

Critical Review Form

Therapy

Impact of a Triage Liaison Physician on Emergency Department
Overcrowding and Throughput: A Randomized Controlled Trial, *Acad*
EM 2007; 14: 702-708

Objectives: To perform “a quantitative evaluation of the effect of introducing a triage liaison physician (TLP) shift in a large urban adult ED where serious overcrowding existed”. (p.703)

Methods: At the University of Alberta ED, an urban teaching hospital serving over 55,000 adults per year, a randomized controlled trial was conducted from December 9, 2005 thru February 9, 2006. Within each of three two-week blocks, daytime (11a – 8p) TLP shifts were randomly scheduled with the control days, having normal EP staffing (56 hours) without TLP. The TLP must have had at least one-year experience and they had to volunteer for the shift. The role of the TLP was defined during two pre-study TLP pilot shifts and included: answer all incoming physician calls, evaluate ambulance arrivals, “support and assist” triage nurses, initiate clinical evaluations, and deal with any administrative issues that arise.

The UAH electronic database was used to obtain patient demographics, triage scores, and throughput times. The call log of the TLP-assigned portable phone was queried and correlated with a TLP phone call log. Ambulance diversion data were obtained from capital health. During TLP shifts nurses and staff physicians were surveyed regarding their perception of how ED overcrowding affected them.

Outcomes included ED volume, length-of-stay (LOS), triage acuity (using the [Canadian Triage and Acuity Scale](#)), left without being seen (LWBS) proportion, and ambulance diversion frequency and duration. For data analysis, mixed modeling methods were used assuming that the TLP effect would be nested within the 24-hour period during which their shift occurred.

Guide		Comments
I.	Are the results valid?	
A.	Did experimental and control groups begin the study with a similar prognosis (answer the questions posed below)?	
1.	Were patients randomized?	Yes. “Within each two-week block, using computer-generated random numbers, TLP shifts (from 11 AM to 8PM) in addition to standard EP clinical shifts or standard EP clinical shifts only (control) were assigned for seven days.” (p. 703)
2.	Was randomization concealed (blinded)?	No, blinding was not possible.
3.	Were patients analyzed in the groups to which they were randomized?	No intention to treat stated, but no crossover possible either.
4.	Were patients in the treatment and control groups similar with respect to known prognostic factors?	Yes, as demonstrated in Table 1 (p. 704) subjects in TLP and control shifts had no significant differences in age, gender, Canadian Triage Acuity Scale (CTAS), or mode of delivery.
B.	Did experimental and control groups retain a similar prognosis after the study started (answer the questions posed below)?	
1.	Were patients aware of group allocation?	Yes, but unlikely to have influenced outcomes since they couldn’t distinguish TLP from normal ED operations.
2.	Were clinicians aware of group allocation?	Yes, but staff had no knowledge of the study objectives.
3.	Were outcome assessors aware of group allocation?	No. “The outcome assessments were obtained through administrative data resources, where data analysts were unaware of the TLP assignment or the purpose of this study”. (p. 703)
4.	Was follow-up complete?	No loss to follow-up reported.

II.	What are the results (answer the questions posed below)?	
1.	How large was the treatment effect?	<ul style="list-style-type: none"> • Seven physicians volunteered for the TLP shifts. • TLP shifts did not increase ED volume (median 136 per day, TLP days vs. 133 per day on control shifts). • TLP evaluated a median of 14 patients/shift and received 15 medical consultant phone calls totaling 17 to 81 minutes/shift. • Overall median ED LOS decreased by 36-minutes during TLP shifts (4:21 vs. 4:57) with the reduction greatest in the sickest population (53 minutes in CTAS Level 1). • TLP remained an <u>independent predictor of reduced LOS</u> when controlling for age, gender, CTAS, and disposition. • <u>TLP was not independently associated with reduced LWBS rates (6.3% vs. 7.9% in control), nor did the TLP shift reduce number or duration of ambulance diversions.</u> • Nurses and physicians almost unanimously found the TLP shift improved patient care, patient communication, and individual clinical efficiency.
2.	How precise was the estimate of the treatment effect?	See median interquartile ranges above
III.	How can I apply the results to patient care (answer the questions posed below)?	
1.	Were the study patients similar to my patient?	Yes, ED patients in a tertiary care academic ED.



2.	Were all clinically important outcomes considered?	No, there was not an assessment of patient important outcomes such as misdiagnosis, ED recidivism, or overall patient satisfaction.
3.	Are the likely treatment benefits worth the potential harm and costs?	No formal cost-effectiveness analysis was performed.

Limitations

- 1) **Study not powered for primary outcome or at least assumptions and requisite *a priori* sample size not reported.**
- 2) **TLP's not randomly selected so results may differ when less experienced and/or less motivated physicians are assigned that role.**
- 3) **ED LOS used as a surrogate for [ED overcrowding](#). Investigators might have reported alternative validated markers like [EDWIN](#), [NEDOCS](#), [READI](#), etc.**
- 4) **Limited external validity to non-academic hospitals.**
- 5) **No assessment of confounding variables (nurse staffing, boarding)**
- 6) **Lack of patient or physician blinding leaves open potential of [Hawthorne effect](#).**
- 7) **No assessment of patient-important outcomes such as misdiagnoses, medical error, ED recidivism.**

Bottom Line

Single-center non-blinded RCT suggests that a triage physician can significantly and independently reduce ED LOS, particularly in the sickest subset. By reducing ancillary distracters, the TLP is viewed by physicians and nurses as a positive influence on patient care while simultaneously improving workplace satisfaction. Future TLP trials need to assess the efficiency and efficacy for non-volunteer physicians in more malpractice prone locales while controlling for additional confounders such as boarding times, nurse staffing ratios, and consultant delays.