



OKLAHOMA BREAST & CERVICAL CANCER  
ANNUAL REPORT · STATE FISCAL YEAR 2014

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**Executive Summary**

The Breast and Cervical Cancer Prevention and Treatment Advisory Committee was incorporated into the Advancement of Wellness Advisory Council with the passage of House Bill 1467. The previous chair of the Oklahoma Breast and Cervical Cancer Prevention and Treatment Advisory Committee, Christy Southard, was appointed by Governor Fallin to the Advancement of Wellness Advisory Council. Ms. Southard will provide breast and cervical cancer information as a member of the Advancement of Wellness Advisory Council.

The Take Charge! program, located at the Oklahoma State Department of Health, is one of three breast and cervical cancer early detection programs in Oklahoma. Cherokee Nation and Kaw Nation also have breast and cervical cancer early detection programs. Each program has distinct eligibility guidelines. Though the eligibility guidelines differ, the three programs have a shared overarching goal to provide breast and cervical cancer screening for Oklahoma women that are at highest risk and who meet program guidelines.

The populations at highest risk for breast and cervical cancer include those with non-modifiable risk factors such as being older and female. Other modifiable risk factors include lack of physical activity, poor nutrition, and tobacco use.

According to data from the Oklahoma Central Cancer Registry, Centers for Disease Control and Prevention, and Behavioral Risk Factor Surveillance System, women in Oklahoma are receiving fewer breast and cervical cancer screenings than women in the rest of the U.S., and breast and cervical cancer incidence in Oklahoma is not decreasing at the same rate as the rest of the U.S. Increased public education and outreach efforts need to be targeted toward African American women and American Indian women as the incidence of breast cancer is higher in these races when compared to other races and ethnicities in Oklahoma.

**Purpose**

The Oklahoma Breast and Cervical Cancer Act was established in 1994 to implement plans to significantly decrease breast and cervical cancer morbidity and mortality in the state of Oklahoma (63 O.S. §1 554-558). The Oklahoma Breast and Cervical Cancer Act also established the Breast and Cervical Cancer Prevention and Treatment (BCCPT) Advisory Committee. The BCCPT Advisory Committee was incorporated into the Advancement of Wellness Advisory Council in 2013 in the amended 63 O.S. §1 554-558 and continues the efforts of the Oklahoma Breast and Cervical Cancer Early Detection Program. The Advancement of Wellness Advisory Council has representation from medical professionals, city officials, business and the Tobacco Settlement Endowment Trust. The amended 63 O.S. §1 554-558 shifted the responsibility of annual reporting to the Oklahoma State Department of Health (OSDH) for the following items:

- Funding information for breast and cervical cancer screening activities
- Identification of populations at highest risk for breast and cervical cancer
- Identification of priority strategies and emerging technologies, to include newly introduced therapies and preventive vaccines that are effective in preventing and controlling the risk of breast and cervical cancer
- Recommendations for additional funding to provide screenings and treatment for breast and cervical cancer for uninsured and underinsured women
- Strategies or actions to reduce the costs of breast and cervical cancer in the state of Oklahoma.

**Breast and Cervical Cancer Act Revolving Fund**

The Oklahoma Breast and Cervical Cancer Act established the Breast and Cervical Cancer Act Revolving Fund. The monies in the revolving fund consist of gifts, donations, and contributions from individual income tax returns. In addition, \$20 of each *Fight Breast Cancer License Plate* sold is put into the Breast and Cervical Cancer Act Revolving Fund. Samples of the *Fight Breast Cancer License Plates* are shown below. All monies in the revolving fund are appropriated to the OSDH to support the implementation of the Oklahoma Breast and Cervical Cancer Act. Past expenditures of funds have paid for breast and cervical cancer screening and diagnostic services for women enrolled in the Take Charge! program.

**Samples of Fight Breast Cancer License Plates**



**Populations at Highest Risk for Breast and Cervical Cancer**

*Breast Cancer Risk Factors*

According to the Centers for Disease Control and Prevention (CDC), there are several factors that increase the risk for developing breast cancer. The risk factors include: female gender, increasing age (over 50 years of age), genetic risk factors (BRCA1 and BRCA2 gene), family or personal history of breast cancer, and sedentary lifestyle.<sup>1</sup> Additional information and a complete listing of breast cancer risk factors can be found on the CDC website at [http://www.cdc.gov/cancer/breast/basic\\_info/risk\\_factors.htm](http://www.cdc.gov/cancer/breast/basic_info/risk_factors.htm).

