

# **Racial/Ethnic Disparities in Nursing Home Rehabilitation Care**

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# Collaborators

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# Research Objective

- Are there racial/ethnic differences in the case-mix adjusted utilization of speech, occupational, and physical therapies for post-acute nursing home residents with stroke?

# Stroke and Rehab Care

- Stroke
  - 3rd leading cause of death
  - Most common neurological reason for hospital admission
  - Leading cause of adult disability
  - Primary reason for post-acute medical rehabilitation
- Lack of widely applicable interventions that minimize or reverse the effects of stroke
- Majority of stroke survivors need rehabilitation services that enhance their recovery and minimize their disability

# Nursing Homes and Rehab Care

- Rehabilitation services offered through a variety of acute and post-acute settings, such as hospitals, inpatient rehabilitation facilities, nursing homes, and home health agencies
- Nursing homes increasingly expanding their role in the provision of rehabilitation care and post-acute care

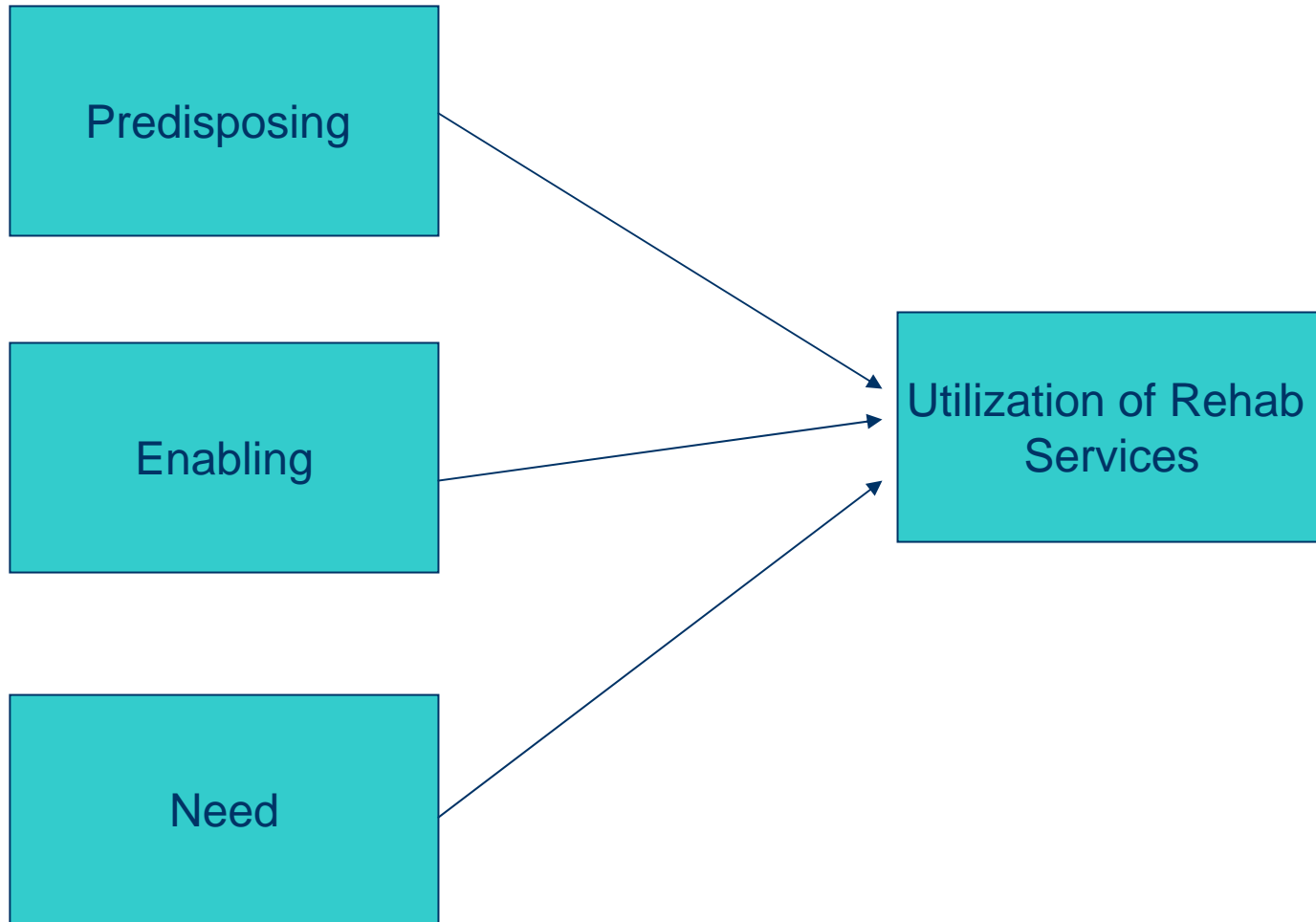
# Racial/Ethnic Differences in Rehab Care

- Minorities comprised 21% of those diagnosed with stroke in nursing homes in 2002
- Prior research suggests the presence of racial/ethnic disparities in nursing home care
  - Howard et al. (2002) found that blacks were concentrated in facilities with lower ratings of cleanliness/maintenance and lighting
  - Grabowski (2004) found that blacks were disproportionately admitted to nursing homes with a higher number of deficiencies
  - Christian et al. (2003) found that racial/ethnic minorities in nursing homes were less likely to receive medications for secondary prevention of stroke

# Medicare and Rehab Care

- Medicare the primary payer for post-acute rehabilitation care in nursing homes
  - Medicare provides 100% coverage of the first 20 days and 80% of the next 80 days of eligible nursing home stays
  - Case-mix adjustment based on the Resource Utilization Group (RUG III) classification of a patient as reflected by the MDS
  - Rehabilitation RUG levels determined by the amount of therapy services. The incremental change in reimbursement between RUG levels is set so that a facility will benefit financially from providing more therapy

