Assessment of Potential Risk Factors Involved in 30-Day Adult Inpatient Psychiatric Readmission Rate.

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Assessment of Potential Risk Factors Involved in 30-Day Adult Inpatient Psychiatric Readmission Rate

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Introduction

Admissions for mental disorders have been increasing at a faster rate than any other type of hospitalization with mood and psychotic disorders having the highest 30-day readmission rates. The average cost of readmission is significantly larger than the initial hospitalization, thus, hospital reimbursement has become more intimately tied to less rehospitalizations. Readmission rate has emerged as an important quality metric in psychiatry. Identifying the risk factors that lead to readmission at LVHN will allow for focused interventions—improving quality of care, patient satisfaction, and reducing the financial impact on the health care system.

Problem Statement

What was the 30-day all-cause readmission rate for adult psychiatric patients aged 18 or older with mood or psychotic disorders at the Lehigh Valley Hospital Adult Inpatient Psychiatric Unit during the 2014-2015 reporting year and what were the potential risk factors which contributed to readmission for this patient population?

Methodology

Retrospective data from the adult psychiatric inpatient unit was collected from the 2014-2015 year using the Horizon Business Insight™ (HBI) software and through chart review in EPIC and Centricity EMR. Encounters were subsequently screened for inclusion/exclusion criteria. The sample used after screening contained 2,056 patients. The readmission rate was calculated from the data and multiple variables were assessed to determine if they are risk factors for readmission in the region served by the Lehigh Valley Health Network.

Results

The readmission rate (RR) was found to be 13.81% and 8.16% with HBI formula vs population-based readmission rate formula respectively. RR was 5.37% after stratification for true psychiatric cause. Readmitted vs non-readmitted arms were compared in length of stay, mood disorders/psychotic disorders, and patient sex. Readmitted patients were stratified for follow-up care, Friday discharge, drug abuse history, and multiple past admissions. Odds ratios were found for two variables.

Table 1. Composition of Patient Sample

Variable	Readmitted	Non-Readmitted	Total Admissions
n	155	1,901 (1,935)	2,056 (2,090)
LOS (avg)	9.46 days	7.45 days	7.60 days
Mood Disorder Count	116	1,535	1,651
Mood Disorder %	74.83%	80.75%	80.30%
Psychotic Disorder Count	39	366	405
Psychotic Disorder %	25.17%	19.25%	19.70%
Male Count	70	(948)	48.7%
Male %	45.2%	49.0%	48.7%
Female Count	85	(987)	(1,072)
Female %	54.8%	51.0%	51.3%

Table 2. Stratification of Readmitted Patients

Variable	Total (%)
Follow-Up Care	70 (45.2%)
Follow-Up Within 7 Days	68 (97.1%)
Follow-Up Within 14 Days	2 (2.9%)
Follow-Up Within 21 Days	0 (0%)
Follow-Up Within 28 Days	0 (0%)
No Follow-Up Care	35 (22.6%)
Undertermined Follow-Up	50 (32.3%)
Friday Discharge	32 (20.6%)
Drug Abuse	69 (44.5%)
Past Admissions	104 (67.1%)

Table 3. Descriptive Statistics for Index Length of Stay in Patients Readmitted Within 30 Days

Variable	Total Count	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Max	IQR
LOS	155	9.46 days	8.73 days	1 day	4 days	7 days	11 days	58 days	7 days

Table 4. Odds Ratio for Variables

Variable	Odds Ratio	95% CI Confience Interval
Mood Disorder vs Psychotic Disorder	0.709	0.485 to 1.037
Male vs Female	0.857	0.617 to 1.191

Conclusions and Future Implications

The study found that the readmission rate for psychiatric cause was lower than that for all-cause readmissions calculated by two different RR formulas after stratification. The finding is significant because it reveals the true fraction of patients that can be targeted by a quality improvement intervention to reduce readmission from a psychiatric cause. The study found differences between variables within the readmission vs non-readmission patients with respect to type of disorder and sex of patient, but analysis showed there was no statistical significance. Due to limitations of EMR and time, it was not possible to perform complete analytical statistics on five of seven variables. Direction for future study would include stratifying the non-readmitted patients by variables to determine correlation, standard deviations, and statistical significance of the data. The analysis would allow for identification of true risk factors and implementation of intervention at LVHN.

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