What This Study Found

• The illness burden of blacks is significantly higher than for whites at any given level of algorithm-predicted risk based on past spending. For example, at the risk level that would result in automatic identification for the care management program, blacks have 4.8 chronic illnesses compared to 3.8 for whites — a 26 percent difference.

• Blacks also have more severe hypertension, diabetes and renal failure and more dangerous measures of anemia and cholesterol compared to white patients with the same future risk predicted by past spending.

• Achieving equity in the number of chronic illnesses represented among patients automatically enrolled in the program would increase the fraction of black patients enrolled from 18 to 47 percent.

• Changing the model to include prediction of the number of chronic illnesses a patient would likely experience in the next year reduced the presence of racial bias by 84 percent.

What These Findings Mean

Because of existing racial disparities in our health care system, blacks have lower spending than whites for a given level of health. As a result, a spending-driven predictive algorithm flags fewer black patients as likely to have high future needs even when their health status is dramatically worse than white peers with the same level of prior spending. This bias makes it much less likely that black patients with high needs will be identified for program enrollment and given the opportunity to benefit from intensive care management. Improvements in the algorithm and significant reductions in the extent of racial bias are possible when the model incorporates consideration of health status as well as spending.

More About This Study

This study used a unique dataset from a large health system that includes the claims data needed to generate patient risk scores based on past spending and medical records to characterize health status. Risk scores were derived for 6,079 black patients and 43,539 white patients, and the number of chronic conditions and values for a range of biomarkers were compared by race at each level of predicted risk. The increase in the representation of black patients classified at a specific risk level that could be achieved by eliminating the health gap was computed by progressively removing healthier white patients from above the risk threshold and replacing them with less healthy black patients from below the threshold until the marginal patient was equally healthy. Several alternative predictive algorithms were explored. Model improvement was gauged by the reduction in excess chronic conditions observed for blacks relative to whites, conditional on risk score.

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