

Socio-economic Factors and Racial Disparities That Influence Stage Diagnosis of Cervical Cancer



Aliyah R. Richardson, Lauren S. Maniscalco, MPH,
Almetra A. Granger, MPH, Carleigh W. Baudoin, MPH
Xiao-Cheng, MD, MPH

Louisiana State University Health Sciences Center, School of Public Health,
Louisiana Breast and Cervical Cancer Health Program



Introduction

- Cervical cancer is an on-going public health concern in Louisiana, as it is ranked 10th in the incidence rate and 5th in the mortality rate in the US. Despite the availability of primary preventative methods, various cervical incidence and mortality rates are still high among Louisiana women.
- Cervical Cancer is not only preventable, but early-detection can be achieved by utilizing HPV and Pap Smear tests. However, cervical cancer data between 2016 and 2021 from the Louisiana Tumor Registry, indicates that over 50% of women with cervical cancer were diagnosed at regional and distant stages. The 5-year survival rates associated with late-stage diagnoses are 56% and 16%, respectively, much lower than 88% among those diagnosed at the localized stage.
- Moreover, prior research has indicated that socio-demographic barriers impact the cervical cancer stage at diagnosis. While the Louisiana Breast and Cervical Cancer Health Program (LBCCHP) is set to participate in the nationwide cervical elimination initiative, our research intends to provide valuable data for this effort.

Objectives

- Assess the impact of urban-rural and poverty status of residential areas on the cervical cancer stage diagnosis for non-Hispanic Black (NHB) and non-Hispanic White (NHW) women.
- Identify underserved areas and populations for the Louisiana's cervical cancer elimination initiative.

Methods

Data Sources:

- Louisiana Tumor Registry collected data in the SEER* Stat Research Plus analytic dataset.
- Louisiana Data Visualization Tool

Eligibility Criteria:

- Louisiana women aged 15 and older diagnosed with invasive cervical cancer between 2004 and 2021.

Variables: Combined Summary Stage, Poverty (Low poverty: <20% of persons below the federal poverty level in the residential parish vice versa), Metro vs. Nonmetro (based on the rural-urban continuum codes)

Results:

Metro vs. Non-Metro:

In both Non-Hispanic White (NHW) and Non-Hispanic Black (NHB) populations, metropolitan (metro) regions show a higher percentage of early-stage diagnoses compared to non-Metro regions, (Table 1). NHB women had a much lower percentage of localized diagnosis than their NHW counterparts: 36.1% vs. 47.4% in Metro regions and 31.0% vs. 45.0% in non-metro regions.

Table 1. Cervical Cancer Stage Distribution in Metro and Non-Metro Regions for NHB and NHW Women, Louisiana, 2004-2021

| Stage | Non-Hispanic White | | | | Non-Hispanic Black | | | |
|-----------|--------------------|-------|-----------|-------|--------------------|-------|-----------|-------|
| | Metro | | Non-Metro | | Metro | | Non-Metro | |
| | Count | % | Count | % | Count | % | Count | % |
| Localized | 805 | 47.4 | 200 | 45.0 | 451 | 36.1 | 86 | 31.0 |
| Regional | 594 | 35.0 | 158 | 35.6 | 519 | 41.6 | 121 | 43.7 |
| Distant | 214 | 12.6 | 63 | 14.2 | 197 | 15.8 | 55 | 19.9 |
| Unknown | 86 | 5.1 | 23 | 5.2 | 81 | 6.5 | 15 | 5.4 |
| All | 1,699 | 100.0 | 444 | 100.0 | 1,248 | 100.0 | 277 | 100.0 |

High poverty vs. Low Poverty:

NHB women had a lower percentage of localized cervical cancer than NHW women regardless of poverty status (35.2% vs. 46.9%) (Table 2). In either high or low-poverty regions, NHB women were less likely than their NHW counterparts to be diagnosed with localized cervical cancer. The percentage of localized cervical cancer among NHB women in low-poverty regions was even lower than that among NHW women in high-poverty regions.

Table 2. Cervical Cancer Stage Distribution in High Poverty and Low Poverty Parishes for NHB and NHW Women, 2004-2021

| Stage | Non-Hispanic White | | | | Non-Hispanic Black | | | |
|-----------|--------------------|-------|--------------|-------|--------------------|-------|--------------|-------|
| | Low Poverty | | High Poverty | | Low Poverty | | High Poverty | |
| Localized | 667 | 48.3 | 338 | 44.4 | 259 | 36.5 | 278 | 34.1 |
| Regional | 470 | 34.0 | 282 | 37.0 | 287 | 40.4 | 353 | 43.3 |
| Distant | 166 | 12.0 | 111 | 14.6 | 118 | 16.6 | 134 | 16.4 |
| Unknown | 78 | 5.6 | 31 | 4.1 | 46 | 6.5 | 50 | 6.1 |
| All | 1,381 | 100.0 | 762 | 100.0 | 710 | 100.0 | 815 | 100.0 |

Conclusion

- NHB women are more likely to be diagnosed with regional and distant stages of cervical cancer in comparison to NHW regardless of whether they live in metro or non-metro regions.
- Women in non-metro areas are less likely to be diagnosed with cervical cancer at the localized stage, especially NHB women. The percentage of localized cervical cancer among NHB women in Metro areas is even lower than NHW women in non-metro areas.
- Women in high-poverty regions are less likely to be diagnosed with localized cervical cancer than those who reside in low-poverty regions, regardless of race. However, NHB women in high-poverty regions show a lower percentage of being diagnosed at the localized stage compared to NHW women.
- This study highlights the importance of focusing on NHB, non-metro, and high-poverty women to eliminate cervical cancer, increase early detection, and improve survival rates in Louisiana. Additionally, it emphasizes the need to target non-metro and high-poverty regions.

Future Implications

The Louisiana Breast and Cervical Cancer Health Program (LBCCHP) assists in providing low-cost care to low-income, uninsured, and underinsured women throughout the state. This program includes access to cervical screenings and mammograms. In its efforts to eliminate cervical cancer, Louisiana is in the process of developing a state plan similar to Alabama's State Wipeout initiative. This plan includes increasing school-based HPV vaccinations, promoting routine follow-ups, and enhancing the availability of primary care physicians in underserved communities.

Acknowledgement

- The Louisiana Tumor Registry is funded by the following:
- 1.NCI's Surveillance, Epidemiology, End Results (HHSN261201800007/HHSN26100002)
 - 2.CDC's National Program of Cancer Registries (NU58DP006332), and Louisiana state.
 - 3.Louisiana state