

# Healthy Families, Better Beginnings

2013

A REPORT ON THE HEALTH OF  
WOMEN, CHILDREN, AND FAMILIES IN SPOKANE



Community Health Assessment, Planning, and Evaluation

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# Introduction

Spokane Regional Health District (SRHD) staff envision a healthy community for all, including good and equitable behavioral, social, and environmental influences on Spokane's residents. Foundational to this vision is staff's ability to positively impact mothers, children, and families. Women and children's health is a public health priority. A woman's health throughout her life span determines how well she cares for herself and her family, and her pre-conceptual health directly affects the health of her newborn infant.

Many things impact women's health, including socio-economic status and the neighborhood in which she lives, but not all women in Spokane County have equal opportunities. In order to impact the health of women, children, and families, we must make changes to our community and environments so that all women and families have equal opportunities and can choose to live healthier lifestyles. This will require a change or modification to some of our delivery methodologies which in the past have focused on individuals and families. These past methods are expensive and inadequate to meet the need in the community. To be more effective we must continue to develop and expand population-based approaches such as Neighborhoods Matter\* and Weaving Bright Futures\*\*, which impacts our most marginalized neighborhoods. Failure to do this will create a higher incidence of chronic disease, increase the cost of health care, and do little to improve the overall health of the community. The time for action is now. Children and families in Spokane County cannot wait.

In 2008, SRHD staff produced a report detailing health factors of pregnant women and infants titled, *A Healthy Start: Spokane's Future*. This report, *Healthy Families, Better Beginnings*, provides updated information on previously reported indicators. Additional statewide maternal and child health outcome measures are included. The report now extends beyond pregnancy and infancy to include preconception health, family health, and childhood health measures.



## \*Neighborhoods Matter

Neighborhoods Matter seeks to reduce health disparities impacting maternal, child, and family health in the East Central neighborhood of Spokane. The program's objectives are to expand neighborhood capacity to address the root causes of health issues; create connectivity among residents; and create sustainability.

## \*\*Weaving Bright Futures

The goals of Weaving Bright Futures are:  
1) increase academic outcomes of at-risk students;  
2) demonstrate how schools can be a practical vehicle for addressing the effects of traumatic stress in children; and, 3) increase community resiliency to prevent adverse childhood experiences (ACEs) or to mitigate the impact of ACEs. The project involves two public health nurses in six highly impacted elementary schools to work with students and families who have been identified as having been exposed to ACEs.

# Methodology

A list of measures for inclusion in the report was compiled from prior literature, a literature search, and discussions with SRHD staff. The measures are related to maternal health, birth outcomes, health of women of childbearing age, childhood health, and family health. In cases where there is not a good local source of information for desired measures, a discussion on the topic was included as staff felt this information important in providing a clearer picture of health in the community.

Many sources of data were utilized to create this report. Analysis of data was done with Stata® 11, OpenEpi version 2.3.1 , the Cochran-Armitage test for trend built in Excel®, and the Washington State Department of Health Community Health Assessment Tool (CHAT). Mapping was done with ArcGIS 10.

When available and reportable using data guidelines, Spokane County measures were compared to Washington state, examined for differences over time, and analyzed by age, income, and race. For some measures, a proxy for income was used. These included being on Medicaid, mother’s highest education level, and being eligible for free or reduced fee school lunch. Measures that listed individual races defined Hispanics as a race, not an ethnicity. Race categories were white, black, American Indian/Alaska Native (AIAN), Asian/Pacific Island (API), and Hispanic. Statistically-significant differences were identified using a chi-square, logistic regression or trend test. A p-value of <0.05 was used to determine if the findings were statistically significant. Confidence intervals were not listed for each data point in this report since statistical significance was determined using a p-value.



# Demographics

In 2011 in Spokane County there were 472,650 residents, of which 111,470 were women of childbearing age, 15-44 years of age. There were 5,867 births to county residents.

Births, 2007-2011		Spokane County	WA
Age Group	15-19	8.2%	7.5%
	20-29	59.0%	52.0%
	30-39	30.8%	37.4%
	40-49	2.0%	3.1%
Income	Medicaid	46.5%	39.0%
	Non-Medicaid	53.5%	61.0%
Race	White	89.6%	71.1%
	Black	2.4%	5.0%
	AIAN*	2.7%	2.2%
	API**	3.9%	10.0%
	Hispanic	1.4%	11.7%
Education	< HS grad	11.2%	17.5%
	HS grad	26.4%	23.5%
	Some college	36.5%	30.9%
	College grad	25.9%	28.1%

**Socioeconomic factors** | During 2007-2011 in Spokane County, the majority of births were to women 20-29 years of age. Eight percent of births were to teenage mothers. Nine in 10 births were to white women. Nearly half of births were to women on Medicaid. Women in Spokane County were 40% more likely to have birth costs paid by Medicaid compared to women statewide (Table 1).

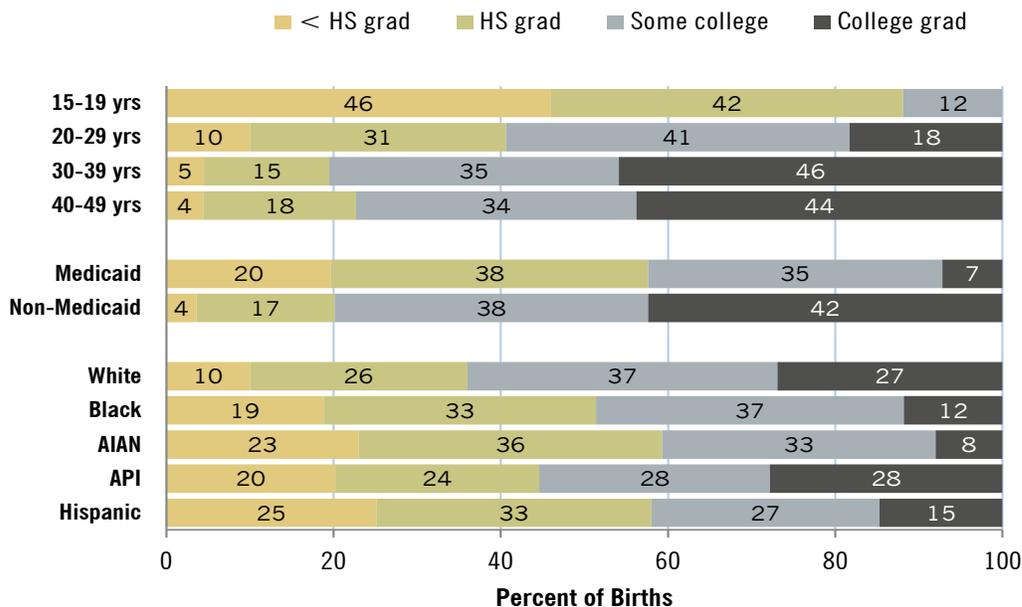
Source: Washington State Department of Health, Center for Health Statistics

