pelvic) |
| ECG | Point-of-care testing |
| IV fluids (hydration) | Saline or heparin lock |
| X-rays and CT | Prescription refills |
| MRI, ultrasound angiography | Tetanus immunization |
| IV, IM or nebulized medications | PO medications |
| Specialty consultation | Phone call to primary care physician |
| Simple procedure = 1 (Foley catheter) | Crutches |
| Simple procedure = 1 (laceration repair) | Splints, slings |
| Complex procedure = 2 (conscious sedation) | Simple wound care (dressings, recheck) |

## The ESI And Triage Standardization

The reason triage exists in an emergency room is to prioritize treatments for patients. It is also to determine who cannot wait to be treated. It is important for clinicians to know the difference between a time sensitive issue to treat a patient and what can wait.

The triage clinician performs an assessment that is brief and focused. The patient is assigned an acuity level based on the needs of the patient for care, and a determination is made for how long a patient can safely wait before receiving an examination for screening and treatment.

For all emergency department visits in the United States, less than a quarter of these patients are seen within 15 minutes. A majority of patients wait over 15 minutes in a waiting room. In the report *The Future of Emergency Care in the United States*, the Institute of Medicine (IOM) described a situation of crowding in emergency rooms, which was growing worse. More patients were waiting longer in ED waiting rooms. Plus, in the IOM report it was revealed

how the acuity level assessment was becoming increasingly important. The assessment must be accurate or a patient could deteriorate while waiting and be at more risk. Another concern related to scarce resources and limited availability of open beds in EDs. Patients requiring immediate care were not always able to be assigned an ED bed quickly.

Triaging quickly and effectively is a way to avoid unsafe waits and to address needed resources. Triaging patients is intended to make operations in the ED more successful. Effective triage would also help to collect data about emergency room use. Clinicians and ED managers are better able to determine which patients are the sickest that need to be seen and how an emergency room can deal with overcrowding. Developing a standard for acuity during triage in an emergency department would support emergency room surveillance, clinical care, research activities, and benchmarking.

Emergency rooms in the United States did not use acuity rating systems that were standardized. Starting in 2000 a trend began toward standardization at the five levels of:

1- Resuscitation
2- Emergent
3- Urgent
4- Less urgent
5- Non-urgent

In 2002, a Joint Triage Five Level Task Force reviewed the literature and made a recommendation for emergency departments in the U.S. The recommendations concerned which triage system to use. Joining the task force were members from the American College of Emergency Physicians (ACEP) and the Emergency Nurses Association (ENA). Before the task force

was formed, several acuity systems existed for triage for use in emergency departments. For example, many emergency departments used a three level scale of 1) emergent, 2) urgent and 3) non-urgent. In 2003, the standard changed based on work approved by the board of directors of both organizations. The 2003 position statement indicated that the *ACEP and ENA believe that quality of patient care would benefit from implementing a standardized ED triage scale and acuity categorization process. Based on expert consensus of currently available evidence, ACEP and ENA support the adoption of a reliable, valid five-level triage scale*.

In 2005, the ACEP and ENA published a second paper. They recommended that emergency departments use one of two tools: 1) Emergency Severity Index (ESI) and 2) Canadian Triage and Acuity Scale (CTAS). Each of these was established as valid and reliable. Later, in 2010 the ACEP revised the original statement:

> *The American College of Emergency Physicians (ACEP) and the Emergency Nurses Association (ENA) believe that the quality of patient care benefits from implementing a standardized emergency department (ED) triage scale and acuity categorization process. Based on expert consensus of currently available evidence, ACEP and ENA support the adoption of a reliable, valid five-level triage scale such as the Emergency Severity Index (ESI)*.

Currently, more emergency departments use a five level ESI triage system, and fewer emergency departments use the three level triage system. Some emergency rooms use other systems for triage including:

- Five level ESI
- Three level
- Four level

- Five level (not ESI)
- Two level
- Other
- No triage

Statistics concerning emergency department visits on a national level currently exist. These statistics were reported by the Centers for Disease Control and Prevention (CDC) National Center for Health Statistics.

In this report information about arrival acuity was revealed. This was according to five levels and based on the *urgent need* for a patient to be evaluated by a physician and to receive healthcare. It included the following categories:

| | |
|---|---|
| **Immediate** | **Immediately** |
| **Emergent** | **1-14 minutes** |
| **Urgent** | **15-60 minutes** |
| **Semi urgent** | **1-2 hours** |
| **Non urgent** | **2-24 hours** |

**History of the Emergency Severity Index**

A brief history of the Emergency Severity Index would be helpful for clinicians to know. As mentioned, the ESI is a five level scale for triage. It was developed by emergency department physicians, Richard Wuerz and David Eitel. The developers considered that a triage system for an emergency room had the role primarily to help prioritize patients based on how urgently patients needed treatment for a condition. The triage clinician would first evaluate patients. When faced with multiple patients having high priority

needs, the triage clinician would then determine how long each patient could safely wait.

The developers of the ESI additionally proposed a new concept whereby the triage clinician utilizes the guidelines to help determine whether a patient is admitted or discharged to hospital, or transferred to another facility. The urgency of the patient's condition is evaluated so that the right resource is assigned to patients in a timely way.

Pediatric concerns during triage were also addressed in a revision to the ESI. Emergency room clinicians provided feedback for pediatric triage. Initially ESI was implemented in two university based emergency rooms in 1999. In 2000, five more hospitals were added, including non-university and community setting hospitals. Additional iterations came after more input from the field.

Studies conducted about emergency department triage and the ESI included the following professional working team focuses and processes.

- Several groups conducted studies about the ESI and its effectiveness.
- Emergency department physicians and nurses conducted studies in the United States and Canada.
- ESI has five levels as do scales used in Canada, Australia, and the United Kingdom.
- ESI is unique in concept and application.
- ESI and scales in Canada, Australia, and the United Kingdom look at how long a patient can wait in an emergency department.
- Scales in Canada, Australia, and the United Kingdom state how long a patient can wait to get an evaluation from a physician.
- The ESI does not define the expected time to get an evaluation from a physician.

- The ESI is unique as it looks at anticipated resource needs for less acute patients (to include diagnostic tests and procedures).

A summary of the ESI process included the following recommendations and processes.
- Address acuity judgements first.
- Base acuity judgement on the stability of a patient's vital functions and look at the likelihood of immediate organ/life threat, or other high risk.
- If there is no immediate organ or life threat and a patient is stable, look at expected resource needs.
- Base predictions on resource needs to determine disposition from the emergency department.
- Resource needs can be none, one, or two-plus. The triage clinician does not estimate beyond two.

## Research On The ESI

Researchers had a focus on validity and reliability of the scale as these are factors needed for the system to be widely used for triage. Reliability concerns whether clinicians who use the ESI system will be consistent in rating patients:  Will different triage clinicians rate a patient the same? Will a clinician rate a patient with the same acuity level over time?

Validity relates to the accuracy of the system and how well it measures what it is supposed to measure. An overview of the validity rating is reviewed below, specifically in terms of how the triage clinician should proceed.

