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## Tools that work

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INVITERT KOMMENTAR

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### **When a health service is faced with more patients than it has capacity for, priorities need to be made.**

Categorising symptoms and conditions in a triage system has historical roots dating back to the Napoleonic Wars, when Dominique Jean Larrey (1766–1842) developed a categorical rule for the triage of wounded soldiers based on the gravity of their injuries [\(1\)](#). Since then, this kind of prioritisation has become common in clinical practice, even in peacetime. It can help optimise resource utilisation and ensure that the most severely affected patients are prioritised.

Triage systems need to be validated so that they work as intended. Despite widespread use of such systems in the Norwegian health service, their effectiveness and ease of comparison vary [\(2–4\)](#). In a study published in this edition of the Journal of the Norwegian Medical Association, Høyvik and Straume et al. validate the triage tool SATS Norge (SATS-N), which is used by the Western Norway Regional Health Authority among others [\(5\)](#). The paediatric component of SATS-N has been adapted for Norwegian conditions, based on the version developed and revised in South Africa [\(6\)](#).

The study included 303 children aged 0–14 years, and the tool's accuracy was evaluated in pre-hospital (in ambulances) and A&E settings. The triage levels were dichotomised to high triage level or low triage level, and the results were

analysed to determine how many patients assigned to the high triage level were transferred to a high dependency unit. SATS-N was found to have high sensitivity but low specificity.

Triaging children can be particularly challenging; their vital parameters can vary considerably depending on their age and they may present with non-specific clinical symptoms. They may also require assistance from a legal guardian to make themselves understood. Comparing triage assessments in pre-hospital and hospital settings is interesting because environmental factors also play a role in the assessment of sick children. The inclusion of patients from only one university hospital may have impacted on the results but gives a realistic picture of everyday clinical practice. The findings may also have been impacted by the COVID-19 pandemic, as children were isolated from their peers for periods of time. However, estimating the significance of this impact is difficult.

*«There is no broad consensus on how effective a triage tool should be. Neither overtriage nor undertriage is defined by national or international requirements or targets»*

There is no broad consensus on how effective a triage tool should be. Neither overtriage nor undertriage is defined by national or international requirements or targets, and there is no standard for how often patients should be retriaged. One of the challenges for Norwegian A&E departments is that systems that seem promising in theory can have unintended consequences, such as increased staff workloads or the undertriaging of patients (7, 8). This makes the study by Høyvik and Straume et al. all the more important.

Measuring and systematising triage could eventually improve the understanding of healthcare output in the modern health service (2, 7, 8). It also facilitates comparisons of patient pathways, but we need to learn more about all the ramifications in a patient pathway for the tools to function as intended (9). We must also not forget the importance of clinical expertise and assessment, and that parents and family can provide information that may be vital for the individual patient.

Healthcare staff are under considerable pressure to introduce new methods, adapt old ones and remove outdated methods, partly due to the industrialisation of the delivery of health care (10). It is therefore important and desirable to test tools being adopted to establish whether they meet expectations or belong in the heap of unsuccessful innovations.

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## REFERENCES

1. Skandalakis PN, Lainas P, Zoras O et al. "To afford the wounded speedy assistance": Dominique Jean Larrey and Napoleon. *World J Surg* 2006; 30: 1392–9. [PubMed][CrossRef]
2. Lentz BA, Jenson A, Hinson JS et al. Validity of ED: Addressing heterogeneous definitions of over-triage and under-triage. *Am J Emerg Med*

2017; 35: 1023–5. [PubMed][CrossRef]

3. Zachariasse JM, van der Hagen V, Seiger N et al. Performance of triage systems in emergency care: a systematic review and meta-analysis. *BMJ Open* 2019; 9. doi: 10.1136/bmjopen-2018-026471. [PubMed][CrossRef]

4. Engebretsen S, Røise O, Ribu L. Bruk av triage i norske akuttmottak. *Tidsskr Nor Legeforen* 2013; 133: 285–9. [PubMed][CrossRef]

5. Høyvik HE, Straume V, Østerås Ø et al. Hastegradsvurdering av akutt syke barn transportert i ambulanse. *Tidsskr Nor Legeforen* 2024; 144. doi: 10.4045/tidsskr.23.0480. [CrossRef]

6. Twomey M, Cheema B, Buys H et al. Vital signs for children at triage: a multicentre validation of the revised South African Triage Scale (SATS) for children. *S Afr Med J* 2013; 103: 304–8. [PubMed][CrossRef]

7. Tam HL, Chung SF, Lou CK. A review of triage accuracy and future direction. *BMC Emerg Med* 2018; 18: 58. [PubMed][CrossRef]

8. Harding KE, Taylor NF, Leggat SG. Do triage systems in healthcare improve patient flow? A systematic review of the literature. *Aust Health Rev* 2011; 35: 371–83. [PubMed][CrossRef]

9. Magalhães-Barbosa MC, Robaina JR, Prata-Barbosa A et al. Reliability of triage systems for paediatric emergency care: a systematic review. *Emerg Med J* 2019; 36: 231–8. [PubMed][CrossRef]

10. Rastegar DA. Health care becomes an industry. *Ann Fam Med* 2004; 2: 79–83. [PubMed][CrossRef]

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