\*American Indian/Alaska Native

\*\*Asian/Pacific Island

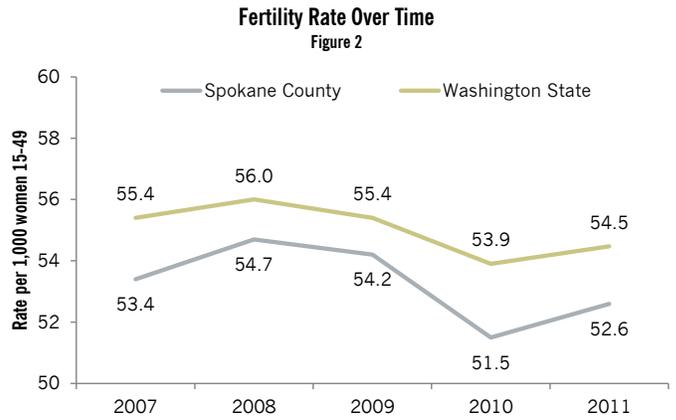
## Demographics by Maternal Education Spokane County, 2007-2011

Figure 1

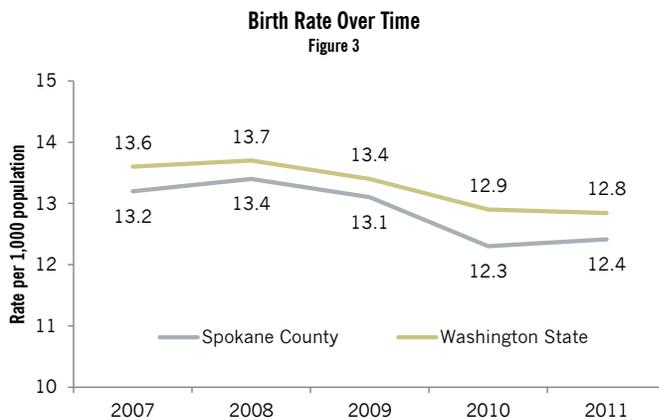


Source: Washington State Department of Health, Center for Health Statistics

**Fertility rate** is the number of live births per 1,000 women 15-49 years of age. In 2011, Spokane County experienced 52.6 births per 1,000 women 15-49 years of age. This rate was similar to the statewide fertility rate of 54.5 births per 1,000 women 15-49 years of age. The fertility rate in Spokane County had a statistically significant decrease from 2007 to 2011 (Figure 2).



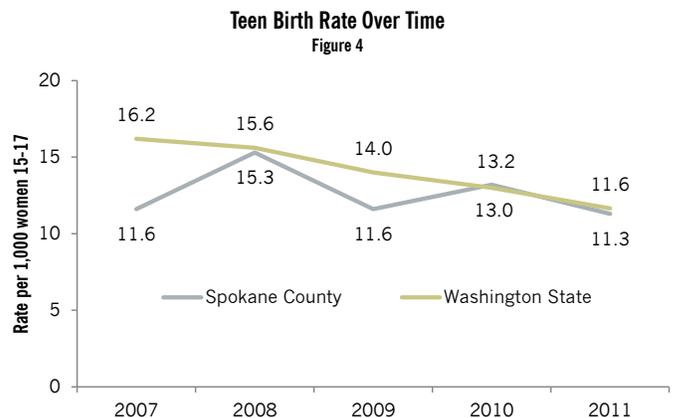
Source: Washington State Department of Health, Center for Health Statistics



Source: Washington State Department of Health, Center for Health Statistics

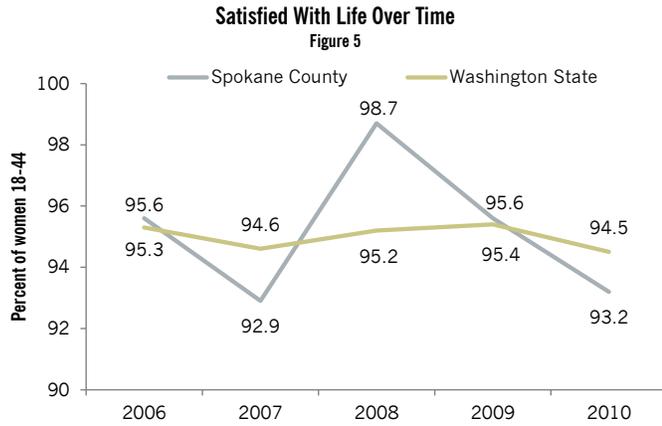
**Birth rate** is the number of live births per 1,000 people. There were 12.4 births per 1,000 Spokane County residents in 2011. This rate was significantly lower than the Washington state rate of 12.8 births per population. The birth rate in Spokane County significantly decreased from 2007 to 2011 (Figure 3).

**Teen birth rate** is the number of live births per 1,000 women 15-17 years of age. In 2011, there were 103 teen births in Spokane County for a rate of 11.3 births per 1,000 women 15-17 years of age. From year to year, there was variability in the teen birth rate in Spokane County, but there was not a significant linear trend in either direction. The 2011 teen birth rate in Spokane County was similar to that of Washington state (Figure 4).



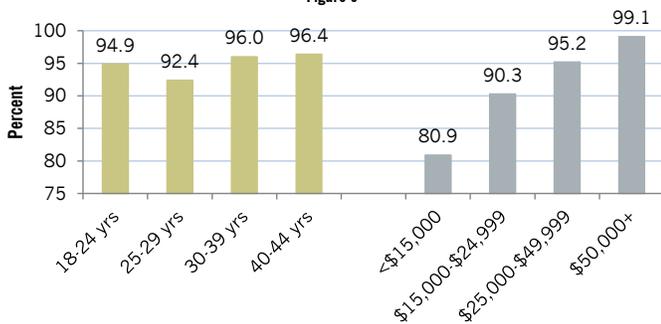
Source: Washington State Department of Health, Center for Health Statistics

**Satisfaction with life** was defined as women 18-44 years of age who were very satisfied or satisfied with their life. Nearly all women of reproductive age in Spokane County reported being at least satisfied with their life. While there was some variability from year to year, overall there was no significant trend in Spokane County from 2006 to 2010. During 2006-2010, there was no difference in the satisfaction rate between Spokane County and Washington state (Figure 5).



Source: Behavioral Risk Factor Surveillance Survey

**Satisfied With Life by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 6

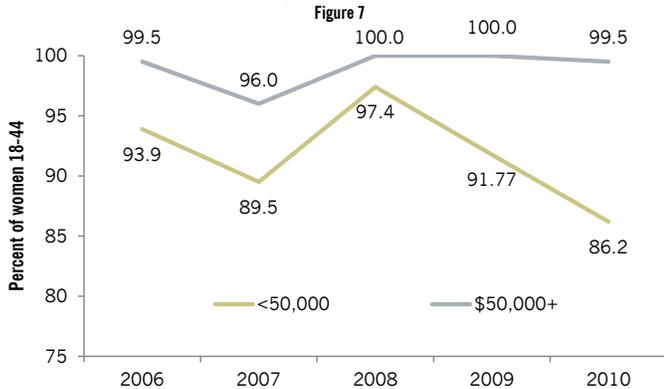


Source: Behavioral Risk Factor Surveillance Survey

Among Spokane County women there was no difference in being satisfied with life by age group. Satisfaction increased significantly as income increased (Figure 6).



