

Triage is easy, said no triage nurse ever

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Triage is not a new concept. The historic principle of triage is associated with the French physician, Baron Dominique Jean Larrey, who served as Napoleon’s Chief Surgeon after joining the Army of the Rhine in 1792. Larrey prioritised the medical needs of military casualties by using his own conceptual sorting system. This sorting system was described in his report during the Russian campaign: “Those who are dangerously wounded must be attended to first, entirely without regard to rank or distinction. Those less severely injured must wait until the gravely wounded have been operated on and dressed. The slightly wounded may go to the hospital line; especially officers, since they have horses and therefore have transport.” [1, p.27]. The object of triage at the time was firstly to conserve manpower, and secondly, to conserve the interest of the sick and wounded [2]. The 21st century definition of triage has not changed much since, however, the process has been redefined from the battlefield into modern emergency departments.

There are various definitions of triage presented throughout modern literature, mostly dependant on where triage is applied and what outcomes are expected. In essence, sorting is based around the severity of patients’ illness or injury, also called acuity. Triage can thus be interpreted as the identification of acuity through clinical assessment; classification of acuity from injury or illness; and the prioritisation of acuity, based on appropriate treatment and medical care required.

During the late 1970s and early 1980s emergency departments began to develop and implement their own triage systems dependent on each department’s required outcomes [3]. Contextually-based aims and expectations were constructed to improve patient flow and safety through the use of innovative triage coding systems, such as numbers, colours, ribbons, balloons or the alphabet, to indicate patient priority. In the early days of triage, this task fell on acute care personnel with varying degrees of experience and education. The United States of America was the first to assign the responsibility of triaging to dedicated nurses, eventually formalising emergency triage as a sub-speciality of emergency nursing. This trend was soon followed in Australia, Canada and the United Kingdom.

Existing triage systems today are based on consensus opinions from expert groups in the field of clinical emergency medicine. These expert groups design decision trees (or algorithms) in support of clinical risk assessments and predictions based on researched evidence used to define acuity. These measures are commonly scaled on three, four or five classification levels, which are based on the triage systems’ outcome requirements. Modern emergency department triage was first designed  and is the most prominent  in high-income countries like: the United States of America (Emergency Severity Index, ESI) [4], Australia (Australasian Triage Scale, ATS) [5], Canada (Canadian Triage and Acuity Scale, CTAS) [6], and the United Kingdom (Manchester Triage System, MTS) [7]. Since then, different triage systems (and variations thereof) have developed throughout the world to meet the needs of each settings specific environment and patient population; in other words, factors that influence triage system development came from both the healthcare provider’s and service user’s perspectives.

Resource availability within emergency settings and emergency nurse capabilities are the main factors that affect a triage system’s interface. It would, however, be ignorant to assume that all settings and patient populations would adhere to the outcome requirements of those triage systems developed in resource rich, high-income countries. The prevalence of illness or injury (in a range of possible acuity ratings) within a specific patient population remains the key driving force that determine triage system outcome requirements. Due to the lack of resources and experience in low- and middle-income countries, many emergency departments operating in these settings have forgone formalised triage systems altogether. This is mainly because the algorithms used in triage systems such as the ESI, ATS, CTAS and MTS were designed to be used by skilled, system-trained and experienced emergency nurses; however, in low- and middle-income countries there is a lack of this cohort of nurses. Triage systems used in these settings require a more objective approach to triage to mitigate the lack of experience, training and infrastructure. One such scale, the South African Triage Scale (SATS) [8], has been successful in bridging this divide, initially in South Africa, and now slowly spreading to other parts of Africa and the Middle East. The SATS replaces the more commonly applied algorithms used in triage systems from high-income countries with objective variables that are largely based on a patient’s vital signs and a manageable list of clinical descriptors.

Irrespective of where a triage system is applied, all triage systems should have a reasonable degree of reliability and validity within that environment [9]. A reliable triage system provides consistent and

precise priority allocations when applied by different emergency nurses. A valid triage system accurately determines the correct priority when applied to varying patient presentations. There are no universal guidelines that can be applied to determine if a triage system's reliability and validity levels are appropriate within a specific environment. Choosing which triage system to implement within an emergency department therefore comes down to determining how the triage system would perform in that environment against a predetermined set of expected outcomes. Outcomes such as therapeutic interventions, resource utilisation, length of stay and admissions are commonly balanced against the performance measures of a triage system to determine the best balance between resources, safety, efficiency and quality for that specific setting. These outcome measures are inherently subjective goals set to control the movement of patients through a facility, such as a hospital or a clinic, starting at the emergency department. It is most important for any triage system to recognise and determine patient acuity along these predetermined goals and balances so that appropriate resources can be allocated within a reasonable timeframe.

