



TITLE: Prioritization of Care in the Emergency Department using Alternate Triage Strategies: Effectiveness and Guidelines

DATE: 16 July 2010

RESEARCH QUESTIONS:

1. What is the effectiveness and safety of triage strategies other than the Canadian Triage and Acuity Scale to expedite treatment of patients presenting to the emergency department?
2. What are the guidelines for the use of alternate triage strategies in the emergency department?

METHODS:

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 7, 2010), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI (Health Devices Gold), EuroScan, international health technology agencies, and a focused Internet search. The search was limited to English language articles published between January 1, 2005 and July 9, 2010. Filters were applied to limit the retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and guidelines. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

RESULTS:

HTIS reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials (RCTs) and evidence-based guidelines.

Disclaimer: The Health Technology Inquiry Service (HTIS) is an information service for those involved in planning and providing health care in Canada. HTIS responses are based on a limited literature search and are not comprehensive, systematic reviews. The intent is to provide a list of sources of the best evidence on the topic that CADTH could identify using all reasonable efforts within the time allowed. HTIS responses should be considered along with other types of information and health care considerations. The information included in this response is not intended to replace professional medical advice, nor should it be construed as a recommendation for or against the use of a particular health technology. Readers are also cautioned that a lack of good quality evidence does not necessarily mean a lack of effectiveness particularly in the case of new and emerging health technologies, for which little information can be found, but which may in future prove to be effective. While CADTH has taken care in the preparation of the report to ensure that its contents are accurate, complete and up to date, CADTH does not make any guarantee to that effect. CADTH is not liable for any loss or damages resulting from use of the information in the report.

Copyright: This report contains CADTH copyright material and may contain material in which a third party owns copyright. **This report may be used for the purposes of research or private study only.** It may not be copied, posted on a web site, redistributed by email or stored on an electronic system without the prior written permission of CADTH or applicable copyright owner.

Links: This report may contain links to other information available on the websites of third parties on the Internet. CADTH does not have control over the content of such sites. Use of third party sites is governed by the owners' own terms and conditions.

The literature search identified three systematic reviews and one RCT on the effectiveness and safety of alternate triage strategies to expedite the treatment of patients presenting to the emergency department (ED). No health technology assessments or evidence-based guidelines were identified. Additional information, including non-randomized studies on fast-tracking and alternate triage strategies, is provided in the appendix.

OVERALL SUMMARY OF FINDINGS:

Three systematic reviews were identified. All three reviews cite the lack of high quality evidence available.¹⁻³ Brabrand et al.¹ report on 10 scoring systems used as triaging tools. All the scoring systems have weaknesses and further research is needed before implementing them, but no details of the systems are provided in the abstract. Wilson et al.² examine the clinical effectiveness of nurse practitioners in the ED for assessment, treatment, and management of minor injuries in adults (categories 3 to 5 of the Australian Triage System). The use of nurse practitioners is judged to be as clinically effective as that of junior doctors for management and treatment of minor injuries in adults. Guo et al.³ find strategies that improve ED throughput include addition of a faculty member for triaging, and initiation of appropriate diagnostic tests by a triage nurse.

Evidence from the identified RCT⁴ shows that the addition of a triage liaison physician to initiate patient management, assist triage nurses, answer medical consults, and manage ED administrative matters, can result in decreased length of stay and fewer patients who leave the ED without assessment, thus improving outcomes in overcrowded EDs.

REFERENCES SUMMARIZED:

Health technology assessments

No literature identified

Systematic reviews and meta-analyses

1. Brabrand M, Folkestad L, Clausen NG, Knudsen T, Hallas J. Risk scoring systems for adults admitted to the emergency department: a systematic review. *Scand J Trauma Resusc Emerg Med* [Internet]. 2010 Feb 11 [cited 2010 Jul 9];18:8. [PubMed: PM20146829](#)
Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2835641/pdf/1757-7241-18-8.pdf>
2. Wilson A, Zwart E, Everett I, Kernick J. The clinical effectiveness of nurse practitioners' management of minor injuries in an adult emergency department: a systematic review. *Int J Ev-Based Healthcare* [Internet]. 2009 [cited 2010 Jul 9];7: 3-14. Structured abstract available from: <http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?LinkFrom=OAI&ID=12009104260>
3. Guo B, Harstall C. Strategies to reduce emergency department overcrowding [Internet]. Edmonton: Alberta Heritage Foundation for Medical Research (AHFMR); 2006 [cited 2010 Jul 9]. Available from: http://www.ihe.ca/documents/HTA_Report_38.pdf
Structured abstract available from: <http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-32006000677/frame.html>

Randomized controlled trials

4. Holroyd BR, Bullard MJ, Latoszek K, Gordon D, Allen S, Tam S, et al. Impact of a triage liaison physician on emergency department overcrowding and throughput: a randomized controlled trial. *Acad Emerg Med*. 2007 Aug;14(8):702-8. [PubMed: PM17656607](#)

Guidelines and recommendations

No literature identified

PREPARED BY:

Health Technology Inquiry Service

Email: htis@cadth.ca

Tel: 1-866-898-8439

APPENDIX – FURTHER INFORMATION:

Systematic reviews and meta-analyses

5. Bond K, Ospina M, Blitz S, Friesen C, Innes G, Yoon P, et al. Interventions to reduce overcrowding in emergency departments [Internet]. Ottawa: Canadian Agency for Drugs and Technologies in Health (CADTH) 2006: 41p. [cited 2010 Jul 9]. Available from: Structured abstract available from:
http://www.cadth.ca/media/pdf/320d_overcrowding_tr e no-appendices.pdf See triage p. 18
Structured abstract available from:
<http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?View=Full&ID=32006000861>