**Satisfied With Life Over Time by Income**  
Spokane County  
Figure 7



Source: Behavioral Risk Factor Surveillance Survey

During the years 2006-2010, the United States fell into an economic recession. While there was a significant difference in life satisfaction between income groups, there was no change over time within income groups (Figure 7).

**Cost of Birth** | During 2007-2011, the average length of stay in a hospital for a Spokane County newborn was three days. A “healthy” baby was defined as spending three or fewer days in a hospital. Among infants born preterm (<37 weeks gestation), the average length of stay in a hospital was 14 days. Nine in 10 full-term births (92.2%) were classified as healthy and spent three or fewer days in the hospital at birth. Comparatively, only 40.3% of preterm births were classified as healthy. Six in 10 preterm births spent more than three days in the hospital at birth. This was reflected in the cost for the birth of an infant.

The average charge for a newborn hospitalization was \$10,000 during 2007-2011. Combined, unhealthy newborns and preterm births accounted for 14% of total births. Individually, 11.2% of newborns were unhealthy and 6.5% of newborns were preterm. Yet these births accounted for a disproportionate amount of the total charges (Table 2).

Table 2

Hospital Charges for Newborns, Spokane County, 2007-2011			
	Average charges	Percent of total charges	Percent of births
All newborns	\$10,000	100	100
Full-term newborns	\$6,800	36.4	93.5
Preterm newborns	\$55,900	63.6	6.5
Healthy newborns	\$2,100	18.7	88.8
Unhealthy newborns	\$72,700	81.3	11.2

Source: Washington State Department of Health, Comprehensive Hospital Abstract Reporting System (CHARS)

Within the county, there was variation in the average charges for a newborn. Zip codes in the urban core of Spokane County were in the middle of the range of average charges. Rural zip codes have both the highest and lowest average charges for a newborn (Figure 8).

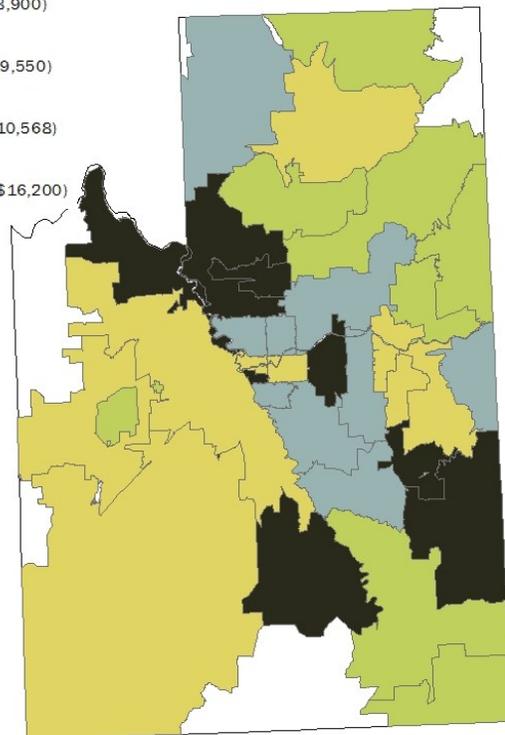
Average Cost of a Birth by Zip Code

Spokane County, 2007-2011

Figure 8

Legend

- 1st quartile (\$1,900 - \$8,900)
- 2nd quartile (\$8,901 - \$9,550)
- 3rd quartile (\$9,551 - \$10,568)
- 4th quartile (\$10,569 - \$16,200)



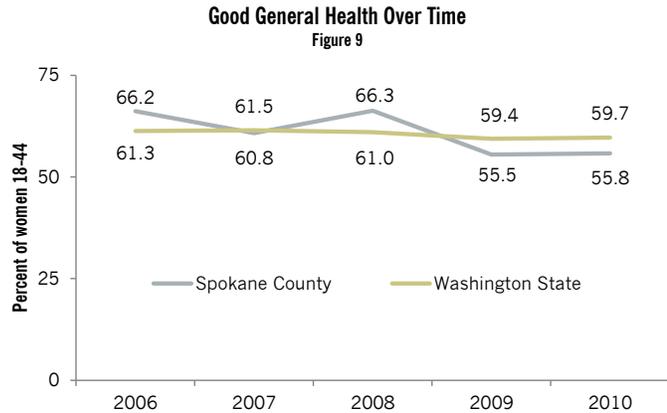
Created by Spokane Regional Health District, Jan 2013  
Source: CHARS



# Preconception Health

The health of women of reproductive age and their behaviors may influence birth outcomes when they become pregnant. Preconception health aims to promote healthy behaviors and improve the health status among women of reproductive age. The goal is to improve pregnancy-related outcomes for both the mother and the baby.

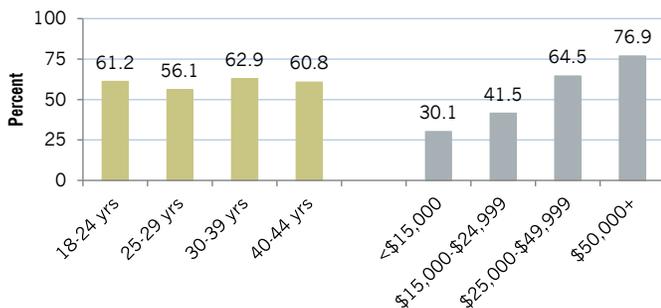
**Good general health** was defined as women 18-44 years of age who self-reported they felt they were in excellent or very good health. In 2010, 55.8% of women of reproductive age in Spokane County reported being in good health. The proportion reporting good health significantly decreased from 2006 to 2010. During 2006-2010, there was no difference in women reporting good health between Spokane County and Washington state (Figure 9).



