The objective of this study is to describe the profile of adult trauma patients, as well as the performance of the system on key process and outcome indicators between 2013 and 2016.

**Patient profiles and performance of the Quebec Adult Trauma System, 2013-2016**

**BACKGROUND**

The Institut national d’excellence en santé et en services sociaux (INESSS) has the mandate to evaluate, on a continuous basis, the Quebec trauma system, both at healthcare facilities and more system wide levels. After five monitoring cycles of the designated trauma centers, we conducted a macro-evaluation.

**METHODS**

**DESIGN AND STUDY POPULATION**

- Multicenter retrospective cohort study
- Patients over 16 years old admitted for injury between 2013 and 2016 in one of the 57 provincial adult trauma centers
- Death on arrival and isolated hip fractures were excluded

**DATA SOURCES**

Quebec Trauma Registry and hospital discharge database (for unplanned readmissions indicator)

**OUTCOMES AND ANALYSES**

- Descriptive data on patient profiles
- Provincial average for 13 process indicators
- Provincial risk-adjusted estimates of mortality, major complications and unplanned readmissions and provincial risk-adjusted mean hospital length of stay (LOS), generated using a multilevel logistic/linear regression model

**RESULTS**

**PATIENT PROFILES**

Admissions (%) by trauma center designation level

52190 adult patient admitted in a trauma center between 2013-2016

**PREHOSPITAL**

- 79.7% of victims are transported by ambulance directly to definitive care
- Average transport time: 39.7 minutes

**HOSPITAL CARE**

- 55.7 years old (mean) men
- 70.8 years old (mean) women
- Type of injuries: Burns 1.8%, Polytrauma 1.9%, Others 7.2%
- Spinal cord: 1.3%, Amputation/replantation: 0.8%
- Traumato-abdominal: 12.1%
- Traumatic brain injury: 13.4%

**CAUSES OF INJURY**

- Mean ISS = 8.3
- Falls: 68.3%
- Motor vehicle collision: 16%
- Penetrating: 3.5%
- Other: 12.2%

**Severity**

- Mean LOS: 11.5 days
- Hospital: 5.1 days
- Intensive Care Unit: 3.1 days
- Mean discharge destinations: Home: 43.3%, External follow-up: 18%

**PROCESS INDICATORS**

Process indicators 2013-2016 Provincial average (%)

- No readmission within 48h after estabilisation 95.4%
- Delay for stabilize/embolization unstable pelvic fractures ≤12h 88.9%
- Antibiotic prophylaxis of open fractures 81.3%
- Transfer of patients with moderate/severe TBI or with open/depressed skull fracture initially received in Level III/IV centers to Level I/II centers 78.9%
- Transfer of patients with spinal cord injury 75.3%
- Airway secured in ED for patients with GCS<9 74.6%
- Deaths 1h to 48h after arrival occur on ward (not in ED) 71.4%
- Delay for abdominal, thoracic, vascular or brain surgery ≤24h 66.6%
- Delay for femur fractures surgery ≤24h (femoral shaft fracture) 60.1%
- Delay for open long bone fractures surgery ≤24h 59.9%
- ED stay ≤4h for patients with ISS≥12 25.1%
- Delay for reducing dislocation of major joint ≤24h 19.4%
- Transfer to ICU or surgery ≤1h after arrival in Level I/II centers 12%

**CONCLUSION**

- We observed high proportions of patients 65 years and older, falls as the leading cause of injury and orthopaedic injuries as the most common diagnosis.
- Strengthening of inter-facility transfers of certain trauma patients and improving compliance to evidence-based clinical processes may result in better patient outcomes.

**OUTCOME INDICATORS**

(All patients*)

**Risk-adjusted incidence of:**

- In-hospital mortality: 6.4%
- Major complications: 18.7%
- Unplanned readmissions within 30 days: 8.9%

**Risk-adjusted mean of:**

- LOS: 9.5 days

* For example: private homes for elderly, supervised accommodation.

**REFERENCES**


**ACKNOWLEDGEMENT**

The authors wish to thank the trauma centers for their efforts in the continuous data collection process and the Quebec Ministry of Health and Social Services for rendering these data available.