TO THE EDITOR: The Centers for Medicare and Medicaid Services (CMS) view readmission for any reason after an index hospitalization for heart failure as a sign of poor quality of care. “From the patient perspective, readmission from any cause is an adverse event.”1 Little consideration has been given, however, to a potential association between readmissions and mortality, an outcome that is of primary interest to medical professionals and the general public.

We examined the association between risk-adjusted readmission and risk-adjusted death within 30 days after hospitalization for heart failure among 3857 hospitals included in the CMS Hospital Compare public reporting database (www.hospitalcompare.hhs.gov) that had no missing data. We used linear regression analysis with restricted cubic splines2 (piecewise smoothing polynomials) (Fig. 1). Analysis was performed with the use of R, version 2.10.1 (www.r-project.org), and Harrell’s Hmisc library. A higher occurrence of readmissions after index admissions for heart failure was associated with lower risk-adjusted 30-day mortality. Our findings suggest that readmissions could be “adversely” affected by a competing risk3 of death — a patient who dies during the index episode of care can never be readmitted. Hence, if a hospital has a lower mortality rate, then a greater proportion of its discharged patients are eligible for readmission. As such, to some extent, a higher readmission rate may be a consequence of successful care. Furthermore, planned readmissions for procedures or surgery may represent appropriate care that decreases the risk of death, but this is not accounted for in Hospital Compare.

These observations are consistent with a recent study of 3999 Medicare beneficiaries in California who were hospitalized at various hospitals with a principal diagnosis of heart failure. Hospitals that used more resources had lower mortality rates.4

It is unclear why the relation between 30-day readmissions and 30-day mortality was flat among hospitals with the lowest readmission rates (Fig. 1). We speculate that this has to do with variations in hospital characteristics between hospitals with low readmission rates versus those with high readmission rates or in hospitals’ approaches to the performance of various predischarge and postdischarge processes. This needs to be investigated further in more robust CMS data sets.

Are all readmissions bad readmissions? Is the rate of readmission for any reason 30 days after hospitalization the most appropriate index of poor quality of care? We believe that a nuanced interpretation of the CMS Hospital Compare data is in order.

Eiran Z. Gorodeski, M.D., M.P.H.
Randall C. Starling, M.D., M.P.H.
Eugene H. Blackstone, M.D.
Cleveland Clinic
Cleveland, OH
gorodee@ccf.org

Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.

CORRECTIONS

Hepatitis B Virus Infection (October 2, 2008;359:1486-500).
There were several errors in Table 1 (page 1490): in the “Serum HBV DNA undetectable by PCR” row, the value given in the Tenofovir column should have been 76, rather than 80. In the “ALT normalization at end of 1 yr” row, the values given in the Telbivudine and Tenofovir columns should have been 77 and 68, respectively, rather than 60 and 77. In the “At 1 yr” row under “Viral resistance,” the value given in the Tenofovir column should have been 5, rather than 6. There were also errors in Table 2 (page 1491): in the “Serum HBV DNA undetectable by PCR” row, the value given in the Tenofovir column should have been 93, rather than 95. In the “ALT normalization at end of 1 yr” row, the value given in the Tenofovir column should have been 76, rather than 79. In the “At 1 yr” row under “Viral resistance,” the value given in the Tenofovir column should have been 2, rather than 4. The article has been corrected at NEJM.org.

In the second paragraph (page 1605), the third sentence should have begun, “The risk of pancreatic cancer in smokers is 2.5 to 3.6 times that in nonsmokers . . .” rather than “Smokers have a 2.5 to 3.6% increase in the risk of pancreatic cancer. . . .” We regret the error. The article has been corrected at NEJM.org.


NOTICE