Cancer in Oklahoma Data Brief Series:

Uterine Cancer in Oklahoma – Update 2025

Esma Sheikh, Janis E. Campbell, Lauri Hunsucker, Mark P. Doescher

Community Outreach and Engagement, a program of OU Health Stephenson Cancer Center

OU Health | Stephenson Cancer Center
The UNIVERSITY of OKLAHOMA

NCI Cancer Center
A Cancer Center Designated by the National Cancer Institute

Introduction

Cancers of the uterine body are the most common invasive gynecologic cancer diagnosed among women in the United States (US). Among women in the US, this cancer is the 5th most diagnosed cancer in 2022 and the 8th leading cause of cancer related death in 2023.[1] Among women in Oklahoma, it is the 5th most diagnosed cancer in 2022 and the 15th leading cause of cancer related death in 2023.[1] The majority of these cancers (>90%) are endometrial cancer, which involves the inner lining of the uterus.[2] The remainder are primarily uterine sarcomas, which involve the muscle and supporting tissue of the uterus.[2] In aggregate, uterine cancers are highly treatable and survivable, with an overall 81.2% of women surviving at least five years.[1] However, uterine cancer incidence rates are increasing in Oklahoma, nationwide, and worldwide.[3, 4]

Among 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).[5] 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. It will conclude with a discussion of the significance of findings on clinical practice and public health policy.

Methods

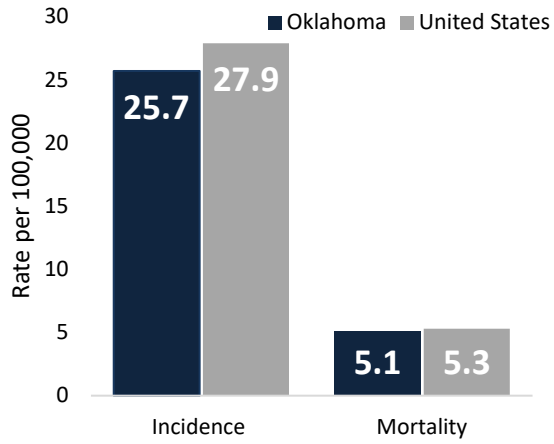
Data for cancer incidence were obtained from the Oklahoma Central Cancer Registry (OCCR), the Centers for Disease Control's (CDC) National Program of Cancer Registries (NPCR), and the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program. Cancer mortality data were obtained 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 10 counts were reported in a specific category for incidence or fewer than 5 for mortality, 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 used in analyses were classified using the International Classification of Diseases for Oncology system (ICD-0-03 C54.0-54.9, C55.9) and 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 except staging, unknown values were excluded, and the 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.

Because uterine cancers are rare, analyses comparing geographic locations were conducted at the sub-state planning district (SSPD) level rather than the county level. SSPDs are voluntary associations of local governments formed under Oklahoma law that address problems and planning needs that transcend the boundaries of individual local governments, such as counties, cities, and towns. See Appendix 1 for counties in each SSPD. We used the 2023 Rural-Urban Continuum Codes (RUCC), which classify U.S. counties into three metropolitan and six non-metropolitan categories based on population size, degree of urbanization, and proximity to metropolitan areas. In this brief, rural refers to counties in the RUCC 4-9 group and urban refers to counties in the RUCC 1-3 group.

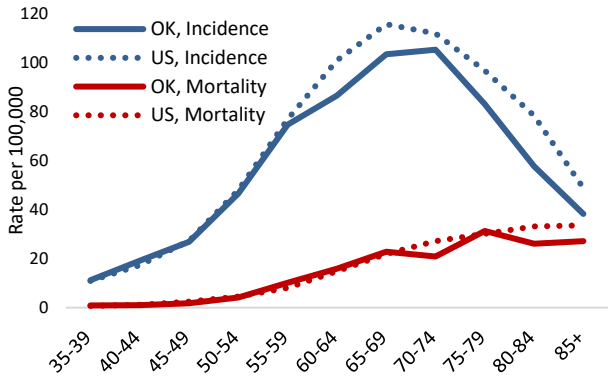
Figure 1: Age-adjusted uterine cancer incidence (2018-2022) and mortality (2019-2023) in Oklahoma and the US



