

Introduction

Major trauma injury has a high likelihood of surgical and/or intensive care intervention. Our objective was to investigate which injury factors were associated with intensive care unit admission (ICU) or surgical intervention requirement in the major trauma patients.

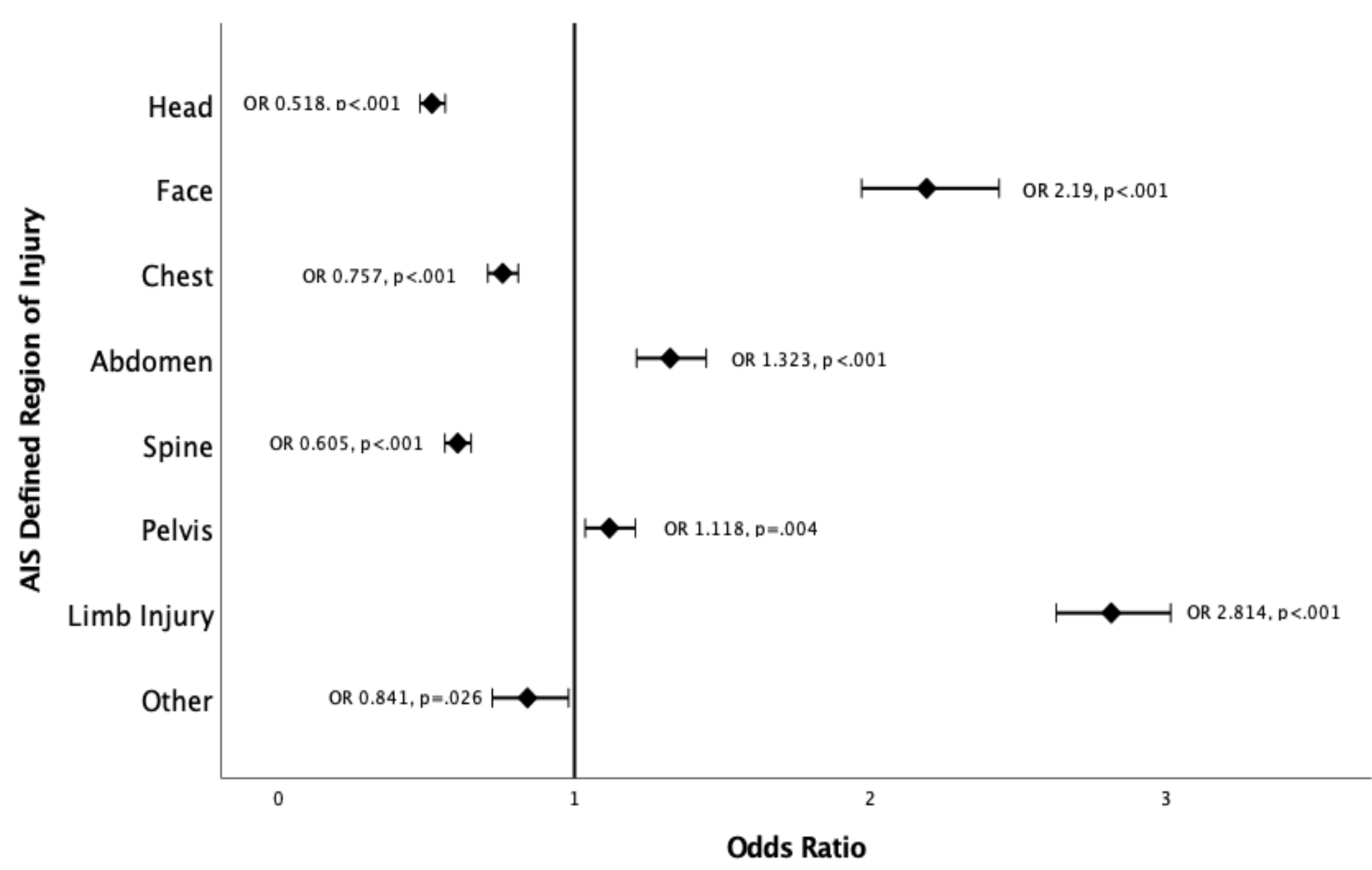
Methods

Patients identified from the hospital's prospectively collected TARN database from May 2014 to July 2021 with pelvic or chest trauma were included in this study and underwent retrospective review. The body regions injured were defined by AIS region. Statistical analysis was performed using SPSS v.27.