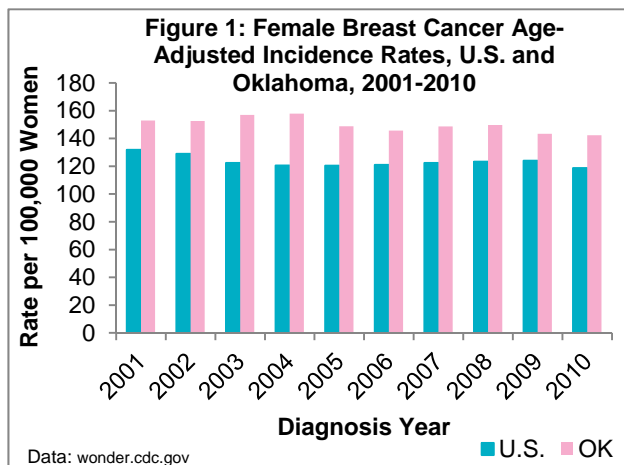
*Cervical Cancer Risk Factors*

According to the CDC, there are several factors that increase the risk for developing cervical cancer. The risk factors related to cervical cancer include: behaviors related to exposure to Human Papilloma Virus (HPV), lack of HPV immunization, immunosuppression, and smoking.<sup>2,3</sup> Additional information and a complete listing of cervical cancer risk factors can be found on the CDC website at [http://www.cdc.gov/cancer/cervical/basic\\_info/risk\\_factors.htm](http://www.cdc.gov/cancer/cervical/basic_info/risk_factors.htm).

**Breast Cancer Burden in Oklahoma**

The following figures represent data collected by the Oklahoma Central Cancer Registry (OCCR) and CDC. The OCCR is a statewide central database of information on all cancers diagnosed or treated in Oklahoma since January 1, 1997. The latest Oklahoma specific cancer incidence data is available through 2011. The latest national cancer incidence and mortality data is available through 2010 from the Wide-ranging Online Data for Epidemiologic Research (WONDER.cdc.gov). Behavioral Risk Factor Surveillance System (BRFSS) data is finalized through 2012.

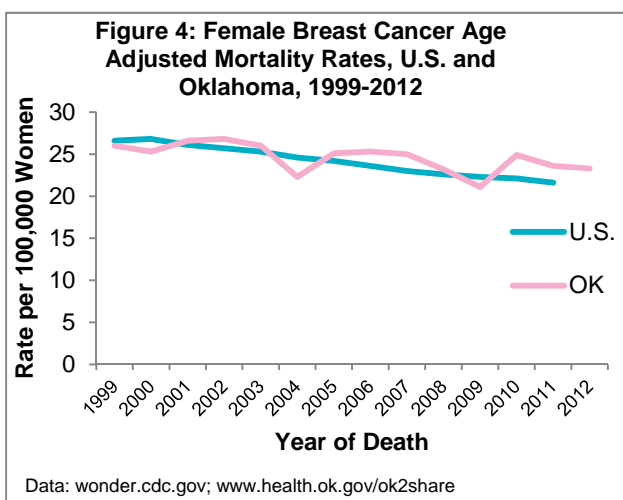
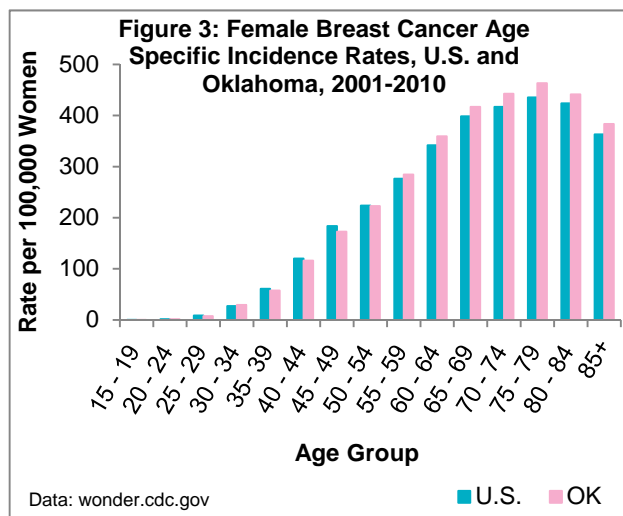
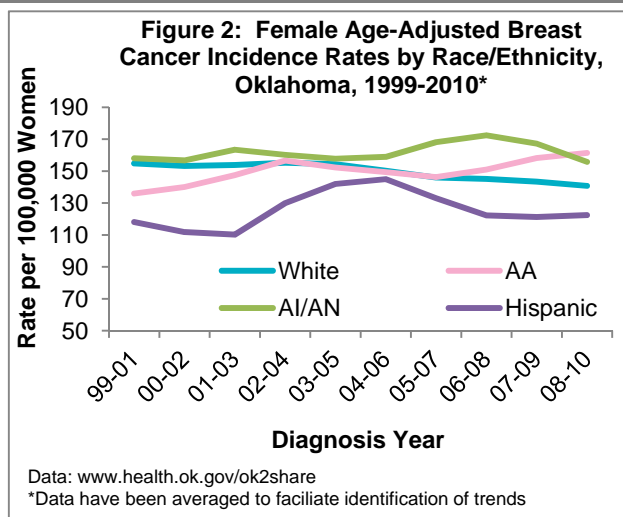
There were 3,055 new cases of breast cancer and 194 new cases of cervical cancer diagnosed in Oklahoma in 2010. The U.S. age-adjusted incidence rate for female breast cancer gradually decreased by 10.0% between 2001 and 2010 (Figure 1). In Oklahoma, the age-adjusted incidence rate for female breast cancer decreased by 6.9% between 2001 and 2010. The burden of breast cancer in Oklahoma is decreasing, but at a slower rate than the rest of the U.S.



