

Thirty-Day Readmission After Hospitalization for Diabetic Foot Ulcer

Ulcer: A Nationwide Analysis

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Introduction

- Diabetic foot ulcers (DFU) are a major cause of hospitalization, morbidity, and cost.
- Although 30-day readmissions remain common, they are poorly characterized nationally.
- Prior studies of 30-day readmissions for DFU are limited.
- We aimed to characterize national readmission rates and identify drivers of readmission.

Methods

- Retrospective, cohort using 2022 Nationwide Readmissions Database (NRD).
- Adult DFU hospitalizations identified using ICD-10 codes.
- Primary outcome: 30-day all-cause readmission.
- Survey-weighted analyses for national estimates.
- Multivariate logistic regression for predictors.
- Compared index vs. rehospitalizations.

Results

- Readmission Burden:**
 - 234,797 index DFU hospitalizations nationally.
 - 13.3% 30-day readmission rate.
 - Higher than national average (8.2%).

Figure 1. Adjusted Associations with 30-Day Readmission for Diabetic Foot Ulcer

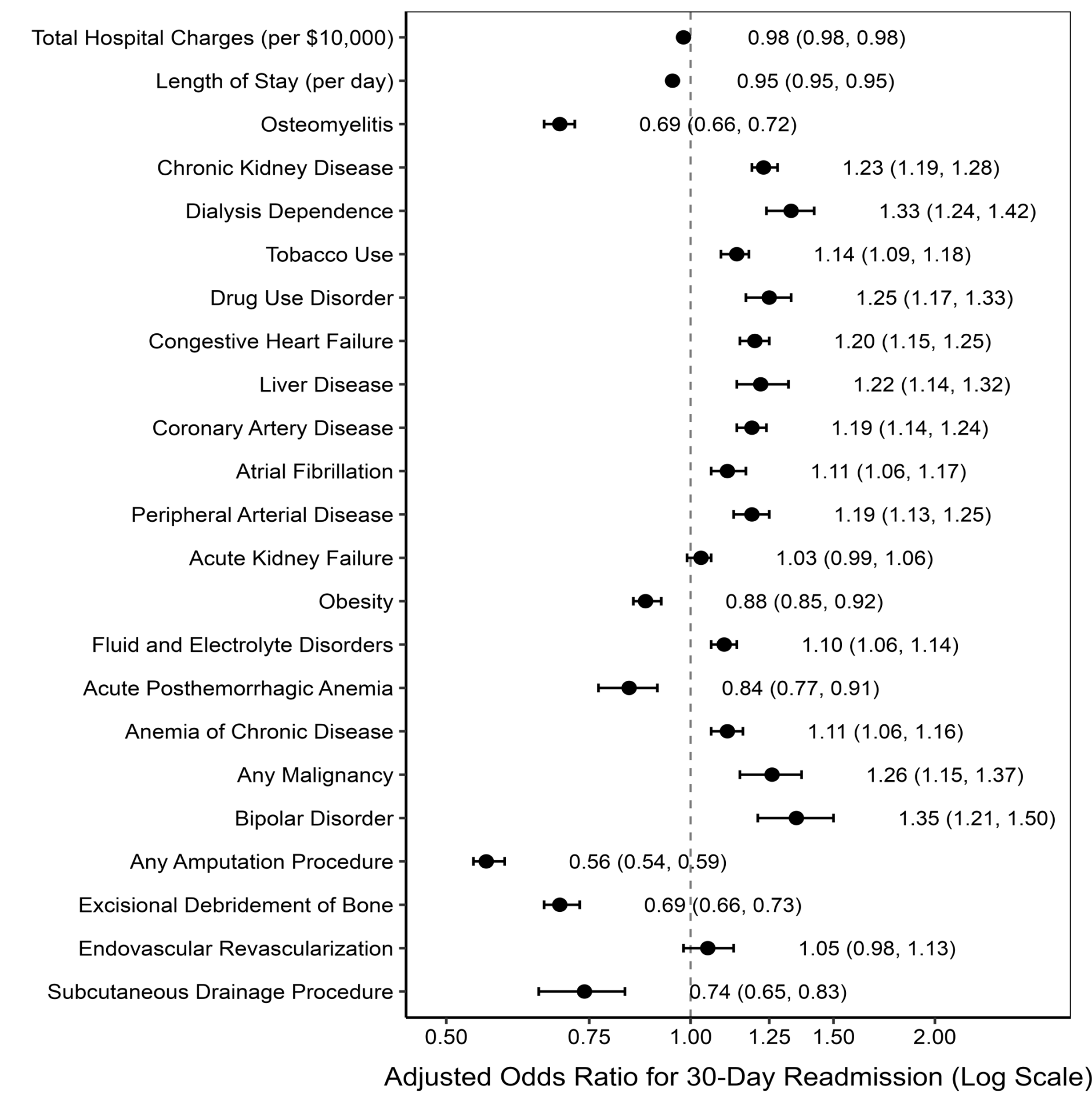


Figure 2. Comparison of Index and Readmission Hospitalizations for Diabetic Foot Ulcer.