Non-randomized studies

6. Devkaran S, Parsons H, Van Dyke M, Drennan J, Rajah J. The impact of a fast track area on quality and effectiveness outcomes: a Middle Eastern emergency department perspective. BMC Emerg Med [Internet]. 2009 [cited 2010 Jul 9];9:11. [PubMed: PM19534787](#) Available from:
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2703617/pdf/1471-227X-9-11.pdf>
7. Olofsson P, Gellerstedt M, Carlström ED. Manchester Triage in Sweden - interrater reliability and accuracy. Int Emerg Nurs. 2009 Jul;17(3):143-8. [PubMed: PM19577200](#)
8. Steiner IP, Nichols DN, Blitz S, Tapper L, Stagg AP, Sharma L, et al. Impact of a nurse practitioner on patient care in a Canadian emergency department. CJEM [Internet]. 2009 May [cited 2010 Jul 9];11(3):207-14. [PubMed: PM19523269](#) Available from:
<http://www.cjem-online.ca/sites/default/files/pg207%281%29.pdf>
9. Taboulet P, Moreira V, Haas L, Porcher R, Braganca A, Fontaine JP, et al. Triage with the French Emergency Nurses Classification in Hospital scale: reliability and validity. Eur J Emerg Med [Internet]. 2009 Apr [cited 2010 Jul 9];16(2):61-7. [PMID: 19194114](#) Available from:
http://www.lwwpartnerships.com/assets/files/Triage_with_the_French_Emergency_Nurses_1.pdf
10. 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 Jul;25(7):395-7. [PubMed: PM18573946](#)
11. van der Wulp I, van Baar ME, Schrijvers AJ. Reliability and validity of the Manchester Triage System in a general emergency department patient population in the Netherlands: results of a simulation study. Emerg Med J. 2008 Jul;25(7):431-4. [PubMed: PM18573959](#)
12. van Veen M, Steyerberg EW, Ruige M, van Meurs AH, Roukema J, van der Lei J, et al. Manchester triage system in paediatric emergency care: prospective observational study. BMJ [Internet]. 2008 [cited 2010 Jul 9];337:a1501. [PubMed: PM18809587](#) Available from:
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2548283/pdf/bmj.a1501.pdf>

13. Lyons M, Brown R, Wears R. Factors that affect the flow of patients through triage. *Emerg Med J* [Internet]. 2007 Feb [cited 2010 Jul 9];24(2):78-85. [PubMed: PM17251608](#)
Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2658212/pdf/78.pdf>
14. Darrab AA, Fan J, Fernandes CM, Zimmerman R, Smith R, Worster A, et al. How does fast track affect quality of care in the emergency department? *Eur J Emerg Med*. 2006 Feb;13(1):32-5. [PubMed: PM16374246](#)
15. Maningas PA, Hime DA, Parker DE, McMurry TA. The Soterion Rapid Triage System: evaluation of inter-rater reliability and validity. *J Emerg Med*. 2006 May;30(4):461-9. [PubMed: PM16740466](#)

Guidelines and recommendations (guideline methodology not stated)

16. Guidelines on the implementation of the Australasian triage scale in emergency departments [Internet]. Melbourne: Australasian College for Emergency Medicine; 2005. [cited 2010 Jul 9]. Available from: http://www.acem.org.au/media/policies_and_guidelines/G24_Implementation_ATS.pdf

Review articles

17. FitzGerald G, Jelinek GA, Scott D, Gerdtz MF. Emergency department triage revisited. *Emerg Med J*. 2010 Feb;27(2):86-92. [PubMed: PM20156855](#)
18. Shelton R. The Emergency Severity Index 5-level triage system. *Dimens Crit Care Nurs*. 2009 Jan;28(1):9-12. [PubMed: PM19104244](#)

Additional references

19. Hunter D. Triage nurse X-ray protocols for hand and wrist injuries. *Emerg Nurse*. 2010 Feb;17(9):20-4. [PubMed: PM20209751](#)
20. ED's turnaround time cut by almost 30 minutes. *ED Manag*. 2009 Mar;21(3):32-3. [PubMed: PM19275061](#)
21. ED slashes average wait time by more than an hour. *ED Manag*. 2009 Mar;21(3):30-1. [PubMed: PM19275060](#)
22. Care initiation area yields dramatic results. *ED Manag*. 2009 Mar;21(3):28-9. [PubMed: PM19275059](#)
23. Despite longer wait times, satisfaction still improves. *ED Manag*. 2007 Nov;19(11):124-5. [PubMed: PM18074953](#)
24. Cooke T, Watt D, Wertzler W, Quan H. Patient expectations of emergency department care: phase II--a cross-sectional survey. *CJEM* [Internet]. 2006 May [cited 2010 Jul 9];8(3):148-57. [PubMed: PM17320008](#) Available from: <http://www.cjem-online.ca/sites/default/files/pg148.pdf>

25. Wallis PA, Gottschalk SB, Wood D, Bruijns S, de Vries S, Balfour C; et al. The Cape Triage Score -- a triage system for South Africa. *S Afr Med J* [Internet]. 2006 Jan [cited 2010 Jul 9];96(1):53-6. [PMID: 16440113](#) Available from: http://blues.sabinet.co.za/WebZ/Authorize?sessionId=0:autho=pubmed:password=pubmed2004&/AdvancedQuery?&format=F&next=images/ejour/m_samj/m_samj_v96_n1_a17.pdf
26. Gilboy N, Tanabe P, Travers DA, Rosenau AM, Eitel DR. Emergency severity index, version 4: implementation handbook [Internet]. AHRQ Publication No. 05-0046-2. Rockville (MD): Agency for Healthcare Research and Quality; 2005. [cited 2010 Jul 9]. Available from: <http://www.ahrq.gov/research/esi/esi1.htm>