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Impact of delayed access to inpatient rehabilitation service for multi-trauma patients

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INTRODUCTION

Multi-trauma patients would benefit from early rehabilitation to optimize outcomes and prevent complications[1,2]. However, there have been delays from rehab acceptance to inpatient rehab admission.

OBJECTIVES

- to investigate the factors that may contribute to the delayed admission to inpatient rehab
- to compare the outcomes of trauma patients with longer waiting times vs shorter waits,
- to explore the strategies for promoting effective access to inpatient rehabilitation.

METHODS

- Retrospective cohort observational case series
- Sig multi-trauma between Dec 2024 and Dec 2025
- 133 patients were identified. 30 (23%) patients were accepted for inpatient rehab. 12 patients with ISS (Injury Severity Score) >15 were included. 8 patients were admitted to the inpatient rehab ward.

❑ Characteristics
  - M>F (3:1). Younger than 65. 58% < 35y.
  - 17% (2) First Nation.
  - 50% from remote & very remote

RESULTS

❑ Rehabilitation Duration
  - Average rehab LOS 60.88 d; Average total LOS 113.92 d. Average time waiting for rehab 13.75 d
  - Transfer delays were positively associated with rehabilitation LOS ($P \approx 0.02$).
  - Transfer delays were negatively associated with FIM on admission ($P < 0.01$), positively associated with FIM change ($P \approx 0.03$), and FIM efficiency ($P \approx 0.02$)

❑ Factors associated with prolonged hospitalization
  - FIM on admission was associated with total LOS and Rehab LOS ($P \approx 0.03$).
  - LOS was not significantly corelated with ICU admission, severity of injury, tracheostomy ($P > 0.05$).

❑ Factors associated with hospital discharge home
  - Rehab LOS, FIM efficiency was significantly related to the discharge to usual residence ($P < 0.05$).
  - FIM score at rehab admission was not significantly associated with the hospital discharged home ($P > 0.05$).

Figure 1: Discharge destination

A: Usual residence (75%); B: Transfer under acute care; C: Transfer to other hospital; D: Supported accommodation.

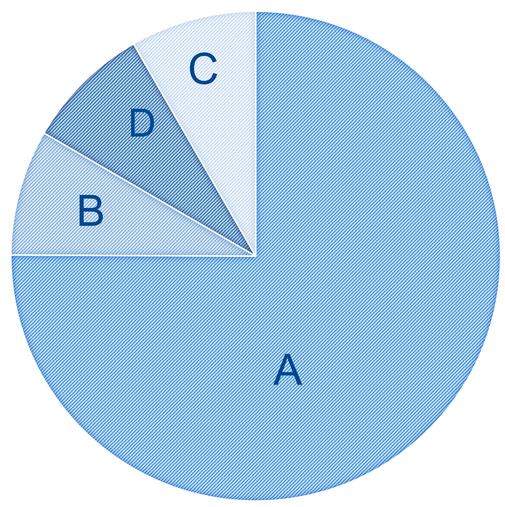
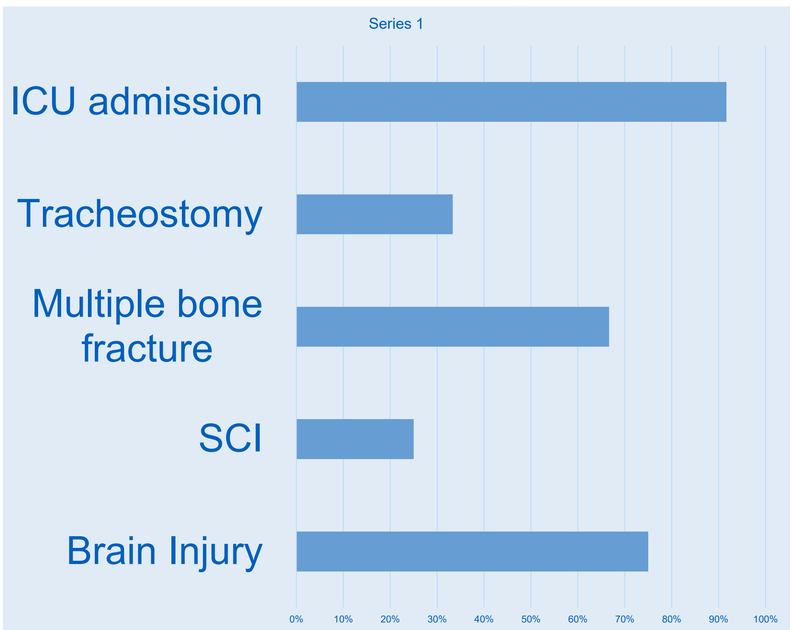


Table 1. Relationship between the time waiting for rehab and percentage of acute hospital LOS / FIM (Functional Independence Measure).

Time waiting for rehab	Percentage of acute hosp LOS	FIM at rehab admission	FIM at discharge	FIM change	FIM efficiency
1	58%	101	113	12	0.260869565
2	23%	93	118	25	0.490196078
6	34%	74	87	13	0.139784946
7	51%	99	121	22	0.733333333
14	49%	59	106	47	0.979166667
14	76%	58	113	55	2.391304348
31	72%	78	109	31	0.720930233
35	32%	18	75	57	0.37254902

Figure 2. Severity of diagnosis



75% with BI, 25% SCI, 67% multiple bone fractures, 33% tracheostomy, 92% required ICU admission.

CONCLUSIONS

This study showed that severe multi-trauma patients who had delayed inpatient rehabilitation were associated with longer rehabilitation LOS, lower FIM score on rehab admission, increased FIM change and efficiency. The patients with lower FIM scores most likely had prolonged hospitalization. It provides initiatives for further prospective studies on the trials of difference rehab model of care and structured referral pathway to improve wait time and patient outcomes in the regional hospitals.

REFERENCES

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