Assessment of Patient Outcomes of Rehabilitative Care Provided in Inpatient Rehabilitation Facilities (IRFs) and After Discharge: Study Highlights for Cardiac Condition Patients

Background: Cardiovascular disease is the leading cause of hospitalizations and death in the United States. Elderly Americans are at greater risk of heart disease-related morbidity and mortality, and, according to the Agency for Healthcare Research and Quality (AHRQ), more than one out of three Americans age 65 and older received a heart disease diagnosis in 2010. Post-acute care providers, including inpatient rehabilitation facilities (IRFs) and skilled nursing facilities (SNFs), play an essential role in this population’s care with nearly fifty-percent of Medicare patients hospitalized for a cardiac event receiving subsequent post-acute care.

The American Heart Association, American College of Cardiology, and AHRQ endorse the implementation of structured cardiac rehabilitation guidelines that are initiated by highly coordinated multidisciplinary care teams. This rehabilitation approach has been shown to optimize patient recovery. Few studies have investigated the comparative outcomes of cardiac patients who receive rehabilitative services in different post-acute care settings in which multidisciplinary approaches to rehabilitation are known to vary. One study of matched SNF to IRF providers did observe, however, that cardiovascular and pulmonary patients admitted to IRFs received more rehabilitative services, experienced greater functional gains, and were more likely to be discharged home than patients who were admitted to a SNF.

Key Findings: Our analysis of 5,195 clinically and demographically matched SNF to IRF cardiac patients finds that IRF-rehabilitated patients experience better long-term clinical outcomes than SNF patients. We observed the average length of rehabilitation stay for the IRF cohort to be less than half that of the average SNF patient (11.2 vs. 23.1 days; p < 0.0001). Following the initial rehabilitation stay, compared to SNF discharged cardiac patients, IRF patients experienced on average (all statistically significant at p < 0.0001 unless otherwise noted):

- 24.1 percent (10.8 percentage point difference) lower all-cause mortality rate over a two-year period
- 66.7 day difference in average days alive over a two-year period
- 72.1 more days residing at home (i.e., not receiving facility-based care) over a two-year period
- There was no statistical difference in average cost between IRF and SNF settings over two years

Discussion: Our findings suggest that cardiac patients who receive rehabilitative services in IRFs experience better clinical outcomes than matched patients seen in SNFs. Although the average cost of IRF cardiac patients’ initial rehabilitation stay was significantly higher than their SNF counterparts ($13,627 vs $7,568; p < 0.0001), the overall Medicare payments aggregated over two years were similar. The higher average healthcare cost after SNF rehabilitation offset IRF cardiac patients’ higher initial rehabilitation stay costs.

Differences in regulatory requirements for IRFs and SNFs may contribute to the superior rehabilitation outcomes observed in IRF-rehabilitated patients. The cardiac rehabilitation guidelines endorsed by professional organizations recommend that cardiac patients receive rehabilitative services that are physician- and multidisciplinary, which is a practice approach consistent with how IRFs are regulated. SNFs are not required to provide care in this way, and in some instances, may lack the capacity to render the recommended oversight and management of cardiac rehabilitation. Future post-acute care policies that affect this population’s utilization of IRF services should be reviewed in light of our study findings.

Difference in Mortality Rate between IRF and SNF Cardiac Patients Two Years after Initial Rehabilitation Stay

Difference in Number of Home Days* between IRF and SNF Cardiac Patients Over Two Years

* Number of days not receiving facility-based care

Source: Dobson DaVanzo analysis of research identifiable 20% sample of Medicare beneficiaries, 2005-2009.


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