Source: Cancer Data Visualization

Figure 2 shows the rise in uterine cancer incidence rates from 1999 to 2022. Oklahoma had a higher rate of increase (AAPC 1.4, p-value < 0.001) compared to the US

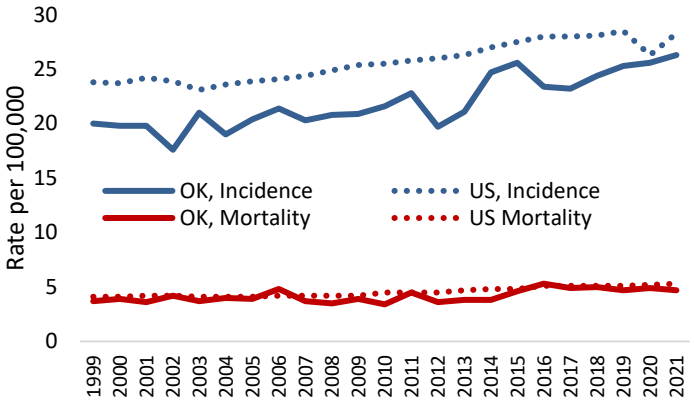
Figure 3: Uterine cancer incidence (2018-2022) and mortality (2019-2023) by age group, Oklahoma and the US



Results

In the U.S. from 2018 to 2022, 303,432 new cases of uterine cancer were diagnosed and reported among women, and 61,864 women died of this cancer from 2019 to 2023. In Oklahoma from 2018 to 2022, there were 3,161 new cases of uterine cancer, and 676 Oklahoma women died of uterine cancer from 2019 to 2023 (data not shown in figures). From 2018-2022 Oklahoma's age-adjusted uterine cancer incidence rate was 25.7 per 100,000 population compared to 27.9 per 100,000 for US (**Figure 1**). During 2019-2023, the female age-adjusted uterine cancer mortality rate was 5.1 per 100,000 for Oklahoma compared to 5.3 per 100,000 for US.

Figure 2: Age-adjusted uterine cancer incidence and mortality by year in Oklahoma and the US, 1999-2021

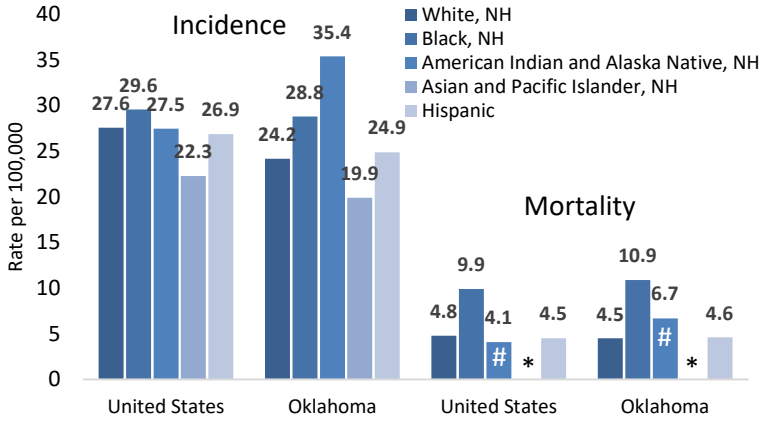


overall (AAPC 1.1, p-value < 0.001) (**Figure 2**). While Oklahoma has had lower age-adjusted uterine cancer incidence rates than the US over time, the age-adjusted mortality rates between the US and Oklahoma have remained similar, with no significant differences occurring over this period (**Figure 2**). Additionally, incidence and mortality rates of uterine cancer by county in Oklahoma are presented in Appendix 1.

