Cancer in Oklahoma Data Brief Series:

Uterine Cancer in Oklahoma

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Introduction

Cancers of the uterine body are the most common invasive gynecologic cancer diagnosed among women in the United States (US).[1] Among women in the US, they are the 4th most diagnosed cancer and the 6th highest cause of cancer death.[2] Among women in Oklahoma, they are the 5th most diagnosed cancer and the 8th highest cause of cancer death. The majority of these cancers (>90%) are endometrial cancer, which involve the inner lining of the uterus.[3] The remainder are primarily uterine sarcomas, which involve the muscle and supporting tissue of the uterus.[3] In aggregate, uterine cancers are highly treatable and survivable with 80.7% of women surviving at least five years.[2] However, uterine cancer incidence rates are increasing in Oklahoma, nationwide, and worldwide[1,4,5]

Among the uterine cancers, endometrial cancers can often be detected at an early, treatable stage, because any post-menopausal bleeding should trigger a diagnostic work-up for this cancer. However, endometrial cancer incidence rates are increasing among premenopausal women, with an upward inflection in incidence rates beginning roughly at 30 years of age. This age shift is thought to result from the obesity epidemic. When obesity is present, an increased amount of fatty (adipose) tissue produces an excessive amount of estrogen, which in turn can lead to endometrial cancer. Diagnosis may be delayed in this younger age group because abnormal bleeding in premenopausal women can be erroneously attributed to heavy periods, benign growths, such as uterine fibroids or other factors.

Factors that increase the risk of developing endometrial cancer in addition to obesity include other metabolic factors (diabetes/hyperglycemia/excess insulin), reproductive factors (infertility/nulliparity), menopausal hormone therapy (increase with unopposed estrogen and reduction with progestin), tamoxifen use, and familial colon and endometrial cancer genetic risk (Lynch syndrome).[1] Endometrial cancer risk is reduced by oral contraceptive pills, progesterone-containing intrauterine devices, pregnancy and weight loss/exercise.

This data brief will describe uterine cancer incidence and mortality rates among women in Oklahoma, and will conclude with a discussion of the significance of findings on clinical practice and public health policy.

Methods

Data for cancer incidence were obtained from the Oklahoma Central Cancer Registry (OCCR), the Centers for Disease Control's (CDC) National Program of Cancer Registries (NPCR), and the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program. Cancer mortality data were obtained from Oklahoma Vital Statistics and the CDC's National Vital Statistics System (NVSS). For this brief, Hispanic persons were classified as being Hispanic regardless of race. Those who identified as White, African American or Black, American Indian or Alaska Native, and Asian or Pacific Islander were classified as non-Hispanic (NH), thus excluding individuals of these groups with Hispanic ethnicity. All data sources used in this brief were publicly available.

To ensure the stability of estimates and confidentiality, rates were suppressed if fewer than 16 counts were reported in a specific category, and all rates were age adjusted to the 2000 US standard population. In this brief, analyses were limited to women and the term uterine cancer includes cancers of the uterus, of the endometrium and uterine sarcomas, and excludes cancers of the cervix. Uterine cancer cases and deaths used in analyses were classified using the International Classification of Disease for Oncology system (ICD0-03 C54.0-54.9, C55.9), and incident cases were limited to invasive cancers. Temporal patterns were assessed using the Average Annual Percent Change (AAPC) measure, determined by performing Joinpoint regression analysis.[6] For all analyses, unknown values were excluded and resulting percentages were weighted averages estimated from the sample and population sizes. All incidence and mortality rates are reported per 100,000 population. Staging for this data brief used the SEER summary stage.[7]