- Determine if, for example, a rating of non-urgent is accurate. Does the tool properly assess a lack of acuity or urgency for the patient in the emergency department?

- Validity can be reflected in data on resource utilization, admission rates, and 6-month mortality.
- If the rating is not valid the patient with a low level of acuity can be admitted into the hospital.
- If the rating is not valid a patient with high acuity can be discharged.

One pilot study found ESI to be both valid and reliable. Additionally, other studies confirmed ESI to be both valid and reliable. One study found reliability improved with the five level ESI compared to a three level system. Results were also good at a study of seven hospitals in the Northeast and Southeast. Another study comparing the ESI system with a Canadian system showed good results for the ESI system.

An overview of the results from other studies included:

- Validity was evaluated looking at outcomes for thousands of patients with good results for hospitalization, emergency room length of stay, and mortality.
- Responses for implementation of the ESI – based on a survey of nursing staff - were positive.
- Staff reported the ESI was easier to use. They also noted it is more useful for prioritizing patients and treatments. This is compared to a three level system used formerly.

Results from studies of pediatric patient populations raised the following details.

- There was room for improvement concerning training of clinicians in an emergency department.

- A new chapter in the ESI handbook addressed the concerns regarding pediatric patients.
- Issues addressed included resource utilization, outcome measures, and length of stay in an emergency department.

Results concerning work with elderly populations was also reported.

- Several studies were performed involved elderly populations.
- Studies evaluated resource utilization, length of stay in an emergency department, hospital admission, and one-year survival.
- The ESI performed well in all areas.
- Additional study is needed in this area.

Results that concerned translating the ESI scale into other languages suggested the following.

- The ESI translated into other languages was then was evaluated for reliability and validity.
- Results based on evaluations were good.
- Studies were conducted in Europe and Taiwan.

**Benefits of the Emergency Severity Index**

Some conclusions of the benefits of the ESI index have been provided. These conclusions are based on ESI implementation in a variety and number of hospitals in various regions of the country. They include non-teaching and teaching hospitals. They also include university and community hospitals. The benefits were noted by those in the field, which included researchers, managers, and clinicians in the emergency department. This is compared to the three level scale for triaging.

A study conducted by the National Opinion Research Center rated the satisfaction with the ESI as a tool for triage. Participants also rated the tool in comparison to other tools. Satisfaction was high. Respondents noted that the tool is simple to use. The tool also reduces subjectivity concerning triage. It is also more accurate than other systems of triage.

A benefit of the ESI is how it helps the user quickly identify patients who need immediate attention. The focus is on quick sorting where the triage clinician identifies patients who need attention immediately. The clinician sorts quickly into five groups. Each group has a tie to resources required and operations in the facility. There can be improved flow of patients through an emergency department with such quick sorting.

Other benefits included being able to determine whether patients needed to be seen in the main emergency department. It was suggested that determination could be made whether a patient was safely and efficiently able to be seen in an urgent care or fast track area. As an example, in some hospitals all patients at level 4 and level 5 can be seen in either a minor trauma area or medical fast track area located in the emergency department. In some cases, for example a patient needing simple treatment for a migraine headache, such patients are at level 3 and can go to urgent care. A patient in urgent care in an acute area with a serious condition will receive monitoring in a program of quality improvement.

As mentioned, triage clinicians generally report that compared to the three level scale previously used the ESI scale is better at communicating patient acuity. If a triage clinician asks for a bed for a level 2 patient everyone knows what level 2 means. It is an understood term with a common language where no additional explanation is needed. If there are many level 2 patients in a

waiting room and the wait is long, the hospital can develop a plan. The plan can cover a situation of crowding and how to move patients along that are waiting for a bed and using space in an emergency department.

Hospitals can use the ESI system as a foundation to develop policies for an emergency department. Some examples at a site for psychiatric services show how the expectation is to provide a consult for a psychiatric complaint for 1) level 2 and level 3 patients within 30 minutes of being notified, and 2) level 4 or 5 patient within 1 hours of being notified.

Policy at another site also ties into ESI levels concerning patients who are pregnant at greater then 20 weeks and arrive at an emergency department. Level 1 and level 2 patients are treated with emergency medicine and obstetrical consult in the emergency department; and, Level 3, 4, and 5 patients are treated in the hospital at the labor and delivery area.

Obtaining data about emergency department statistics can occur with standardization of data from triage and an emergency department that uses ESI. This is an additional benefit of ESI use. For example, how researchers incorporate ESI scales into metrics that measure and predict emergency room crowding can be observed. With even wider adoption of the ESI scale in the U.S., a standard to assess triage acuity could be implemented. This could facilitate research, surveillance of public health, and benchmarking.[93]

**The ESI And Pediatric Patients**

A closer look at the use of the Emergency Severity Index algorithm for pediatric applications is presented here. This would apply to patients who are under the age of 18. The goal is to help an organization use the ESI system effectively for these patients. Some issues to consider include the fact that emergency departments are crowded, and a triage system should be accurate and rapid for patients. Children are among the most vulnerable members of the emergency room population. About a quarter of emergency room patients are children under the age of 18. Children can have a limited ability to communicate so it can be a challenge to accurately and rapidly assess their condition.

The ESI was originally intended for triage of patients greater than the age of 14. Additional considerations include that 1) in 2000, pediatric vital sign information was added to the ESI, 2) studies showed the ESI has areas for improvement for pediatric applications, 3) studies showed that pediatric cases were more mis-triaged than for adults, and 4) studies showed that it is harder to triage pediatric patients.

**Pediatric Triage and Age Dependent Differences**

A triage clinician should accurately and rapidly assess an ill child, and assign a triage level. The same algorithm for a child as for any other patient in an emergency department can be used. Triage clinicians should keep in mind age dependent differences such as anatomy and development.

A triage clinician should have a good idea of what is the norm for children of all ages. This will make it easier to know what is of concern whether it be a two week old or two-year old. Triage clinicians should use a standardized method of triage for pediatric patients, and perform the following functions:
- Observe respiratory pattern.

- Observe skin color.

- Observe general appearance.

- Approach children in a nonthreatening way to avoid stranger anxiety.

- Allow a caregiver to be present and assist with the assessment.

- Explain procedures before doing them for a school aged child.

In a neonate the following symptoms can be a reason for concern.

- Hypothermia

- Irritability

- Poor feeding

- Bradycardia (can be as, or more, dangerous than tachycardia).

For preschoolers, toddlers, and infants, they should not be undressed as they have a large body surface. For a neonate this is especially true as they cannot yet thermoregulate. Additional considerations for the pediatric patient include placing a hypotensive child at Level 1. This condition requires lifesaving intervention. For a prepubescent child hypotension is a marker of shock. Weights should be obtained for all pediatric patients, not an estimate. Also, the quality of respiration and chest and abdominal movements should be noted as vital signs, temperature and color are obtained. For a school aged child equipment sized for pediatric care should be used.

**Standardized Approaches**

For pediatric triage assessment a standardized approach using the following suggested efforts are highlighted.

