Regions with higher rate of diagnoses have lower fatality rate for chronic conditions

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An examination of data for more than 5 million Medicare beneficiaries finds that hospital regions that have a greater frequency of diagnoses have a lower case-fatality rate for chronic conditions such as coronary artery disease and kidney failure, according to a study in the March 16 issue of *JAMA*.

According to background information in the article, disease diagnoses are considered a critical factor in risk-adjustment policies designed to reward efficient and high-quality care. "Ideally, a diagnosis would be solely an attribute of the patient, unaffected by the process of observation," the authors write.

H. Gilbert Welch, M.D., M.P.H., of the Department of Veterans Affairs Medical Center, White River Junction, Vt., and colleagues conducted a study to determine the association between frequency of diagnoses for chronic conditions in geographic areas and case-fatality rate among Medicare beneficiaries. The study included an analysis of the average number of 9 serious chronic conditions (cancer, chronic obstructive pulmonary disease, coronary artery disease, congestive heart failure, peripheral artery disease, severe liver disease, diabetes with end-organ disease, chronic renal failure, and dementia) diagnosed in 306 hospital referral regions (HRRs) in the United States. HRRs were divided into quintiles (fifths) of diagnosis frequency. Participants were 5,153,877 fee-for-service Medicare beneficiaries in 2007.

In 2007, the average (mean) number of chronic conditions diagnosed

among Medicare beneficiaries across 306 HRRs was 0.90; median (midpoint), 0.87. The frequency of diagnosis varied substantially with geography. The average number of chronic conditions diagnosed per Medicare beneficiary ranged from 0.58 in Grand Junction, Colo., and Idaho Falls, Idaho, to 1.23 in Miami and McAllen, Texas.

Across the 306 HRRs, diagnosis frequency had a strong positive correlation with measures of physician encounters and diagnostic testing: the number of physician visits, number of different physicians seen, number of imaging tests, and number of laboratory tests.

"The number of conditions diagnosed was related to risk of death: among patients diagnosed with 0, 1, 2, and 3 conditions the case-fatality rate was 16, 45, 93, and 154 per 1000, respectively. As regional diagnosis frequency increased, however, the case fatality associated with a chronic condition became progressively less. Among patients diagnosed with 1 condition, the case-fatality rate decreased in a stepwise fashion across quintiles of diagnosis frequency, from 51 per 1000 in the lowest quintile to 38 per 1000 in the highest quintile. For patients diagnosed with 3 conditions, the corresponding case-fatality rates were 168 and 137 per 1000," the authors write.

"The frequency of diagnoses reported in claims data are routinely used in methods for risk adjustment in comparative effectiveness research, the evaluation of readmissions following hospitalization, and in paying insurance plans under the Medicare Advantage program. If diagnosis is not solely an attribute of underlying disease burden, adjustments based on frequency of diagnosis may introduce bias into efforts to compare outcomes, pay for health care, and assess the extent of geographic variation in health care delivery. On the other hand, if more diagnoses (and more frequent encounters and diagnostic testing as well as greater spending) improve outcomes, then standard methods of risk adjustment may provide a more accurate comparison of effectiveness and

efficiency. Future research must further evaluate the contribution of the process of observation to diagnosis frequency and explore mechanisms to better measure disease burden," the researchers conclude.

More information: *JAMA*. 2011;305[11]1113-1118.

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