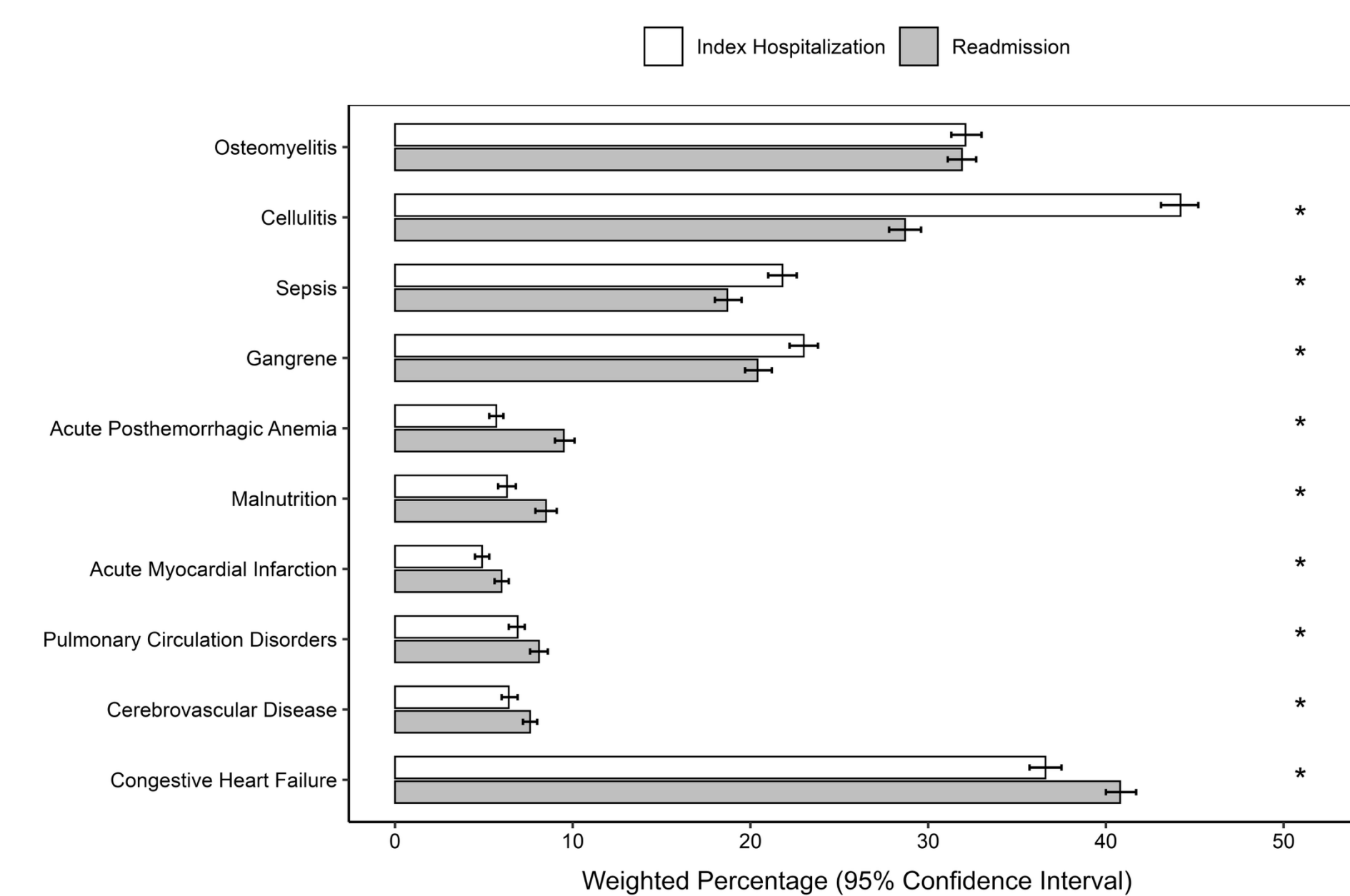


Table 1. Descriptive Characteristics of Index Diabetic Foot Ulcer Hospitalizations.