Results

Figure 1: Age-adjusted uterine cancer incidence and mortality in Oklahoma and the US, 2015-2019
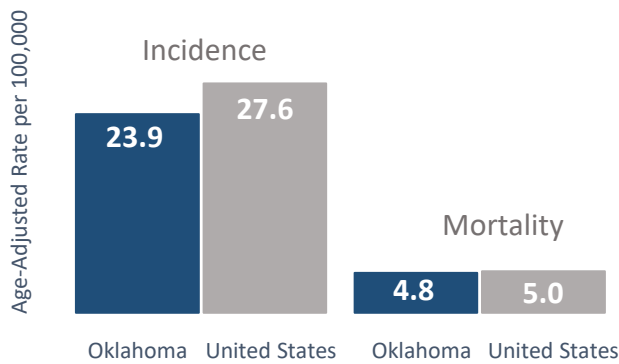
Source: SEER and CDC (NPCR and NVSS)

From 2015-2019, in the United States, 289,793 new cases of uterine cancer were diagnosed and reported among women, and 54,617 women died of this cancer. In Oklahoma from 2015-2019, there were 2,903 new cases of uterine cancer. Over those years, 617 Oklahoma women died of uterine cancer. The 2015-2019 age-adjusted uterine cancer incidence rate in the US was 27.6 per 100,000 population compared to 23.9 for Oklahoma (Figure 1). During that same time, the female age-adjusted uterine cancer mortality rate was 5.0 per 100,000 compared to 4.8 per 100,000 for Oklahoma.

About two thirds (66%) of US women diagnosed with uterine cancer from 2012-2018 survived at least five years. Figure 2 shows the rise in uterine cancer incidence rates from 1999 to 2019. Oklahoma had a higher rate of increase (AAPC 1.4 p-value < 0.001) compared to the US overall (AAPC 1.1 p-value < 0.001) (**Figure 2**). While Oklahoma has lower uterine cancer incidence rates than the US over time, the morality rates between the US and Oklahoma are

Figure 2: Age-adjusted uterine cancer incidence and mortality by year in Oklahoma and the US, 1999-2019
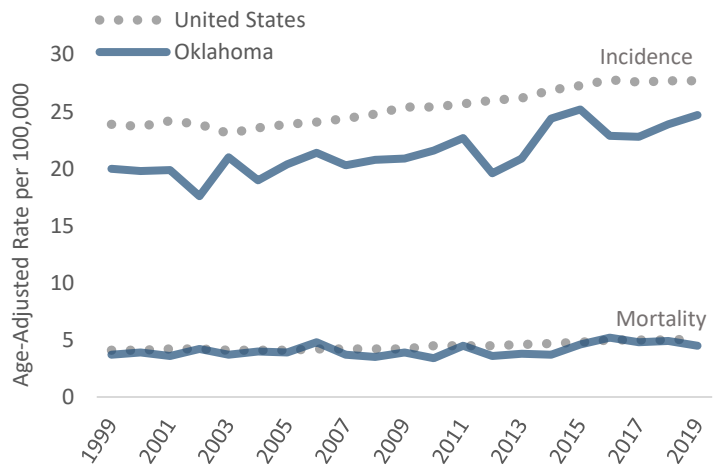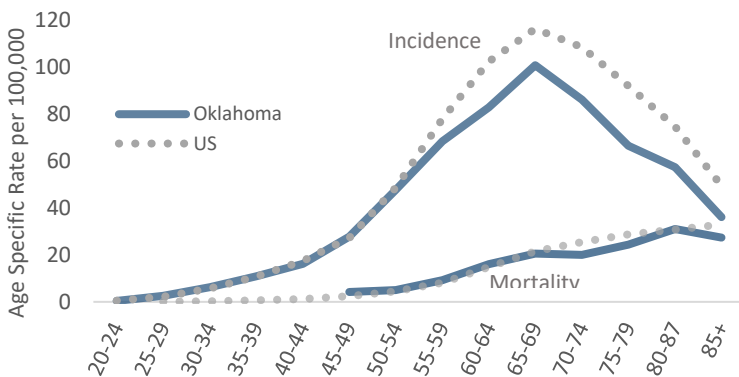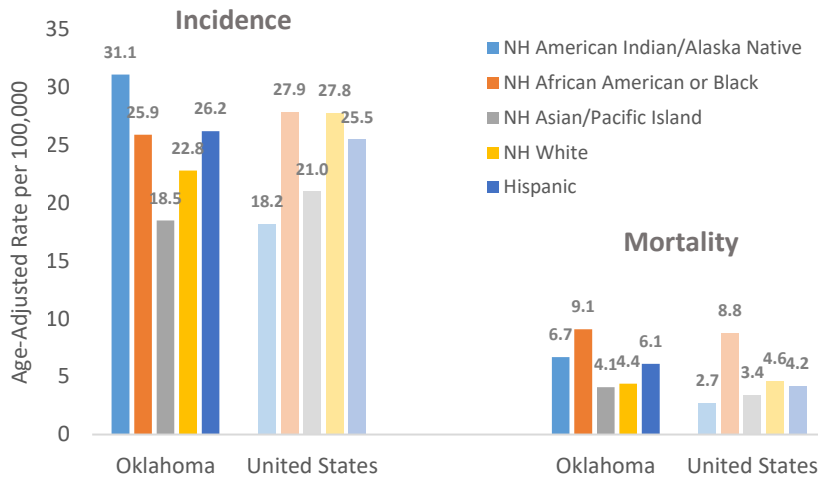

