Clinical Predictors of Alternate Level of Care within Inpatient Mental Health Settings across Ontario

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Introduction
Alternate Level of Care

• A patient is designated as ‘ALC’ when they no longer require the services of their current care setting, but continue to remain in that setting while they await discharge

• ALC patient days are an inefficient use of system resources and may prevent access to care for other system users

• Additionally, ALC may reduce patients’ quality of life and satisfaction with the health system
ALC Statistics

- According to a report released by Cancer Care Ontario (CCO) – Access to Care (CCO-ATC), in November 2015:
  - 14% of all inpatient bed days in Ontario were ALC days
  - Of all the ALC patients waiting in post-acute care, 10% were mental health inpatients
  - Within inpatient mental health units specifically, 10% of beds were occupied by patients with an ALC designation
Study Purpose

• 1. Determine the proportion of patient episodes that have been designated ALC over time, as well as the distribution of ALC days among designated patients

• 2. Describe the clinical characteristics of patients who are designated ALC

• 3. Identify risk factors for ALC status at the time of admission
Methods
Data Sources for ALC

- Primary source of data for this project was the Resident Assessment Instrument – Mental Health (RAI-MH)
  - 2005-2014

- Secondary source of data for this project was the Wait Time Information System (WTIS) database
  - 2011-2013

- RAI-MH and WTIS data were linked using patient and episode ID
Study Sample

• Forensic & short-stay patients removed

• Admission assessments analyzed from each patient episode
  • Single patient may be represented in the analysis more than once

• January 1\textsuperscript{st} 2011 – March 31\textsuperscript{st} 2013

• Overall sample = 76,184 admission episodes
  • 1.2\% long-stay ALC patients (30+ days)
**Variable Selection & ALC Cut-point**

- Predictive variables chosen from RAI-MH based on previous research and clinical experience

- Predictive variables include:
  - Demographic characteristics
  - Clinical attributes
  - RAI-MH Scales & Clinical Assessment Protocols (CAPS)

- 30-day cut-point chosen for long-stay ALC status based on CCO guidelines & clinical utility
Statistical Analysis

- Proportion of episodes with 30+ ALC days & percentile distribution of ALC days

- Multivariate logistic regression predicting 30+ ALC days
  - Odds Ratio
  - Anything above ‘1’ = significantly, positively associated with ALC
  - Anything below ‘1’ = significantly, negatively associated with ALC
  - Each variable is analyzed while holding all other variables constant
Results
Proportion of ALC Episodes with +30 and <30 ALC Days (2011-2013)

- Out of 76,184 patient episodes, 901 were identified in WTIS as having 30+ days of ALC

- Percentage of patient episodes classified as long-stay ALC = 1.2%
Percentile Distribution of ALC Days

Mean = 60, SD = 100 ; Median = 22
Multivariate Logistic Regression
Age

The diagram shows a comparison of odds ratios for different age groups. The odds ratio for the comparison 18-44 vs. 45-65 is 2.01, and for 18-44 vs. 65+ it is 2.69.
Demographic Characteristics
Insight into Mental Health
Lifetime Admissions to a Psychiatric Hospital

![Graph showing odds ratios for lifetime admissions to a psychiatric hospital.](graph.png)
Visit from a Social Relation

![Graph showing the relationship between visit frequency and time intervals.](image-url)
Psychiatric Disorders

- Mood Disorders: Odds Ratio 0.86
- Intellectual Disability: Odds Ratio 1.65
- Disorders of childhood/adolescence: Odds Ratio 2.38
- Cognitive Disorders: Odds Ratio 3.11
Social Withdrawal Scale
Depressive Severity Index
Positive Symptoms Scale - Long
Cognitive Performance Scale
Aggressive Behaviour Scale
Activities of Daily Living

![Graph showing odds ratio with 0 vs. 1-16 comparison]

0.00

1.00

1.25

1.50

1.75

2.00

Odds Ratio

0 vs. 1-16
Instrumental Activities of Daily Living
Social Supports for Discharge CAP
Substance Use CAP

![Graph showing odds ratios for 0 vs. 1 and 0 vs. 2 comparisons.]

- 0 vs. 1: Odds Ratio = 1.62
- 0 vs. 2: Odds Ratio = 0.68
Discussion
Conclusions

• Factors that are associated with mental health symptoms are negatively predictive of ALC

• Factors that are peripheral to mental health are positively associated with ALC

• Certain groups appear to be more at risk of being designated ALC based on their demographic or clinical characteristics
Implications

• The RAI-MH assessment tool can be used to predict ALC outcomes

• Based on the results of this study, preventative interventions may be designed & implemented to reduce ALC designations

• Results can also be used to contemplate the types of services needed in the community to reduce ALC
Future Research

• Examination of regional and facility-level factors of ALC

• Development of new decision support algorithms
  • ALC risk at admission

• Explore possible interventions & policy options to manage risk
  • New interRAI CAPs should be used to inform care over the episode
  • Develop community/non-hospital resources matched to needs of ALC patients
Acknowledgements