Source: Behavioral Risk Factor Surveillance Survey



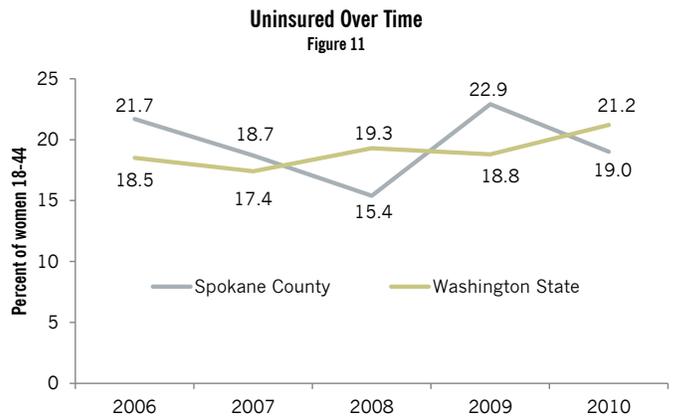
**Good General Health by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 10



Source: Behavioral Risk Factor Surveillance Survey

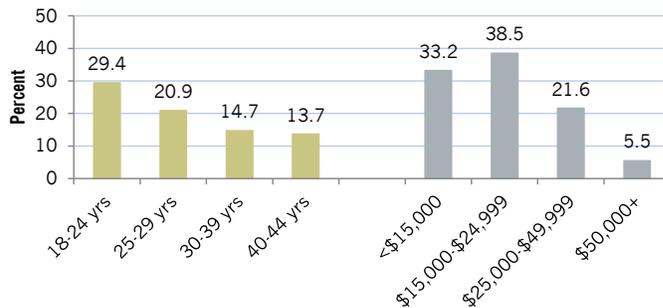
Among Spokane County women, there was no difference in being in good general health by age group. Good health increased significantly as income increased (Figure 10).

**Uninsured** was defined as women 18-44 years of age who did not have health insurance. In 2010, 19.0% of women of reproductive age in Spokane County reported being uninsured. While there was some variability from year to year, overall there was no significant trend in being uninsured from 2006 to 2010 in Spokane County. During 2006-2010, there was no difference in the proportion of uninsured women between Spokane County and Washington state (Figure 11).



Source: Behavioral Risk Factor Surveillance Survey

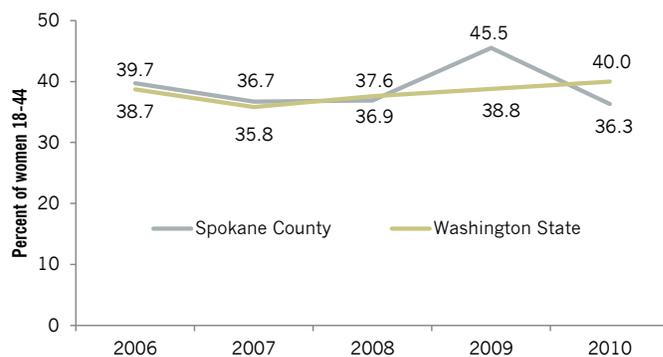
**Uninsured by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 12



Source: Behavioral Risk Factor Surveillance Survey

Among Spokane County women, being uninsured decreased significantly as age and income increased (Figure 12).

**No Checkup Over Time**  
Figure 13

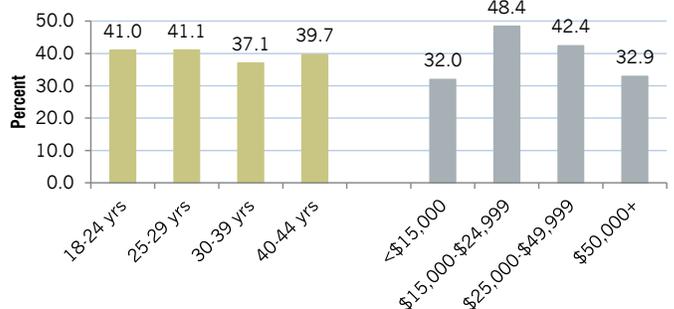


Source: Behavioral Risk Factor Surveillance Survey

**No checkup** was defined as women 18-44 years of age who have not had a medical checkup in the last year. In 2010, 36.3% of women of reproductive age in Spokane County had not seen a health care provider for a checkup in the last year. There was no significant trend in not having a checkup from 2006 to 2010. During 2006-2010, there was no difference between Spokane County and Washington state in the proportion of women who had not had a checkup in the last year (Figure 13).

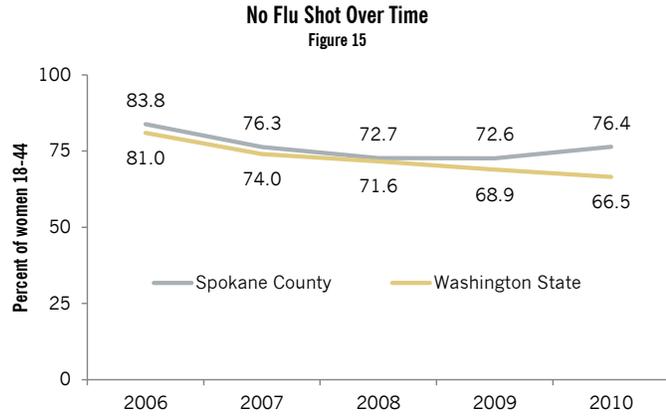
Among Spokane County women, there was no difference in not having a checkup by age group. Compared to women with an income of \$50,000 or more, those in the middle income categories were more likely to not have a checkup; a similar proportion of women with an income of less than \$15,000 did not have a checkup (Figure 14).

**No Checkup by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 14



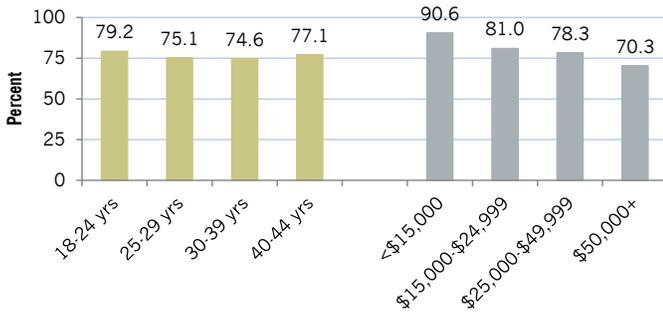
Source: Behavioral Risk Factor Surveillance Survey

**No flu shot** was defined as women 18-44 years of age who have not had a flu shot in the last year. In 2010, 76.4% of women of reproductive age in Spokane County did not receive a flu shot in the last year. There was no significant trend in not having a flu shot from 2006 to 2010. During 2006-2010, Spokane County had a significantly higher proportion of women of childbearing age not receiving a flu shot compared to Washington state (Figure 15).



Source: Behavioral Risk Factor Surveillance Survey

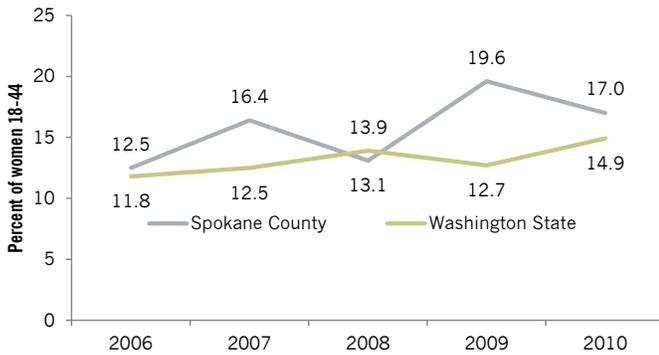
**No Flu Shot by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 16



Source: Behavioral Risk Factor Surveillance Survey

Among Spokane County women, there was no difference by age group in not receiving a flu shot. As income increased, the proportion of women not receiving a flu shot significantly decreased (Figure 16).