The incidence of breast cancer differed by race and ethnicity. Breast cancer incidence in Oklahoma was highest among American Indian/Alaska Native (AI/AN) and African American (AA) women (Figure 2). Trend data showed AI/AN rates to be consistently higher than rates for whites. As of 2006-2008, breast cancer incidence among AA women exceeded white women. In 2008-2010, rates in AA women exceeded AI/AN for the first time since 1999-2001. From 1999-2010, incidence rates in AA women increased by almost 20%. Rates among white women declined by almost 10% during the same time period. Hispanic women, however, have maintained the lowest incidence rates for breast cancer of any racial or ethnic population in Oklahoma.

Breast cancer incidence increased substantially with increasing age, peaking at 75-79 years (Figure 3). These trends were similar in both Oklahoma and the U.S. Interestingly, Oklahoma had lower incidence rates than the U.S. among women under 55 years of age and higher rates than the U.S. among women 55 years and older.

Both U.S. and Oklahoma female breast cancer mortality rates have declined over time (Figure 4). The rate of decline has been similar for Oklahoma and the U.S. While the rates continue to decline, there is still a need for improvement to detect breast cancer at the earliest stage through high quality screening to facilitate effective and efficient treatment. Cases identified at earlier stages have lower mortality.



Screening rates for breast cancer have increased over time in both the U.S. and Oklahoma with a very slight decrease in recent years (between 2008 and 2010) (Figure 5). Oklahoma women reported a slight increase in screening in 2012, almost reaching the U.S. level.

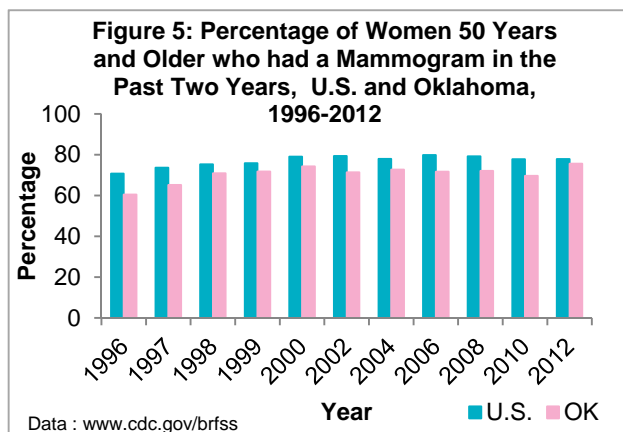


Figure 6 displays the percentage of women aged 50 years and older who had not received a mammogram in the past two years by region. BRFSS weighted regional data for mammograms was used since county level data is not available. In Oklahoma, 33.7% of women reported not having a mammogram in the past two years. This is a slightly larger percentage of the population than was seen in the U.S. (26.0%).<sup>4</sup> Counties located in the southwest region of the state had a higher proportion of women not receiving breast cancer screening.

**Figure 6: Percentage of Women 50 Years and Older who had Not Received a Mammogram in the Past Two Years in Oklahoma, by Region, 2012**



Data Source: Oklahoma Behavioral Risk Factor Surveillance Survey, 2012

Created: 07.30.2014

Projection/Coordinate System: USGS Albers Equal Area Conic



**Disclaimer:** This map is a compilation of records, information and data from various city, county and state offices and other sources, affecting the area shown, and is the best representation of the data available at the time. The map and data are to be used for reference purposes only. The user acknowledges and accepts all inherent limitations of the map, including the fact that the data are dynamic and in a constant state of maintenance.

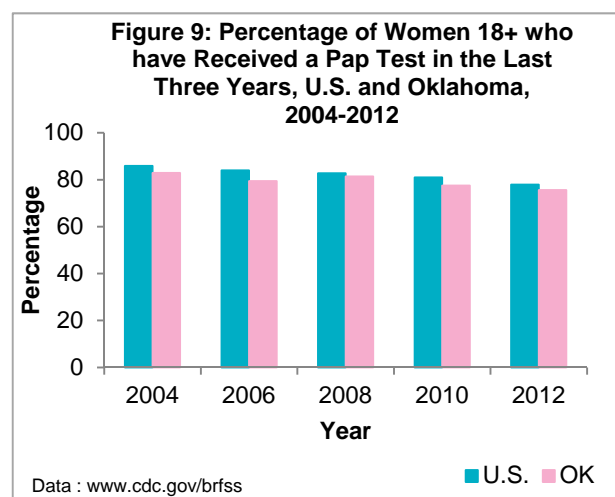
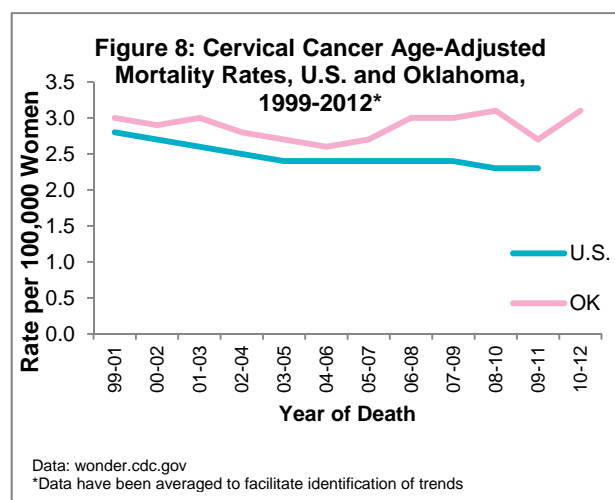
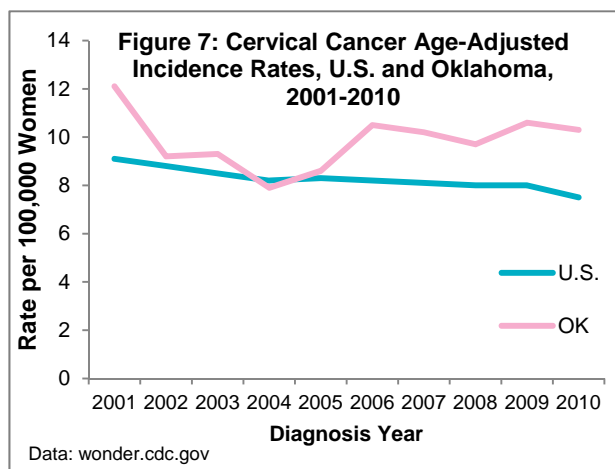
## Cervical Cancer Burden in Oklahoma

