

# EMERGENCY DEPARTMENT IDEAL LENGTH OF STAY (LOS) FOR SEVERELY INJURED PATIENTS – A SURVEY OF TRAUMA COMMITTEE MEMBERS



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Nicolea Tan<sup>1</sup>, Bao Yu Geraldine Leong<sup>2</sup>, Guek Gwee Sim<sup>2</sup>, and Changi General Hospital Trauma Committee,  
MOH Holdings, Emergency Department, Changi General Hospital, Singapore, Singapore



## Introduction

Limited Emergency Department (ED) capacity, shortage of intensive care unit (ICU) beds, need for radiological imaging and multispecialty consultations often prolongs ED length of stay (LOS) for the polytrauma patient.<sup>1</sup> The potential adverse impact on patient clinical outcomes includes higher mortality, delayed interventions, and higher infection rates.<sup>2-3</sup>

Our ED serves a 1000-bed tertiary hospital in Singapore. Its sees 140,000 visits annually, including approximately 300 major trauma patients. Our hospital trauma committee consists of doctors and nurses from emergency department (ED), surgical, orthopaedic, and radiology departments. A survey of members of our hospital trauma committee was conducted to assess their opinions on what the ideal timings for each phase of ED trauma care. The survey results were then compared to previously obtained audit results to find out whether there were any discrepancies between what the trauma committee felt was achievable and what the real-life timings were. The information gathered would help the committee to decide which phases during the ED stay were most amenable to improvement.



## Methodology

An audit was previously conducted on injured patients arriving to our ED requiring trauma activation (TA) and subsequent direct transfer to the ICU or emergency operating theatre (EOT). Data was obtained from the Singapore National Trauma Registry and hospital electronic records. The results of the audit were evaluated by breaking down the patient’s ED journey into several phases. The milestone events were time of Trauma Activation, Trauma Team (TT) response time, initial CT scan, time when the disposition decision was made, and actual transfer of patient to ICU or EOT. The results were obtained and known only to 1 member of the trauma committee in May 2023. Prior to releasing the audit results, a survey of the remaining members of our hospital trauma committee was conducted to assess their opinions on what the ideal timings for each of the phases should be.

The survey was conducted on 15 June 2023 during a meeting of the trauma committee members. The survey asked respondents to focus on ED patients who required trauma activation (TA) and direct transfer to the ICU or EOT. Survey questions included role in trauma team, years of trauma experience, and ideal duration of phases between milestone events in the TA patient’s journey. All questions except the role in trauma team were asked in a multiple-choice format with 5 options each.

## Results

There were 9 respondents to the survey (100% response rate from the meeting attendants). The respondents were 3 general surgeons, 1 orthopaedic surgeon, 2 anaesthetists, 2 emergency physicians and 1 trauma coordinator. All respondents had at least more than 3 years of experience managing trauma patients, with 5 having 10 or more years of experience.

All 9 surveyed responded that the ideal total ED LOS should be less than 2 hours. In the audit results, less than half (25/52, 48%) met the 2-hour target. Ideal TT response time was less than 15min for all respondents and this goal was fulfilled in 49 out of 52 (94%) in the audit. 83% met the ideal target of initiation of CT scan within 60minutes of ED arrival. Most respondents felt that the decision for disposition should ideally be made within 30 minutes of CT scan completion. However, in the audit, these standards were attained in 31%. The time of actual transfer out of ED was felt to be ideal if within 30 minutes of disposition decision. The audit results showed that 40% satisfied this aspiration. The most marked disparity was noted in 2 of the phases: end CT scan to disposition decision, and disposition decision to actual transfer of patient to ICU or EOT. A summary of the results is presented in Table 1.

Table 1:

| Trauma care phases                      | Survey ideal (no. of respondents) | Ideal target met by Audit |
|-----------------------------------------|-----------------------------------|---------------------------|
| Total ED LOS                            | <2hrs (9 respondents)             | 25/52 patients, 48%       |
| TA to TT response                       | <15min (9 respondents)            | 49/52 patients, 94%       |
| ED arrival to start of CT scan          | <60 min (9 respondents)           | 43/52 patients, 83%       |
| End CT to disposition decision          | <30 min (8 respondents)           | 16/52 patients, 31%       |
| Disposition decision to actual transfer | <30 min (6 respondents)           | 21/52 patients, 40%       |

## Conclusion

The results of both the survey and audit were revealed to the trauma committee in September 2023. Less than half of the severely injured patients were transferred to ICU/EOT within the trauma committee ideal of less than 2hours. The 2 phases that most deviated from the trauma committee ideal were time from the end of CT scan to decision for disposition, and disposition decision to actual transfer of patient to ICU or EOT. After analysis and discussion within the committee, the next step is to identify causes for delays and to implement solutions to shorten both non-compliant phases.

## Acknowledgements

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