Racial and Ethnic Disparities in 30-Day Readmissions
An Analysis of Connecticut Hospital Discharge Data

Connecticut State Medical Society and Connecticut Health Foundation Symposium

Tackling Racial and Ethnic Disparities in Connecticut’s Acute Care Hospitals

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Background

• Race and ethnic disparities in hospital readmissions well documented:
  – Blacks higher than Whites for diabetes, AMI, CHF, pneumonia, cirrhosis, TJA, and following ambulatory surgery
  – Hispanics higher than Whites for diabetes, CHF, AMI
  – Rates of 30 day readmission are generally 10-20% higher among racial and ethnic minorities

• CT appears to have substantial disparities in health outcomes and access to care
  – Connecticut Health Foundation report (2010) – 10 year analysis
  – Connecticut Health Care Survey (2014)
Overview of CSMS Connecticut Hospital Readmission Initiative

- Calculate 30 day readmission rates across range of conditions/procedures using hospital discharge data
  - Expand conditions to those not previously studied and those affecting younger patients
  - Control for patient characteristics confounded with race and ethnicity:
    - Patient sickness and comorbidities
    - Patient SES
    - Insurance coverage (public vs. private)
Overview of CSMS Connecticut Hospital Readmission Initiative

- Conducted focus groups with specialists in OB-GYN, orthopedic surgery, gastroenterology, cardiology
  - Discussed role of patient sickness, insurance type in fostering disparities
  - Discussed unmeasured factors (e.g., patient engagement, connection to primary care, patient – provider communication)
  - Discussed potentially strategies to address disparities
Overview of CSMS Connecticut Hospital Readmission Initiative

- Reported hospital specific data to 7 partner institutions
  - Norwalk Hospital, Milford Hospital, Yale-New Haven Hospital, Bristol Hospital, St. Mary’s Hospital, Rockville General Hospital, Manchester Memorial Hospital
  - Discussed factors that might account for better/worse performance than State

- Disseminate findings in peer-reviewed manuscripts
# Measures

## 30 Day Readmissions – Diagnosis-Related Groups (DRGs)

<table>
<thead>
<tr>
<th>DRG</th>
<th>Condition</th>
<th>Number of Admissions</th>
<th>% 30 Day Readmissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>775</td>
<td>Vaginal Delivery</td>
<td>167,807</td>
<td>.8%</td>
</tr>
<tr>
<td>766</td>
<td>Cesarean Delivery</td>
<td>75,552</td>
<td>1.5%</td>
</tr>
<tr>
<td>291,292</td>
<td>Heart Failure</td>
<td>39,985</td>
<td>23.1%</td>
</tr>
<tr>
<td>312, 313</td>
<td>Chest Pain</td>
<td>23,450</td>
<td>9.8%</td>
</tr>
<tr>
<td>332-395</td>
<td>Esophagitis, Gastroenteritis, and Misc Digestive Disorders</td>
<td>284,471</td>
<td>11.6%</td>
</tr>
<tr>
<td>470</td>
<td>Total Joint Replacement (ICD 9 CM 81.51, 81.52, 81.54, 81.56)</td>
<td>51,843</td>
<td>5.2%</td>
</tr>
<tr>
<td>191-193</td>
<td>Pneumonia</td>
<td>44,616</td>
<td>15.3%</td>
</tr>
<tr>
<td>870-872</td>
<td>Septicemia</td>
<td>40,306</td>
<td>18.0%</td>
</tr>
<tr>
<td>602, 603</td>
<td>Cellulitis</td>
<td>27,943</td>
<td>11.9%</td>
</tr>
<tr>
<td>689,690</td>
<td>Kidney and Urinary Infections</td>
<td>31,357</td>
<td>16.3%</td>
</tr>
</tbody>
</table>
Measures

- Race/ethnicity: patient or facility reported
- Patient Sickness: Elixhauser AHRQ comorbidity index
  - 29 discrete comorbid and/or complicating medical conditions
  - Up to 10 primary and secondary diagnoses were recorded for each hospitalization
- Patient age, sex, length of stay, facility volume, payer
Methods

• Up to 8 years of data from HIDD (2005 - 2012)

• Estimated logistic regression models
  – Used generalized estimating equations to account for clustering of observations within person (multiple admissions)
Results

Race and Ethnic Differences in 30 Day Readmissions in Connecticut Hospitals
30 Day Readmissions for 10 Common Reasons for Hospitalization

Black vs. White – Relative Risk

- Pneumonia: 1.09
- Kidney Disease: 1.13
- Chest Pain: 1.19
- Heart Failure and Shock: 1.03
- Gastroenteritis - Medical: 1.12
- Gastroenteritis - Surgical: 1.39
- Cellulitis: 1.27
- Septicemia: 1.35
- Total Joint Arthroplasty: 1.62
- Vaginal Delivery: 1.85
- Cesarean Section: 2.05