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 with increasing age group.

Figure 4 shows the 2018 to 2022 age-adjusted uterine cancer incidence and 2019 to 2023 age-adjusted mortality rates (per 100,000 women) for Oklahoma and the US for major racial and ethnic groups. Compared to the NH White women, age-adjusted 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, age-adjusted uterine cancer mortality was higher for the NH African American or Black, NH American Indian or Alaska Native, and Hispanic women in Oklahoma, and higher for NH African American or Black women in the US. It is important to note that the mortality rates presented for NH American Indian or Alaskan Native persons in Oklahoma are likely to be underestimated. Analyses that used data from prior years linking Indian Health Service data to the national death index revealed higher mortality for this group. However, the Indian Health Service-linked mortality data for the years presented here have not been released. We estimate about a 29% increase when adjusting for misclassification in Oklahoma.[7]

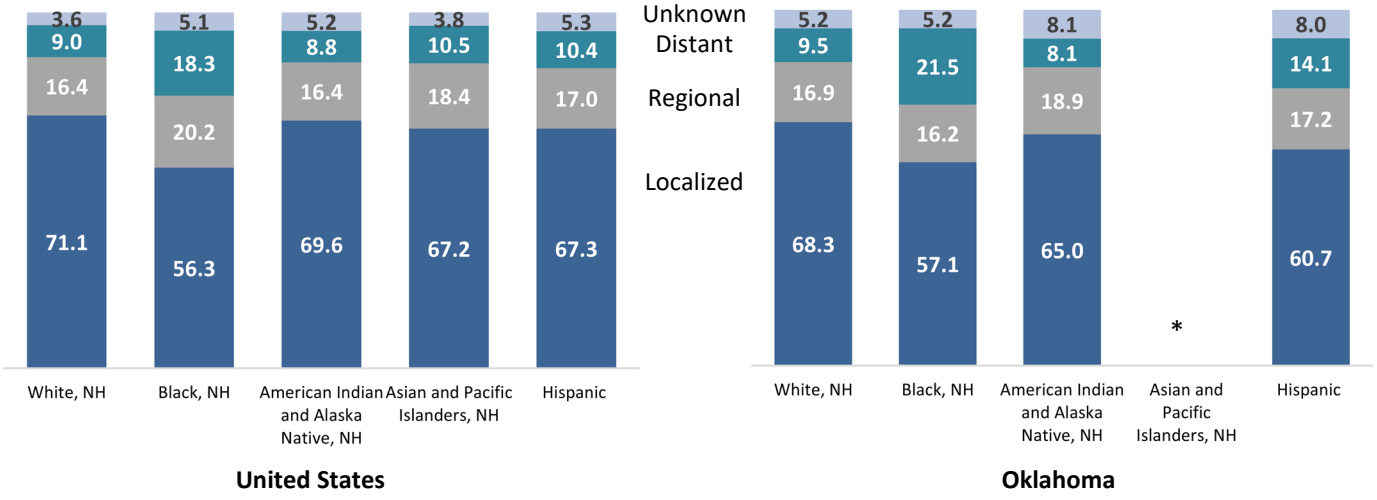
Figure 4: Uterine cancer age-adjusted incidence (2018-2022) and mortality (2019-2023) by age group in Oklahoma and the US



Source: CDC Cancer Data Visualization
*Suppressed
#Estimates suggest a 29% high rate of AIAN mortality not accounted for in this chart

