Investigating Health Disparities of Prostate Cancer in Mississippi Compared to National Trends

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Introduction

Prostate cancer

a non-skin disease that occurs only in males, more specifically in the prostate gland of the male reproductive system.

Northtexasurologist.com, 2018
National Incidence Rates By Gender

Most common new cases/rates are in:

- Prostate cancer in men
- Breast cancer in women
- Lung and colon cancers are the second and third most common new cases/rates in both men and women.
- The leading cause of cancer mortality in men, but is the third leading cause overall.

Estimated New Cancer Cases* in the US in 2013

<table>
<thead>
<tr>
<th></th>
<th>Men 854,790</th>
<th>Women 805,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>28%</td>
<td>29%</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Melanoma of skin</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Oral cavity</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Pancreas</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>All Other Sites</td>
<td>20%</td>
<td>19%</td>
</tr>
</tbody>
</table>

*Excludes basal cell and squamous cell skin cancers and in situ carcinoma except urinary bladder.

American Cancer Society, 2013
National Mortality Rates By State

2000-2013 States with the highest cancer mortality rates (per 100,000).

• Kentucky- 202.6
• Mississippi- 198.6
• West Virginia- 196.1
• Louisiana- 193.5
• Arkansas- 192.2
National Mortality Rates By Race/Ethnicity and Gender

• Cancer death rates are higher in men than in women for every racial and ethnic category.

• African American men and women have higher rates than every other racial and ethnic group.

• Asian American/Pacific Islander men and women have the lowest rates, which in turn is half the rate of African American men and women.

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<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>216.7</td>
</tr>
<tr>
<td>African American</td>
<td>288.3</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>174.6</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>132.6</td>
</tr>
<tr>
<td>Hispanic†</td>
<td>135.9</td>
</tr>
<tr>
<td>Hispanic†</td>
<td>146.4</td>
</tr>
</tbody>
</table>

*Per 100,000, age-adjusted to the 2000 US standard population.
†Persons of Hispanic origin may be of any race.

National Institutes of Health, 2013
Economic Burden of Cancer

- The total health care costs for cancer in the U.S. were $80.2 billion.
- 52% of this cost is for hospital outpatient or doctor office visits.
- 38% of this cost is for inpatient hospital stays.
The Healthy People 2020 graph indicates that nationally the target was reached in 2010, with a prostate cancer mortality rate of 20.7 per 100,000 and a steady decline over the years; Healthy People 2020 (2018). The Healthy People 2010 target was set at 28.2.
Methods

National Cancer Institute’s Surveillance, Epidemiology, and End Results (SEER) program

Mississippi Cancer Registry operated by the University Of Mississippi Medical Center

State-level Incidence and Mortality (2000-2014) for Prostate Cancer by race

National Incidence and Mortality Rates (2000-2014) for Prostate Cancer by race
Incidence for Prostate Cancer By All Races

- The average national incidence rate: 133.2 per 100,000
- The average Mississippi incidence rate: 155.7 per 100,000
Incidence for Prostate Cancer By Race

The average national incidence rate:

Caucasian men: \textbf{173.5 per 100,000}
African American men: \textbf{243.8 per 100,000}

The average Mississippi incidence rate:

Caucasian men: \textbf{151.7 per 100,000}
African American men: \textbf{163.5 per 100,000}
Age-Specific Incidence By Race

**Age 65-69 (per 100,000)**
- Black: **peaked @ 855.9**

**Age 70-74 (per 100,000)**
- White: **peaked @ 549.2**

**Age 65-69 (per 100,000)**
- Black: **peaked @ 1115.16**

**Age 70-74 (per 100,000)**
- White: **peaked @ 617.15**
Mortality for Prostate Cancer By All Races

- The average national mortality rate: 19.6 per 100,000
- The average Mississippi mortality rate: 24.2 per 100,000
Mortality for Prostate Cancer By Race

The average national mortality rates:

Caucasian men: **19.8 per 100,000**
African American men: **25.2 per 100,000**

The average Mississippi mortality rates:

Caucasian men: **19.2 per 100,000**
African American men: **33.1 per 100,000**
Age-Specific Mortality By Race

**National Age-Specific Prostate Cancer Mortality Rates 2014**

Age 85+ (per 100,000)
- Black: peaked @ 746.5
- White: peaked @ 436.7

Age 80-84 (per 100,000)
- Black: peaked @ 643.8

Age 85+ (per 100,000)
- White: peaked @ 331.24
The concentration of higher mortality rates among all races combined is focused in Mississippi Delta counties.

The Mississippi prostate cancer mortality rates of African American men are higher in the Delta than any other region.

The Mississippi prostate cancer mortality rates of Caucasian men are vastly different than African American men.
Prostate Cancer in Mississippi
Take home message

- Incidence and Mortality rates in MS are higher than the national average.

- In MS, the higher rates are largely due to higher rates among African American men.

- The MS Delta geographic region concentrates the largest proportion of prostate cancer mortality in MS.
  - The majority of these cases are among African American men.
  - High rates of prostate cancer mortality in the MS Delta are driving MS to exceed national levels.
Mississippi continues to suffer by not potentially meeting the national target with a current mortality rate of 24.4 per 100,000.
Economic Burden in Mississippi

- The economic burden is not limited to just occurrences of prostate cancer, BUT ALSO:
- High rates of poverty- causing depression
- Poor health- leads to obesity from a poor diet due to limited resources
- All factors correlate to cause cancer and other diseases to increase the economic burden, which are prevalent particularly in the MS Delta.
Recommendations

• Increase the availability of employment programs to help increase the ability to gain health insurance, which will help decrease disparities in poverty and poor health.

• Increased Early Screening in areas of high prostate mortality (i.e. The Mississippi Delta)

• Patient-Centered Approaches through health care research in order to benefit the patients and communities equally.

• These factors should help reduce the economic burden and improve the overall quality of life.
Last year, the Fannie Lou Hamer Cancer Foundation identified and assisted 360 men with prostate screenings.
Acknowledgements

- Heavenly Father
- Mentor: Dr. Mark A. Dugo
- Mississippi Valley State University
- Mrs. Freddie White-Johnson
- Family
References


- Merrill, Ray M., Brawley, Otis W. “Prostate Cancer Incidence and Mortality Rates among White and Black Men.” Epidemiology March 1997, Volume 8 Number 2.


References


- University of Mississippi Medical Center Cancer Institute “Mississippi Cancer Registry.” https://www.cancer-rates.info/ms/.