- Quickly assess appearance, breathing, and circulation.
- Look at ABCDE (airway, breathing, circulation, disability, exposure-environment)

- Look at history
- Check vital signs
- Check for fever
- Check for pain
- Quickly assess appearance, breathing, and circulation

Before using the ABCDE approach, a triage clinician can first complete a quick assessment as with the Pediatric Assessment Triangle (PAT) approach. In this approach, visual and auditory cues are used as a first contact with a pediatric patient. This should be completed in under 60 seconds. A quick decision should be made about need for life support. Appearance, breathing, and circulation (ABC) should be considered. For appearance look at console ability, gaze, cry, tone, and inter-activeness. For breathing look at airway sounds, flaring, and retractions. For circulation look at pallor, mottling, and cyanosis.

By looking at appearance, breathing, and circulation a triage clinician can get a quick idea of the stability of the child. The triage clinician should consider the complaint also. The first decision is about the need for life support, and if the patient needs immediate treatment. If the patient can, proceed to the next step of ABCDE.

**ABCDE**

Complete the Airway, Breathing, Circulation, Disability, Exposure/Environmental Control (ABCDE) by considering the following steps:

1. Airway
2. Respiratory rate and quality
3. Heart rate
4. Skin temperature

5. Capillary refill time
6. Blood pressure as with a child with renal or cardiac disease
7. Disability or neurological status looking at appearance, consciousness, pupillary reaction

During the last step of exposure, the patient is undressed in order to evaluate for illness or injury. Treat a fever and other immediate needs.

**Patient History**

Use a consistent method to obtain a patient history. A mnemonic to use includes those listed here.

**SAMPLE**

**S** - signs and symptoms

**A** - allergies

**M** - medications

**P** - past medical problem

**L** - last food of liquid

**E** - events leading to injury or illness

**CIAMPEDS**

**C** - chief complaint

**I** - immunizations and isolation

**A** - allergies

**M** - medications

**P** - past health history

**E** - events preceding problem

**D** - diet and elimination

**S** - symptoms associated with the problem

Vital signs will need to be obtained. Measure oxygen saturation in infants and children with respiratory complaints or symptoms of respiratory distress. Use pulse oximetry values based on protocols of the institution, and use child size equipment for children as adjusting size equipment can result in errors in measurements

The ED clinician should follow guidelines such as those that come from the ACEP. Consider the child's age, and the immunizations completed. Guidelines include:

1. For children with fever (100.4°F or 38°C or greater) in the first 28 days of life, rate at ESI level 2 as they may have serious infections.
2. Consider assigning ESI level 2 for infants 1-3 months of age with fever, while taking into consideration practices of the organization.
3. Adjust fever considerations according to institutional practices for 1-3 month-olds.

Additional considerations include:

- Exposure to known significantly sick contacts, such as influenza and meningococcal meningitis, and the patient's immunization status.
- Immunization history at the time of triage.
- Possible referral to a posted copy of the Recommended Immunization Schedule for Persons Aged 0-6 Years at the time of triage.
- Consider at higher risk any febrile children over the age of 2 who has not completed their primary immunization series. With no obvious source of fever, a triage clinician should consider making these patients at least an ESI level 3.

**Pain in Children**

Severe pain/distress should be determined either by clinical observation or a patient rating of ≥7 on a 0-10 pain scale. A validated pediatric pain scale for pain assessment for children should be used. Additional considerations include:

- Consider an ESI level 2 for pediatric patients who meet the ≥7 criterion.
- Use clinical judgement in making a decision about assigning a level 2 rating. Consider a child who rates pain as 8 but is awake, alert, and smiling. Consider a child who is crying loudly but has a minor injury.
- Use the FLACC (Face, Legs, Activity, Consolability) score for infants and nonverbal children.
- Consider the FACES score for those who are not able to understand the 0-10 scale.

**Skin Conditions and Rashes**

Examples of ratings for pediatric patients can be found with triage clinicians reporting the challenge of assessing a skin condition or rash. In general, a high risk rash is meningococcemia whereas a low risk rash is contact dermatitis. Aspects to consider during triage include:[94]

- Obtaining a history.
- Obtaining a set of vital signs.
- Considering associated symptoms.
- Considering the overall appearance of the child.
- Undressing the child if needed to see the rash.
- Using a level 2 for vesicular rash in a neonate and petechial and purpuric rash in a child of any age.

- Using a level 1 for a child with petechial rash and with altered mental status as there is a risk of meningococcemia and possibly shock. Significant IV fluid resuscitation and antibiotics may be needed.

A vesicular rash is a blister that is on the skin. The rash is a result of a viral infection. It can appear on almost any area of the skin. It can appear on skin where mucus membranes are present. Examples of a vesicular rash are chicken pox and scabies.[95,96]

A petechial rash comes from the word petecia that means a purple or red spot on the skin. This spot is less than 3 mm. It is caused by a bleed from a blood vessel. There can be three types of bleed into the skin. They are defined by size. Purpura and ecchymosis are the other two sizes. They are larger than a petechial spot. The petechial rash remains red when applying pressure.[97]

A purpuric rash comes from the word purpura meaning a condition of purple or red spots on the skin. A purpuric spot measures 3 to 10 mm. It is caused by bleeding under the skin. It is one of three sizes of spots. Petechial is the smallest and ecchymosis is the largest. The purpuric rash remains red when applying pressure.[98,99]

A purpuric rash can be present with typhus and meningitis caused by meningococci. It can also be present with platelet disorders, vascular disorders, hypertensive states, coagulation disorders such as scurvy, and decomposition of blood vessels with acute radiation poisoning.[100] A petechial rash can be present when pressure is applied to tissue as with a tourniquet or coughing, a low platelet count, hypocalcemia, vasculitis (an inflammation of blood vessels), and infectious conditions such as dengue fever, ebola,

infectious mononucleosis, leukemia, meningococcemia, scarlet fever, typhus, and streptococcal pharyngitis.[101]

## Triaging Patients Under Age One

A factor to be considered for triage of a child under the age of 1 is that infants under the age of 1 can be the most challenging to triage in an emergency department. Additionally, infants lack verbal skills so it can be a challenge to assess serious illness. Parental concern should be taken seriously, including reports of fever, and abnormal behavior such as irritability.

The history of the child should be taken into consideration, as provided by parents. The state of the infant should be assessed before handling the infant. Equipment designed for infants should be used when taking vital signs when the infant is not a level 1 or 2.

When undressing an infant, the clinician should dress them again promptly. An infant can rapidly lose body heat in a cold environment. Guidelines on fever include:

- Neonate (<28 days of age) with a rectal temperature of 38C (100.4F) or greater are considered high risk for a serious bacterial infection. Triage at least at an ESI level 2.
- Consider infants with rectal temperatures of 38C or higher for the need of a full sepsis workup including blood, urine, and cerebrospinal fluid cultures and parenteral antibiotic administration.

## Assigning ESI Levels for Pediatric Patients

*ESI Level 1*

- Is the highest acuity patient in the emergency department.
- Patients are unstable.
- Do not consider resources needed for a level 1 patient.
- Patients require a physician and nurse at the bedside.
- Patients need lifesaving interventions.
- Patients cannot wait for treatment.