The incidence rate of cervical cancer has been steadily decreasing since 2000 in the U.S. In Oklahoma, however, the rates have not followed the same pattern, with an increasing trend between 2004 and 2006 followed by a relatively stable rate for the last five years (Figure 7). This increasing level is of great concern due to the fact that cervical cancer can be prevented through appropriate use of the Pap test and HPV co-testing as well as the HPV vaccine. It is of additional concern that the rates in Oklahoma have consistently stayed much higher than rates in the U.S.

In Oklahoma, 35.4% of girls 13-17 years old received three doses of the HPV vaccine in 2013. Oklahoma's coverage level was 2.2% lower than the U.S. level.<sup>5</sup> Compared with females, the vaccination of males was quite a bit lower. Only 17.3% of Oklahoma teenage males 13-17 years old received three doses of the HPV vaccine in 2013. Additional information can be found on the Immunization Service, Oklahoma State Department of Health website at <http://imm.health.ok.gov>.

There is a declining trend in cervical cancer mortality nationally; however, Oklahoma's cervical cancer mortality rates have remained higher than the U.S. (Figure 8).

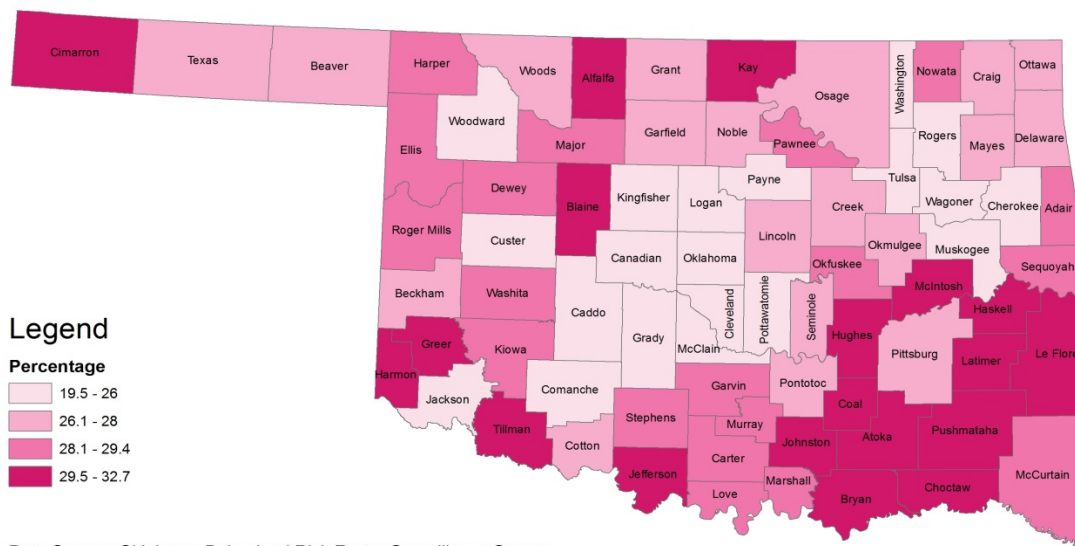
Based on data from the BRFSS, screening rates for cervical cancer in both Oklahoma and the U.S. appear to be declining (Figure 9). Furthermore, the percentage of Oklahoma women receiving Pap tests has consistently remained lower than women throughout the U.S. The U.S. Preventive Services Task Force (USPSTF) currently recommends cervical cancer screening for women 21-65 years old every three years. USPSTF further recommends that women 30-65 years old who have a normal Pap test and HPV test may lengthen the testing interval to every five years.





