Sociodemographic Risk Adjustment for Health Care Performance Measures

David R. Nerenz, Ph.D.
Director, Center for Health Policy and Health Services Research
Henry Ford Health System
Detroit, MI

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Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors

TECHNICAL REPORT

August 15, 2014
Why Re-Examine SDS Adjustment Now?

- Since the original policy was enacted, we have 8 years of hindsight, disparities data, and research on effective interventions
  - Stratification has largely failed to materialize
  - Overall quality has improved, but disparities have not
  - Further evidence regarding the role of patient socio-demographic factors on many outcomes
  - Research on evidence-based interventions that help close the gap - these require additional resources

- The convergence of a shift from process to outcomes reporting and higher financial stakes has heightened concern with an absolute prohibition against SDS adjustment
## Characteristics of Hospitals Receiving Penalties Under the Hospital Readmissions Reduction Program

<table>
<thead>
<tr>
<th></th>
<th>High Penalties (n = 1097)</th>
<th>Low Penalties (n = 1092)</th>
<th>No Penalties, Unadjusted Rates, No. (%) (n = 1093)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size of hospital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large (≥ 400 beds)</td>
<td>178 (40)</td>
<td>158 (36)</td>
<td>108 (24)</td>
</tr>
<tr>
<td>Medium (200-399 beds)</td>
<td>622 (35)</td>
<td>659 (37)</td>
<td>482 (27)</td>
</tr>
<tr>
<td>Small (&lt;200 beds)</td>
<td>296 (28)</td>
<td>275 (26)</td>
<td>503 (47)</td>
</tr>
<tr>
<td><strong>Teaching hospital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>118 (44)</td>
<td>102 (38)</td>
<td>50 (19)</td>
</tr>
<tr>
<td>Not major</td>
<td>979 (33)</td>
<td>990 (33)</td>
<td>1043 (35)</td>
</tr>
<tr>
<td><strong>Safety-net hospital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>337 (44)</td>
<td>275 (36)</td>
<td>157 (20)</td>
</tr>
<tr>
<td>No</td>
<td>760 (30)</td>
<td>817 (33)</td>
<td>936 (37)</td>
</tr>
</tbody>
</table>

Abbreviation: OR, odds ratio.

The unadjusted mean (SD) payment penalty for hospitals with high penalties is 0.72% (0.23%); low penalties, 0.15% (0.10%); and no penalties, 0. The unadjusted mean (SD) number of admissions for hospitals with high penalties is 945.7 (790.1); low penalties, 791.3 (664.5); and no penalties, 623.8 (743.5). The number of admissions includes the following types of diagnoses: acute myocardial infarction, congestive heart failure, and pneumonia, which are the 3 conditions assessed under the Hospital Readmissions Reduction Program.

Made up of hospitals that will receive above-average penalties under the Hospital Readmissions Reduction Program.

Made up of hospitals that will receive below-average penalties.

Made up of hospitals that will not be penalized.
Concern – Reduced Access

- Absent adjustment, providers and plans will be less willing to serve “vulnerable” patients and communities because:
  - fewer resources available because of penalties or absence of rewards;
  - serving “vulnerable” populations will lead to identification in public reporting programs as being a “poor performer”
  - Individual patients and public and private payors using publicly reported information to make decisions will avoid plans and providers serving those communities
Misleading Information?
Hospital Compare

Rate of unplanned readmission for heart failure patients

Why is this important?
Hide Graph

HENRY FORD HOSPITAL

HENRY FORD WEST BLOOMFIELD HOSPITAL

Number of included patients:
1141
426

U.S. national rate of unplanned readmission for heart failure patients = 23.0%
Heart failure patients given discharge instructions

Why is this important?

Hide Graph

For this measure, the rate for the top 10% of hospitals was 100%.

2 Data submitted were based on a sample of cases/patients.
Patients who reported that YES, they were given information about what to do during their recovery at home

Why is this important?

Hide Graph
SES and HEDIS – Clinic-level

- Breast Cancer Screening: $r = .63, p < .001$
- Colorectal Cancer Screening: $r = .53, p < .01$
- Comprehensive Diabetes Care - LDL < 100mg/dL: $r = .56, p < .005$
- Comprehensive Diabetes Care - HbA1c < 8%: $r = .48, p < .05$
Quality of Care – Just one of many factors leading to outcomes

Bikdeli, B, et al, Place of residence and outcomes of patients with heart failure: Analysis from the telemonitoring to Improve heart failure outcomes trial. *Circulation – Cardiovascular Quality and Outcomes*, 2014, ePub, August 6
Causal Paths

Patient Clinical Factors

Healthcare Unit Structures & Overall Quality

Treatment/Process

Patient Outcome

Patient Sociodemographic Factors

A

B

C

D

E

F

G
Within- and Between-Unit Disparities

Table. Hypothetical Scenarios Illustrating the Effects of Accounting for Socioeconomic Status in Quality-Performance Measures

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Hospital A</th>
<th></th>
<th>Hospital B</th>
<th></th>
<th>Difference in Score, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>70</td>
<td>70</td>
<td>Poor</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Nonpoor</td>
<td>70</td>
<td>70</td>
<td>Nonpoor</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>Poor</td>
<td>60</td>
<td>70</td>
<td>Poor</td>
<td>60</td>
</tr>
<tr>
<td>Poor</td>
<td>80</td>
<td>76</td>
<td>Nonpoor</td>
<td>80</td>
<td>0</td>
</tr>
</tbody>
</table>

\*Hospital A is a safety-net facility, treating 50% poor patients; only 5% of patients treated at hospital B are poor.