Research has shown *under*-triage for critically ill children occurs unless they are in cardiac arrest or intubated. A list of Level 1 conditions includes:

- Respiratory arrest
- Cardiopulmonary arrest
- Major head trauma with hypoventilation
- Active seizures
- Unresponsiveness
- Peticheal rash in a patient with altered mental status (regardless of vital signs)

Respiratory failure:

- Hypoventilation
- Cyanosis
- Decreased muscle tone
- Decreased mental status
- Bradycardia (late finding, concerning for impending cardiopulmonary arrest)

Shock/sepsis with signs of hypoperfusion:

- Tachycardia
- Tachypnea

Alteration in pulses: diminished or bounding:

- Alteration in capillary refill time >3-4 seconds
- Alteration in skin appearance: cool/mottled or flushed appearance
- Widened pulse pressure
- Hypotension (often a late finding in the prepubescent patient)

Anaphylactic reaction (onset in minutes to hours):

- Respiratory compromise (dyspnea, wheeze, stridor, hypoxemia)
- Reduced systolic blood pressure
- Hypoperfusion (for example, syncope, incontinence, hypotonia)
- Skin and/or mucosal involvement (hives, itch-flush, swollen lips, tongue or uvula)
- Persistent gastrointestinal symptoms

*ESI Level 2*

- Assign a level 2 based on the needs of the patient not on resources needed.
- Look at the history and assess based on symptoms of a high risk or potentially high risk situation.

Patient issues needing a level 2 rating include:

- History of fall or injury
- Joint pain or swelling
- Vital signs and/or mental status outside of baseline
- Hemophilia patients with possible acute bleeds

- Immunocompromised patients with fever

- Syncope

- Febrile infant <28 days of age with fever ≥38.0°C rectal

- Hypothermic infants <90 days of age with temperature <36.5°C rectal

- Suicidal

- Rule out meningitis (headache/stiff neck/fever/lethargy/irritability)

- Seizures—prolonged postictal period (altered level of consciousness)

- Moderate to severe croup

- Lower airway obstruction (moderate to severe)

- Bronchiolitis

- Reactive airway disease (asthma)

- Altered mental state

- Respiratory distress: Tachypnea, tachycardia and increased effort (nasal flaring, retractions)


**Resource Considerations for Levels 3, 4, and 5**

Resource considerations should be used in pediatric patients as with non-pediatric patients. Consideration to assign a level 3, 4, or 5 involves:

- Predicting resources for pediatric patients can be a challenge.
- Determining the need for two, one, or no resources can be difficult: Two resources are for level 3, one resource is for level 4, and no resources are for level 5.
- A condition can require different numbers of resources for pediatric patients than for adults.
- Research has shown underuse of level 5 for pediatric patients.

The level assigned to a pediatric patient can be different than for an adult. For example, consider lacerations and suturing. For an adult this is level 4. For a

pediatric patient, sedation could be included. Sedation is a level 3. Sedation would be appropriate for a child who is uncooperative or agitated with, for example, a school-aged child. With sedation, IV access would be needed for the administration of IV medications and monitoring. This means more than one resource. A list of conditions requiring use of sedation for a pediatric patient are highlighted here.

- Fracture repair
- Chest tube insertion
- Facial laceration
- intraoral lacerations
- Lacerations requiring a multilayered closure
- Extremely dirty wounds
- MRI procedure
- CT procedure
- Image guided procedure
- Joint aspiration with ultrasound
- Lacerations across the vermillion border

The vermillion border is the area between the lip and adjacent skin. It is a white roll formed at the border. It is the border of the red of the lip. It shows the change in the skin from keratinized skin to less keratinized skin. It has no facial hair.[102]

The acuity of the patient should be considered and not workload when making a level assignment. Some examples include:

Level 5 is for a child who needs a wound cleaned and a tetanus shot.
Level 4 is for a child with a sprained ankle who needs an X-Ray, wrap, and instructions on using crutches.

Level 3 if for a child who needs a complex laceration with suturing and sedation.

The ED workload is great for a shot, wrap, and instructions on using crutches but not considered resources. The ESI level assignment of 3, 4, and 5 looks at a definition or resources not ED workload. Some groups can use another tool to measure ED workload. What is not considered a resource and for a level 4 patient is:

- Poison ivy on extremities
- Medication refills
- Ear pain in healthy school-age children
- Contusions and abrasions
- Upper respiratory symptoms with normal vital signs
- 2-year-old with runny nose, mild cough and temp of 38°C (100.4°F).

**Trauma Considerations**

Challenges come with triage of a trauma patient. This is especially true if the patient has internal injuries with no visible signs of injury. Here are items to consider.

- Pediatric trauma patients could be a challenge to assess as they have mechanisms that product vital signs that look stable.
- An ED clinician must be proactive so the pediatric trauma patient does not deteriorate.
- Assess pediatric trauma patients not on how they arrive as via ambulance or use of c-collars or back boards, but according to the injury, signs, and symptoms.

- Assess as ESI level 2 any high risk patient unless Level 1 is appropriate for life saving interventions.
- Do not take vital signs and do not estimate resource for an ESI level 1 or 2.

**Examples of guidelines on pediatric descriptions and ESI levels:**

| Level | Patient Description | Resource |
|-------|---------------------|----------|
| 4 | 12 year old female cut her thumb washing dishes - laceration on right thumb VS BP110/70  HR 72  RR14 T98.0F | One resource - Needs suturing |
| 3 | 14 year old male, tackled playing football, deformity right lower leg, back board and c collar VS BP118/72  HR76  RR14 Pain6/10 | More than one – Needs X-Ray, labs, IV |
| 2 | 14 year old female, dove into pool, hit head awake, alert VS BP118/72 HR76  RR14 | No evaluation - High risk |
| 1 | 7 year old male, hit by car, somnolent, pale | No evaluation - Life-threatening |

## Comorbid Conditions and What to Consider

Examples of *under-triaged* and *over-triaged* cases of children with a comorbid condition include such issues as spina bifida, seizures, short gut, and metabolic syndromes. Here are items to consider.
A patient with a chronic condition could require extensive evaluation compared to a patient with the same symptoms and no chronic condition. A pediatric patient with a comorbid condition should not be automatically triaged

at a higher level. A good physical history from the caregiver should be obtained. In a situation such as child with a sprained ankle the child may not need to be at a higher acuity level.[103-105]

## Pediatric Psychiatry And ESI

The triage clinician must make a complex decision about the degree of risk and danger. Level 2 can be appropriate for a child who appears confused, disorganized disoriented, hallucinating, or delusional. Assigning a level can be a challenge for the pediatric patient. Level 2 can be appropriate for a pediatric patient at high risk and showing signs of violent or combative behavior, paranoia, hallucinations, delusions, suicidal/homicidal ideation, acute psychosis, anxiety, and agitation.

Some organizations use a mental health triage scale. Consider that an altered mental state can result from neurological complications or mental health. Level 2 can be appropriate for a child who appears to be in distress. The clinician should be alert for any behaviors that indicate the patient needs immediate treatment and is at high risk. The triage clinician should not limit distress to physical symptoms; also consider situational triggers.