Variable	Overall	Readmitted	Not Readmitted	p-value
n	234,797	31,286	203,529	N/A
Age	63.1 (63.0-63.3) [13.1]	64.3 (64-64.5) [13.3]	63 (62.8-63.1) [13.1]	<0.001
Female	30.9 (30.6-31.2)	32.7 (31.9-33.5)	30.7 (30.3-31.0)	<0.001
Zip Code Median Income Quartile				0.188
1 st	33.3 (31.9-34.7)	34.0 (32.4-35.6)	33.2 (31.8-34.6)	
2 nd	28.5 (27.6-29.5)	28.6 (27.4-29.8)	28.5 (27.5-29.5)	
3 rd	23.0 (22.1-24.0)	22.2 (21.1-23.3)	23.1 (22.2-24.1)	
4 th	15.2 (14.1-16.3)	15.2 (14.0-16.5)	15.2 (14.1-16.3)	
Insurance				<0.001
Public	73.6 (73.0-74.3)	79.1 (78.2-80.0)	72.9 (72.2-73.5)	
Private	19.9 (19.3-20.4)	14.9 (14.1-15.7)	20.6 (20.0-21.1)	
Uninsured	3.4 (3.2-3.7)	3 (2.6-3.3)	3.5 (3.3-3.8)	
Other	3.1 (2.8-3.3)	3 (2.6-3.4)	3.1 (2.8-3.3)	
Total Healthcare Charge (\$)	103,197 (99,657-106,736) [137,510]	88,053 (84,872-91,235) [97,464]	105,523 (101,844-109,202.9) [142,526.9]	<0.001
Length of Stay (days)	9.2 (9.0-9.3) [11.5]	6.8 (6.8-6.9) [4.8]	9.5 (9.4-9.7) [12.2]	<0.001
APR-DRG Severity				<0.001
Minor	2.4 (2.3-2.6)	2.3 (2-2.5)	2.5 (2.4-2.6)	
Moderate	36.7 (36.2-37.2)	33.2 (32.3-34.1)	37.2 (36.6-37.7)	
Major	44.9 (44.5-45.3)	49.8 (48.9-50.7)	44.2 (43.8-44.6)	
Extreme	16 (15.6-16.3)	14.7 (14.1-15.3)	16.1 (15.8-16.5)	
Neuropathy	52.0 (51.2-52.8)	49.5 (48.5-50.5)	52.4 (51.6-53.2)	<0.001
Osteomyelitis	40.8 (40.2-41.3)	32.1 (31.2-33)	42.1 (41.5-42.7)	<0.001
Cellulitis	48.9 (48.2-49.6)	44.2 (43.1-45.2)	49.6 (48.9-50.4)	<0.001
Sepsis	22.9 (22.4-23.5)	21.8 (21.0-22.6)	23.1 (22.5-23.7)	<0.001
Gangrene	23.2 (22.7-23.6)	23.0 (22.2-23.8)	23.2 (22.7-23.7)	0.634
Prior Amputation	12.3 (11.9-12.7)	11.4 (10.8-12.1)	12.4 (12.0-12.8)	0.002
Chronic Kidney Disease	39.2 (38.6-39.7)	45.6 (44.7-46.6)	38.2 (37.6-38.7)	<0.001
Congestive Heart Failure	30.3 (29.8-30.9)	36.6 (35.7-37.5)	29.4 (28.8-29.9)	<0.001
Peripheral Arterial Disease	18.2 (17.7-18.7)	21.5 (20.6-22.3)	17.7 (17.2-18.2)	<0.001
Hypertension	85.2 (84.8-85.5)	87.0 (86.4-87.6)	84.9 (84.5-85.3)	<0.001
Tobacco	36.4 (35.6-37.1)	38.3 (37.2-39.5)	36.1 (35.3-36.8)	<0.001
Alcohol	3.1 (3.0-3.2)	3.2 (2.9-3.5)	3.1 (2.9-3.2)	0.308

Results (cont.)

- Who Gets Readmitted:**
 - Greater medical complexity (APR-DRG severity).
 - Chronic kidney disease (45.6% vs. 38.2%).
 - Cardiovascular disease (CHF, CAD, PAD).
 - Mental/behavioral conditions (bipolar, drug use, tobacco).
- What Correlates with Readmission:**
 - Higher odds include CKD, CAD, CHF, PAD, AF, bipolar disorder, and drug use
 - Lower odds include osteomyelitis, amputation, debridement, and longer length of stay.
- Index vs. Readmission:**
 - Readmissions had higher anemia, malnutrition, and CV events.
 - Lower infection-related diagnoses.

Conclusions

- 1 in 8 DFU patients are readmitted within 30 days.
- Readmissions are driven by systemic medical instability, not infection.
- DFU represents a marker of multisystem disease burden.
- Multidisciplinary and post-discharge care are needed to reduce readmissions.