Source: SEER and CDC (NPCR and NVSS)

essentially identical with no significant differences occurring over this timeframe (**Figure 2**). For both the US and Oklahoma, uterine cancer incidence rises dramatically until the 65-69 age group, but then drops rapidly (**Figure 3**). Uterine cancer mortality, however, steadily increases by increasing age group.

Figure 3: Uterine cancer incidence and mortality by age group Oklahoma and the US, 2015-2019

Source: SEER and CDC (NPCR and NVSS)

Figure 4: Uterine cancer incidence and mortality by age group Oklahoma and the US, 2015-2019
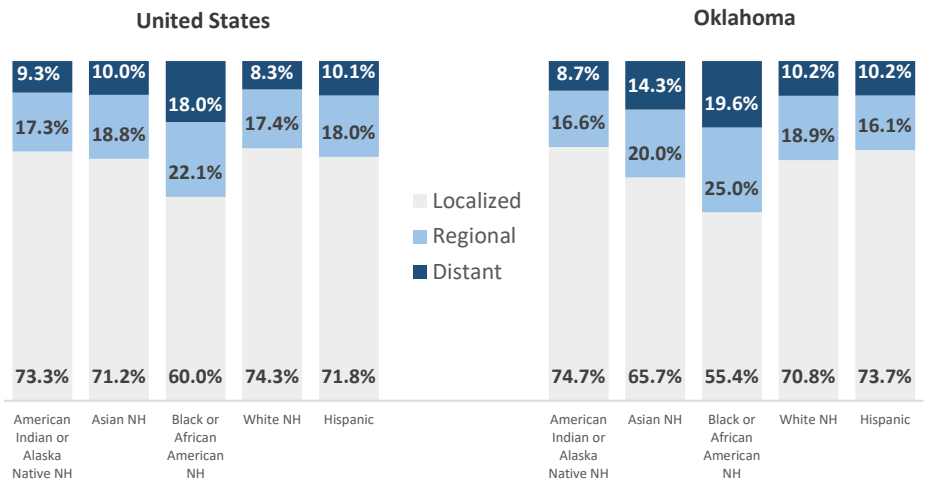

Source: SEER and CDC (NPCR and NVSS)

Figure 4 shows the 2015-2019 age-adjusted uterine cancer incidence and mortality rates (per 100,000 women) for Oklahoma and the US for major racial and ethnic groups. Compared to the NH White women, uterine cancer incidence was higher for the NH American Indian/Alaska Native, African American or Black, and Hispanic populations in Oklahoma. Compared to the NH White women, uterine cancer mortality was higher for the African American or Black, American Indian or Alaska Native, and Hispanic women in Oklahoma, and higher for African American or Black women in the US.