Be aware of circumstances associated with a psychological event. Know the frequency, severity, type, and focus of the behavior. It can help to interview older children and adolescents alone. They could provide information about the following if parents are not present:
- Abusive relationships
- Risky behavior
- Drug or alcohol use

Resources can determine whether the patient will fall into ESI level 3, 4, or 5. Resources can be different for the pediatric mental health patient than for a pediatric medical patient. This can include things such as psychiatric and social work consults.

More considerations when determining triage ESI levels are highlighted here.

1. Concerning pediatric cases, know that temperature is an important assessment and could move a child to a more intensive level – from 4 to 3, for example
2. Level 3 patients cannot wait as long as level 4 and 5 patients
3. Level 3 patients could stay in an emergency department while level 4 and 5 patients could move to another facility such as an urgent care area – possibly having a shorter wait

Remember, the ESI level gives us a way to triage effectively patients who come to an emergency room while considering two factors: 1) Patient acuity, and 2) Resources needed.

The first factor of patient acuity puts a patient into a level 1 or 2. The second factor of resources needed is a consideration at level 3 as well as levels 4 and 5. Triage clinicians can effectively assess if a person needs two or more resources and place them at a level 3. If no resources are needed, the patient is level 5. If one resource is needed, the patient is at level 4. Level 3 and above includes patients with a lower acuity level.[90]

**Examples of Pediatric Psychiatric Patients**

| Patient Presentation | Resources | ESI | Rationale |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 17-year-old male, history of suicidality, found unresponsive. Empty bottles of liquor and unidentified pill bottles are next to his bed. | Lifesaving intervention. No need to assess resources. | 1 | Life-threatening situation—unresponsive. |
| 16-year-old male brought in by parents who report patient was out of control and threatening to kill the family. He is cooperative in triage and answers questions. calmly. | High-risk situation. No need to assess for resources. | 2 | High risk situation—danger to self and others. |
| 15-year-old female presents with boyfriend states, "*I think I'm pregnant. When I told my mom she threw me out of the house. I have no place to live.*"<br><br>VS: BP 126/85, HR 100, RR 16, T 98.7°F. | More than one resource. | 3 | Will require labs, and possibly more than one specialty consult. |
| 10-year-old female presents with mother who states that she received a call from her teacher because the child has been disrupting the class. Currently, the child is laughing and playing with her little sister.<br><br>VS: 98/72, HR 82, RR 22, T 98.2°F. | One resource. | 4 | Will require a specialty consult. |
| 13-year-old male is with mother. Mom states, "*I didn't realize he was out of his medications for his ADHD. I don't want him to miss a day.*" The patient is cooperative and pleasant.<br><br>VS: BP 108/72, HR 78, RR 14, T 98.6°F. | No resources. | 5 | Will require a prescription filled. |

## Quality And The ESI

Quality issues as they relate to the ESI assessment and implementation considers the goals and reliability of the ESI at an institution. Reviewers of quality issues are interested with looking at how the system is being used. They consider the following:

1. Staff can fall back on old triage habits.
2. Staff can become concerned about an issue such as too many level 2 patients and a crowded waiting room.
3. Anyone who plays a role in triage assessment must be competent in the ESI.
4. Continuous evaluation can help make sure validity and reliability of the system is maintained.

The Institute of Medicine published a report *Crossing the Quality Chasm, A New Health System for the 21st Century*. This report defined quality healthcare and identified six aims to improve the overall quality of healthcare. The IOM defined quality healthcare as *The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.* The six aims of quality for the health care system included:

- Safety
- Effectiveness
- Patient centeredness
- Timeliness
- Efficiency
- Equity

Attention to quality monitoring in the area of triage is important. Consider here the aims and the triage process, including information about the six aims.

| IOM Aim | Definition |
|---|---|
| Safety | Avoiding injuries from care that is intended to help |
| Effectiveness | Providing services based on evidence and avoiding interventions not likely to benefit |
| Patient-Centeredness | Respectful to patient preferences, needs, values, in clinical decision making |
| Timeliness | Reducing waits and sometimes harmful delays for those who receive care |
| Efficiency | Avoiding waste, in particular of equipment, supplies, ideas, energy |
| Equity | Care that does not vary in quality due to personal characteristics (gender, ethnicity, geographic location, or socio-economic status) |

Before looking at a system to assess improvement, reasons for changing a triage process should be considered. Some of the reasons include:

- Reduce the variation in triage categories
- Have everyone follow the same triage guidelines
- Decrease negative outcomes because of mis-triage and patients waiting
- Obtain more accurate data for administrative purposes
- Move from 3 categories to 5 categories to better sort patients
- Get a more accurate description of patient triage levels

The goal of using ESI levels is to capture patient acuity accurately. It is also to optimize patient safety in the waiting room. Only patients stable enough must wait.

Triage should depend on the acuteness of the illness. With a valid and reliable triage system, the triage level can be used for administrative data as well. Every patient should get a triage level assignment in the emergency department. Some considerations include conducting quality implementation activity to maintain reliability and validity. Triage clinicians must assign scores accurately or data is not valuable for any purpose.

With new clinicians it is important to monitor the accuracy of triage levels. Staff in the emergency department should understand what the goal of ESI triage is not. For example, triage cannot decrease the length of stay or improve customer satisfaction in the emergency department.

**Quality Indicators for ESI Triage**

To get an idea of what indicators to use, the examples provided here will help to elucidate. The six aims defined by the IOM can be used.

*Definition and Examples*

- Structure - How care is organized (standing protocols which allow clinicians to give acetaminophen for fever at triage)

- Process - What is done by caregivers (proportion of patients with fever at triage who receive acetaminophen at triage)

- Outcome - Results achieved (fever reduction within one hour after arrival)

When selecting quality indicators, actual numbers should not influence resources used. That is not an appropriate quality indicator for monitoring.

A realistic threshold for each indicator should be selected. For example, when considering triage categories, a goal could be to select the right category 80, 90, or 100 percent of the time. This can vary from indicator to indicator. It can also vary depending on the protocols and practices of an organization.

Clinicians should determine how many indicators will be monitored. One or more indicators can be selected on an ongoing basis. The clinician can pick these based on staff resources and what indicator they routinely monitor. Also, clinicians can monitor one aspect for a period of time, and then monitor another aspect. Other considerations include:

- The clinician should likely monitor accuracy of triage to evaluate new clinicians and the need for reeducation of the rest of the staff.
- The clinician can report data on the proportion of correctly assigned triage levels.
- The clinician can evaluate how many clinicians would give the same level to a case.
- Turnover in a department should be considered and how often education is needed due to turnover.

**Collecting ESI Triage Data**

Triage clinicians can incorporate their method of collecting quality indicator data into the data collection process for other quality indicators in the emergency department. Or they can collect the data separately. This will depend on the indicator selected, availability of staff, and issues such as access to paper and electronic records. Factors to consider include:
- An important indicator is accuracy of a triage category.
- Monitor accuracy of triage when you first implement ESI.