In 2012, 24.5% of Oklahoma women aged 18 years and older had not received a Pap test within the last three years versus 22.1% in the U.S.<sup>4</sup> There were 40 Oklahoma counties that had a higher proportion of women who had not received a Pap test within the past three years when compared to the state proportion (Figure 10).<sup>6</sup>

**Figure 10: Percentage of Women 18 Years and Older Who Had Not Received a Pap Test in the Last Three Years in Oklahoma, by County, 2012**



Data Source: Oklahoma Behavioral Risk Factor Surveillance Survey, Small Area Estimate, 2012

Created: 07.30.2014

Projection/Coordinate System: USGS Albers Equal Area Conic



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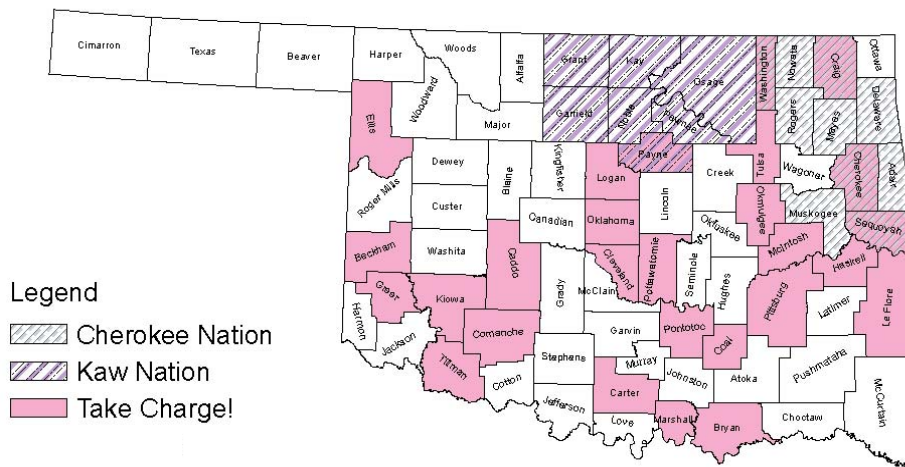
## Oklahoma Breast and Cervical Cancer Early Detection Programs (BCCEDP)

Oklahoma has three BCCEDPs: Cherokee Nation Breast and Cervical Cancer Early Detection Program, Kaw Nation Women’s Health Program, and the OSDH Take Charge! Program. These three screening programs receive funding through a cooperative agreement with the CDC. At least 60% of the funds are for direct services. Support services such as health education and data collection constitute up to 40% of the funds. No more than 10% of the funds for support services can be used for administrative services. Funds from the CDC cooperative agreement cannot be used for treatment.

The screening programs serve low-income, uninsured, and underinsured women. The screening programs provide access to breast and cervical cancer screening services including a clinical breast exam, mammogram, pelvic examination, Pap test and HPV co-testing as appropriate. The purpose is to facilitate earlier screening, ensure prompt diagnosis, and improve access to treatment for breast and cervical cancer. The three screening programs work in partnership with each other to ensure Oklahoma women are enrolled in the screening program that best fits their needs. The three screening programs often promote all screening programs together on small media products.

Women with abnormal findings on breast and/or cervical cancer screening examinations receive a referral and access to diagnostic services. The three screening programs encourage women in need of diagnostic or treatment services to apply for Oklahoma Cares (SoonerCare Medicaid program). The Cherokee Nation BCCEDP will often provide diagnostic services for women that are screened regardless of their eligibility for Oklahoma Cares. Take Charge! provides diagnostic services for women that are screened through Take Charge! who are ineligible for Oklahoma Cares. Figure 11 is a map of the service provision areas for the programs.

**Figure 11: Oklahoma BCCEDP Programs by Service Provision Area**



Data Source: Oklahoma Take Charge! Program, Cherokee Nation, and Kaw Nation Women's Health Program  
Created: 04.24.2013

Projection/Coordinate System: USGS Albers Equal Area Conic



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Oklahoma BCCEDP programs strive to serve women who are at highest risk for breast cancer, which includes women with increasing age and women in minority populations. In state fiscal year (SFY) 2013, a greater proportion of African American, Hispanic and white women received screening than is represented in the general population of the state (Table 1). It is important to note that American Indian women are also served through the Cherokee Nation and Kaw Nation BCCEDP along with the Take Charge! program. The data in Table 1 reflects only Take Charge! clients. All women served through Cherokee Nation BCCEDP and Kaw Nation are American Indian.

**Table 1: Racial/Ethnic Distribution of Take Charge! Clients and the Oklahoma Population, SFY 2013**

Race/Ethnicity	Program Percentage	Population Percentage
African American	13.3%	7.6%
American Indian*	6.8%	9.0%
Asian/Pacific Islander	1.3%	2.1%
Hispanic	34.1%	9.6%
Other/Unknown	1.1%	NA
White	77.3%	75.5%
> 1 Race	.4%	5.8%

Data Source: Cancer Screening and Tracking System (CaST)/Census.gov  
Race/Ethnicity percentages total >100% since Hispanics may be of any race so they are included in applicable race categories.

\*American Indian reflects Take Charge! clients only.

The priority populations, contracting facilities, types of services provided, and funding level of each BCCEDP program is described in Table 2.

