Health Care Reform: Colorectal Cancer Screening Expansion, Before and After the Affordable Care Act (ACA)

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No Financial Conflicts of Interest to Disclose
Presentation Outline

* Background and Significance
* Theoretical Framework
* Objective
* Methods
* Results
* Conclusions
* Implications
Colorectal Cancer

* Third leading cause of cancer-related deaths in men and women when counted separately
* Second leading cause of cancer-related deaths in men and women when counted collectively
* 142K+ new cases
* 50K+ deaths
* Over the past 20+ years, death rates have decreased
* Disparities remain among medically underserved populations
Early detection has been a major contributor to the overall decline in new cases and deaths from CRC.

Screening allows for detection and removal of precancerous polyps before they progress to cancer (Cancer Facts & Figures 2012).

Screening allows for earlier detection when disease is easier to cure.

Improvement in treatment over the years.

Healthy People 2020 screening goal 70.5%.
Colorectal Cancer Screening Rates (BRFSS, 2010)

Source: CDC, 2010
Insurance Coverage Mandate States in the U.S.

Mandate State
Source: SCLD, 2012
Insurance Coverage Mandate for CRC

- Policy that requires insurers to cover the cost of medical services they would not otherwise if a mandate is not in place
- Not all states passed mandates related to CRC
- Variation in the types of mandates that were passed
  - Differences in the amount of cost-sharing
- Mandates reduced out-of-pocket expenses
  - Increase CRC screenings
The Colorectal Cancer Act of 2005
- Rep Elliot; Sen Steele, Sen Critcher, Sen Whitaker
- Established:
  - CRC Control and Research Demonstration Project
  - UAMS Cancer Control (PI: Henry-Tillman)
- Policy that requires insurers to cover CRC screenings
  - 2 main exemptions
    - Employer self-funded benefit plans (mainly large employers)
    - No restrictions on cost-sharing
Health Care Reform

* 2010, Patient Protection and Affordable Care Act (ACA)
  * Decrease the number of uninsured Americans
  * Reduce the overall cost of health care
  * Insurance coverage mandates for preventive health services
    * Closed loop-holes in state mandates
      * Employer self-funded benefit plans
      * No restrictions on cost-sharing
Law of Demand

As out-of-pocket costs decrease... 

...the quantity of colorectal screenings increase
Goal of Research Study

* To estimate the effects of health insurance coverage expansions on overall CRC screening rates.
Difference-in-differences (DID)
- Measures the difference in CRC screening before and after policy
- Measures the difference in CRC screening b/w the treatment and control groups

Treatment group: non-mandate states
Control group: mandate states

DID allows us to identify causal effects of ACA on CRC screening
Data

* Behavioral Risk Factor Surveillance System (BRFSS)
  * Study population is a sample of U.S. adults age 50 or greater
* National Cancer Institute State Cancer Legislative Database
  * Used to determine provisions, exemptions, and enforcements of state mandates
* The dataset was used to assess state-level estimates of health behaviors and health care utilization by building a state-year longitudinal data file
* This data file provided information on types of CRC screening, date latest test was performed, insurance status, race/ethnicity and SES for years studied
* Analytical sample 34,017 (M:25,729; NM:8,288)
  * Person-years
* Model Specification 1:
* Difference-in-differences (DD)
  \[= (CRC\text{screening}_{\text{reform, post}} - CRC\text{screening}_{\text{reform, pre}}) - (CRC\text{screening}_{\text{non-reform, post}} - CRC\text{screening}_{\text{non-reform, pre}})\]

* \[Y_{c,s,t} = \alpha + \beta_0 + \beta_1 \times \text{REFORM}_t + \beta_2 \times \text{POST}_s + \beta_3 \times \text{REFORM}_t \times \text{POST}_s + X\beta_4 + \delta_s + \varepsilon_{s,t}\]
Colorectal Screening Over Time

Weighted Means (%)

- FOBT
- Endoscopy
Colorectal Screening (Up-to-date) Over Time

Overall Compliance

Means (%)
Colorectal Screenings

% Means

Mandate
Non-Mandate

40 50 60 70
0 10
# Table 1: Descriptive statistics of the study population receiving any colorectal screening, individual characteristics only

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Received colorectal cancer screening (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Overall colorectal screening test (n=1,571,267)</td>
<td>61.55</td>
</tr>
<tr>
<td>Endoscopic test (n=930,547)</td>
<td>95.61</td>
</tr>
<tr>
<td>FOBT test (n=660,167)</td>
<td>35.92</td>
</tr>
<tr>
<td>Mean age +/- s.d. (in years)</td>
<td><strong>66.2 +/-10</strong></td>
</tr>
<tr>
<td>Mandate state coverage</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td><strong>61.78</strong></td>
</tr>
<tr>
<td>No</td>
<td><strong>61.13</strong></td>
</tr>
<tr>
<td>Health care reform</td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td><strong>64.24</strong></td>
</tr>
<tr>
<td>Pre</td>
<td><strong>58.79</strong></td>
</tr>
</tbody>
</table>
Table 2. Summary statistics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Pre-health care reform</th>
<th>Post-health care reform</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Mean age +/- s.d. (in years)</td>
<td>64.93</td>
<td>10.199</td>
</tr>
<tr>
<td>Self-reported health status (Fair/poor)</td>
<td>26.99</td>
<td>0.444</td>
</tr>
<tr>
<td>Covered by health insurance</td>
<td>92.92</td>
<td>0.256</td>
</tr>
<tr>
<td>Did not see doctor due to medical costs</td>
<td>9.06</td>
<td>0.287</td>
</tr>
<tr>
<td>Doctor visit</td>
<td>1.29</td>
<td>0.649</td>
</tr>
<tr>
<td>Presence of a personal physician</td>
<td>93.97</td>
<td>0.238</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whites</td>
<td>81.99</td>
<td>0.384</td>
</tr>
<tr>
<td>Hispanics</td>
<td>3.74</td>
<td>0.190</td>
</tr>
<tr>
<td>Marital status</td>
<td>51.46</td>
<td>0.500</td>
</tr>
<tr>
<td>Male</td>
<td>38.42</td>
<td>0.486</td>
</tr>
</tbody>
</table>
### Table 3 Marginal Effects of Health Care Reform on Colorectal Cancer Screening

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
<th>Marginal Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandate state coverage</td>
<td>-0.376</td>
<td>0.278</td>
<td>-0.080</td>
</tr>
<tr>
<td>Health care reform</td>
<td>0.0113</td>
<td>0.0931</td>
<td>0.00241</td>
</tr>
<tr>
<td>Health care reform effect</td>
<td>0.161*</td>
<td>0.100</td>
<td>0.0344</td>
</tr>
</tbody>
</table>
Conclusions

- Health care reform increased the probability of having a CRC screening by 3.4 percentage points on average
- Estimated 2.87 million additional age-eligible persons will receive a colorectal cancer screening as a result of health care reform
- Clearly found evidence that ACA influences CRC screening
Under the ACA, lowering out-of-pocket costs is an effective approach to increase colorectal cancer screening utilization in the United States.

Starting 2014, all US citizens are required to have health coverage.

- Expect demand to increase for CRC screening
For More Information

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