- To monitor length of stay in an emergency department access to electronic information is preferred.
- To monitor wait time to see a physician access to electronic information is preferred.
- Manual calculation of some values can result in error so electronic sources can be preferred.
- Monitor medians instead of means when evaluating a time measurement such a time to get a physician's assessment
- When calculating means values can be skewed and not accurate.
- ESI does not indicate times to care.

When monitoring quality indicators, the number of charts to review for each indicator should be monitored. Also determine how frequently the indicator will be reviewed – monthly or quarterly are two examples. The number of charts for each indicator need to be selected. Additional factors to consider are listed here.

- Evaluation of accuracy of ESI should reflect randomly selected charts.
- Pick cases from different clinicians, shifts, and days of the week.
- Ten percent of all cases can be selected as appropriate.
- Look at availability of staff and their backgrounds.
- Consider evaluating a case with a near miss or adverse event related to triage.
- Consider other quality indicator activities and determine the frequency of triage audits, trying to integrate review of triage indicators into the schedule and process.
- Involve triage clinicians in data collection and include peer reviews as they can raise awareness of triage accuracy.

## Making Improvements and Sharing Data

Over 90 percent of time in quality indicator and process improvement is typically spent on monitoring. Evaluation of data and process improvement can get little attention. Results can be posted with little follow up.

An important part of quality programs is follow up, discussion of data, and discussion of improvement. A best practice is to measure, analyze, and educate staff. All staff should know what are the quality indicators, goals, and current progress toward achieving the goals. For example, if triage clinicians are monitoring accuracy of triage categories and are at 50 percent their goal could be 80 percent so they are not at their goal.

## Collecting ESI Triage Examples

Examples of emergency departments implementing ESI and QI programs are provided here. These are examples of how to incorporate triage indicators into a Quality Indicator plan.

*Hospital 1*

A site assessed the accuracy of ESI triage ratings on a continuous basis. The site reported quarterly as an indicator of the overall plan. This is the only indicator the site monitors. Each week three different clinicians looked at five randomly selected charts. The clinicians and a specialist looked at various indicator including accuracy of ESI level. The specialist discusses each case with the staff clinician. When there is disagreement, an incorrect triage is reported. The teams collect all incorrect triages and use this for education on what is a correct triage level. A handout goes to all staff nurses monthly. The handout reviews all cases complied. Sixty charts are included monthly.

Advantages of the process used by hospital 1 included:

- All staff clinicians in the emergency department are aware of the indicators.
- Clinicians can evaluate their own practices, can discuss cases with the specialist, and can benefit from discussion as a teaching tool.

Hospital 1 has excellent IT resources. These resources facilitate monitoring of data. Triage acuity is part of the electronic medical record. This allows tracking time to physician evaluation for each triage category. This can be important data, and more important than admission data.

*Hospital 2*

This second site reviews several triage indicators regularly. The site records the ESI rating assigned by the clinician. The site also records the time data is recorded. This information appears in monthly monitor compilations. Time data includes the following.

- Total ED length of stay
- Time from triage to placement in a bed
- Time from triage to being seen by a physician
- Time from placement in a bed to discharge

The site uses this time data for various purposes. These include monitoring for problems that can make for an increased length of stay. Here are more factors to consider.
- Time data is useful to address issues with patient populations.
- Time data was tracked for psychiatric patients. A new policy was developed based on this data. The policy indicates response time for a

team to see psychiatry patients in the emergency department. These are based on ESI level.

- On a monthly basis the site reports data about number of patients triaged to various area. This includes medical urgent care, pediatrics, acute, and minor trauma. The site uses this data to make operational decision such as time of day to offer medical urgent care and minor trauma services.
- The quality program reviews ESI ratings of accuracy of triage clinicians. This initial review was done the first few months after ESI implementation.
- The clinical educator reviews a random sample of charts regularly. The educators assess accuracy of ESI ratings.
- Individual feedback and trends are reported to the entire clinical staff.

At this site accuracy of triage rating is also reviewed through a peer chart review process taking place monthly.

- A clinician selected two random charts per month from the emergency department. The clinician reviews aspects of the document including ESI ratings
- The nurse forwards the review to leadership for following up with individual nurses.
- The entire staff gets information about any identified trends.

This site also reviews all level 3 patients triaged to a medical urgent care/fast track area.

- The manager gets a monthly report. It is compiled with data from the computer system of the hospital. It includes level 3 patients triaged to medical urgent care and all ESI level-4 and level-5 patients triaged to the emergency department.

- The department guidelines states that level 4 and 5 patients are triaged primarily to medical urgent care or minor trauma. Levels 1, 2, and 3 adult patients are triaged primarily to the acute emergency department. The triage clinician has discretion in triaging these patients.
- Ongoing review of level 3 patients sent to medical urgent care lets leadership review accuracy of the decisions of clinician's triage.

## Hospital 3

At this site the manager has experts review triage categories.

- Coordinators and the manager review charts identified by peers as possible incorrect triages.
- An expert group reviews the chart. They discuss it with the triage clinician. They spot check charts frequently.
- If the group notices a trend, the expert group posts the case for educational purposes.

## Hospital 4

At this site a manager created a log after the ESI system was initiated.

- A clinician logged patient name, nurse name, triage level, rationale, and resource for each patient.
- Management reviewed each chart for accuracy of the triage level.
- Management did this for the first two weeks. They did it again in three months.
- The purpose of monitoring was to assess the understanding of triage clinicians and their understanding of resource definitions.

*Hospital 5*

This site has a strategic plan to increase the number of trauma and stroke patients they accept from other hospitals.

- Most patients were transfers from emergency department to emergency department.
- Many patients arrive intubated or are intubated at arrival.
- Staff felt acuity of the patient population in the emergency department was quickly rising.
- Leadership look at the number of patients in each ESI category for one year and make adjustments to staffing to cover increases in acuity.
- This is a good example of why each patient gets an accurate triage category. This includes trauma and cardiac arrest patients.
- With accurate data each hospital can compare their patient mix with other hospitals.

Leadership in emergency departments should implement a quality plan.

- The plan should generate meaningful data.
- Data should be shared with emergency department staff regularly.
- Education should be provided promptly to address issues with individual triage clinicians.
- Trends should be identified quickly. Issues should be communicated with senior leadership to plan for change.

A good practice is for ESI research teams working on quality assurance to keep data meaningful, relevant, and simple.[106]

## Summary

The reason triage exists in an emergency room is to prioritize treatments for patients. It is also to determine who cannot wait to be treated. It is important for clinicians to know the difference between a time sensitive issue to treat a patient and what can wait. The triage clinician performs an assessment that is brief and focused. The patient is assigned an acuity level based on the needs of the patient for care, and a determination is made for how long a patient can safely wait before receiving an examination for screening and treatment.

For all emergency department visits in the United States, less than a quarter of these patients are seen within 15 minutes. A majority of patients wait over 15 minutes in a waiting room. In the report *The Future of Emergency Care in the United States*, the Institute of Medicine (IOM) described a situation of crowding in emergency rooms. And it was getting worse. More patients were waiting longer in a waiting room. Plus, in the IOM report it was revealed how the acuity level assessment was becoming increasingly important. The assessment must be accurate or a patient could deteriorate while waiting and be at greater risk. Another concern related to scarce resources is the limited availability of open beds in emergency rooms: Patients requiring immediate care may not get a bed quickly.