**Table 2: Description of BCCEDP Programs**

BCCEDP Program	Priority Population	Contracts	Services Provided	Funding FY 2013
<b>Cherokee Nation</b> Began: 1996	<p><b>Breast cancer screening:</b>                      American Indian (AI) women enrolled in a federally recognized tribe, 40-64 years of age, with an income at or below 250% of the federal poverty level (FPL), and uninsured or underinsured.</p> <p><b>Cervical cancer screening:</b>                      AI women enrolled in a federally recognized tribe, 21-64 years of age who have not had a Pap test in five or more years, with the same income and insurance guidelines as breast cancer screening.</p>	Provided services through Cherokee Nation Health Facilities, Cherokee Nation healthcare providers, an Indian Health Service hospital and a mobile mammography facility.	Screened over 20,867 eligible women since inception. In FY 2013 provided 3,510 breast cancer screenings and 1,146 cervical cancer screenings. Provided 136 diagnostic referrals.	Federal: \$ 867,283 Tribal: \$ 288,805 Total: \$1,156,088  Federal BCCEDP funds require a \$3:\$1 match in the amount of \$288,805.
<b>Kaw Nation</b> Began: 2001	<p><b>Breast cancer screening:</b>                      AI women 50-64 years of age, with an income at or below 250% of the FPL, and uninsured or underinsured.</p> <p><b>Cervical cancer screening:</b>                      AI women 21-64 years of age who have not had a Pap test in five or more years, with the same income and insurance guidelines as breast cancer screening.</p>	Provided services through Kanza Clinic and clinics located within the Ponca Tribe, Pawnee Tribe, Osage Tribe and Iowa Tribe through memorandums of understanding (MOU).	Since inception screened over 3,491 eligible women. In FY 2013 provided 407 breast cancer screenings and 374 cervical cancer screenings. Provided 102 diagnostic referrals.	Federal: \$369,358 Tribal: \$123,119 Total: \$492,477  Federal BCCEDP funds require a \$3:\$1 match in the amount of \$123,119.
<b>Take Charge! Program</b> Began: 1995	<p><b>Breast cancer screening:</b>                      Oklahoma women 50-65 years of age, with an income at or below 185% of the FPL, and uninsured or underinsured.</p> <p><b>Cervical cancer screening:</b>                      Oklahoma women 35-65 years of age who have not had a Pap test in five or more years, with the same income and insurance guidelines as breast cancer screening. Oklahoma women not included in the priority population may qualify for services based on appointment availability and funding resources.</p>	Provided services through healthcare providers, federally qualified health centers, health care organizations, laboratories, surgical consultants, mammography facilities, and colposcopy providers.*	Since inception screened over 63,000 eligible women. In FY 2013 provided 8,077 breast cancer screenings and 3,365 cervical cancer screenings. Provided 1,559 diagnostic referrals.	Federal: \$1,241,041 State: \$ 413,680 Revolving: \$ 152,625 Total: \$1,807,346  Federal BCCEDP funds require a \$3:\$1 match in the amount of \$413,680.  *The list of current contracts with healthcare providers is located on the Take Charge! website ( <a href="http://takecharge.health.ok.gov">http://takecharge.health.ok.gov</a> ).

## Oklahoma Diagnostic and Treatment Program

The passage of the Breast and Cervical Cancer Prevention and Treatment Act of 2000 (Public Law 106-354) provided medical assistance through SoonerCare Medicaid for women screened through any of the BCCEDP in the state that need assistance with breast and cervical cancer treatment. Oklahoma implemented the SoonerCare program, Oklahoma Cares, in January 1, 2005.

## Oklahoma Cares

Oklahoma Cares provides diagnostic and treatment services for eligible women with abnormalities indicating a breast or cervical pre-cancerous condition or cancer. To be eligible to enroll in Oklahoma Cares for treatment services, women must be screened by a healthcare provider in accordance with Take Charge!, Cherokee Nation BCCEDP or the Kaw Nation Women's Health Program. Women must be 19-64 years of age, not insured, low income, and meet medical eligibility guidelines. Women enrolled in the Oklahoma Cares program receive full scope SoonerCare coverage inclusive of diagnostic and treatment services. Additional information about the Oklahoma Cares program can be found on the Oklahoma Health Care Authority (OHCA) website at <http://www.okhca.org>.

## Statewide Breast and Cervical Cancer Activities

Over 6,000 Oklahomans participated in public education and outreach campaigns and over 50 healthcare providers received training through the efforts of Take Charge! contracted healthcare providers.

