Differences in length of stay (LOS) for the adult general medicine population compared to patients with social determinants of health for the University of New Mexico Hospital (UNMH)

Vanessa Krajeck & Joshua Garcia
UNMH Department of Internal Medicine Quality & Safety

UNM SCHOOL OF MEDICINE

INTRODUCTION

The University of New Mexico Department of Internal Medicine Office of Quality & Safety evaluated the differences in length of stay (LOS) for the adult general medicine population compared to patients with social determinants of health (specific ICD-10 z-codes) for the University of New Mexico Hospital (UNMH). The hypothesis was patients with documented social determinants of health had a longer LOS index compared to patients that did not have social determinants of health. A LOS >1 index indicates a higher than expected LOS based on risk models. A LOS >1 indicates an opportunity for documentation of system process changes. The results of the administrative data reflected a higher (1.26) LOS for patients with social determinants of health compared to the general population (1.11) LOS index. The administrative data does not collect comments related to the challenges that led to a higher LOS for the population. These preliminary results led the team to conduct chart reviews to find reasons that may have contributed to the longer LOS. The team reviewed a variety of charts such as non-facility discharges and discharges to another form of healthcare such as hospice, Skilled Nursing Facility (SNF) or rehab given the LOS was higher in these discharges compared to the other discharge dispositions.

METHODS

Vizient UNMH Inpatient Adult General Medicine (Vizient Service Line) discharges for the FY22 (exclusion: expired in hospital during admission). Identified with an ICD-10 z-code (Table 1) documenting social determinants of health including homelessness, history of homelessness, risk of homeless and problems related to housing, instability with risk of homelessness, other problems related to housing and economic circumstances and housing instability. The comparison group was all UNMH Inpatient Adult General Medicine Adult discharges for FY22 (exclusion: expired in hospital during hospitalization and social determinants of health z-codes). Chart review on care management notes focusing on patients that were discharged to another form of healthcare facility, such as SNF, Medical Facility, home hospice, or home health or self-care (routine discharge) (Table 2). Results were captured using a RedCap database. The outcomes were measured using primary and secondary reasons chosen during the chart review process. The measurement is based on the observed/expected LOS using Vizient LOS risk models based on both population groups.

CLINICAL CHART REVIEW RESULTS

During the chart review, most patients that had social determinants of health were in unique situations that made it difficult to find a single disposition to stratify those situations leading to the discharge barriers. The unique situations had layers of complexity which included several documentation hours and days from care management staff and multiple teams to determine discharge plans for patients. To generalize these results, the reviewers chose to bucket the unique situations in one sentence or a one-word disposition that best met the barrier challenges the cohort experienced. The team chose general disposition(s) and provided comments on the situation that included barriers to discharge including but not limited to: aggressive patient behavior, bed availability, COVID precautions, finances, finding acceptable facility, patient non-delusional and transportation. The larger majority of patients that were RFD (Ready for Discharge) had extended wait time because the resource of a bed at a SNF was not available. In previous studies indirectly related to LOS at UNMH indicate once patients are ready for discharge (RFD), surgeons do not control the limited resources the metrics are dependent on (Varela, et al., June 2022). In this study, limited resources out of the control of teams impact the LOS metric. Some specific examples included but are not limited to:

Aggressive patient behavior: MRI delayed due to behavior by patient resulting in longer LOS

Bed availability: Denial from SNF because of violent criminal history; Patients were contracted with a certain SNF, but no beds available; Patients accepted by SNF, no bed availability, pt denied due to payer source

COVID precautions: Patient tested positive for COVID; patient residing at Westside shelter, tested positive for COVID; unable to return to Westside shelter, tested positive for COVID

Finances: Referral sent to Genesis, denied due to IHS funding source; patient utilized 23 days of SNF and if they were to return, they would need to pay out of pocket

Finding accepting facility: Patient suspended from facility per policy; due to patient behaviors, patient not allowed to facility

Patient is non-decisional: Patient denied from multiple SNFs for substance abuse; patient with history of Suicidal Ideations, not self-sufficient, cannot return to shelter; patient on medical hold due to psych evaluation

Transportation: Transportation did not show up to transfer patient; SNF not able to provide transportation