Results

Surgical Intervention

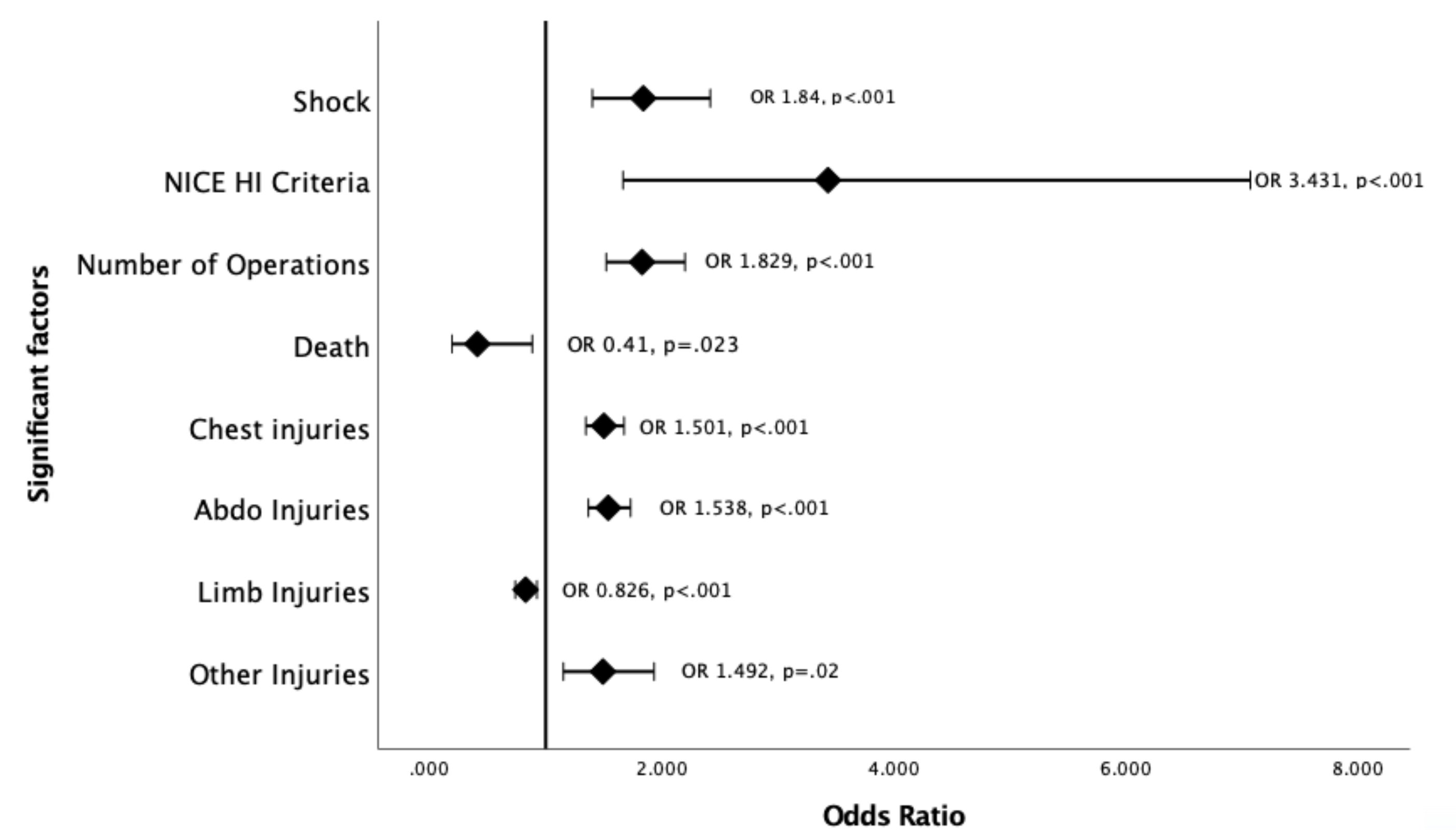
6834 patients were identified. In a multivariate analysis with surgical intervention as the dependent variable, limb and pelvic injuries were positively associated with requiring operative intervention, along with abdominal and facial injuries (Graph 1). ICU admission was strongly associated with requiring ≥ 1 operation (OR 4.401, $p < .001$) and death negatively (OR 0.574, $p = .006$).



Graph 1 –Graph showing distribution of odds ratios with 95% CI for AIS Injury Regions in polytrauma patients undergoing operations of any aetiology.

ICU Admission

Patients with at least one ICU admission underwent more operations (mean = 1.83 vs 1.15) during admission. In a multivariate analysis model with ICU admission as the dependent variable, meeting NICE Head Injury criteria is most strongly associated with ICU admission and ICU admission had greater odds of requiring more operations (Table 2).



Graph 2 –Graph showing distribution of odds ratios with 95% CI for significant factors associated with ICU admission

Admission characteristics such as the presence of circulatory shock, as well as abdominal, chest and 'other' injuries are also associated. Of note, limb injuries and death were negatively associated with ICU admission.

Conclusion

Orthopaedic services are the most affected surgical specialty by major trauma in the requirement of surgical intervention. Head injuries, circulatory shock, chest and abdominal injury were the most significant factors requiring ICU admission.

Implications

The distribution of services within a major trauma network needs to be appropriately planned to maintain the quality of care provided to both routine trauma and polytrauma patients.