## Epidemiological Trend Studies

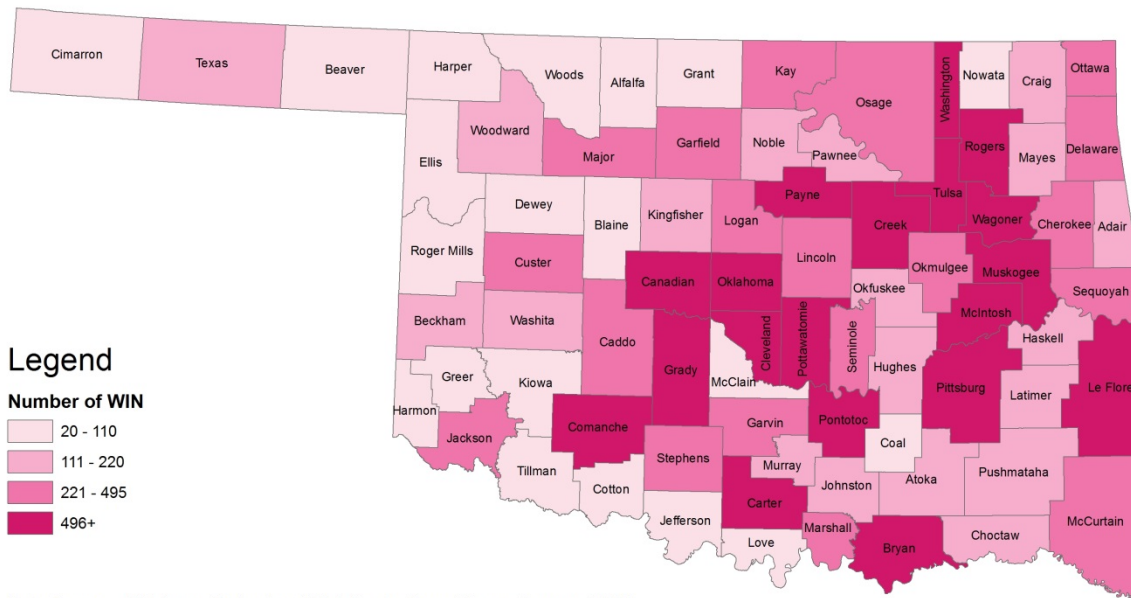
The following epidemiological trend studies have requested data from the OCCR, specifically including data related to breast and cervical cancer, during FY 2014.

1. CI\*Rank: Providing Confidence Intervals for Ranking Website
  - Investigator: Li Zhu and Rocky Feuer
  - Data Requested: August 9, 2013
  - Development of a website that calculates ranks and their uncertainty for different cancer site incidence and mortality by geographic region
2. Female Breast Cancer Incidence at Komen Foundation Affiliate-level
  - Investigator: Serban Negoita
  - Data Requested: August 21, 2013
  - Support resource allocation decisions at Komen affiliate-level by estimating the burden of female breast cancer and interpreting affiliate-level patterns and trends
3. The Burden of Cancer in the USA in 2012 by Race/Ethnicity
  - Investigator: Joannie Lortet-Tieulent
  - Data Requested: February 21, 2014
  - Assessing the burden of cancer to quantify the extent of health loss due to cancer, either due to healthy life years lost or to premature death

## Take Charge! Statewide Provider Recruitment/Outreach

Take Charge! uses multiple methods to ensure screening services are provided to women in the geographic areas of highest need and in the most cost effective manner possible. In order to determine which counties have the highest need, several sources of data are reviewed and analyzed. The following variables are used to identify counties of highest need, listed in order of importance: Women in Need (WIN), proportion of breast cancer cases diagnosed at late stage, mammography screening, breast cancer mortality, cervical cancer screening (Pap tests), and cervical cancer mortality. WIN is calculated by utilizing weighted BRFSS data for income, insurance status, age, and sex. Figure 17 is a map of WIN by region, applied to the county population for FY 2014.

**Figure 17: Number of Women in Need (WIN) in Oklahoma, FY 2014**



Data Source: Oklahoma Behavioral Risk Factor Surveillance Survey, 2012

Created: 07.30.2014

Projection/Coordinate System: USGS Albers Equal Area Conic



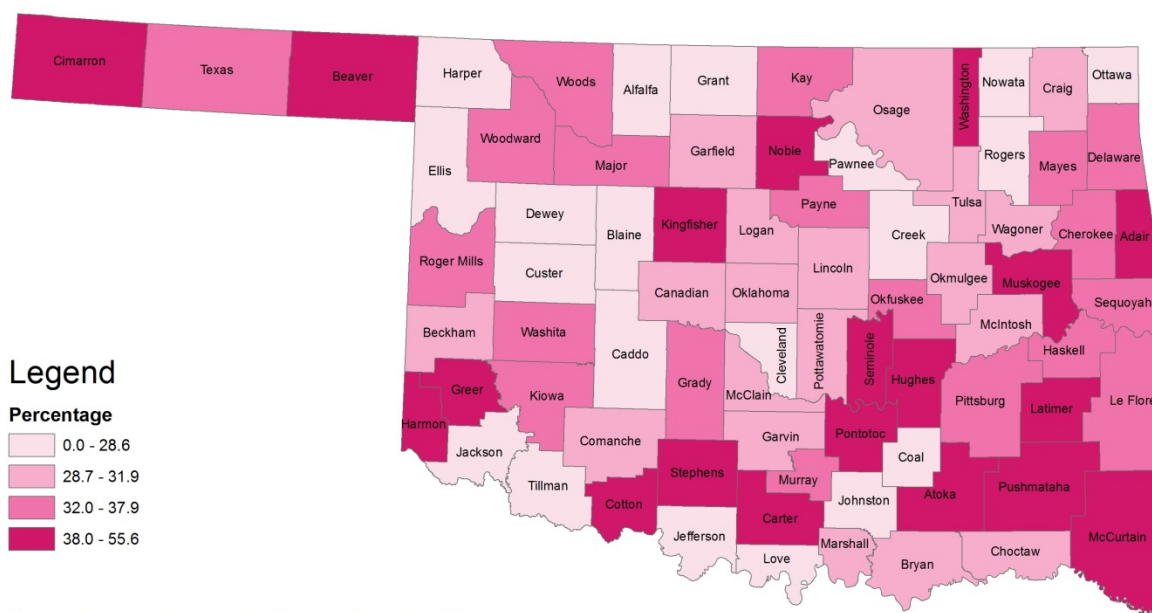
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Each variable used to identify the counties of highest need is ranked by county and weighted by importance. The resulting totals are split into five quintiles and assigned a letter grade from A to F. The counties with the worst grades are considered highest need (Figure 18). Once the counties are graded, the data are compared to a map of the existing Take Charge! contracted healthcare providers. By comparing the two maps, it becomes evident where contractors are needed in Oklahoma, thus recruitment efforts of healthcare providers are enhanced in highest need counties. Identification of providers is performed by reviewing Oklahoma Cares screener lists, internet searches, referrals from county health department staff, and existing contracted healthcare providers' referral of potential providers.