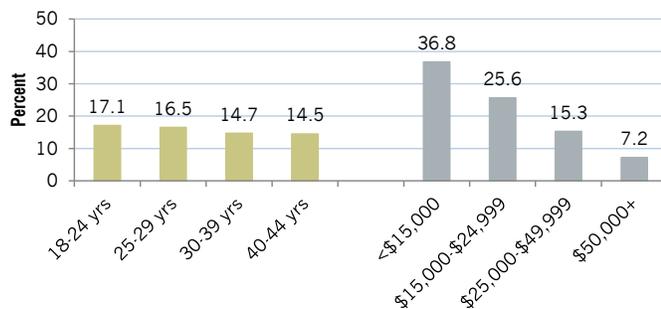
**Poor Mental Health Over Time**  
Figure 17



Source: Behavioral Risk Factor Surveillance Survey

**Poor mental health** was defined as women 18-44 years of age who self-reported poor mental health on 14 or more days in the last month. In 2010, 17.0% of women of reproductive age in Spokane County reported having poor mental health. While there was some variability from year to year, overall there was no significant trend in the proportion of women having poor mental health from 2006 to 2010 in Spokane County. During 2006-2010, there was no difference in women reporting poor mental health between Spokane County and Washington state (Figure 17).

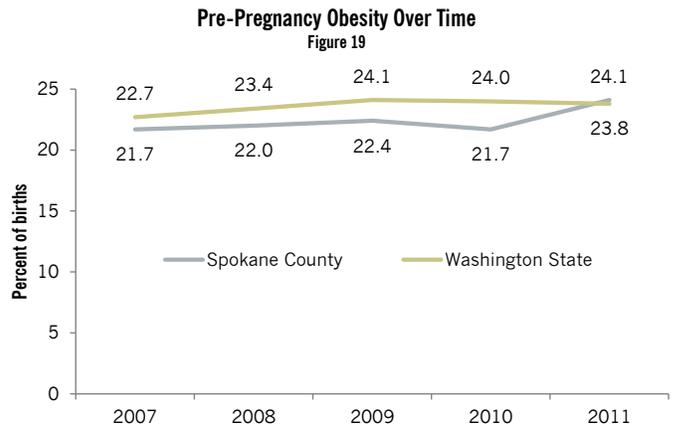
**Poor Mental Health by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 18



Source: Behavioral Risk Factor Surveillance Survey

Among Spokane County women, there was no difference in poor mental health by age group. Poor mental health decreased significantly as income increased (Figure 18).

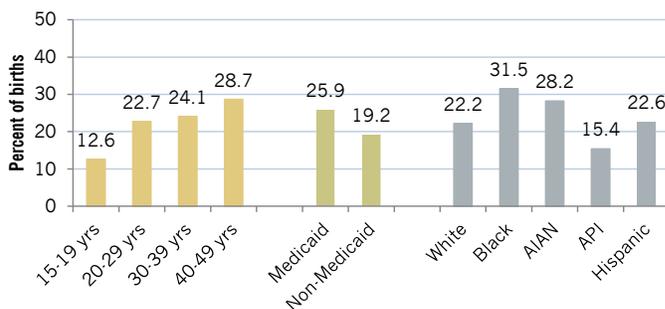
**Pre-pregnancy obesity** was defined as a mother having a body mass index of 30 or greater before she became pregnant. In 2011, 24.1% of new mothers in Spokane County were obese before becoming pregnant. The proportion of births where the mother was obese before pregnancy increased significantly from 2007 to 2011 in Spokane County. During 2007-2011, the pre-pregnancy obesity rate was statistically significantly lower in Spokane County when compared to Washington state (Figure 19).



Source: Washington State Department of Health, Center for Health Statistics



**Pre-Pregnancy Obesity by Demographics**  
Spokane County, 2007-2011  
Figure 20

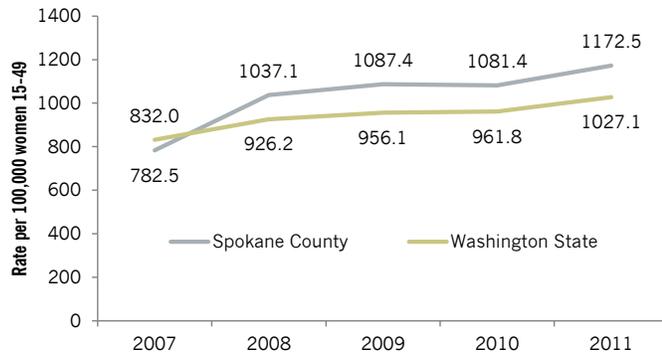


Source: Washington State Department of Health, Center for Health Statistics

Among new mothers in Spokane County, pre-pregnancy obesity increased as age increased and was higher among women on Medicaid. Compared to white mothers, black and American Indian/Alaska Native mothers had a higher proportion of pre-pregnancy obesity. Asian/Pacific Islander mothers had a significantly lower proportion of pre-pregnancy obesity. Hispanic mothers had a similar proportion (Figure 20).

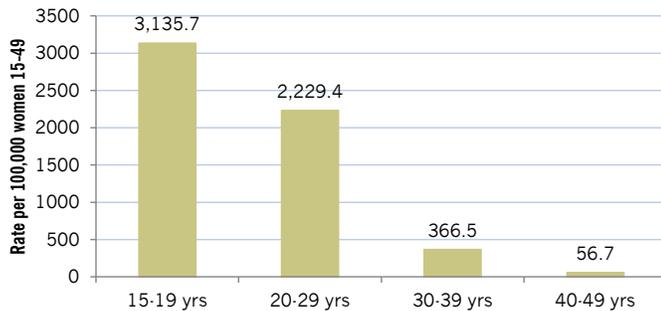
**Chlamydia** was defined as a woman 15-49 years of age diagnosed with chlamydia. In 2011, there were 1,307 cases of chlamydia reported among Spokane County women. The rate of chlamydia increased significantly from 2007 to 2011 in Spokane County. During 2007-2011, the chlamydia rate was significantly higher in Spokane County compared to Washington state (Figure 21).

