

Only 50% of Patients Return Back to Home at 30 Days Following Geriatric Hip Fracture Surgery

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INTRODUCTION: Hip fractures affect over 300,000 Americans annually, with post-acute care costs exceeding \$60 billion yearly. For elderly patients, home represents far more than a residence. It embodies independence, dignity, familiar surroundings, and the foundation of their social connections and daily routines. While extensive literature examines individual outcomes like mortality, complete residential transition pathways from pre-fracture living to discharge through 30-day outcomes remain poorly characterized. This knowledge gap is critical because losing the ability to return home represents one of the most feared consequences of aging, often triggering a cascade of functional decline, social isolation, and psychological distress for both patients and their families. Current findings regarding optimal discharge settings are mixed, with uncertainty about which patients can successfully return to independent home living. Unlike elective surgery patients who can prepare for discharge, hip fracture patients are typically elderly, frail, and medically complex, making discharge planning particularly challenging and constrained. Understanding predictors of home return is essential for setting realistic patient expectations, preserving hope during recovery, identifying modifiable factors that can help elderly patients reclaim their independence, and optimizing resource allocation in this vulnerable population.

METHODS: This retrospective cohort study utilized ACS-NSQIP database linked to targeted hip fracture files (2016-2023). NSQIP represents the gold standard for surgical quality data, capturing standardized perioperative information from over 700 participating hospitals with rigorous data collection protocols and inter-rater reliability measures exceeding 95%. We identified patients ≥ 65 years undergoing hip fracture surgery using CPT codes 27236, 27244, and 27245. Exclusion criteria included atypical fractures, tumor-related fractures, and incomplete follow-up data. We also excluded patients whose pre-fracture living status was unknown. Primary outcome was successful return to home living at 30 days postoperatively, defined using NSQIP's standardized residential status variables tracking patients from pre-fracture residence through hospital discharge to their 30-day living status. Multivariable binary logistic regression identified independent predictors of baseline return.

RESULTS: The cohort included 59,151 patients who lived independently at home pre-fracture (mean age 82.1 ± 7.2 years, 70% female). Intertrochanteric fractures were most common (53%), followed by femoral neck (40%) and subtrochanteric fractures (6%). At discharge, only 22% (13,101) were sent directly home, while 72% (42,662) required post-acute care facilities. However, at 30 days, 50% (29,708) successfully returned to home living. Notably, 86% of patients discharged directly home maintained their independence, while 43% of those discharged to post-acute facility care eventually returned home by 30 days. Table 1 shows significant positive and negative predictors, with early weight-bearing on post-operative day 1 as the strongest positive factor and age >85 years, preoperative dementia, and prolonged length of stay (>15 days) as the strongest negative predictors. Time from hospital admission to surgery showed no significant association ($p=0.36$).

DISCUSSION AND CONCLUSION: This analysis brings forward the devastating functional impact of geriatric hip fractures, demonstrating that these injuries fundamentally alter the trajectory of independence for older adults. Despite all patients living independently at home pre-fracture, only half successfully return to this baseline within 30 days, representing a loss of autonomy that extends beyond the immediate surgical recovery. Early mobilization emerges as a critical intervention that can meaningfully improve outcomes, highlighting the importance of aggressive rehabilitation protocols in the immediate post-operative period. However, the influence of non-modifiable factors like advanced age and cognitive impairment does reveal the inherent vulnerability of this population and the limited ability of medical interventions to fully restore pre-fracture independence. While direct home discharge occurred in only 22% of patients, post-acute care facilities served as an important bridge to independence, with 43% of facility patients ultimately returning home by 30 days. This demonstrates that initial facility placement does not preclude eventual home return, though it does highlight the substantial care coordination required for optimal outcomes. Given that geriatric quality of life and psychological well-being are intricately linked to mobility and independence, hip fractures create barriers to optimal recovery and may accentuate a cycle of functional deterioration in the short term. These findings emphasize that early weight-bearing protocols and attention to modifiable factors like nutritional status, anemia and renal function can significantly improve the likelihood of home return after hip fracture. Given that nearly half of all patients and 43% of those initially requiring facility care eventually returned home, aggressive rehabilitation and optimization of treatable conditions represent critical opportunities to restore independence in this vulnerable population.

Figure 1: Pictorial representation of transition from pre-fracture home living to post-operative discharge to living status at 30-days.

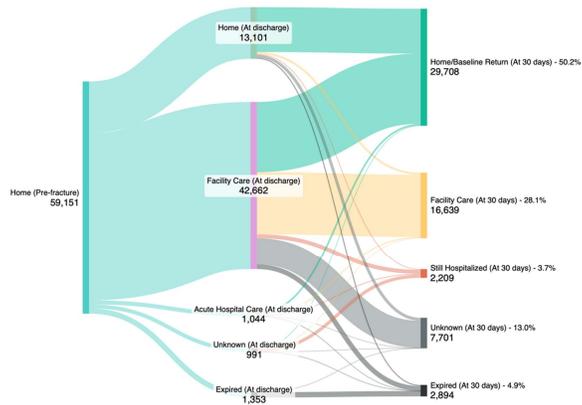


Table 1: Key predictors of 30-Day return to home for hip fracture patients (N=41,798)

Predictor	Adjusted OR (95% CI)	P-value
POSITIVE PREDICTORS		
Early weight-bearing as tolerated (POD 1)	1.61 (1.54-1.69)	<0.001
Normal albumin ($\geq 3.5\text{g/dL}$ vs low $<3.0\text{g/dL}$)	1.35 (1.24-1.47)	<0.001
Borderline albumin ($3.0\text{-}3.4\text{g/dL}$ vs low $<3.0\text{g/dL}$)	1.33 (1.22-1.45)	<0.001
Female sex	1.09 (1.04-1.15)	<0.001
NEGATIVE PREDICTORS		
Age 85+ years (vs 65-74 years)	0.43 (0.40-0.45)	<0.001
Pre-operative dementia	0.45 (0.43-0.48)	<0.001
Length of stay 15+ days (vs 0-3 days)	0.47 (0.43-0.52)	<0.001
ASA Class IV (vs Class I)	0.48 (0.34-0.67)	<0.001
ASA Class III (vs Class I)	0.55 (0.39-0.76)	<0.001
Length of stay 8-14 days (vs 0-3 days)	0.67 (0.62-0.72)	<0.001
Pre-operative delirium	0.73 (0.67-0.78)	<0.001
Severe anemia (Hematocrit $<30\%$) (vs normal $\geq 40\%$)	0.74 (0.68-0.79)	<0.001
Age 75-84 years (vs 65-74 years)	0.73 (0.68-0.77)	<0.001
Intertrochanteric fracture (vs femoral neck)	0.77 (0.74-0.81)	<0.001
Subtrochanteric fracture (vs femoral neck)	0.78 (0.71-0.86)	<0.001
Length of stay 4-7 days (vs 0-3 days)	0.79 (0.75-0.84)	<0.001
Moderate anemia (Hematocrit 30-35.9%) (vs normal $\geq 40\%$)	0.81 (0.77-0.86)	<0.001
Creatinine impairment $>1.5\text{mg/dL}$ (vs normal)	0.85 (0.79-0.92)	<0.001
Obese BMI $\geq 30\text{kg/m}^2$ (vs normal)	0.87 (0.82-0.93)	<0.001
Mild anemia 36-39.9% (vs normal $\geq 40\%$)	0.87 (0.82-0.93)	<0.001