\*Values represent performance measures on a scale of 0 to 100.


Note –authors used direct standardization, based on a hypothetical performance measure and a Hypothetical national mix of patients – 20% poor and 80% non-poor
Figure 2. Within- and Between-Plan Racial Disparities in Health Plan Employer and Data Information Set Outcomes

<table>
<thead>
<tr>
<th>Outcome Description</th>
<th>Within-Plan Disparity</th>
<th>Between-Plan Disparity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin A1c Control &lt;9.5% or 9.0% (Diabetes)*</td>
<td>5.8%</td>
<td>2.2%</td>
</tr>
<tr>
<td>LDL-C Control &lt;130 mg/dL (Diabetes)</td>
<td>7.5%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Blood Pressure Control &lt;140/90 mm Hg (Hypertension)</td>
<td>4.7%</td>
<td>2.1%</td>
</tr>
<tr>
<td>LDL-C Control &lt;130 mg/dL (Coronary Event)</td>
<td>11.1%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

Estimates derived from multilevel models. LDL-C indicates low-density lipoprotein cholesterol. To convert LDL-C to mmol/L, multiply by 0.0259.
*Changed to 9.0% in 2003.
Between- and within-physician: HbA1c & LDL Control

**Figure 1.** Contributions to overall racial disparities in achieving ideal diabetes mellitus (DM) control are indicated for 3 DM care measures based on fully adjusted hierarchical models. Patient effects represent those disparities explained by patient age, sex, income, insurance, body mass index, glomerular filtration rate, and presence of cardiovascular disease.
Recommendation 1: When there is a conceptual relationship (i.e., logical rationale or theory) between sociodemographic factors and outcomes or processes of care and empirical evidence (e.g., statistical analysis) that sociodemographic factors affect an outcome or process of care reflected in a performance measure:

- those sociodemographic factors should be included in risk adjustment of the performance score (using accepted guidelines for selecting risk factors) unless there are conceptual reasons or empirical evidence indicating that adjustment is unnecessary or inappropriate;

AND

- the performance measure specifications must also include specifications for stratification of a clinically-adjusted version of the measure based on the sociodemographic factors used in risk adjustment.
Recommendation 2: NQF should define a transition period for implementation of the recommendations related to sociodemographic adjustment. During the transition period, if a performance measure is adjusted for sociodemographic status, then it also will include specifications for a clinically-adjusted version of the measure only for purposes of comparison to the SDS-adjusted measure.
Recommendation 3: A new NQF standing committee focused on disparities should be established.

- Review implementation
- Assess trends in disparities
- Monitor for unintended consequences
- Review and provide guidance on methodologies for adjustment and stratification
Recommendation 4: The NQF criteria for endorsing performance measures used in accountability applications (e.g., public reporting, pay-for-performance) should be revised as follows to indicate that patient factors for risk adjustment include both clinical and sociodemographic factors:

2b4. For outcome measures and other measures when indicated (e.g., resource use, some process):

an evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified; is based on patient factors (including clinical and sociodemographic factors) that influence the measured outcome (but not factors related to disparities in care or the quality of care) and are present at start of care;¹⁴,¹⁵ and has demonstrated adequate discrimination and calibration or rationale/data support no risk adjustment/stratification.

14. Risk factors that influence outcomes should not be specified as exclusions.  
15. Risk models should not obscure disparities in care for populations by including factors that are associated with differences/inequalities in care, such as race, socioeconomic status, or gender (e.g., poorer treatment outcomes of African American men with prostate cancer or inequalities in treatment for CVD risk factors between men and women). It is preferable to stratify measures by race and socioeconomic status rather than to adjust out the differences.
Public Comments – NQF Panel Draft Recommendations

Summary Counts of Comments Received
• 667 comments
• 158 organizations (or individuals)
• 143 commenters were in support of the recommendations
• 7 commenters were opposed to the recommendations
• 7 commenters provided mixed comments (supportive and not supportive) or reservations
• 5 commenters were supportive of most recommendations but opposed to Recommendation 7 - NQF having role in guidance on implementation
Sample of Organizations in Support

Support the recommendations (Partial list from the 143 commenters in support)

• Association of American Medical Colleges
• Association of Asian Pacific Community Health Organizations
• American Medical Association
• American Hospital Association
• America’s Health Insurance Plans
• American Medical Group Association
• America’s Essential Hospitals
• Catholic Health Association
• Federation of American Hospitals
• National Association of Community Health Centers
• National Hispanic Medical Association
• Premier Healthcare Alliance
• Service Employees International Union
• Special Needs Plans Alliance
Organizations Opposed

Do not support the recommendations (7 commenters)

- CMS (purchaser)
- Consumer-Purchaser Alliance (consumer) (composed of 33 consumer and purchaser organizations)
- Consumers Union/Consumer Reports (consumer)
- Kaiser Permanente (provider/plan)
- The Leapfrog Group (purchaser)
- NCQA (quality measurement, research and improvement)
- St. Louis Area Business Health Coalition (purchaser)
NQF CSAC and Board Decisions

• “Trial Period”

• “Robust trial”, per Board discussion and approved minutes
  – Multiple measures
  – Go through NQF review and endorsement process
  – Available for use as endorsed measures in public reporting and P4P programs

• “...proceed with a trial period for SDS adjustment prior to a permanent change in NQF policy.”
Next Steps?

• Measure developers/stewards
  – Develop risk adjustment models (when appropriate)
  – Bring adjusted measures forward for endorsement

• NQF
  – Review/endorse adjusted measures

• Payors/purchasers
  – Use adjusted measures in public reporting and P4P programs

• All
  – Evaluate impact of adjustment