*p < 0.05
30 Day Readmissions for 10 Common Reasons for Hospitalization

Hispanic vs. White – Relative Risk

- Pneumonia: 1.04
- Kidney Disease: 0.90
- Chest Pain: 1.07
- Heart Failure and Shock: 1.30*
- Gastroenteritis - Medical: 1.00
- Gastroenteritis - Surgical: 1.16*
- Cellulitis: 0.86
- Septicemia: 1.10
- Total Joint Arthroplasty: 1.52*
- Vaginal Delivery: 1.34
- Cesarean Section: 1.56*

* p < 0.05
Facility Level Differences
Diseases of the Circulatory System

Black/White OR
Race and Ethnic Differences in Insurance Status and Patient Sickness
## Race, Ethnicity, and Payer in CT

Findings from the CTHCS (N = 4,608)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>% Covered by Medicaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic or Latino</td>
<td>28.2</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>9.4</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>24.3</td>
</tr>
<tr>
<td>Asian, Non-Hispanic</td>
<td>1.4</td>
</tr>
<tr>
<td>Other Race or Multi-Racial</td>
<td>28.9</td>
</tr>
</tbody>
</table>
30 Day Readmissions – Comparing Medicaid to Private Payers

Hispanic vs. White

- Pneumonia: 1.60
- Kidney Disease: 1.17
- Chest Pain: 2.16
- Heart Failure and Shock: 1.45
- Gastroenteritis - Medical: 1.40
- Gastroenteritis - Surgical: 1.48
- Cellulitis: 1.53
- Septicemia: 1.51
- Total Joint Arthroplasty: 1.44
- Vaginal Delivery: 1.30
- Cesarean Section: 1.28

All Stat Sig except Kidney Disease
Race and Ethnic Differences in Chronic Disease in CT

Findings from the CDC

Diabetes Takes Disproportionate Toll On Hispanics And Blacks

By: MAGALY OLIVERO | January 18, 2015

Connecticut’s diabetes rate ranks lower than the national average, but Hispanics and African-Americans are more than twice as likely to have the disease compared with their white neighbors and are at greater risk of dying from diabetes-related causes.

Diabetes in Connecticut

• An estimated 250,000 adult residents (about 8%) have diagnosed Type 2 diabetes.

Approximately 250,000 Connecticut adults (8 percent) have been diagnosed with Type 2 diabetes and an estimated 83,000 state residents don’t realize they have the disease, according to 2011-13 data from the U.S. Centers...
Race and Ethnic Disparities in 30 Day Readmissions

The Role of Payer and Patient Sickness
30 Day Readmissions
Comparing Black – White Differences with and without controls for payer and comorbidities

- Pneumonia
- Kidney Disease
- Chest Pain
- Heart Failure and Shock
- Gastroenteritis - Medical
- Gastroenteritis - Surgical
- Cellulitis
- Septicemia
- Total Joint Arthroplasty
- Vaginal Delivery
- Cesarean Section

*p < 0.05
30 Day Readmissions
Comparing Hispanic – White Differences with and without controls for payer and comorbidities

- Pneumonia
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- Septicemia
- Total Joint Arthroplasty
- Vaginal Delivery
- Cesarean Section

* p < 0.05
If Not Payer or Patient Sickness, Then What?

Exploring the Connection to Outpatient Care
Methods

• Analyzed Medicaid hospitalizations for PQI 01 & PQI 03 (Short and Long Term Diabetes Complications)

• One year of Medicaid claims data:
  – Identified hospitalizations between 9/1/2012 and 2/28/2013
  – Documented office visits 6 months prior to admission
<table>
<thead>
<tr>
<th>Office Visit</th>
<th># of Admissions</th>
<th>% of Admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCP Only</td>
<td>198</td>
<td>31%</td>
</tr>
<tr>
<td>Endocrinologist Only</td>
<td>8</td>
<td>1%</td>
</tr>
<tr>
<td>PCP &amp; Endocrinologist</td>
<td>8</td>
<td>1%</td>
</tr>
<tr>
<td>Neither</td>
<td>435</td>
<td>67%</td>
</tr>
<tr>
<td>Totals</td>
<td>649</td>
<td>100%</td>
</tr>
</tbody>
</table>
Conclusions

• Substantial race and ethnic disparities in 30 day readmissions across range of conditions
  – Especially for TJA, childbirth

• Substantial variability in readmissions across payers
  – Rates much higher among Medicaid recipients compared to privately insured

• BUT – race differences not totally attributable to payer or patient sickness
  – YES: Chest Pain, GI, Cellulitis
  – NO: TJA, Childbirth, Septicemia, Heart Failure
Discussion

• Explanations for disparities in readmission typically fall into 3 interrelated categories:
  - Hospital performance & practices
  - Patient characteristics and behavior (e.g., Tx adherence)
  - Community resources (e.g., access to outpatient care)

• This analysis touches on a few of these issues – patient sickness, SES, payer, access to and utilization of outpatient care

• Additional presentations, breakout sessions:
  Data will stimulate discussion that leads to action
Questions?
References