

# Are Hip Fracture Patients at a Lower 30-Day Readmission Rate Regardless of Discharge Location?

Megan Koenig, MS3; Gabriella Engstrom, PhD; Bernardo Reyes, MD  
Florida Atlantic University, Charles E. Schmidt College of Medicine

---

# Background

- Hip fracture patients are at an increased risk for additional medical challenges:
  - perioperative cardiac risk
  - perioperative anemia from acute blood loss
  - venous thromboembolism
- Of hip fracture survivors
  - 80% are left with a permanent disability
  - 60% are left dependent on skilled nursing care to manage ongoing complications

- One fifth of all Medicare patients discharged from a hospital are readmitted within 30 days
- The average length of stay in a Skilled Nursing Facility for all Medicare patients is 24 days.
- However, previous studies suggest lower 30-day readmission rates among hip fracture patients than their older adult counterparts.

# Study Aims

- 1) To determine if the diagnosis of a hip fracture is associated with lower return to hospital rates in patients age 75 and older regardless of discharge location.
  - 2) To determine if the return to hospital rate in older adults is associated with discharge location: Skilled Nursing Facility (SNF) or Non-Skilled Nursing Facility (non-SNF).
-

# Methods

- Descriptive analysis of a Quality Improvement database created for Safe Transitions At Risk (STAR) Program
- Population:
  - $\geq 75$  years of age, admitted to a community hospital *between July, 2015 and June, 2017*.
  - Patients admitted to hospice were excluded from analysis.
  - ICD10 code S.72 was used to identify patients with the diagnosis of a hip fracture.
  - Discharge location was noted as Skilled Nursing Facility (SNF) or non-Skilled Nursing Facility. (non-SNF)
- Any returns to the hospital including inpatient admissions, observation stays, and Emergency Department (ED) visits within 30 days after an inpatient or observation stay were recorded.
- Groups were compared using a chi square test with a p value or  $<0.05$  for significance.

Older Adults  
(n=24,776)

Admitted to Hospice  
(n=1495, 6%)

Hip Fracture  
(n=528; 2.1%)

No Hip Fracture  
(n=22,753; 91.8%)

Discharged to Skilled Nursing Facility (n=394, 74.6%)

Discharged to Non SNF location (n=134, n=25.4%)

Discharged to Skilled Nursing Facility (n=4680, 20.6%)

Discharged to Non SNF location (n=18073, 79.4%)

Returned to Hospital (n=69, 17.5%)

Returned to Hospital (n=21, 15.7%)

Returned to Hospital (n=1289, 27.5%)

Returned to Hospital (n=3628, 20.1%)

Did not return to hospital (n=325, 82.5%)

Did not return to hospital (n=113, 84.3%)

Did not return to hospital (n=3391, 72.5%)

Did not Return to Hospital (n=14445, 79.9%)