# Behavioral Model of Health Services Utilization (Andersen, 1998)





# Data

- 2002 Nursing Home Minimum Data Set (MDS)
  - 14-day Medicare MDS assessments
- 50,238 residents
  - Sample limited to those with a stroke diagnosis, whose care was paid by Medicare Part A
  - Exclude hospital-based facilities
  - Include only residents admitted from hospitals

# Dependent Variables

- Therapy utilization for speech, occupational, and physical therapy
  - # of minutes of therapy provided to the resident in the 7-day observation period

# Independent Variables

- Predisposing variables
  - Race/ethnicity
    - White, Black, Hispanic, Asian, American Indian
  - Age
  - Gender
- Enabling variables
  - Support person
  - Desire to be discharged
  - Type of secondary insurance
- Need variables (Stroke severity)
  - Cognitive Performance Scale
  - ADL Function Scale

# Descriptive Statistics

	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>	<b>Am. Indian</b>
<b>N</b>	<b>40,813</b>	<b>6,536</b>	<b>2,028</b>	<b>707</b>	<b>154</b>
<b>Physical Therapy Minutes</b>	<b>199</b>	<b>168</b>	<b>171</b>	<b>168</b>	<b>210</b>
<b>Occupational Therapy Minutes</b>	<b>174</b>	<b>152</b>	<b>142</b>	<b>139</b>	<b>158</b>
<b>Speech Therapy Minutes</b>	<b>58</b>	<b>55</b>	<b>44</b>	<b>48</b>	<b>39</b>

# Descriptive Statistics

	White	Black	Hispanic	Asian	Am. Indian
<b>Less than 65 (%)</b>	<b>4</b>	<b>12</b>	<b>7</b>	<b>4</b>	<b>10</b>
<b>Over 80 (%)</b>	<b>59</b>	<b>39</b>	<b>46</b>	<b>49</b>	<b>36</b>
<b>Male (%)</b>	<b>37</b>	<b>41</b>	<b>45</b>	<b>46</b>	<b>49</b>
<b>Medicaid (%)</b>	<b>3</b>	<b>7</b>	<b>9</b>	<b>8</b>	<b>6</b>
<b>Self pay (%)</b>	<b>52</b>	<b>53</b>	<b>49</b>	<b>49</b>	<b>58</b>

# Descriptive Statistics

	White	Black	Hispanic	Asian	Am. Indian
<b>Desire Discharge (%)</b>	<b>69</b>	<b>51</b>	<b>48</b>	<b>44</b>	<b>64</b>
<b>Caregiver (%)</b>	<b>67</b>	<b>51</b>	<b>54</b>	<b>54</b>	<b>66</b>
<b>MDS CPS</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>
<b>MDS ADL</b>	<b>17</b>	<b>20</b>	<b>20</b>	<b>21</b>	<b>17</b>

# Analysis

- Two-part model of health services utilization of rehabilitation services
  - First part: logistic regression to estimate the probability of any use of services within the population
  - Second part: multivariate regression analysis to predict utilization conditional on whether the enrollee used any rehab therapy services
- Huber/White correction to account for potential correlation among observations from the same facility
- Facility fixed effects

# Logistic Regression Results (Probability of Receiving Any Therapy)

RACE	Physical Therapy (O.R.)	Occupational Therapy (O.R.)	Speech Therapy (O.R.)
Black	0.75***	0.88**	0.83***
Hispanic	0.67****	0.71****	0.64***
Asian	0.70*	0.81	0.75*
American Indian	0.93	0.61	0.78

Compared to Whites; \*p<0.05 \*\*p<0.01 \*\*\*p<0.001



# Results

- When compared to Whites, Black, Hispanic and Asian nursing home residents with stroke had a lower probability of receiving therapies
  - Blacks
    - 25% lower odds for PT, 17% lower odds for ST, and 12% lower odds for OT
  - Hispanics
    - 36% lower odds for ST, 33% lower odds for PT, and 29% for OT
  - Asians
    - 30% lower odds for PT and 25% for ST

# Predicted Therapy Utilization (Minutes)

	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>	<b>American Indian</b>
<b>Physical Therapy</b>	195.1	<b>186.3*</b>	<b>187.6*</b>	<b>185.1*</b>	<b>201.2*</b>
<b>Occupational Therapy</b>	170.9	<b>163.9*</b>	<b>163.9*</b>	<b>167.4*</b>	<b>159.2*</b>
<b>Speech Therapy</b>	58.9	<b>51.7*</b>	<b>43.4*</b>	<b>47.5*</b>	<b>39.7*</b>

P<0.001

# Results

- Conditional upon receiving therapy, racial/ethnic minorities with stroke received less therapy minutes than Whites in nursing homes across all therapy types
  - PT differences from 10 minutes for Asian to 7 minutes for Hispanics
  - OT differences from 12 minutes for American Indians to 3 minutes for Asians
  - ST differences from 19 minutes for American Indians to 7 minutes for Blacks
- American Indians received 6 minutes more of PT compared to Whites

# Conclusions

- Racial/ethnic differences are observed in the utilization of rehabilitation services of post-acute nursing home residents with stroke even when covered by Medicare. These differences are observed even after accounting for patient and facility characteristics.
- Nursing homes should use address the observed racial/ethnic differences in processes of care as part of their quality improvement efforts

# Conclusions

- Further research is needed to examine the causes for the observed racial/ethnic differences in the use of rehabilitation services
  - Provider bias
  - Cultural differences
  - Selection bias
- Further research is needed to examine the impact of the observed lower utilization of rehabilitation therapies on outcomes of care among racial/ethnic minorities with stroke in nursing homes
  - Walk improvement
  - ADL improvement

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