**Chlamydia Rate Over Time**  
Figure 21



Source: Washington State Department of Health, Infectious Disease, STD Services Section

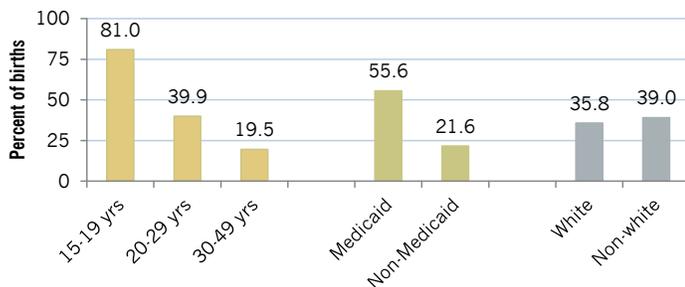
**Chlamydia Rate by Demographics**  
Spokane County Women 15-49, 2007-2011  
Figure 22



Source: Washington State Department of Health, Infectious Disease, STD Services Section

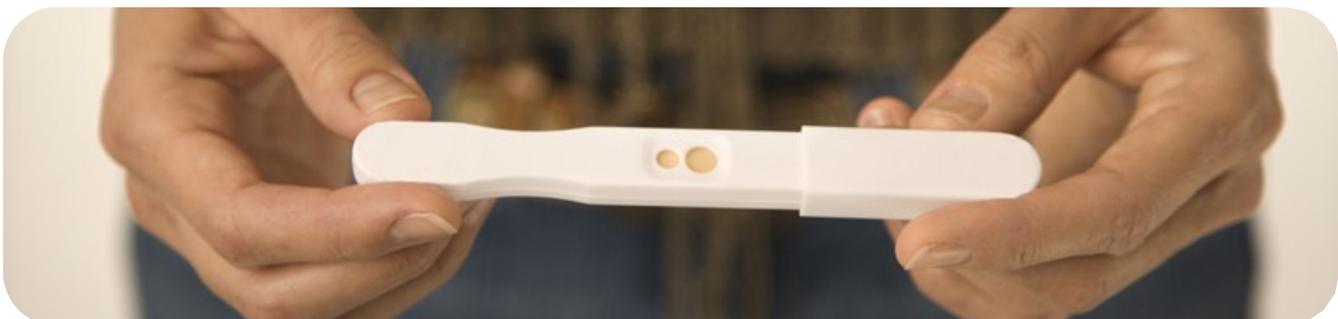
Among Spokane County women, the chlamydia rate decreased as age increased (Figure 22).

**Unintended Pregnancy by Demographics**  
Spokane County, 2006-2010  
Figure 23



Source: Pregnancy Risk Assessment Monitoring System

**Unintended pregnancy** was defined as a pregnancy that was unwanted or wanted at a later time. During 2006-2010, more than one in three (36.1%) births was an unintended pregnancy in Spokane County. The statewide rate was similar at 36.9%. Among Spokane County women, unintended pregnancy decreased as age increased and was higher among women on Medicaid. There was no difference in unintended pregnancy by race (Figure 23). In Spokane County, a significantly higher proportion of women with an unintended pregnancy reported using some form of birth control when they got pregnant (67.6%). Among women whose pregnancy was intended, 37.5% reported using a birth control method.



# Family Health

**Family structure** | In 2011, there were 108,605 children younger than 18 years of age in Spokane County. There were 52,489 family households with children in Spokane County, of which 67.9% were a married-couple family household, 23.4% were a female householder with no husband present, and 8.7% were a male householder with no wife present (Figure 24).

Among all families with children younger than five years of age in Spokane County in 2011, 18.7% were living below 100% Federal Poverty Level. The proportion was 5.1% among married-couple families and 61.4% among families with a female householder and no husband present.

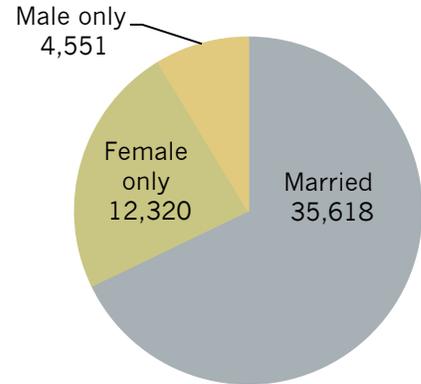
There were an estimated 6,196 children 0-5 years of age living with a single mother during 2007-2011 in Spokane County. The highest concentration of these children was in the north part of the City of Spokane and the east part of the City of Spokane Valley (Figure 25).

Children in a single-mother household have poorer physical and mental health than do children living in a household with two biological parents. This difference holds true even when adjusting for differences in socioeconomic factors.<sup>1</sup> But having a father in the household with a child does not guarantee better outcomes for the child. Characteristics that increase the likelihood that a father may mistreat his child include substance abuse, poverty, unemployment, and having a low self-esteem.<sup>2</sup>

Fathers who have a good relationship with the mother and are involved in the caring of their children have children with better outcomes. Studies have found that active, nurturing fathering was associated with children who have better verbal skills, perform better academically, are emotionally secure, are confident, have better social connections with peers, and are less likely to get into trouble.<sup>2,3</sup>

**Family Household Structure  
Spokane County, 2011**

Figure 24

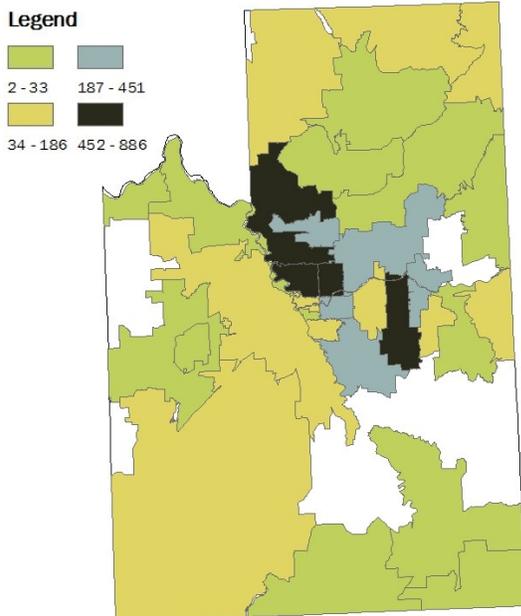


Source: U.S. Census Bureau

**Count of Children 0-5 Years of Age  
Living With a Single Mother by Zip Code**

Spokane County, 2007-2011

Figure 25



Created by Spokane Regional Health District, Jan 2013  
Source: American Community Survey



## Adverse childhood experiences (ACEs)

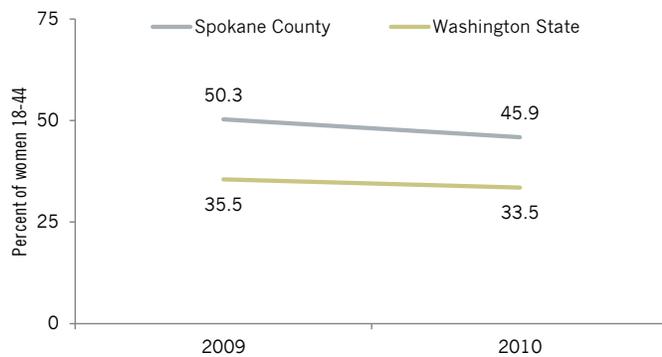
are traumatic stressors that occur in childhood and negatively impact future health. ACEs include abuse or neglect as a child and household dysfunction measures that include domestic violence against the mother; a household member with a substance abuse problem, mental illness, or that has been incarcerated; and if parents were separated or divorced. As the number of ACEs reported increases, the risk for poor health outcomes increases. Poor health outcomes include alcohol abuse, depression, drug use, intimate partner violence, tobacco use, sexually transmitted diseases, suicide attempts, and unintended pregnancy.<sup>4</sup> A study of youth in Washington state enrolled in Medicaid demonstrated that as the number of adverse childhood experiences increased, so did the risk for substance abuse and mental health problems.<sup>5</sup> In Spokane, 12% of students in grades K-6 have experienced three or more adverse events.<sup>6</sup>