# Results

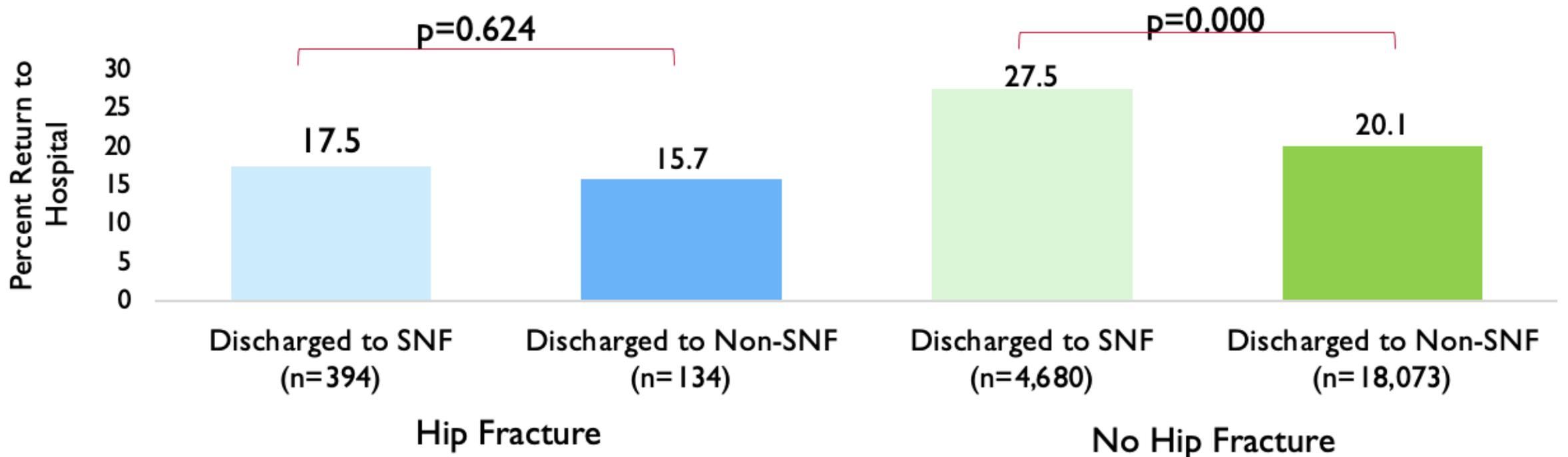
## Table 1: Demographics and Clinical Characteristics

- Women are more likely than men to present to the hospital with a hip fracture.
- Single adults are more likely than married adults to present to the hospital with a hip fracture.
- Patients with a diagnosis of Diabetes, Cancer, Congestive heart failure, and Stroke are more likely to present to the hospital for reasons that do not include a hip fracture.
- Patients admitted with a diagnosis of hip fractures had a higher prevalence of Dementia and Anemia than those with no hip fracture.

Demographic and Clinical Characteristics <sup>3</sup>	Hip Fracture N=528	No Hip Fracture N=22,753	P-value
	N (%)	N (%)	
<b>Female</b>	364 (69)	11,791 (52)	<b>0.000</b>
<b>Male</b>	146 (28)	9,718 (43)	
<b>Hispanic/Latino</b>	15 (3)	717 (3)	0.137
<b>non-Hispanic/Latino</b>	479 (91)	20,329 (89)	
<b>Married</b>	192 (36)	10,682 (47)	<b>0.000</b>
<b>Single</b>	316 (60)	10,724 (47)	
<b>Chronic pulmonary disease</b>	149 (28)	6952 (31)	0.249
<b>Diabetes</b>	106 (20)	6015 (26)	<b>0.001</b>
<b>Dementia</b>	157 (30)	4541 (20)	<b>0.000</b>
<b>Cancer</b>	25 (5)	2296 (10)	<b>0.000</b>
<b>Congestive heart failure</b>	78 (15)	4936 (22)	<b>0.000</b>
<b>Stroke</b>	46 (9)	3038 (13)	<b>0.002</b>
<b>Moderate or Severe liver disease</b>	2 (0)	92 (0)	0.927
<b>Anemia (Hemoglobin&lt;10)</b>	195 (37)	3173 (14)	<b>0.000</b>
<b>Low albumin (&lt;3.4)</b>	168 (32)	7962 (35)	0.130
<b>Polypharmacy (&gt;9 medications at discharge)</b>	298 (56)	11,921 (52)	0.066
<b>GFR &lt;30</b>	72 (14)	2816 (12)	0.385

