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TRIAGE PROCEDURE IN EARLY HOSPITAL MANAGEMENT OF PATIENTS IN EMERGENCY CENTRES

Background

Triage (from the French word “trier”, means: “to sort“). is the process of sorting patients into different priorities based upon their degree of illness or injury. Triage Scales are the scientifically developed tools. Triage of patients at the point of entry into the Emergency Centre (EC) allows early identification of the sickest patients. During the implementation of triage scales, the following advantages have repeatedly been observed:

- Expedites the delivery of time-critical treatment for life-threatening conditions.
- Ensures that all patients are appropriately categorised
- Improves patient flow, and decreases overcrowding within the EC
- Improves patient and health provider satisfaction
- Decreases overall length of stay
- Decreases waiting times

The triage nurse applying triage scales must address the question: *This patient can wait for medical assessment and treatment no longer than minutes. (1)*

An Emergency Centre (EC), (Trauma Units or Medical Emergency Unit) is any centre seeing emergency cases-however, reflected in the year-by-year increases in patient numbers, emergency departments are increasingly being selected as the route of primary access to the healthcare system

Emergency cases are those patients who present to the emergency centre seeking non-scheduled care.

The following priority groups and target times to treat are assigned by the triage scales:

| | |
|--------|-------------------|
| Red | Immediate |
| Orange | Within 10 minutes |
| Yellow | Within 60 minutes |

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Green Within 240 minutes (4 hours)

Blue Deceased (two hours)

Every emergency center (unit) has to detail the procedure to be followed in triage of emergency cases in each.

The procedure for use of any triage scale has to be detailed in three parts: triage requirements, the stepwise use of a scale and how triage fits into the patient journey.

Success of triage depends upon:

- All patients are to be triaged as soon as possible after arrival at a facility
- A dedicated triage staff is required at all times

Only experienced professionals and EM doctors may have the discretion inherent in the triage scale using in the EC/EU.

A dedicated triage area is required. Such an area requires to be well signed, secure (in easy view of security staff), large enough to accommodate the triage staff and a patient.

The triage area is to contain triage paperwork and all other equipment necessary for vital signs measurement.

Different triage systems are used in emergency centres/units around the world to assess the severity of incoming patients' conditions and assign treatment priorities. Few five-level triage instruments are identified: the Australasian Triage Scale (ATS), the Canadian Triage and Acuity Scale (CTAS), the Manchester Triage System (MTS), and the Emergency Severity Index (ESI), the Cape Triage Scale, etc.(2)

The stepwise use of the triage scores

Adults and all children aged 13 years or older (or taller than 150 cm) are to be triaged using the adult score chart. All children are to be triaged using the paediatric chart. Older children aged between 3 and 12 years (or 96-150 cm tall) are to be triaged with the triage scores for adults, while children under 3 years of age (or smaller than 96 cm) are to be triaged with the score for a younger child.

The procedure:

- Measure the vital signs and document the findings:
- Calculate the total using score and document the finding using the age appropriate chart.
- Match the score to the discriminator list and assign the patient to the higher triage category.
- Check the triage additional investigations for further investigations that may assign the patient to a higher triage priority level.
- Document the final triage category.

Registration of vital signs alone is not suitable for identification of critically ill patients in the emergency department. Therefore various systems are used internationally to determine initial treatment priorities. Five-level instruments are significantly correlated with resource utilization, rates of admission for inpatient treatment, duration of emergency treatment, and frequency of admissions, transfer to intensive care units, or mortality.(3)

Five-level triage instruments: the Australasian Triage Scale (ATS), the Canadian Triage and Acuity Scale (CTAS), the Manchester Triage System (MTS), and the Emergency Severity Index (ESI), the Cape Triage Scale, etc.

- RED patients are to be taken to the resuscitation room without delay and handed over for emergency management
- ORANGE patients are to be taken to the majors area and handed over for very urgent management
- YELLOW patients are to be handed over for urgent management.
- GREEN patients may be referred for streaming (if this is in place at the EC) or instructed to wait in the waiting room to be seen for routine management.
- BLUE patients are to be refer to doctor for certification(4.7)

All patients are to be triaged!