A strategy to reduce the costs of breast cancer is to prevent late stage diagnosis by promoting breast screening for early detection. Early detection of cancer at in situ or local stages provides better chances of five year survival. Figure 19 displays the proportion of late stage cases of breast cancer by Oklahoma counties.

**Figure 19: Proportion of Breast Cancer Cases Diagnosed at Late Stage by County in Oklahoma, 2007-2011**



Data Source: Oklahoma Central Cancer Registry, 2007-2011.

Created: 07.30.2014

Projection/Coordinate System: USGS Albers Equal Area Conic



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Table 3 shows the proportion of diagnosed late stage breast cancers by region. The rate of Oklahoma women diagnosed with late stage breast cancer is highest in the southwest region of Oklahoma, which is considered a medically underserved area/population.<sup>6</sup> It has too few primary care providers, high poverty and/or high elderly populations. Women in southwest Oklahoma that are 50 years of age and older, low income, uninsured or underinsured need access to additional screening, diagnostic and treatment services. There are multiple barriers to accessing services in southwest Oklahoma including financial, transportation, distance to services, culturally appropriate clinic availability, and clinic hours.

**Table 3: Percent of Breast Cancer Cases Diagnosed at Late Stage in Oklahoma by Region, 2007-2011**

29.6%	Central Cleveland and Oklahoma
32.7%	Northeast Adair, Cherokee, Craig, Creek, Delaware, Kay, Lincoln, Mayes, Muskogee, Noble, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pawnee, Payne, Rogers, Sequoyah, Wagoner, and Washington
29.8%	Northwest Alfalfa, Beaver, Blaine, Canadian, Cimarron, Custer, Dewey, Ellis, Garfield, Grant, Harper, Kingfisher, Logan, Major, Roger Mills, Texas, Woods, and Woodward
35.1%	Southeast Atoka, Bryan, Choctaw, Coal, Haskell, Hughes, Johnston, Latimer, LeFlore, McCurtain, McIntosh, Marshall, Murray, Pittsburg, Pontotoc, Pottawatomie, Pushmataha, and Seminole
36.3%	Southwest Beckham, Caddo, Carter, Comanche, Cotton, Garvin, Grady, Greer, Harmon, Jackson, Jefferson, Kiowa, Love, McClain, Stephens, Tillman, and Washita
30.4%	Tulsa Tulsa

A recent emerging strategy to improve cervical cancer management is the concept of benchmarking cervical intraepithelial neoplasia grade 3 (CIN3+) risk in regards to HPV and Pap co-testing. In a recent study, a normal Pap test and negative HPV test was associated with a five year risk of .08% of developing CIN3+, which is far below the .26% implicitly required for a 3-year return. These results support a longer return period for cervical cancer screening with HPV and Pap co-testing. The authors suggest using the concept of “equal management of equal risks.”<sup>8</sup>

**Legislative Update**

The passage of House Bill 1467, which amended 63 O.S. §1 554-558, created a new opportunity to partner with individuals throughout the state of Oklahoma to improve the health of all Oklahomans. The newly created Advancement of Wellness Advisory Council has representation from medical professionals, city officials, business and the Tobacco Settlement Endowment Trust. It is anticipated that the barriers and burdens of breast and cervical cancer will be reduced by joining together with one voice through the Advancement of Wellness Advisory Council.

**Breast and Cervical Cancer Resources for Oklahomans**

The 2012 Oklahoma Cancer Resource Guide, *Threads of Support*, is available for Oklahomans to use to find resources to assist with breast and cervical cancer screening, diagnostic testing and treatment. The guidebook contains resource information about all cancers, not just breast and cervical cancer. *Threads of Support* can be accessed online at <http://cccp.health.ok.gov>. The link is located on the left side of the page. Hard copies of the guide are available by calling (405) 271-4072.



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