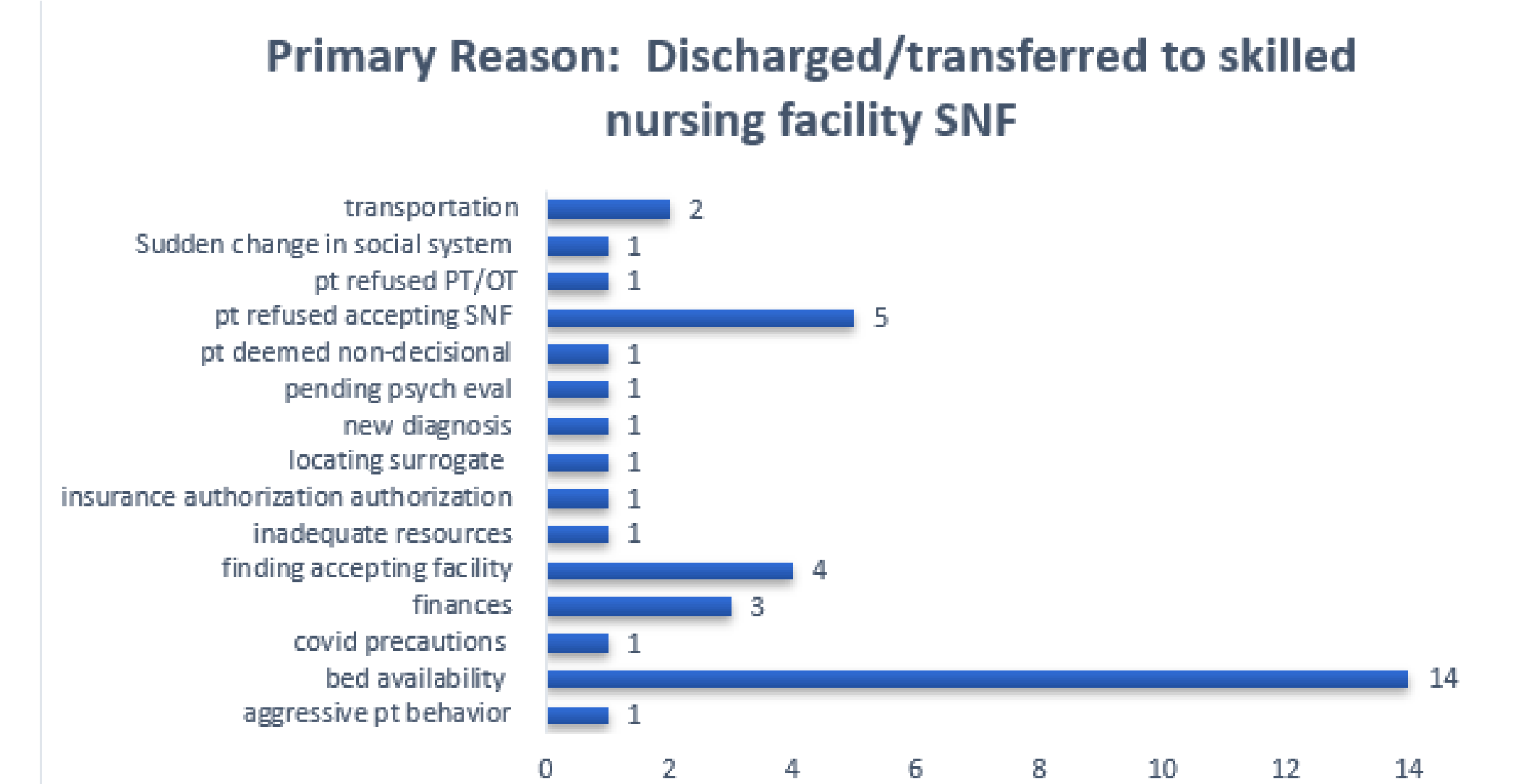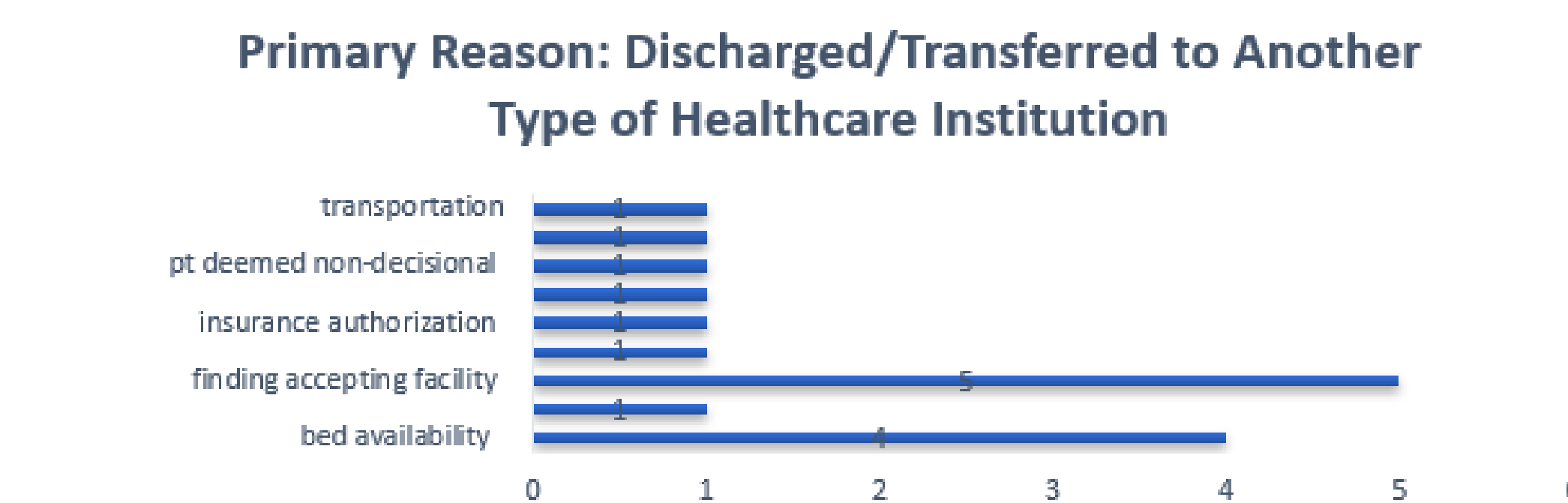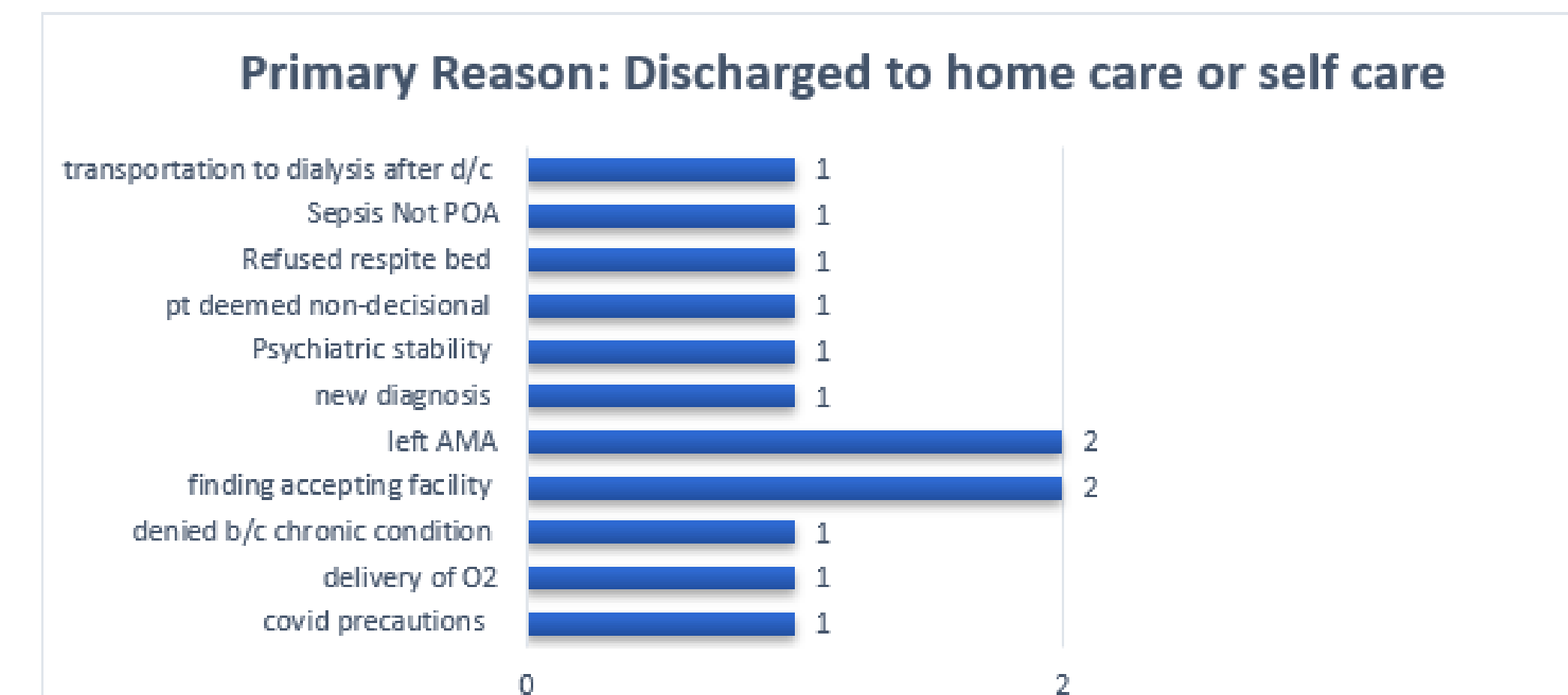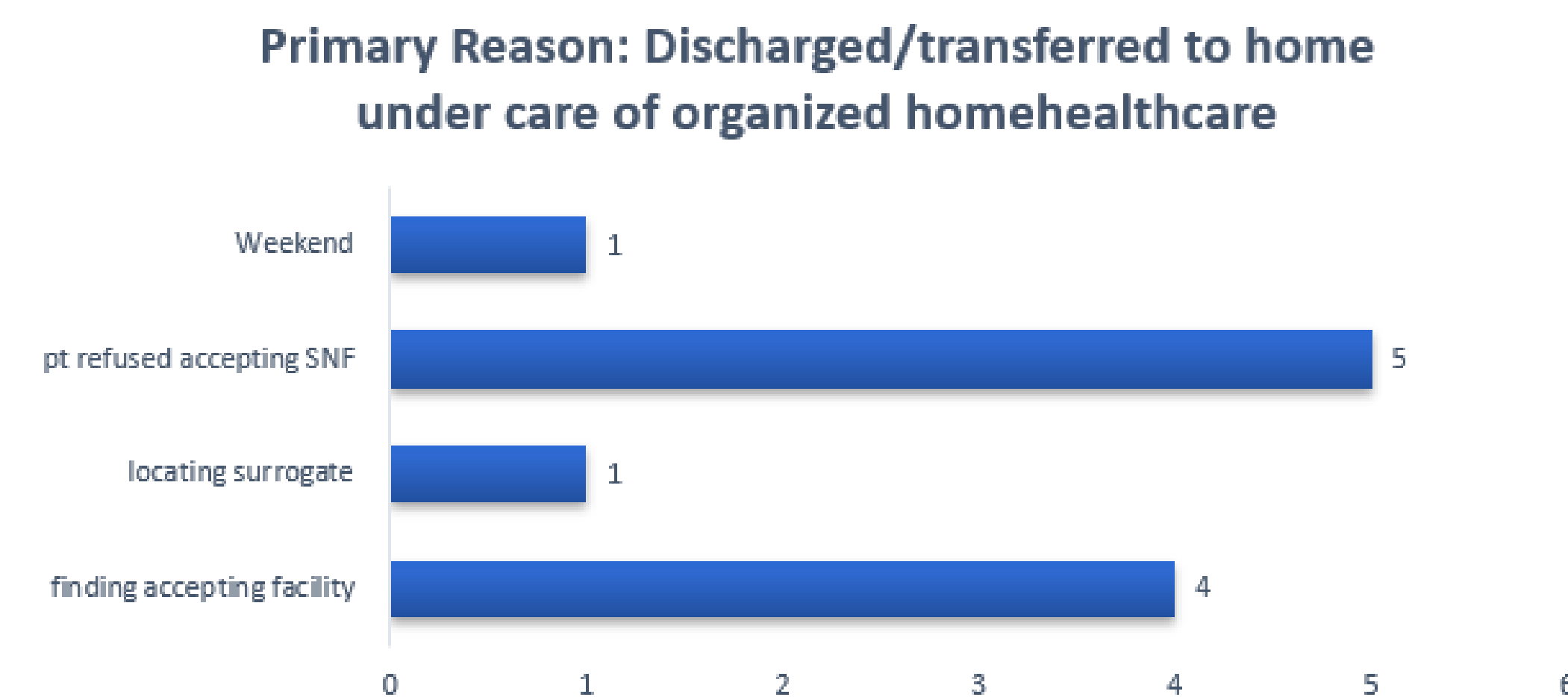