

Summary: Risk Adjustment for Publicly Reported Quality Measures

Why is Risk Adjustment Needed?

- Suppose that a particular home health agency's patient outcomes are inferior to those of the national population. An example of this would be a lower rate of patient improvement in a particular functional area.
- Home health clinicians or administrators typically ask one question when presented with these results:
"Are my agency's outcomes really inferior to those achieved by other agencies serving comparable patients, OR are my agency's patients at greater risk for poor outcomes because they are more frail or have more complex medical problems than other home health patients?"
- To address this question, we use risk adjustment, which statistically "factors out" differences in one agency's patients compared to the national population and helps "level the playing field."

Statistical Modeling

- Several statistical and nonstatistical approaches might be used to risk adjust outcome comparisons. The approach chosen for OBQI reports is multivariate modeling.
- First, a predictive formula is developed for each outcome, based on the statistical relationships that exist between risk factors and the outcome. (Risk factors are patient health status and other characteristics known from OASIS items at SOC/ROC.)
 - Logistic regression analysis is used to determine which risk factors (of the more than 150 available) are included in each predictive formula and to estimate the parameters of each equation, using data from a national sample of home health patients.
 - Each risk factor must contribute in a clinically meaningful and statistically significant manner to the predictive formula for it to be retained in the risk model.
 - Some risk factors are used in risk models for many outcome measures, while others may be used in only a few.

Outcome Reporting on Home Health Compare

- On Home Health Compare, the same risk models are used as with OBQI reports (except pain interfering with activity is not risk-adjusted on OBQI reports).
- The application of the risk adjustment factor is essentially reversed from that on OBQI reports.
 - On OBQI reports, the agency rate is observed and the national reference is risk-adjusted to reflect that agency's unique case mix. Each agency could theoretically have a unique national reference value.
 - For Home Health Compare, the agency rate is risk-adjusted and the national reference is the observed rate. This allows for comparisons among agencies in relation to a constant national reference.

- The prediction formula is used to calculate (for each patient) the probability that the patient will experience the outcome, based on the patient's status at SOC/ROC with respect to each of the designated risk factors included in the prediction model for the outcome.
- From the individual patient predicted outcome values, an expected agency-level outcome rate is calculated. This is the average of the predicted values for the outcome across all patients for whom the outcome is calculated.
- The observed and expected agency outcome rates are used, in combination with the expected national outcome rate, to produce the risk-adjusted agency value that appears on Home Health Compare.
- The agency's risk-adjusted rate will be in the same relationship to the national reference as on OBQI reports (that is, the same direction and magnitude).
- A risk-adjusted state rate is calculated the same way as for agencies, but includes all the patients from home health agencies in a state. This allows for comparisons among agencies in relation to a constant state reference. The risk-adjusted state rate accounts for differences between the state and national populations.