

## **A Traumatic Tale of Two Cities: Does EMS Level of Care and Transportation Model Affect Survival in Trauma Patients Transported to Level 1 Trauma Centres?**

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### **Introduction**

The methods of transport and levels of care provided to trauma patients before arriving in hospital varies across systems in different regions. Nova Scotia (NS) operates an Advanced Emergency Medical System (AEMS) which includes helicopter services and advanced care paramedics. In contrast, New Brunswick (NB) has a Standard Emergency Medical System (SEMS) which includes primary care paramedics and ground ambulances. This study sought to determine if there were differences in overall patient survival rates, survival rates of severely injured patients (ISS>24), and the interventions performed between systems.

### **Methods**

This prospective observational cohort study examined trauma patients who were transported directly to a level 1 trauma centre in NB or NS between April 1, 2011 and March 31, 2013. Survival to hospital was the primary endpoint. 101 cases met inclusion criteria in NB and were compared to 251 cases in NS.

### **Results**

Overall, there was no difference in survival to hospital when patients were treated by an AEMS (92%, n=232) compared to patients treated by a BEMS (95%, n=96) respectively (p=0.49). Furthermore, patients with more severe injuries (ISS>24) were no more likely to survive to hospital in an AEMS 55% (n=44) compared to SEMS (55%, n=18) (P=1.00). In the AEMS 15% (n=38) of patients received a prehospital airway intervention compared to 3% (n=3) of patients in the SEMS (p<0.01). There was also a higher number of patients who received prehospital intravenous access in the AEMS (78% n=195) when compared to the SEMS (31%, n =32; p<0.01).

### **Conclusion**

Overall survival to hospital was the same between advanced and standard Canadian EMS systems despite the variability of the interventions performed in each system. As numbers included are low, individual case benefit cannot be excluded. These results support the need for case level data sharing between provinces to permit analysis of potential confounding variables.