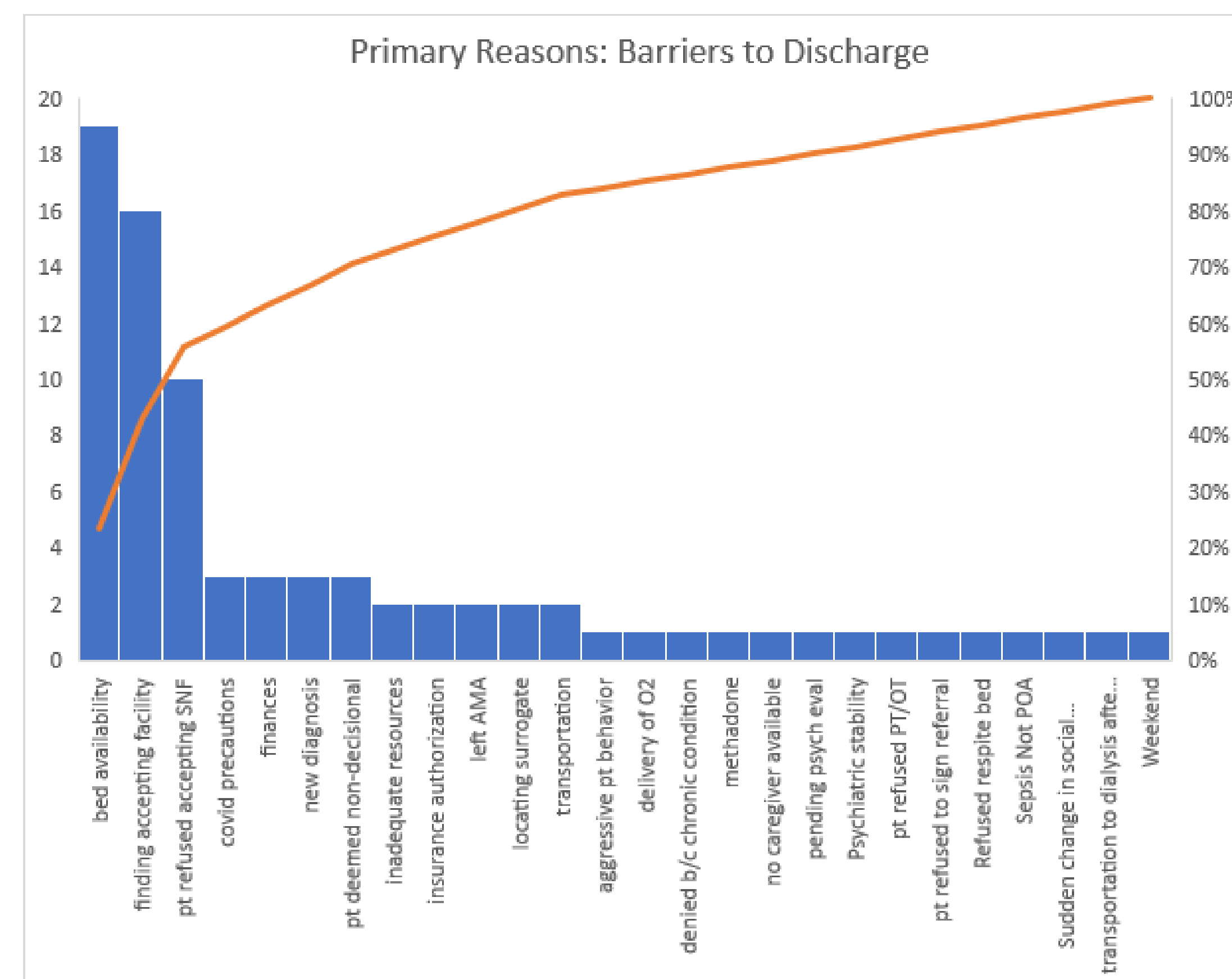| Table 1 |
|---|
| Z591 Inadequate housing |
| Z59 Problems related to housing and economic circumstance |
| Z5811 Housing instability, housed, with risk of homelessness |
| Z9812 Housing instability, housed, homelessness in past 12 months |
| Z5989 Other Problems related to housing and economic circumstances, unspecified |
| Z599 Problem related to housing and economic circumstances, unspecified |
| Z59819 Housing instability, housed unspecified |