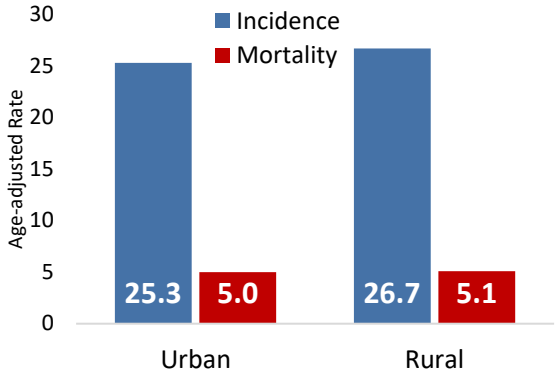
Figure 5 shows uterine cancer stage at diagnosis by race and ethnicity in Oklahoma and the US from 2018 to 2022. NH Black or African American women in both the US and Oklahoma were the least likely to be diagnosed with the early (localized) stage of uterine cancer. In Oklahoma, NH African American or Black women were over two times more likely to be diagnosed with late-stage uterine cancer than NH White women.

Figure 5: Uterine cancer percent stage at diagnosis by race and ethnicity, Oklahoma and the US, 2018-2022



Source: CDC Cancer Data Visualization
*Suppressed

Figure 6: Age-Adjusted Uterine Cancer Incidence (2018-2022) and Mortality (2019-2023) by Urban Rural Oklahoma

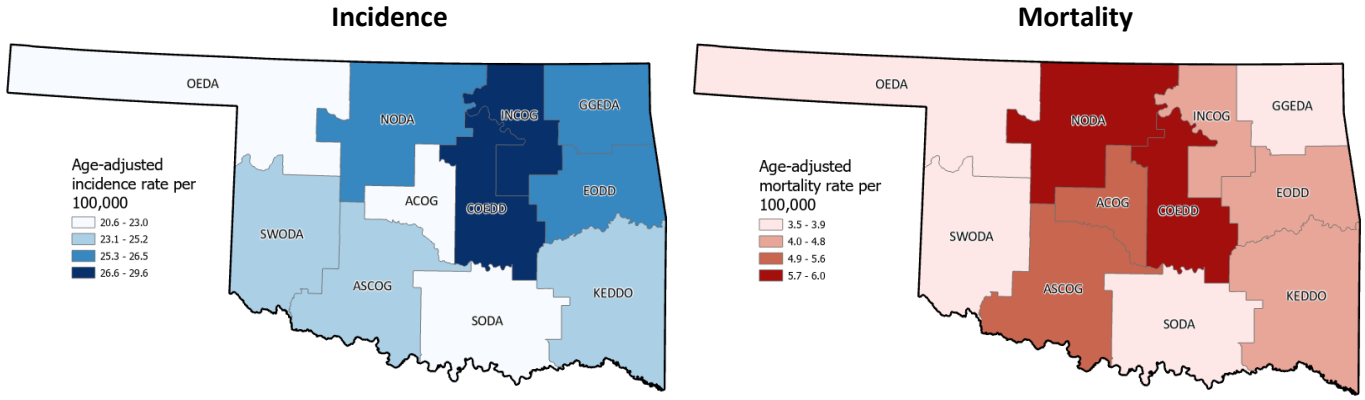


Source: OK2SHARE

Figure 6 shows the age-adjusted incidence and mortality rates for uterine cancer in urban and rural areas. Rural areas show slightly higher rates of both incidence and mortality.

Figure 7 shows uterine cancer age-adjusted incidence and mortality rates by sub-state planning districts in Oklahoma for the latest ten years available (2013-2022 and 2014-2023, respectively). In the top quartile for incidence and mortality rates were districts in north central Oklahoma. Western and southcentral districts were consistently in the lowest quartile. See Appendix 2 for county rates.

Figure 7: Age -adjusted incidence (2013-2022) and mortality (2014-2023) rates per 100,000 of uterine cancer by Substate Planning Districts, Oklahoma



Source: OK2SHARE

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 awareness of uterine cancer could be developed and delivered through traditional media outlets (print and broadcast) and social media.

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 their premenopausal female patients who are obese, have irregular or no menses, or have never had children through the prescription of oral contraceptives or the placement of 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 NH 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, NH African American/Black women are more likely to be diagnosed at a later stage of uterine cancer, and they are more likely to die from this cancer. The recent expansion in Medicaid coverage in Oklahoma through the Affordable Care Act should enable more women, including NH 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, as well as funds to defray the costs of traveling for care, including transportation and lodging expenses.