Post Triage Care

The duty nurse in charge of the EC must ensure continuous reassessment of those patients who remain waiting and, if the clinical features change, re-triage the patient accordingly.

Quality Assurance

Benchmarks for ECs of similar role delineation will allow comparison between these units. Such benchmarks will include (but are not limited to): patterns of triage category distribution; mortality by triage category; ICU admission by triage category (for Central ECs) or referral rates (for other ECs), and waiting times by triage category.(4,5)

Responsibilities

Each facility head (manager) has to assign a task team to be responsible for the implementation and functioning of triage. This team should consist of at least one doctor and two nurses.

The facility head (manager) is responsible for developing a triage programme and provide the training.(6)

The leading scores, used for five-level triage instruments are the MEWS (Medical Early Warning System) and The Triage Early Warning System (TEWS- a physiological score based on the MEWS)(7).

Parameters from MEWS

1. respiratory rate
2. heart rate
3. systolic blood pressure
4. temperature
5. consciousness as AVPU = alert, verbal, pain, unconsciousness

Additional Parameters for TEWS

1. mobility
2. trauma

| Parameter | Finding | Points |
|-------------------------|--------------------------|--------|
| respiratory rate | <9 breaths per minute | 2 |
| | 9–14 breaths per minute | 0 |
| | 15–20 breaths per minute | 1 |
| | 21–29 breaths per minute | 2 |
| | ≥ 30 breaths per minute | 3 |
| heart rate | <41 beats per minute | 2 |
| | 41–50 beats per minute | 1 |
| | 51–100 beats per minute | 0 |
| | 101–110 beats per minute | 1 |
| | 111–129 beats per minute | 2 |
| | ≥ 130 beats per minute | 3 |
| systolic blood pressure | <71 mm Hg | 3 |
| | 71–80 mm Hg | 2 |
| | 81–100 mm Hg | 1 |
| | 101–199 mm Hg | 0 |
| | ≥ 200 mm Hg | 2 |

| Parameter | Finding | Points |
|---------------|------------------------------|--------|
| temperature | <35°C | 2 |
| | 35–38.4°C | 0 |
| | ≥ 38.5°C | 2 |
| consciousness | alert | 0 |
| | responds to voice | 1 |
| | responds to pain | 2 |
| | unresponsive | 3 |
| mobility | walking | 0 |
| | with help | 1 |
| | immobile, requires stretcher | 2 |
| trauma | absent | 0 |
| | present | 1 |

- Trauma refers to severe trauma.
- A patient who has decreased consciousness should be listed as immobile on the mobility scale.

Interpretation

- minimum score: 0
- maximum score: 17
- The higher the score, the more serious the patient's condition.

References

1. Fernandes CM, Tanabe P, Gilboy N, et al. Five-level triage: a report from the ACEP/ENA Five-level Triage Task Force. *J Emerg Nurs.* 2005; 31: 39–50.
2. Gilboy N, Tanabe P, Travers D, Rosenau AM, Eitel DR. MD: Agency for Healthcare Research and Quality. 05-0046-2 ed. Rockville: AHRQ Publication No; 2005. *Emergency Severity Index, Version 4. Implementation Handbook.*
3. Twomey M, Wallis LA, Myers JE. Limitations in validating emergency department triage scales. *Emerg Med J.* 2007; 24: 477–479.
4. Christ M, Grossman F, Winter D, Platz E. Modern Triage in the Emergency Department. *Dtsch Arztebl Int.* 2010 Dec; 107(50): 892–898.

5. Wallis LA, Gottschalk SB, et al (Cape Triage Group). The Cape Triage Score – a triage system for South Africa. SAMJ. 2006; 96: 53–56.
6. Bruijns SR, Wallis LA, Burch VC. Effect of introduction of nurse triage on waiting times in a South African emergency department. Emerg Med J 2008; 25: 395–397.
7. Twomey M, Wallis LA, Thompson ML, Myers JE. The South African Triage Scale (adult version) provides valid acuity ratings when used by doctors and enrolled nursing assistants. African J Emerg Med 2012; 2: 3–12.