Table 1

Table 2
Discharged to home care or self-care (routine discharge)
Discharged to Hospice - home
Discharged to Hospice - medical facility (certified)
Discharged/Transferred to a psychiatric hospital or psychiatric distinct part of the hospital
Discharged/Transferred to Another Type of Healthcare Institution Not Defined Elsewhere in This Code List
Discharged/Transferred to home under care of organized home health service
Discharged/Transferred to skilled nursing facility (SNF) with Medicare certification in anticipation of covered skilled care

Table 2

Study Population	SDOH (z-codes)	Adult Gen Med
Cases	437	5,265
LOS Outliers	(13)	(81)
Mean LOS (Obs)	8.10	6.75
LOS StatSig	**	**
StDev LOS (Obs)	11.75	8.88
Mean LOS (Exp)	6.41	6.10
LOS Index	1.26	1.11

Table 3

ADMINISTRATIVE DATA RESULTS

The observations of the administrative data indicated a LOS >1 for adult general medicine population (1.11) and a LOS >1 (1.26) (Table 3) for patients with documented social determinants of health. The general observations of both populations indicated a LOS >1 for with a discharge status to another form of healthcare, such as home or medical hospice or a skilled nursing facility. These results indicate an opportunity for documentation improvement and or system process changes. At the UNMH level, discharges to a skilled nursing facility or other form of healthcare impacts LOS for any population regardless of documented social determinants of health for reasons that are internal and external. For this population, the highest LOS in the discharges was to home hospice (1.43), discharge to hospice-medical facility (2.65), discharge to home healthcare (1.54) skilled nursing facility (1.53), discharged/transferred to an inpatient rehabilitation facility (2.00). Based on those discharge dispositions and out of 437 patients identified in the study, the team chose to focus on the discharge disposition with the highest LOS (discharge to another form of healthcare). The team reviewed 195 charts and there was a total of 82 patients that had significant primary and secondary reasons related to barriers to discharge that impacted the LOS.

For the two populations, the mean LOS was higher in the general population compared to the selected z-codes. The assumption around this is because the overall numerator is larger than the study population, but has not been statistically tested.

Notable definitions: The average or mean LOS is defined as the sum of the difference between discharge date and admission date divided by the number of inpatient cases for a given time period. LOS Index: The ratio of observed to expected LOS, also referred to as the LOS. An O/E ratio above 1.0 indicates an observed LOS higher than the Vizient expected LOS value (Vizient, 2022).

PRIMARY REASONS FOR BARRIERS TO DISCHARGE

Primary Reasons: Barriers to Discharge

Primary Reason: Discharged to home care or self care

Primary Reason: Discharged/Transferred to Another Type of Healthcare Institution

Primary Reason: Discharged/transferred to home under care of organized homehealthcare

Primary Reason: Discharged/transferred to skilled nursing facility SNF

RECOMMENDATIONS/TAKEAWAYS

- Further study of the social determinants of health population to stratify statistical significance of data
- Further study and compare to like academic medical centers
- Further study of patient safety events such as hospital acquired infections, patient safety indicators that are a result of extended LOS
- Further study of the financial implications to payers such as Medicaid/Medicare
- Further study of patients with social determinants of health throughout the system such as pediatrics, surgical and trauma
- Education related to documentation of the Vizient variables to increase the expected LOS related social determinants of health
- Standardize documentation on a form that captures and stratifies all data to be considered as variables to increase the expected LOS
- Develop best practice that identifies early interventions for social determinants of health
- Work with State/Federal liaisons to understand the loop holes with regulations that keep patients in hospital to internal/external policies based on previous behaviors and make recommendations to lobby for changes to New Mexico Administrative Code
- Utilize internal respite resources/develop step-down units to mitigate bed usage
- System wide education to all staff on social determinants of health including those that were homeless, risk of being homeless, history of homelessness, and housing instability
- Partnering with external stakeholders to further analyze contributing factors and development of mitigation efforts
- Commit to Sit with the population to get a patient perspective of the barriers to discharge and their social determinants of health