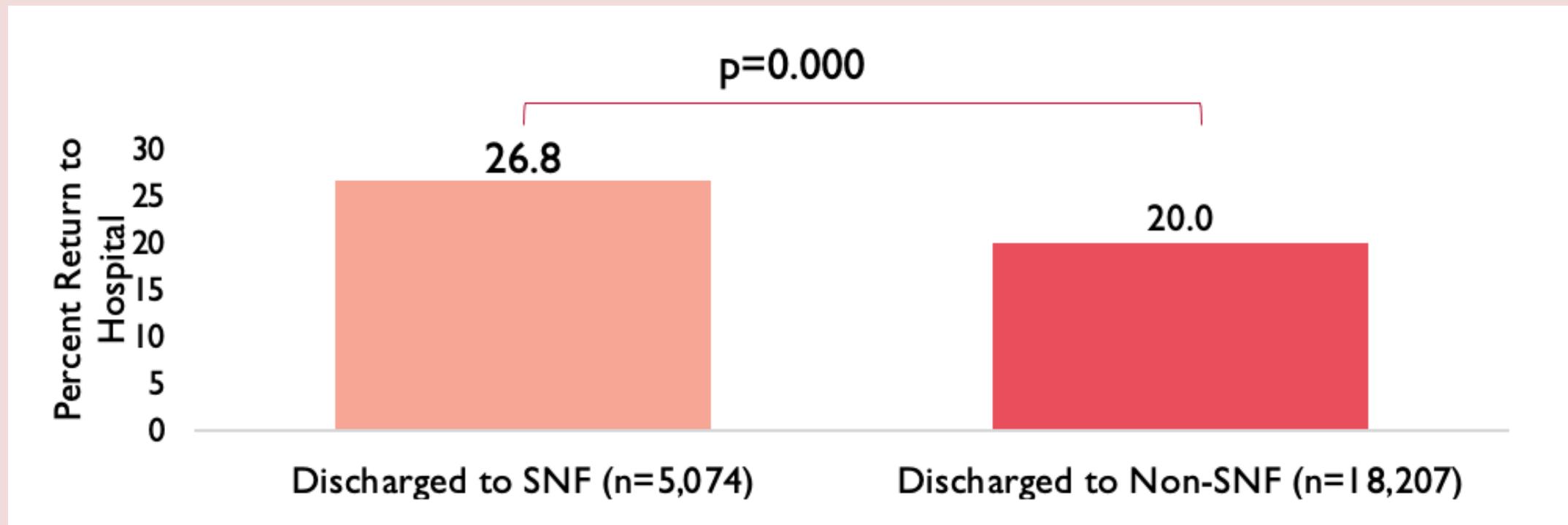
**Figure 2:** Percent Return to Hospital With and Without Hip Fracture

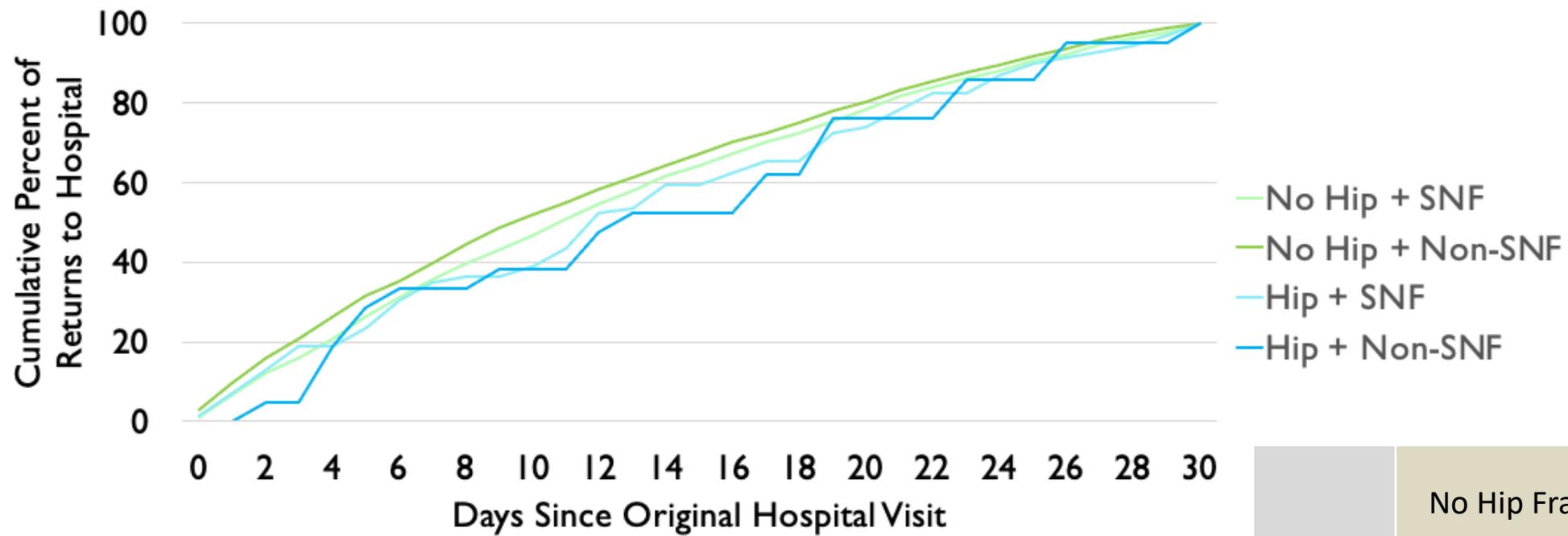
- In patients with a hip fracture, there is no significant difference in return to hospital rate based on discharge location ( $n=0.624$ ).
- In patients with no hip fracture, there is a significantly greater return to hospital rate for patients discharged to a SNF ( $n=0.000$ ).