Triaging quickly and effectively is a way to avoid unsafe waits and to address needed resources. Triaging patients is intended to make operations in the ED more successful. Effective triage would also help to collect data about emergency room use. Clinicians and ED managers are better able to determine which patients are seen, who are the sickest, and how an emergency room can deal with overcrowding. Developing a standard for acuity during triage in an emergency department would support emergency room surveillance, clinical care, research activities, and benchmarking. While

varying practices exist in various emergency departments, the triage rating may stay the same.

Assessing a pediatric patient can be a challenge for both an experienced and novice triage clinician. Guidelines are helpful. The triage clinician must remember to factor in developmental differences between pediatric and adult patients. The ESI algorithm should be applied on patients of all ages, while keeping in mind differences in the physiological and anatomical qualities of the pediatric patient. The triage clinician should be experienced in caring for young patients, and use a standardized approach, to the extent possible, to determine a high risk.

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**Completing the study questions is optional and is NOT a course requirement.**

1. **Which of the following rates as a Level 3 on the Emergency Severity Index (ESI)?**

    a. Immediate, life-saving intervention required without delay
    b. Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imaging)
    c. Stable, with only one type of resource anticipated (such as only an X-ray, or only sutures)
    d. Stable, with no resources anticipated except oral or topical medications, or prescriptions

2. **True or False: The triage clinician should separate simple problems from those that are more complex and requiring two or more resources.**

    a. True
    b. False

3. **The reason for triage in an emergency room is**

    a. to prioritize treatments for the patient.
    b. to determine who cannot wait for treatment.
    c. to determine the outcome if treatment is delayed.
    d. All of the above

4. **A vesicular rash is a blister that is on the skin that**

    a. appears on skin where mucus membranes are absent.
    b. is result of a viral infection.
    c. appears only on the torso.
    d. All of the above

5. **A _____ rash is a purple or red spot on the skin that is less than 3 mm.**

    a. purpura
    b. vesicular
    c. petechial
    d. ecchymosis

**6. The term "resources" as used in the emergency room includes**

    a. applying splints or slings.
    b. prescription refills.
    c. basic wound care dressings.
    d. diagnostic tests.

**7. The vermillion border is the area between _____ and adjacent skin.**

    a. the lip
    b. the fingernails
    c. the follicles
    d. muscle

**8. True or False: Level 2 can be appropriate for a child who appears confused, disorganized disoriented, hallucinating, or delusional. Assigning a level can be a challenge for the pediatric patient.**

    a. True
    b. False

**9. The goal of using ESI levels is to capture patient acuity accurately and**

    a. to decrease the length of stay in the emergency department.
    b. to make sure only patients stable enough must wait.
    c. to improve customer satisfaction in the emergency department.
    d. All of the above

**10. Two or more "resources" are needed for a _____ designation.**

    a. Level 2
    b. Level 4
    c. Level 5
    d. Level 3

**11. Which of the following is NOT an emergency room resource?**

    a. Simple procedure = 1 (Foley catheter)
    b. Simple procedure = 1 (laceration repair)
    c. Point-of-care testing
    d. Specialty consultation

12. **True or False: If an emergency room patient needs blood and urine tests, these tests are two resources.**

    a. True
    b. False

13. **The triage rating from one emergency department (ED) to another**

    a. requires identical practices and procedures.
    b. differ if a patient is sent out of the ED for a test.
    c. may stay the same even though ED practices may vary.
    d. will vary because practices are different.

14. **For all emergency department visits in the United States, what percentage of patients are seen within 15 minutes?**

    a. Just under half
    b. About 75%
    c. Over half
    d. Less than 25%

15. **The Emergency Severity Index (ESI) algorithm**

    a. should be applied on patients of all ages.
    b. should never be standardized.
    c. must be developed separately, based on the age of the patient.
    d. Answers b., and c., are correct

16. **An infant with a rectal temperature of 38˚C or higher should be considered for a full sepsis workup including blood, urine, and cerebrospinal fluid cultures**

    a. and are an ESI level 1 in all cases.
    b. but antibiotic administration is not indicated.
    c. and parenteral antibiotic administration.
    d. should be triaged at least at an ESI level 3.

17. **True or False: If an emergency room patient needs blood testing and an X-Ray, these tests constitute two resources.**

    a. True
    b. False

18. **Level 2 can be appropriate for a pediatric patient at high risk and showing signs of**

    a. violent or combative behavior.
    b. paranoia.
    c. acute psychosis.
    d. All of the above

19. **When triaging a pediatric patient with a comorbidity, emergency department staff**

    a. should automatically triage at a higher level.
    b. should be triaged primarily based on the comorbidity.
    c. should be triaged at a higher acuity level if the child has seizures.
    d. should not be automatically triaged at a higher level.

20. **The triage clinician should**

    a. not consider situational triggers.
    b. focus exclusively on physical symptoms.
    c. be aware of circumstances associated with psychological events.
    d. never interview adolescents alone.

21. **True or False: Some organizations use a mental health triage scale.**

    a. True
    b. False

22. **Which of the following statements is true with respect to the use of an ESI triage system by emergency departments (EDs)?**

    a. all institutions use a five level ESI triage system.
    b. the number of EDs using a three level triage system is growing.
    c. EDs are required to use a five level ESI triage system.
    d. more EDs use a five level ESI triage system.

**23. A neonate (<28 days of age) with a rectal temperature of 38˚C (100.4˚F) or greater are considered high risk for a serious bacterial infection**

    a. are an ESI level 1 in all cases.
    b. should be triaged at least at an ESI level 2.
    c. are an ESI level 4 in all cases.
    d. should be triaged at least at an ESI level 3.

**24. True or False: Research shows that *under*-triage for critically ill children occurs unless they are in cardiac arrest or intubated.**

    a. True
    b. False

**25. Which of the flowing is an ESI Level 2 for a pediatric patient?**

    a. Unresponsiveness
    b. Cardiopulmonary arrest
    c. Immunocompromised patient with fever
    d. Hypoventilation

**CORRECT ANSWERS:**

**1. Which of the following rates as a Level 3 on the Emergency Severity Index (ESI)?**

    b. Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imaging)

    "*Level 3: Urgent - Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imaging)*"

**2. True or False: The triage clinician should separate simple problems from those that are more complex and requiring two or more resources.**

    a. True

    "*The triage clinician should separate simple problems from those that are more complex and requiring two or more resources.*"

**3. The reason for triage in an emergency room is**

    a. to prioritize treatments for the patient.
    b. to determine who cannot wait for treatment.
    c. to determine the outcome if treatment is delayed.
    d. All of the above *[correct answer]*

    "*The reason triage exists in an emergency room is to prioritize treatments for patients. It is also to determine who cannot wait to be treated. It is important for clinicians to know the difference between a time sensitive issue to treat a patient and what can wait.*"

**4. A vesicular rash is a blister that is on the skin that**

    b. is result of a viral infection.