Although the reliability and validity of certain triage systems in particular settings have been established, triage strategies and decision-making remains complex processes that are not well understood. These become more apparent within unestablished environments such as the low- and middle-income settings. The triage decision-making process is dependent on the knowledge and experience of the nurses gathering and evaluating the information required to allocate an appropriate acuity level [10-12]. It involves clinical judgements to be made within a relatively short time; as a result, triage systems require rapid evaluation, critical analysis and consistent decision-making of their providers. The dynamics of triage thus allows for critical thinking by emergency nurses to take place. The biggest confounders to this critical thinking and decision-making lies with emergency nurses themselves. Emergency nurse background, training, experience and understanding of triage underpin good clinical decision-making. Not all emergency nursing environments are equal throughout the world, nor the experiences that each emergency nurse attains whilst working in an emergency setting. These vary considerably within and between low-, middle- and high-income countries. Emergency nurse decision-making is a subjective process that requires continuous refinement through structured training and experience; it should be guided by researched triage system processes to ensure the most accurate and precise triage priority is obtained from a patients' acuity. Having a sound understanding of triage theory and how its principles are applied within emergency departments is key to selecting the most appropriate triage system for any given setting.

The concept of triage has only been formalised over the last two centuries, however, the ideology of sorting sick or wounded people and providing timely care may have been practised for millennia. The object of emergency department triage is as simple as matching patient needs with available resources to do the most for the most. Expected outcomes from emergency departments drove the development of various triage systems throughout the world. These triage systems were developed to meet the outcomes of varying patient populations in different environments and settings. Best practise triage systems evolved to aid emergency nurses in their process of decision-making by allowing for more accurate and precise priority allocations based on patient acuity. The key element of emergency department triage has always been the person tasked with the responsibility of providing triage. This important task in modern times lie with emergency nurses, who use their triage training and experience to manage the flow of patients through an emergency department.

References

- [1] D.J. Larry, The surgical memoirs of the campaign in Russia, 1832, J Mercer; Philadelphia, 27.
- [2] A.D. Tuttle, Handbook for the medical soldier, 1927, William Wood and Company; New York, 84-85.
- [3] M. Fry and G. Burr, Review of the triage literature: past, present, future?, *Aust Emerg Nurs J* **5** (2), 2002, 33-38.
- [4] Agency for Healthcare Research and Quality, N. Gilboy, P. Tanabe, D. Travers and A.M. Rosenau, (Eds.), *Emergency Severity Index (ESI): A Triage Tool for Emergency Department Care, Version 4* 2012.
- [5] Australasian Government Department of Health and Ageing, M.F. Gerdtz, J. Considine, N. Sands, C.J. Stewart, D. Crellin and W.E. Pollock, (Eds.), *Emergency Triage Education Kit* 2009.
- [6] National CTAS Working Group, R. Beveridge, B. Clarke, L. Janes, L. Savage, J. Thompson and G. Dodd, (Eds.), *Implementation Guidelines for The Canadian Emergency Department Triage Acuity Scale (CTAS)* 1998.
- [7] Manchester Triage Group, 2nd ed., K. Mackway-Jones, J. Marsden and J. Windle, (Eds.), *Emergency Triage* 2006.
- [8] South African Triage Group, B. Cheema and M. Twomey, (Eds.), *The South African Triage Scale (SATS)* 2012, editors.
- [9] H.A. Moll, Challenges in the validation of triage systems at emergency departments, *J Clin Epidemiol* **63** (4), 2010, 384-388.
- [10] A. Smith, Using a theory to understand triage decision making, *Int Emerg Nurs* **21** (2), 2013, 113-117.
- [11] G. Reay and J.A. Rankin, The application of theory to triage decision-making, *Int Emerg Nurs* **21** (2), 2013, 97-102.

[12] A.J. Noon, The cognitive processes underpinning clinical decision in triage assessment: a theoretical conundrum?, *Int Emerg Nurs* **22** (1), 2014, 40–46.