Downstate Illinois Cancer Disparities

Rural Cancer Disparities Partnership Retreat
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Thanks to those who did the work...

SIU School of Medicine
  Whitney Zahnd
  Georgia Mueller
  Wiley Jenkins

Illinois Department of Public Health
  Tiefu Shen
  Kyle Garner

American Cancer Society, Illinois Division
• Highlights of reports published in the last three years:
  – “Cancer in Rural Illinois, 1990-2010: Incidence, Mortality, Staging, and Access to Care”

• Recent Statistics on Screening and Smoking
A Map of Illinois
The SIU School of Medicine
“Real” Map of Illinois

66 Counties
2.2 million population
1.4 million rural residents
37,000 square miles
280 miles from top to bottom
Another way to think about Downstate Illinois
What is “Downstate” Illinois?

- It depends on who you ask…
Downstate Illinois Demographics

Table 1. 2009 Population Estimates

<table>
<thead>
<tr>
<th></th>
<th>Illinois</th>
<th>Upstate</th>
<th>Downstate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>12,910,409</td>
<td>9,872,007</td>
<td>3,038,402</td>
</tr>
<tr>
<td>Population Per Square Mile</td>
<td>231.1</td>
<td>595.3</td>
<td>78.0</td>
</tr>
<tr>
<td>No. of Counties</td>
<td>102</td>
<td>29</td>
<td>73</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>64.6%</td>
<td>58.1%</td>
<td>85.8%</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>14.5%</td>
<td>16.2%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>15.2%</td>
<td>19.2%</td>
<td>2.3%</td>
</tr>
<tr>
<td>&lt;100% FPL*2</td>
<td>12.4%</td>
<td>11.9%</td>
<td>14.3%</td>
</tr>
<tr>
<td>&lt;200% FPL*2</td>
<td>28.6%</td>
<td>27.6%</td>
<td>32.1%</td>
</tr>
<tr>
<td>&lt;HS ed**2</td>
<td>14.3%</td>
<td>14.7%</td>
<td>12.7%</td>
</tr>
<tr>
<td>HS ed / GED**2</td>
<td>28.1%</td>
<td>26.2%</td>
<td>34.0%</td>
</tr>
<tr>
<td>Bachelors*2</td>
<td>18.6%</td>
<td>19.9%</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

2 American Community Survey 2009
*FPL=Federal Poverty Level
**GED=General Educational Development Test

Downstate Illinois is less population dense, less racially diverse, poorer, and less educated.

Downstate Illinois Health Outcomes

3/29 Upstate counties are in the fourth quartile, v. 23/73 Downstate counties

14/29 Upstate counties are in the first quartile, v. 12/73 Downstate counties

http://www.countyhealthrankings.org/app/#/illinois/2016/overview
Downstate and Upstate Cancer Incidence Trends


Source: Illinois State Cancer Registry, data as of November 2011  * statistically significant at the p<0.05 level

Downstate and Upstate Male Cancer Incidence

Chart 4: Male Cancer Incidence by Site and Geography, Illinois 2009

Source: Illinois State Cancer Registry, data as of November 2011

Downstate and Upstate Male Cancer Mortality

Chart 8: Male Cancer Mortality by Site and Geography
Illinois, 2005-2009

- Lung and Bronchus: Downstate 81.71*, Upstate 62.5
- Prostate: Downstate 23.5*, Upstate 22.1
- Colon and Rectum: Downstate 22.6, Upstate 26.6
- Pancreas: Downstate 12.4, Upstate 13.5
- Leukemia: Downstate 10.7, Upstate 10.1

Source: Mortality data provided by NCHS (www.cdc.gov/nchs), data released April 2012

* significant at the p<0.05 level

Downstate and Upstate Female Cancer Incidence

Chart 6: Female Cancer Incidence by Site and Geography, Illinois 2009

- Breast: 127.2 (Downstate), 125.8 (Upstate)
- Lung and Bronchus: 67.9* (Downstate), 58.5* (Upstate)
- Colon and Rectum: 42.7 (Downstate), 39.2 (Upstate)
- Corpus and Uterus: 27.4 (Downstate), 29.6 (Upstate)
- Non-Hodgkin Lymphoma: 17.2 (Downstate), 16.0 (Upstate)
- Melanoma of the Skin: 17.1* (Downstate), 12.7* (Upstate)
- Ovary: 12.0 (Downstate), 11.9 (Upstate)

Source: Illinois State Cancer Registry, data as of November 2011

* statistically significant at the p<0.05 level

Downstate and Upstate Female Cancer Mortality

Chart 10: Female Cancer Mortality by Site and Geography
Illinois, 2005-2009

Source: Mortality data provided by NCHS (www.cdc.gov/nchs), data released April 2012
* significant at the 0.05 level

## Cancer Survival Differences

### Cause-Specific Five Year Survival for Illinois Residents 19+ by Stage and Geography, 2000-2004

<table>
<thead>
<tr>
<th></th>
<th>Illinois</th>
<th>Upstate</th>
<th>Downstate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Localized</td>
<td>87.3%</td>
<td>87.5%</td>
<td>86.9%</td>
</tr>
<tr>
<td>Regional</td>
<td>59.4%</td>
<td>59.9%</td>
<td>57.9%</td>
</tr>
<tr>
<td>Distant</td>
<td>24.6%</td>
<td>24.9%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Unknown</td>
<td>39.5%</td>
<td>39.%</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

Downstate compared to Upstate, five year survival rates were lower for lung, breast, prostate, and colorectal cancers. Lung cancer showed the largest difference.

