



October 2016 – SUPPORT Summary of a systematic review

Does physician-led triage reduce emergency department overcrowding?

Emergency department overcrowding is a serious problem facing healthcare systems worldwide that can lead to delays in time-sensitive diagnostic and treatment decisions and poor health outcomes. Triage systems are used to decide who needs urgent care and who can wait, sorting patients according to urgency or type of service required. They employ systems to prioritise or assign patients to treatment categories in order to assist in their management.

Key messages

- **Physician-led triage compared to nurse-led triage probably reduces emergency department length of stay, physician's initial assessment time, and the proportion of patients leaving without being seen.**
- **It may lead to little or no difference in the proportion of patients leaving the emergency department against medical advice.**
- **None of the included studies were conducted in a low-income country.**



Who is this summary for?

People deciding whether to introduce triage systems in healthcare

! This summary includes:

- **Key findings** from research based on a systematic review
- **Considerations about the relevance of this research** for low-income countries

X Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Rowe BH, Guo X, Villa-Roel C, et al. The role of triage liaison physicians on mitigating overcrowding in emergency departments: a systematic review. *Acad Emerg Med* 2011; 18:111-20.

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from the included studies

SUPPORT was an international project to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries, funded by the European Commission (FP6) and the Canadian Institutes of Health Research.

Glossary of terms used in this report:
www.supportsummaries.org/glossary-of-terms

Background references on this topic:
See back page

Background

Triage or prioritisation is defined as any system that either ranks patients in order of priority, or sorts patients into the most appropriate service. Triage processes are often used by emergency departments, but may also be used in a broad spectrum of other health services. Triage or prioritisation systems, based on acuity and risk are intended to facilitate decisions about allocation of resources, ensure that patients with the most urgent needs get the most timely service, and ensure an appropriate type and intensity of care. Most triage systems are based on physicians with or without participation of nurses.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low-income countries. The methods used to assess the reliability of the review and to make judgements about its relevance are described here: www.supportsummaries.org/how-support-summaries-are-prepared/

Knowing what's not known is important

A reliable review might not find any studies from low-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

A lack of evidence does not mean a lack of effects. It means the effects are uncertain. When there is a lack of evidence, consideration should be given to monitoring and evaluating the effects of the intervention, if it is used.

About the systematic review underlying this summary

Review objective: To estimate the effectiveness of physician-led triage in reducing emergency department (ED) overcrowding.

Types of	What the review authors searched for	What the review authors found
Study designs & Interventions	Parallel or cluster randomized trials, non-randomized trials, cohort studies, interrupted time series studies, case-control studies, and before-after studies assessing the effect of physician-led triage systems	28 included studies: 2 randomized trials, 7 non-randomized trials, 1 interrupted time series study, 16 before-after studies, and 2 prospective cohort studies. The studies compared nurse-led triage with triage teams (20 studies) or emergency physicians (8).
Participants	Adult or mixed (children and adult) patients seeking healthcare	All studies were conducted in single emergency departments
Settings	Emergency departments	USA (17), UK (4), Australia (2), Canada (2), Hong Kong (2), Singapore (1)
Outcomes	ED length of stay, time from patient arrival / triage to physically leaving the ED, physician initial assessment time from patient arrival, proportion of patients leaving the ED without being seen and leaving the ED against medical advice	ED length of stay (19), physician initial assessment time from patient arrival (9), proportion of patients leaving the ED without being seen (12) and leaving the ED against medical advice (2)

Date of most recent search: May 2009

Limitations: This is a well-conducted systematic review with only minor limitations, but the last search was conducted in 2009.

Rowe BH, Guo X, Villa-Roel C, et al. The role of triage liaison physicians on mitigating overcrowding in emergency departments: a systematic review. *Acad Emerg Med* 2011; 18:111-20.

Summary of findings

28 studies were included with data collected from over 400,000 patients across all of the studies reporting sample size.

Physician-led triage compared to nurse-led triage probably reduces

- emergency department length of stay,
- physician initial assessment time, and
- the proportion of patients leaving without being seen.

The certainty of this evidence is moderate.

- Physician-led triage compared to nurse-led triage may lead to little or no difference in the proportion of patients leaving the emergency department against medical advice. The certainty of this evidence is low.

About the certainty of the evidence (GRADE) *

⊕⊕⊕⊕

High: This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different† is low.

⊕⊕⊕○

Moderate: This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different† is moderate.

⊕⊕○○

Low: This research provides some indication of the likely effect. However, the likelihood that it will be substantially different† is high.

⊕○○○

Very low: This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different† is very high.

* This is sometimes referred to as 'quality of evidence' or 'confidence in the estimate'.

† Substantially different = a large enough difference that it might affect a decision

See last page for more information.

