

## New Bundled World: Quality of Care and Readmission in Diabetes Patients

Judy Y. Chen, M.D., M.S.H.S.,<sup>1</sup> Qiufei Ma, Ph.D.,<sup>1</sup> Hua Chen, M.D.,<sup>2</sup>  
and Irina Yermilov, M.D., M.P.H.T.M.<sup>1</sup>

### Abstract

#### **Background:**

Hospital readmissions among patients with diabetes are substantial and costly. Although prior studies have shown that receipt of outpatient quality of care significantly reduces the risk of hospitalization among patients with diabetes, little is known about its impact on hospital readmission. The objective of this study is to assess the impact of outpatient quality of care on 30-day readmission among patients with diabetes.

#### **Methods:**

We used deidentified administrative claims data from the IMS LifeLink and included commercially insured diabetes patients  $\geq 19$  years old discharged from hospitals in the United States in 2009 and 2010 ( $n = 30,139$ ). The outcome was readmission within 2–30 days of discharge. The main independent variables were receipt of outpatient quality-of-care measures (i.e., two hemoglobin A1c tests, low-density lipoprotein (LDL) test, 90-day supply of statin, and 90-day supply of angiotensin-converting enzyme inhibitors/angiotensin receptor blockers). Multivariate logistic regression was used to examine the impact of outpatient quality of care on hospital readmission while controlling for demographics, clinical characteristics, health care utilization, and insurance type in the year prior to admission.

#### **Results:**

Overall 30-day readmission rates among patients with diabetes were 18.9%. Patients who received at least one LDL test [odds ratio (OR) = 0.918, 95% confidence interval (CI) 0.852–0.989,  $p < .025$ ] and  $\geq 90$ -day supply of statins (OR = 0.91, 95% CI [0.85–0.97],  $p < .01$ ) were less likely to be readmitted to the hospital.

#### **Conclusions:**

Receipt of LDL testing and adherence to statin medications were effective in decreasing the likelihood of 30-day hospital readmission and may be considered as elements of a quality focused incentive-based health care delivery package for diabetes patients.

*J Diabetes Sci Technol* 2012;6(3):563–571

**Author Affiliations:** <sup>1</sup>IMS Health, Woodland Hills, California; and <sup>2</sup>Texas Tech University Health Sciences, Lubbock, Texas

**Abbreviations:** (ACEI) angiotensin-converting enzyme inhibitor, (ARB) angiotensin receptor blocker, (CI) confidence interval, (HbA1c) hemoglobin A1c, (HEDIS) Healthcare Effectiveness Data and Information Set, (LDL) low-density lipoprotein, (OR) odds ratio, (U.S.) United States

**Keywords:** diabetes, quality of care, readmission, statins

**Corresponding Author:** Irina Yermilov, M.D., M.P.H.T.M., IMS Health, 21650 Oxnard St., Suite 1850, Woodland Hills, CA 91367; email address [iyermilov@us.imshealth.com](mailto:iyermilov@us.imshealth.com)