CENTRAL AND SOUTHERN ILLINOIS RURAL CANCER DISPARITIES
Central and Southern Rural Illinois

- Interstates are used as rough demarcations of regions
- Orange Counties are Central Rural Counties
- Blue Counties are Southern Rural Counties
- Shaded Blue Counties are the Delta Region
## Demographics by Rural Region

<table>
<thead>
<tr>
<th></th>
<th>Southern Rural</th>
<th>Central Rural</th>
<th>Illinois</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Counties</td>
<td>32</td>
<td>29</td>
<td>102</td>
</tr>
<tr>
<td>Population</td>
<td>679,172</td>
<td>731,019</td>
<td>12,875,255</td>
</tr>
<tr>
<td>Population per square mile</td>
<td>50.8</td>
<td>45.3</td>
<td>231.1</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>92.0%</td>
<td>94.0%</td>
<td>77.9%</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>5.5%</td>
<td>3.9%</td>
<td>14.8%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2.2%</td>
<td>2.5%</td>
<td>16.3%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged 65+</td>
<td>16.6%</td>
<td>16.9%</td>
<td>13.2%</td>
</tr>
<tr>
<td><strong>Poverty</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% living below 100% of the poverty level</td>
<td>15.7%</td>
<td>14.6%</td>
<td>13.7%</td>
</tr>
<tr>
<td>% living below 200% of the poverty level</td>
<td>36.3%</td>
<td>34.9%</td>
<td>30.8%</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than a high school education (aged 25+)</td>
<td>13.6%</td>
<td>12.3%</td>
<td>12.7%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2010 Census

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*SIU*
Excess Cancer Incidence Burden by Region, 2006-2010

- Delta Region:
  - Colorectal
  - Lung
  - Melanoma

- Southern Rural:
  - Colorectal
  - Lung
  - Melanoma

- Central Rural:
  - Esophageal
  - Colorectal
  - Lung
  - Bladder
  - Melanoma

Source: Illinois State Cancer Registry

Legend
- Light Blue: Significantly lower rate than state rate
- Red: Significantly higher rate than state rate
- Beige: No difference

Illinois Cancer Incidence Rates by County, All sites, Both Genders, 1991-2010
Excess Cancer Mortality by Region, 2006-2010

- Delta Rural:
  - Lung
  - Oral Cavity and pharynx
  - Colorectal
  - Nervous System
- Southern Rural:
  - Lung
  - Colorectal
  - Bone
  - Nervous System
- Central Rural:
  - Esophageal
  - Kidney

Source: National Center for Health Statistics
Changes in Cancer Mortality by Geography, 1990-2010

Source:
Calculated from underlying mortality data provided by NCHS (www.cdc.gov/nchs)
## Access to Care

<table>
<thead>
<tr>
<th>Professional</th>
<th>Delta Region</th>
<th>Southern Rural</th>
<th>Central Rural</th>
<th>Illinois</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Practitioners</td>
<td>43.3</td>
<td>31.8</td>
<td>28.2</td>
<td>30.8</td>
</tr>
<tr>
<td>General Surgeons</td>
<td>6.4</td>
<td>8.2</td>
<td>4.8</td>
<td>10.7</td>
</tr>
<tr>
<td>Medical Oncologists</td>
<td>1.5</td>
<td>1.3</td>
<td>2.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Radiation Oncologists</td>
<td>0.6</td>
<td>0.6</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Urologists</td>
<td>2.0</td>
<td>1.9</td>
<td>1.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Obstetricians/Gynecologists</td>
<td>6.4</td>
<td>6.9</td>
<td>4.4</td>
<td>13.3</td>
</tr>
<tr>
<td>Dermatologists</td>
<td>0.9</td>
<td>0.7</td>
<td>0.8</td>
<td>3.6</td>
</tr>
<tr>
<td>Gastroenterologists</td>
<td>1.2</td>
<td>0.7</td>
<td>0.5</td>
<td>4.2</td>
</tr>
<tr>
<td>Colorectal surgeons</td>
<td>0</td>
<td>0.2</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Thoracic surgeons</td>
<td>0.9</td>
<td>0.6</td>
<td>0.4</td>
<td>1.4</td>
</tr>
</tbody>
</table>
Breast Cancer Screening

Screening and Risk Factors for Illinois
(2008-2010 County Level Modeled Estimate Combining BRFSS & NHIS)
Had a Mammogram in Past 2 Years
All Races (includes Hispanic), Female, Ages 40+
Pap Smear Adherence

Screening and Risk Factors for Illinois
(2008-2010 County Level Modeled Estimate Combining BRFSS & NHIS)
Had a Pap in Past 3 Yrs, No Hysterectomy
All Races (includes Hispanic), Female, Ages 18+

Had a Pap in Past 3 Yrs, No Hysterectomy
(Percent of Respondents)

Quantile Interval

- Red: 59.3 to 63.8
- Orange: 63.8 to 67.2
- Brown: 67.2 to 71.0
- Light blue: 71.0 to 75.5
- Dark blue: 75.5 to 83.8

Data Not Available

Illinois
Rate (95% C.I.)
Data not available.

Healthy People 2020
Goal C-15
93.0%
Screening and Risk Factors for Illinois
(2008-2010 County Level Modeled Estimate Combining BRFSS & NHIS)
Ever Smoked
All Races (includes Hispanic), Both Sexes, Ages 18+

Ever Smoked
(Percent of Respondents)

Quantile Interval

- **37.1 to 47.3**
- **47.3 to 53.0**
- **53.0 to 56.1**
- **56.1 to 59.2**
- **59.2 to 66.7**

Data Not Available

Illinois
Rate (95% C.I.)
Data not available.
Summary

• Downstate Illinois exhibits disparities in socioeconomics, overall health, and cancer burden
• Lung cancer is a major contributor to higher Downstate cancer mortality; smoking rates are high
• Access to care may be a factor
• There appear to be opportunities to improve prevention and early detection
Thanks

Questions or comments?