    "*A vesicular rash is a blister that is on the skin. The rash is a result of a viral infection. It can appear on almost any area of the skin on a human body. It can appear on skin where mucus membranes are present. Examples of a vesicular rash are chicken pox and scabies.*"

**5. A _____ rash is a purple or red spot on the skin that is less than 3 mm.**

    c. petechial

    *"A petechial rash comes from the word petecia that means a purple or red spot on the skin. This spot is less than 3 mm. It is caused by a bleed from a blood vessel. There can be three types of bleed into the skin. We define them by size. Purpura and ecchymosis are the other two sizes. They are larger than a petechial spot. The petechial rash remains red when applying pressure."*

**6. The term "resources" as used in the emergency room includes**

    d. diagnostic tests.

    *"These resources include therapeutic treatment, procedures, and diagnostic tests. Not resources: Splints, slings; Prescription refills; Simple wound care dressings."*

**7. The vermillion border is the area between _____ and adjacent skin.**

    a. the lip

    *"The vermillion border is the area between the lip and adjacent skin. It is a white roll formed at the border. It is the border of the red of the lip. It shows the change in the skin from keratinized skin to less keratinized skin. It has no facial hair."*

**8. True or False: Level 2 can be appropriate for a child who appears confused, disorganized disoriented, hallucinating, or delusional. Assigning a level can be a challenge for the pediatric patient.**

    a. True

    *"Level 2 can be appropriate for a child who appears confused, disorganized disoriented, hallucinating, or delusional. Assigning a level can be a challenge for the pediatric patient."*

**9. The goal of using ESI levels is to capture patient acuity accurately and**

> b. to make sure only patients stable enough must wait.

> "*The goal of using ESI levels is to capture patient acuity accurately. It is also to optimize patient safety in the waiting room. Make sure only patients stable enough must wait.... For example, triage cannot decrease the length of stay or improve customer satisfaction in the emergency department.*"

**10. Two or more "resources" are needed for a _____ designation.**

> d. Level 3

> "*As a reference point, two or more resources are needed for a Level 3 designation. For a Level 4 designation one resource is needed, and no resources are needed for Level 5.*"

**11. Which of the following is NOT an emergency room resource?**

> c. Point-of-care testing

> "*Resources: Specialty consultation Simple procedure = 1 (Foley catheter) Simple procedure = 1 (laceration repair). Not resources: Point-of-care testing.*"

**12. True or False: If an emergency room patient needs blood and urine tests, these tests are two resources.**

> b. False

> "*... if a person needs blood and urine tests that is one resource.*"

**13. The triage rating from one emergency department (ED) to another**

> c. may stay the same even though ED practices may vary.

> "*While varying practices exist in various emergency departments, the triage rating may stay the same. For example, some emergency departments send patients to a laboratory for a pregnancy test while other emergency departments do the test within the department.*

*Such patients will probably need two or more resources plus the pregnancy test, so placing them at a level needing two or more resources would be customary in each group."*

### 14. For all emergency department visits in the United States, what percentage of patients are seen within 15 minutes?

d. Less than 25%

"*For all emergency department visits in the United States, less than a quarter of these patients are seen within 15 minutes."*

### 15. The Emergency Severity Index (ESI) algorithm

a. should be applied on patients of all ages.

"*Assessing a pediatric patient can be a challenge for both an experienced and novice triage clinician. Guidelines are helpful. The triage clinician must remember to factor in developmental differences between pediatric and adult patients. The ESI algorithm should be applied on patients of all ages, while keeping in mind differences in the physiological and anatomical qualities of the pediatric patient. The triage clinician should be experienced in caring for young patients, and use a standardized approach, to the extent possible, to determine a high risk."*

### 16. An infant with a rectal temperature of 38˚C or higher should be considered for a full sepsis workup including blood, urine, and cerebrospinal fluid cultures

c. and parenteral antibiotic administration.

"*Consider infants with rectal temperatures of 38C or higher for the need of a full sepsis workup including blood, urine, and cerebrospinal fluid cultures and parenteral antibiotic administration."*

### 17. True or False: If an emergency room patient needs blood testing and an X-Ray, these tests constitute two resources.

a. True

"*... if a person needs blood testing and an X-Ray that constitutes two resources a triage clinician would assign."*

18. **Level 2 can be appropriate for a pediatric patient at high risk and showing signs of**

   a. violent or combative behavior.
   b. paranoia.
   c. acute psychosis.
   d. All of the above *[correct answer]*

   "*Level 2 can be appropriate for a pediatric patient at high risk and showing signs of violent or combative behavior, paranoia, hallucinations, delusions, suicidal/homicidal ideation, acute psychosis, anxiety, and agitation.*"

19. **When triaging a pediatric patient with a comorbidity, emergency department staff**

   d. should not be automatically triaged at a higher level.

   "*A patient with a chronic condition could require extensive evaluation compared to a patient with the same symptoms and no chronic condition. Do not automatically triage at a higher level a pediatric patient with a comorbid condition. Get a good history from the caregiver, getting information, for example, about seizures. In a situation such as child with a sprained ankle the child may not need to be at a higher acuity level.*"

20. **The triage clinician should**

   c. be aware of circumstances associated with psychological events.

   "*The triage clinician should not limit distress to physical symptoms; also consider situational triggers. Be aware of circumstances associated with a psychological event. Know the frequency, severity, type, and focus of the behavior. It can help to interview older children and adolescents alone. They could provide information about the following if parents are not present: Abusive relationships; Risky behavior; Drug or alcohol use.*"

21. **True or False: Some organizations use a mental health triage scale.**

   a. True

   "*Some organizations use a mental health triage scale.*"

**22. Which of the following statements is true with respect to the use of an ESI triage system by emergency departments (EDs)?**

d. more EDs use a five level ESI triage system.

"*Currently, more emergency departments use a five level ESI triage system, and fewer emergency departments use the three level triage system. Some emergency rooms use other systems for triage including: Five level ESI, Three level, Four level, Five level (not ESI), Two level, Other, No triage.*"

**23. A neonate (<28 days of age) with a rectal temperature of 38˚C (100.4˚F) or greater are considered high risk for a serious bacterial infection**

b. should be triaged at least at an ESI level 2.

"*Neonate (<28 days of age) with a rectal temperature of 38C (100.4F) or greater are considered high risk for a serious bacterial infection. Triage at least at an ESI level 2.*"

**24. True or False: Research shows that *under*-triage for critically ill children occurs unless they are in cardiac arrest or intubated.**

a. True

"*Research has shown under-triage for critically ill children occurs unless they are in cardiac arrest or intubated.*"

**25. Which of the flowing is an ESI Level 2 for a pediatric patient?**

c. Immunocompromised patient with fever

"*Assigning ESI Levels for Pediatric Patients:  A list of Level 1 conditions includes: ... Cardiopulmonary arrest ... Unresponsiveness ... Hypoventilation.... Patient issues needing a level 2 rating include: ... Immunocompromised patients with fever.*"

# Reference Section

The reference section of in-text citations includes published works intended as helpful material for further reading. [These references are for a multi-part series on the Emergency Severity Index (ESI) and triage of patients arriving at an emergency department].

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