Physician-led triage versus nurse-led triage				
People	Patients consulting emergency departments (ED)			
Settings	Emergency departments			
Intervention	Physician-led triage			
Comparison	Nurse-led triage			
Outcomes	Nurse-led triage	Physician-led triage	Relative effect (95% CI)	Certainty of the evidence (GRADE)
	Absolute effect (95% CI)			
ED Length of stay	Median time: 187 minutes	37 minutes less (23 to 51 less)	17% less (12 to 27% less)	⊕⊕⊕○ Moderate
Physician initial assessment time	32 minutes	30 minutes less (3 to 57 less)	94% less (3 to 100% less)	⊕⊕⊕○ Moderate
Patients leaving without being seen	67 per 1000	54 per 1000 (46 to 65)	RR 0.82 (0.67 to 1.00)	⊕⊕⊕○ Moderate
Patients leaving the ED against medical advice	0.69%	0.63%	RR 1.10%	⊕⊕○○ Low
Margin of error = Confidence interval (95% CI) RR: Risk ratio GRADE: GRADE Working Group grades of evidence (see above and last page)				

Relevance of the review for low-income countries

→ Findings	▷ Interpretation*
APPLICABILITY	
→ None of the included studies were conducted in a low-income country.	▷ <i>When assessing the transferability of these findings to low-income countries the following factors should be considered:</i> <ul style="list-style-type: none">– <i>The availability of human resources</i>– <i>Basic infrastructure</i>– <i>The acceptability and costs of the triage systems</i>
EQUITY	
→ There was no information in the included studies regarding the differential effects of the interventions on resource-disadvantaged populations.	▷ <i>Resources needed for triage may be less available in disadvantaged settings. Triage systems may increase inequity if they are not available to these populations.</i>
ECONOMIC CONSIDERATIONS	
→ The systematic review did not address economic considerations.	▷ <i>While triage systems may increase capacity, scaling up triage may require additional resources.</i> ▷ <i>Local costings should be undertaken, in settings differing from the original investigations.</i>
MONITORING & EVALUATION	
→ There is moderate certainty evidence that physician-led triage probably reduces the time taken to see patients and patients leaving without being seen, but the optimal process for triage is unknown.	▷ <i>Larger and more rigorous studies are required to determine the effects and the cost-effectiveness of triage particularly in resource-poor settings.</i> ▷ <i>The studies should provide details about the process, the context, and the patients.</i>

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low-income countries. For additional details about how these judgements were made see: www.supportsummaries.org/methods

Additional information

Related literature

These systematic reviews also addressed triage systems:

Harding KE, Taylor NF, Leggat SG. Do triage systems in healthcare improve patient flow? A systematic review of the literature. *Australian Health Review* 2011; 35:371–83.

Oredsson S, Jonsson H, Rognes J, et al. A systematic review of triage-related interventions to improve patient flow in emergency departments. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2011; 19:43.

Broadbent M, Creaton A, Moxham L, Dwyer T. Review of triage reform: the case for national consensus on a single triage scale for clients with a mental illness in Australian emergency departments. *Journal of Clinical Nursing* 2010; 19:712–5.

Bond K, Ospina M, Blitz S, et al. Interventions to reduce overcrowding in Emergency Departments. Ottawa, ON: Canadian Agency for Drugs and Technologies in Health, 2006.

Cooke M, Fisher J, Dale J, et al. Reducing attendances and waits in emergency departments: a systematic review of present innovations. Warwick, UK: National Co-ordinating Centre for NHS Service Delivery and Organisation, 2005.

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.

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Conflict of interest

None declared. For details, see: www.supportsummaries.org/coi

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This review should be cited as

Rowe BH, Guo X, Villa-Roel C, et al. The role of triage liaison physicians on mitigating overcrowding in emergency departments: a systematic review. *Acad Emerg Med* 2011; 18:111–20.

The summary should be cited as

Ciapponi A, Does physician-led triage reduce emergency department overcrowding? A SUPPORT Summary of a systematic review. October 2016. www.supportsummaries.org

About certainty of the evidence (GRADE)

The “certainty of the evidence” is an assessment of how good an indication the research provides of the likely effect; i.e. the likelihood that the effect will be substantially different from what the research found. By “substantially different” we mean a large enough difference that it might affect a decision. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the study design (randomised trials versus observational studies), factors that reduce the certainty (risk of bias, inconsistency, indirectness, imprecision, and publication bias) and factors that increase the certainty (a large effect, a dose response relationship, and plausible confounding). For each outcome, the certainty of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE: www.supportsummaries.org/grade

SUPPORT collaborators:

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is part of the [Cochrane Collaboration](http://www.cochrane.org). The Norwegian EPOC satellite supports the production of Cochrane reviews relevant to health systems in low- and middle-income countries. www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPONet) is an initiative to promote the use of health research in policymaking in low- and middle-income countries. www.evipnet.org

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration that promotes the generation and use of health policy and systems research in low- and middle-income countries. www.who.int/alliance-hpsr

Norad, the Norwegian Agency for Development Cooperation, supports the Norwegian EPOC satellite and the production of SUPPORT Summaries. www.norad.no

The Effective Health Care Research Consortium is an international partnership that prepares Cochrane reviews relevant to low-income countries. www.evidence4health.org

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