A high ACEs score was defined as women 18-44 years of age who had 4-8 adverse childhood experiences. In 2010, 45.9% of women of reproductive age in Spokane County had a high ACEs score. This was similar to the 2009 rate, when collection of this information began. During 2009-2010, Spokane County had a significantly higher proportion of women with high ACEs compared to Washington state (Figure 26).

High ACEs Score Over Time

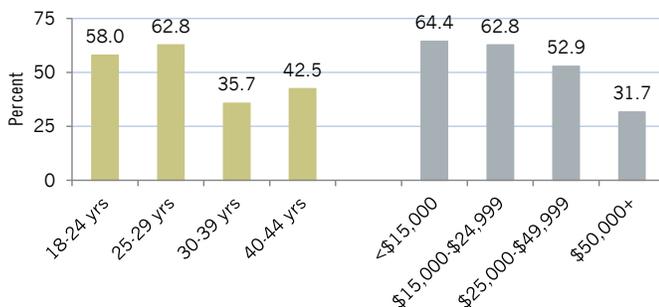
Figure 26



Source: Behavioral Risk Factor Surveillance Survey

High ACEs Score by Demographics  
Spokane County Women 18-44, 2009-2010

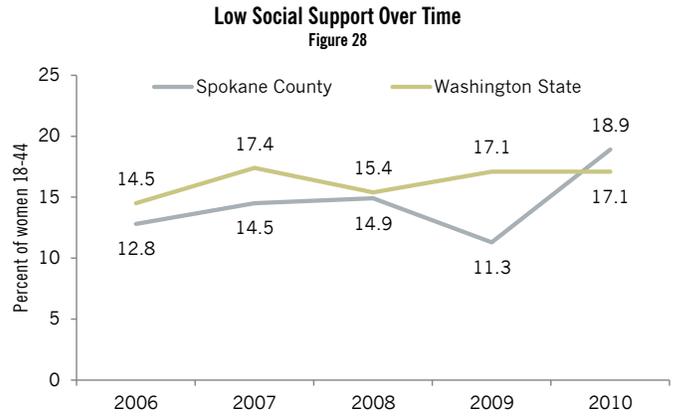
Figure 27



Source: Behavioral Risk Factor Surveillance Survey

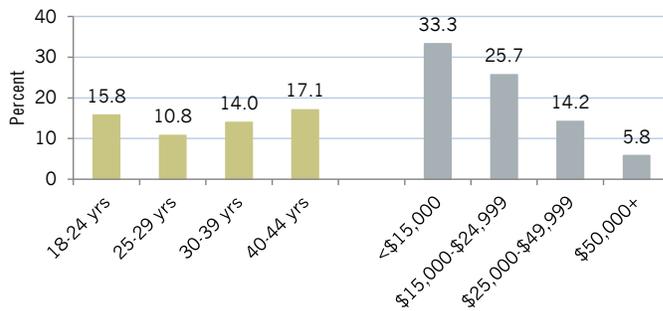
Among Spokane County women, there was no difference in having a high ACEs score by age group. Having a high ACEs score decreased significantly as income increased (Figure 27).

**Low social support** was defined as women 18-44 years of age who sometimes, rarely, or never received the social and emotional support they needed. In 2010, 18.9% of women of reproductive age in Spokane County had low social support. While there was some variability from year to year, overall there was no significant trend in low social support from 2006 to 2010 in Spokane County. During 2006-2010, there was no difference in the proportion of women with low social support between Spokane County and Washington state (Figure 28).



Source: Behavioral Risk Factor Surveillance Survey

**Low Social Support by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 29

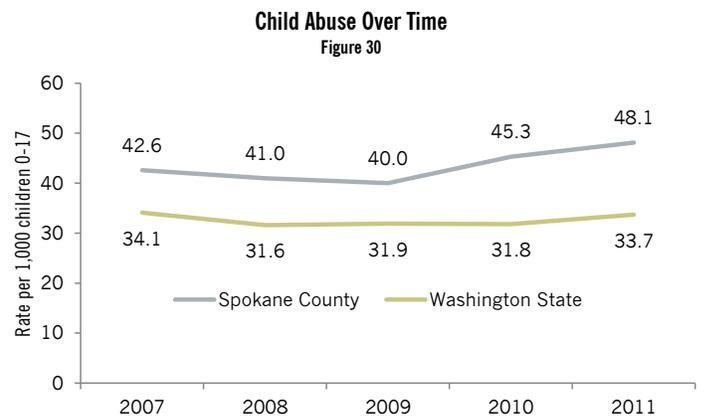


Source: Behavioral Risk Factor Surveillance Survey

Among Spokane County women, there was no difference in having low social support by age group. Low social support decreased significantly as income increased (Figure 29).



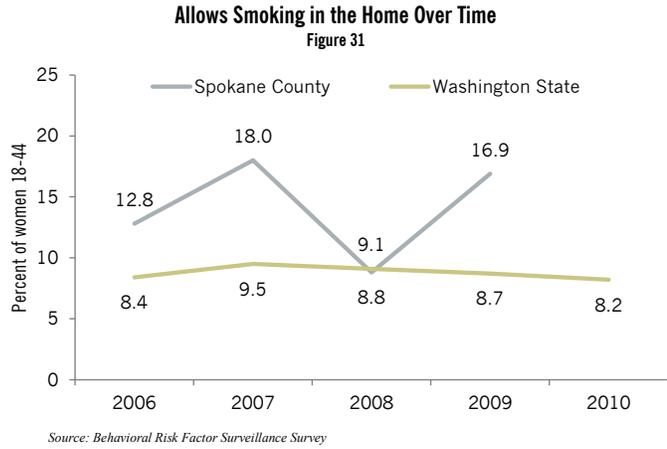
**Child abuse** was defined as children 0-17 years of age who were identified as victims in reports to Child Protective Services that were accepted for further action. Children were counted more than once if they were reported as a victim more than once during the year. In 2011, there were 5,264 victims of child abuse in Spokane County. Overall, the rate of child abuse significantly increased from 2007 to 2011 in Spokane County. The 2011 child abuse rate was significantly higher in Spokane County than in Washington state (Figure 30).