Figure 5 shows uterine cancer stage at diagnosis by race and ethnicity in Oklahoma and the US from 2015-2019. Black or African American women in both the US and Oklahoma were the least likely to diagnosed with early (localized) stage of uterine cancer. In Oklahoma, NH African American or Black women were nearly two time more likely to be diagnosed with late-stage uterine cancer as compared to NH White women.

Additionally, for detailed incidence and mortality rates of uterine cancer by county in Oklahoma, refer to **appendix 1**.

Figure 5: Uterine cancer percent stage at diagnosis by race and ethnicity Oklahoma and the US 2015-2019

Source: SEER and CDC (NPCR and NVSS); unstaged excluded

Conclusions and Implications for Practice and Policy

While no studies, thus far, have shown that universal screening of asymptomatic women for uterine cancer saves lives,[8] most women with uterine cancer can receive effective treatment, if diagnosed early. To help increase the proportion of women who are diagnosed at early stages of cancer, women need to be aware of symptoms requiring prompt diagnostic work-up. These typically include pelvic pain, abdominal pain, bloating, pelvic pressure, mass, or changes in bleeding patterns in premenopausal women, and any postmenopausal bleeding. Increasing the awareness of uterine cancer symptoms among women can be accomplished in several ways. Community health educators can work directly with women to improve symptom recognition. This can occur directly in health care delivery settings and at community events attended by large numbers of women. Also, media campaigns to increase uterine cancer awareness could be developed and delivered through traditional media outlets (print and broadcast) and social media channels.

Health care providers have a critical role in addressing uterine cancer. For example, primary care providers can reduce the risk of developing endometrial cancer in premenopausal women who are obese, have irregular or no menses, or have never had children through the prescription of oral contraceptives or the placement progesterone-containing intrauterine devices. Primary care providers can also help reduce risk in menopausal women by prescribing hormone replacement therapy with adequate progestin dosing. Providers should avoid prescribing unopposed estrogen medication for menopausal hormone replacement therapy. In addition to the primary prevention interventions described above, health care providers should also consider initiating diagnostic work-up more frequently in women who are in high-risk groups, such as African American / Black women and women who are overweight or obese.

At the policy level, activities to increase access to health care can help ensure prompt evaluation and diagnostic work-up. For example, compared to women from other groups, African American / Black women are more likely to be diagnosed at a later stage of uterine cancer and are more likely to die from this cancer. The recent expansion in the state's Medicaid coverage through a provision of the Affordable Care Act should enable more women, including African American / Black women to receive timely health care services. Also, there is a need to ensure that all Oklahoma women diagnosed with uterine cancer have access to the newest, most effective treatments. This can be accomplished by providing funds to help patients address the financial challenges of treatment and funds to help defray the costs of traveling for care, including transportation and lodging costs.

Also, policies and programs to curb the "obesity epidemic" could help reduce uterine cancer rates. This could include funding to increase access to affordable fruits and vegetables, built environment changes, such as walking and biking master plans, to increase physical activity, and funding for the aforementioned community health education and media campaigns to increase early detection of uterine cancer.

Research is also needed to reduce uterine cancer mortality. As noted, African American / Black women are more likely to succumb to uterine cancer. This is in part due to higher rates of more lethal high-grade endometrial cancer or carcinosarcoma among these women. Additional research is needed to determine if the addition of biological markers in this high-risk group could improve uterine cancer outcomes. As women who participate in clinical trials tend to have the best outcomes, efforts to enroll more African American / Black women and women from other high-risk groups in trials to evaluate new uterine cancer treatments are needed.

Taken together, these and additional actions, if implemented, would enable Oklahoma to reduce its unacceptably high burden of uterine cancer.

References

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