

hospital-based site medical teams response was scheduled to provide field medical care and command.

This study reviews the emergency medical preparedness of the airport and examines its effects on the medical response during this accident. It indicates that the anticipated benefits from the new MCI plan and prior medical preparedness were not achieved in this airport MCI. Victims were not triaged and received inadequate field medical care. Critically injured patients were not transported to the appropriate hospitals with priority. Poor compliance with the new MCI plan by the airport authority was noted. In addition, the multiple site medical teams could not function as the plan had been designed.

The emergency medical service system (EMS) should be designated as the key agency for the medical response to an airport MCI. Extensive training must be provided to airport firefighters enhancing the compliance with MCI plan. Scene management cannot be dependent on site medical teams. If site medical teams are warranted under certain special circumstances, a single prearranged and well-trained team is the optimal choice. The role of multiple hospital-based site medical teams response requires further investigation.

Keywords: airline crash; emergency medical services; EMS; hospital; mass casualty incident; medical team; preparedness; management; Singapore
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3.0. Free Papers

3.1. Oral Presentations

Trauma Patient Outcome Evaluation of Trauma and Nontrauma Centers

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Objective: Beginning from 1989, efforts have been made to study operational outcomes from the regional trauma centers in Pennsylvania, USA. However, no significant statistical findings regarding trauma centers have demonstrated the positive impact of trauma centers that has justified the program. This study presents ways to solve the data collection problems by using matching methods from various data sources. We compared trauma-patient care outcomes of regional trauma centers with those of non-trauma centers.

Methods: HealthcareData.Com, under contract with the Pennsylvania Department of Health, matched all hospital in-patient discharge records with prehospital patient care (ambulance response) reports by using AutoMatch software. The trauma patients were grouped into those who were admitted to trauma centers ($n = 10,327$; 40.9%) and those to nontrauma centers ($n = 14,9$; 59.1%). From these two groups of patients, we measured their medical care outcomes of hospital inpatient discharge status ($n = 25,225$), death ($n = 739$; 3.0%) vs. survival ($n = 23,998$;

97.0%), and discharge pattern ($n = 24,427$), live discharge to home self care ($n = 14,172$; 58.0%) vs. to further care at to other institutions ($n = 10,256$; 42.0%). We also measured patient morbidity as a trauma care outcome by using length of hospital stay ($n = 24,471$; mean length of hospital stay = 5.7 days).

Results: Descriptive analysis showed higher mortality rate at the trauma centers (3.2%) than nontrauma centers (2.9%). This rate difference was not significant at $p = 0.05$ contrary to our expectation. We expected that significantly more patients would die in the trauma centers than nontrauma centers due to their higher injury severity and greater medical complications. We also expected that a significantly higher rate of patient mortality would emerge from the trauma center patients as we use Revised Trauma Score (RTS) in logistic regression against the outcome variable. However, the regression result ($b = 0.294$) with odd ratio of 1.34, not significant at $p = 0.0001$ failed to show a significant mortality difference between trauma centers and nontrauma centers despite the fact that the former group of patients had significantly higher RTS (11.77) than the latter (11.51) at $p = 0.0001$.

Among the patients who were discharged live, 70.4% of the trauma center patients were discharged to self home care as compared to 49.7% of the nontrauma center patients, significant at $p = 0.0001$. Logistic regression also showed regression coefficient of $b = 0.1625$ with $p = 0.0001$ and an odd ratio of 1.176. This indicates that trauma center patients were significantly more likely to be discharged to home self-care than the nontrauma center patients, holding RTS constant.

Lastly, regression analysis showed that trauma center patients had a half day longer hospital stay ($b = 0.545$, $f = 35.9$, $p = 0.0001$) than non-trauma center patients when all the patients were included in the equation, holding other independent variables constant such as patient age, gender, and RTS among others. However, when we excluded some outliers (0.95%) that show LOS more than 30 days, the trauma center patients showed $b = 0.361$, $t = 13.31$, $p = 0.0001$. This means that the trauma center patients stayed in the hospital 0.36 days longer.

Conclusion: Despite the fact that trauma center patients had significantly higher RTS than did non-trauma center patients, they did not show a significantly higher mortality rate other than some random effects. The trauma center patients stayed in the hospital between 0.36 and 0.55 days longer. However, they are more likely to be discharged to home self-care than are non-trauma center patients. Less than 70% of the trauma center patients were discharged for home self care as compared with less than 50% of the nontrauma center patients. In this regard, trauma centers must be better utilized in order to improve trauma patient medical well-being as well as to improve potential long-term trauma care cost savings.

Keywords: complications; cost; data collection; hospital; length of stay; mortality; outcome; regional; trauma centers, trauma score

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