Research is also needed to reduce uterine cancer mortality. As noted, NH 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 uterine sarcoma among this population. 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 NH African American or Black women and women from other high-risk groups in trials to evaluate new uterine cancer treatments are needed.

References

1. U.S. Cancer Statistics Data Visualizations Tool [Internet]. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute. 2025 [cited 10/03/2025]. Available from: https://www.cdc.gov/cancer/dataviz, .
2. American Cancer Society. Key Statistics for Endometrial Cancer 2025 [02/27/2025]. Available from: https://www.cancer.org/cancer/types/endometrial-cancer/about/key-statistics.html.
3. Henley SJ, Miller JW, Dowling NF, Benard VB, Richardson LC. Uterine Cancer Incidence and Mortality - United States, 1999-2016. MMWR Morb Mortal Wkly Rep. 2018;67(48):1333-8. Epub 20181207. doi: 10.15585/mmwr.mm6748a1. PubMed PMID: 30521505; PMCID: PMC6329484.
4. Yi M, Li T, Niu M, Luo S, Chu Q, Wu K. Epidemiological trends of women's cancers from 1990 to 2019 at the global, regional, and national levels: a population-based study. Biomark Res. 2021;9(1):55. Epub 20210707. doi: 10.1186/s40364-021-00310-y. PubMed PMID: 34233747; PMCID: PMC8261911.
5. Felix AS, Brinton LA. Cancer Progress and Priorities: Uterine Cancer. Cancer Epidemiol Biomarkers Prev. 2018;27(9):985-94. doi: 10.1158/1055-9965.EPI-18-0264. PubMed PMID: 30181320; PMCID: PMC6504985.
6. Statistical Methodology and Applications Branch, Surveillance Research Program, National Cancer Institute. Joinpoint Regression Program. 5.3.0 ed2025.
7. Dougherty TM, Janitz AE, Williams MB, Martinez SA, Peercy MT, Wharton DF, Erb-Alvarez J, Campbell JE. Racial Misclassification in Mortality Records Among American Indians/Alaska Natives in Oklahoma From 1991 to 2015. J Public Health Manag Pract. 2019;25 Suppl 5, Tribal Epidemiology Centers: Advancing Public Health in Indian Country for Over 20 Years(Suppl 5 TRIBAL EPIDEMIOLOGY CENTERS ADVANCING PUBLIC HEALTH IN INDIAN COUNTRY FOR OVER 20 YEARS):S36-S43. Epub 2019/07/28. doi: 10.1097/PHH.0000000000001019. PubMed PMID: 31348189; PMCID: PMC6690744.
8. PDQ® Adult Treatment Editorial Board. Endometrial Cancer Screening (PDQ®)–Health Professional Version 2025 [updated 04/10/202510/03/2025]. Available from: https://www.cancer.gov/types/uterine/hp/endometrial-screening-pdq.

Data Sources:

Oklahoma State Department of Health (OSDH), Center for Health Statistics, Health Care Information, Vital Statistics, on Oklahoma Statistics on Health Available for Everyone (OK2SHARE). https://www.health.state.ok.us/stats/

Centers for Disease Control and Prevention, U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2025.

United States Cancer Statistics - Incidence: 1999 - 2022, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; 2024 submission; 2025.release. www.wonder.cdc.gov

Suggested Citation: Sheikh E, Campbell JE, Hunsucker L, and Doescher MP. Cancer in Oklahoma Data Brief Series: Uterine Cancer in Oklahoma – Update 2025. Community Outreach and Engagement, Stephenson Cancer Center, OU Health. 2025.

For more information, please contact: Community Outreach and Engagement, Stephenson Cancer Center, OU Health. Email: SCC-surveillance@ouhsc.edu