Rehospitalizations among Elderly Chronic Kidney Disease Patients

Tricia L. Roberts, MS, David T. Gilbertson, PhD, Craig Solid, PhD, Allan J. Collins, MD
United States Renal Data System, Minneapolis Medical Research Foundation, University of Minnesota Twin Cities

Introduction
- The reduction of rehospitalizations (rehospitalizations) among Medicare beneficiaries remains a current public policy objective.
- Previous studies have shown high rehos rates among general Medicare and hemodialysis patients: respectively, nearly one fifth and over one third of hospital discharges were followed by a 30-day rehos.
- However, current rehos rates among the chronic kidney disease (CKD) population have not been analyzed.

Methods
- Rehos rates were calculated among prevalent Medicare CKD patients on January 1, 2010, age 66 and older on December 31, 2009, using the 5% Medicare sample.
- During 2009, CKD stage was defined and patients were continuously enrolled in Medicare parts A and B without HMO coverage. Patients with ESRD were analyzed separately.
- Data included live all-cause hospital discharges from January 1 to December 1, 2010, and patients with at least one discharge were included.
- Data excluded rehabilitation claims, transfers, and discharges with a same-day admission to long-term care and critical access hospitals.
- Events were first rehos and/or mortality. Rates indicated the percent of live discharges with an event within 30 days.
- Annual rehos rates were adjusted for age, gender, and race using direct adjustment with all included discharges in 2005 as the reference.

Results
- Results included 63,031 discharges from 34,842 CKD patients. Patients age 75-84 represented 42.6% of the cohort while 57.1% had only one discharge (Table 1).
- Rehos rates within 30 days among CKD patients were 24% compared to 18 and 34% for non-CKD and ESRD, respectively, and those for death or rehos were 30% compared to 22 and 39% (Fig. 1).
- Rates increased with CKD severity: rehos rates in CKD stages 4-5 were 26% compared to 23% in CKD stages 1-2 (Fig. 1).
- The rehos rate among CKD patients (24%) even exceeded the rate of the combined endpoint of death or rehos (22%) among non-CKD patients (Fig. 2).
- Rehos appears to decrease as mortality increases with older age among CKD patients (Fig. 3).
- Among CKD patients, rehos rates were highest among non-white races (27-28%). Mortality, however, was slightly lower among non-whites (7% versus 9% among whites); Fig. 4).
- Adjusted rehos rates among CKD patients decreased only slightly from 27% in 2002 to 24% in 2010 (Fig. 5).

Conclusions
- Nearly one in four hospital discharges among CKD patients were followed by a 30-day rehos, and rates improved minimally in the last decade.
- The association between lower rehos and higher mortality, as observed for racial and age trends, illustrates the issue of the competing risk of mortality. Rehos rates need to be interpreted with caution due to competing risks as death precludes the opportunity for readmission.
- However, the observed overall association between elevated rehos rates and CKD status persisted despite influence of competing risk. Rehos rates among CKD patients were higher than even the combined endpoint of rehos/death among non-CKD patients.
- Findings support rehos reduction efforts among CKD in addition to ESRD populations.