**Figure 3: Overall Percent Return to Hospital by Discharge Location among** (Including hip fractures and no hip fractures)

- There is a significantly greater return to hospital rate in patients discharged to a SNF vs those discharged to a non-SNF location





**Figure 4:** Cumulative Percent of Patients who Return to the Hospital Each Day after Initial Discharge

	No Hip Fracture		Hip Fracture	
Day	SNF	Non-SNF	SNF	Non-SNF
0	1	2.9	1.4	0
7	35.5	39.7	34.8	33.3
14	61.6	64.2	59.4	52.4
21	81.7	83.1	78.3	76.2
28	96.4	97.3	94.2	95.2

# Conclusion

---

- Discharge location did not affect the return to hospital rate in patients with a hip fracture on initial admission. (n=0.624).
- Patients without a hip fracture on initial admission had a significantly higher return to hospital rate if discharged to a SNF compared to a non-SNF location.
- Older adults discharged to a SNF had a significantly higher return to hospital rate compared to those discharged to a non-SNF location, independent of initial cause of hospitalization.
- Older adults who returned to the hospital most often return within the first week after leaving the hospital compared to weeks two, three, and four, emphasizing the importance of acute care after hospital discharge.

# References

- 1) Jencks SF, Williams MV, Coleman EA. Rehospitalisations among patients in the Medicare fee-for service program. *N Engl J Med*. 2009;360:1418–1428. doi: 10.1056/NEJMsa0803563.
- 2) Rachael B. Zuckerman et al. "Readmissions, Observation, and the Hospital Readmissions Reduction Program." *New England Journal of Medicine* 374, no. 16 (Apr 21 2016): 1543-51. DOI: 10.1056/NEJMsa1513024
- 3) Braithwaite RS, Col NF, Wong JB. Estimating hip fracture morbidity, mortality and costs. *J Am Geriatr Soc*. 2003 Mar;51(3):364–370.
- 4) Foss NB, Kristensen MT, Kehlet H. Anaemia impedes functional mobility after hip fracture surgery. *Age Ageing*. 2008 Mar;37(2):173–178.
- 5) uliebø V, Krogseth M, Skovlund E, Engedal K, Wyller TB. Medical treatment predicts mortality after hip fracture. *J Gerontol A Biol Sci Med Sci*. 2010 Apr;65(4):442–449. Epub 2009 Dec 18.
- Mendelson, D., & Bentley, F. (2019, December 07). Medicare Patients Are Using Fewer Skilled Nursing Services. Retrieved July 1, 2020, from <https://avalere.com/press-releases/medicare-patients-are-using-fewer-skilled-nursing-services>