Quality Measurement and the Social Determinants of Health

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Session Agenda

- Quality Measurement and the Impact of Population and Environmental Characteristics
  - Carrie Henning-Smith, University of Minnesota Rural Health Research Center
- NRHA Efforts to Improve Quality
  - Brock Slabach, National Rural Health Association
- Case Studies in Quality Improvement
  - Tim Putnam, Margaret Mary Health

Quality Measurement and the Impact of Population and Environmental Characteristics

- Health care is increasingly assessed – and paid for – based on quality, not quantity
- Various ways to measure quality: process, outcome, patient-reported experience
- Quality measures are impacted by clinical care and by patient’s characteristics and environment

To Risk Adjust or Not to Risk Adjust?

- Adjusting for patients' socio-demographic characteristics, medical history, and environment helps to level the playing field for providers
- "Over-adjusting" may mask concerning disparities in patient outcomes and quality of care received
- On-going and unresolved debate
  - National Quality Forum recently endorsed using some risk-adjustment in certain circumstances
  - Rurality often missing from the conversation, though!

Example: Adjusting for Individual Characteristics

- Data: Medicare Current Beneficiary Survey, 2012 Access to Care File
- Quality measures: satisfaction with care, blood pressure checked in past year, cholesterol checked in past year, flu shot in past year, change in health status, and all-cause readmission in past year
- Examine differences in quality by metropolitan, micropolitan, and non-core

Unadjusted Quality Scores by Rurality

	Metropolitan	Micropolitan	Non-core
Satisfied with care	95.0%	92.8%[1]	94.2%
Blood pressure checked in past year	96.4%	95.8%	96.8%
Cholesterol checked in past year	89.8%	87.8%	88.3%
Flu shot in past year	73.3%	72.3%	70.1%
Health same or better than past year	79.8%	78.8%	80.0%
All-cause readmission in past year	4.0%	5.0%	6.3%[2]
N=10,595 Medicare beneficiaries age 65 and older			
[1]Micropolitan significantly different than metropolitan at $p<0.05$. [2]Non-core significantly different than micropolitan at $p<0.001$.			

Data: Medicare Current Beneficiary Survey Access to Care File, 2012

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Risk-Adjustment Strategy

- Limit to beneficiaries who saw a physician in the past year
- Adjust for:
  - Sociodemographic characteristics:
    - Travel time to usual doctor's office
    - Educational attainment
    - Age
    - Gender
    - Race and ethnicity
    - Living arrangement
    - Medicaid eligibility
  - Health characteristics:
    - Self-rated health
    - Functional limitations
    - Count of chronic conditions

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Unadjusted Quality Differences by Rurality

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Difference in Quality Scores After Adjustment

	Metropolitan	Micropolitan	Non-core	Full Sample
Satisfied with care	3.02%	4.88%	4.40%	4.10%
BP checked in past year	2.84%	2.83%	2.21%	2.63%
Cholesterol checked in past year	3.97%	4.35%	2.82%	3.71%
Flu shot in past year	2.69%	1.69%	3.15%	2.51%
Health same or better than past year	4.01%	1.89%	2.59%	2.83%
All-cause readmission in past year	-0.43%	-1.57%	-1.88%	-1.29%
Average Difference	2.83%	2.87%	2.84%	2.85%

Note: Differences are calculated by subtracting the adjusted values from the unadjusted values for each measure.

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Example: Adjusting for Community Characteristics

- Data: 2016 County Health Rankings
- Quality measures (population-level): preventable hospitalizations, HbA1c monitoring, and mammography screening

Unadjusted Quality Scores by Rurality

	Preventable Hospitalizations per 1,000 Medicare enrollees	Percentage of Medicare enrollees with diabetes receiving HbA1c monitoring	Percentage of female Medicare enrollees ages 67-69 receiving mammograms
	Mean	Mean	Mean
Metropolitan	56.14	0.86	0.62
Micropolitan	61.84***	0.84***	0.61***
Rural, non-core	71.40***	0.84***	0.59***
N=2,846 counties			

NOTE: Data come from the 2016 County Health Rankings. Significant differences from metropolitan counties at ***$p<0.001$.

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Risk-Adjustment Strategy

- Demographic:
  - Percentage of population age 65+ and age 18 and younger
  - Percentage of the population who were non-Hispanic White
  - Percentage of the population who were non-native English speakers
  - Primary care physicians per 100,000 people
- Socio-economic:
  - Social associations
  - Educational attainment
  - Unemployment rate
  - Income inequality
  - Uninsurance rate
- Health behaviors:
  - Adult smoking rate
  - Adult obesity (BMI 30+) rate
  - Binge drinking/heavy drinking rate
- Physical environment:
  - Food environment index
  - Access to exercise opportunities
  - Presence of air pollution

Unadjusted vs. Adjusted Models

	Preventable hospitalizations (lower=better)		Hba1C monitoring (higher=better)		Mammography screenings (higher=better)	
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Metropolitan (Ref.)						
Micropolitan	0.06***	-0.05***	-0.01***	-0.01***	-0.02***	-0.003
Non-core	0.21***	0.06***	-0.02***	-0.02***	-0.04***	-0.03***
N=2,846 counties; Source: 2016 County Health Rankings. *p<0.05, **p<0.01, ***p<0.001.						

Key Findings

- Adjustment for individual and community-level characteristics reduces, but does not eliminate, differences in quality scores by rurality

- Impact of risk-adjustment depends on quality measure being assessed

- Without adjustment, rural areas may be disproportionately impacted by quality-based payment schemes

Implications

- Discussions about risk-adjustment and quality improvement need to involve rurality!
- Quality improvement happens in the real world and must take population dynamics into account
- Important to learn from data and from case examples

Thank you!

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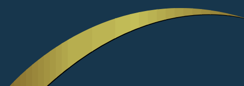

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