Source: Washington State Department of Social and Health Services

**Smoking allowed in home** was defined as explicitly allowing cigarette smoking inside the home or not having rules against smoking inside the home. In 2009, 16.9% of women of reproductive age in Spokane County allowed smoking in the home. While there was variability from year to year, there was no statistically significant trend in allowing smoking in the home from 2006 to 2009.\* During 2006-2010, the proportion of women allowing smoking in the home was significantly higher in Spokane County compared to Washington state (Figure 31).

\* There were too few respondents in 2010 in Spokane County to report that year alone.

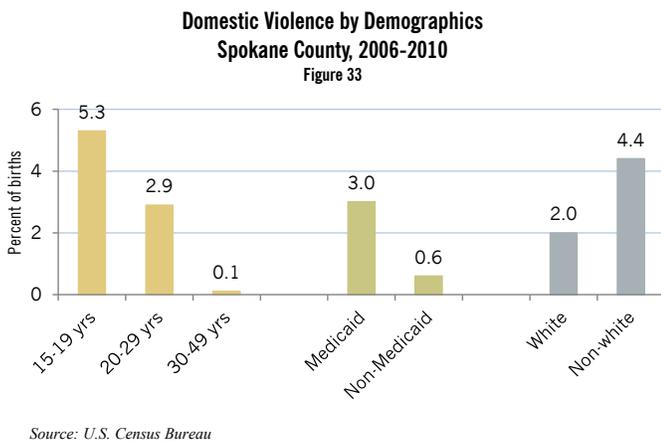


Among Spokane County women, there was no difference in allowing smoking in the home by age group. Allowing smoking in the home decreased as income increased (Figure 32).

**Allows Smoking in the Home by Demographics**  
Spokane County Women 18-44, 2006-2010  
Figure 32

Demographic	Percent
18-24 yrs	10.1
25-29 yrs	8.2
30-39 yrs	11.2
40-44 yrs	19.1
< \$15,000**	17.9
\$15,000-\$24,999	10.1
\$25,000-\$49,999	6.4
\$50,000+	6.4

Source: Behavioral Risk Factor Surveillance Survey \*\*Suppressed due to small numbers.

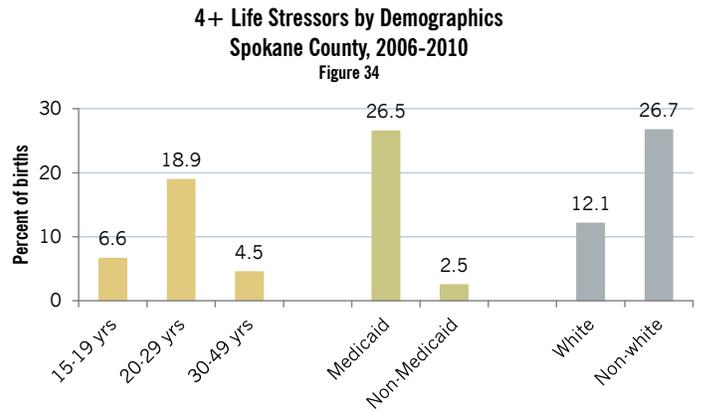


**Domestic violence** was defined as a pregnancy where the mother reported being physically hurt in any way by her husband or partner in the 12 months before getting pregnant. During 2006-2010, mothers experienced domestic violence in 2.2% of births in Spokane County. The statewide rate was similar at 2.9%.

Among Spokane County women, domestic violence decreased as age increased and was higher among women on Medicaid. There was no significant difference in domestic violence by race (Figure 33).

**Stressors** was defined as a pregnancy where the mother reported having four or more poor social or economic experiences in the year before the baby was born. During 2006-2010, 13.5% of mothers in Spokane County had four or more stressors in their life. The statewide rate was similar at 15.7%.

Among Spokane County women, having four or more stressors was significantly higher among women 20-29 years of age, those on Medicaid, and non-whites (Figure 34). Women with four or more stressors were nearly 10 times more likely to have postpartum depression and almost six times more likely to have a low birth weight infant.



Source: Pregnancy Risk Assessment Monitoring System

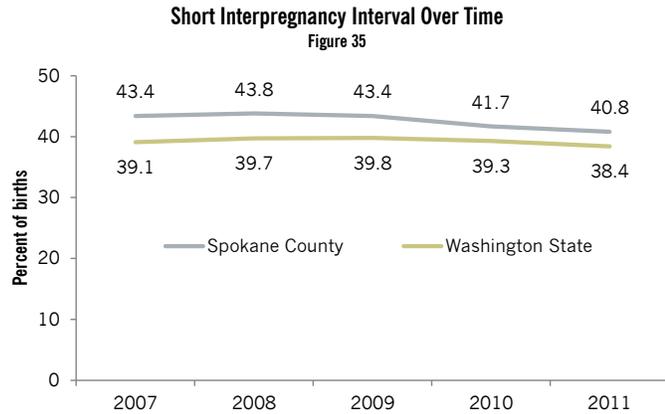
Table 3

Life Stressors, Spokane County, 2006-2010	
I moved to a new address	33.6%
I had a lot of bills I couldn't pay	21.3%
A close family member was very sick and had to go into the hospital	21.1%
I argued with my husband or partner more than usual	17.4%
Someone very close to me died	16.0%
Someone very close to me had a bad problem with drinking or drugs	13.0%
My husband or partner lost his job	12.1%
I lost my job even though I wanted to go on working	10.5%
I got separated or divorced from my husband or partner	7.0%
I was homeless	4.2%
My husband or partner or I went to jail	3.7%
My husband or partner said he didn't want me to be pregnant	3.5%
I was in a physical fight	2.3%



# Maternal Health

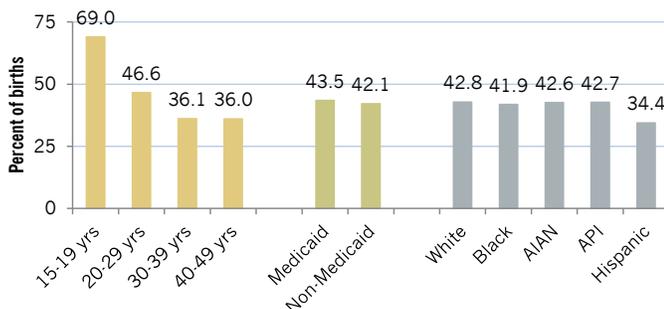
**Short interpregnancy interval** was defined as a pregnancy occurring less than 18 months after the previous pregnancy outcome, such as a birth or fetal death. First pregnancies were excluded from the analysis. In 2011, 40.8% of births in Spokane County had a short interpregnancy interval. The proportion of births with a short interpregnancy interval decreased significantly from 2007 to 2011 in Spokane County. During 2007-2011, Spokane County had a significantly higher proportion of births with a short interpregnancy interval compared to Washington state (Figure 35).



Source: Washington State Department of Health, Center for Health Statistics



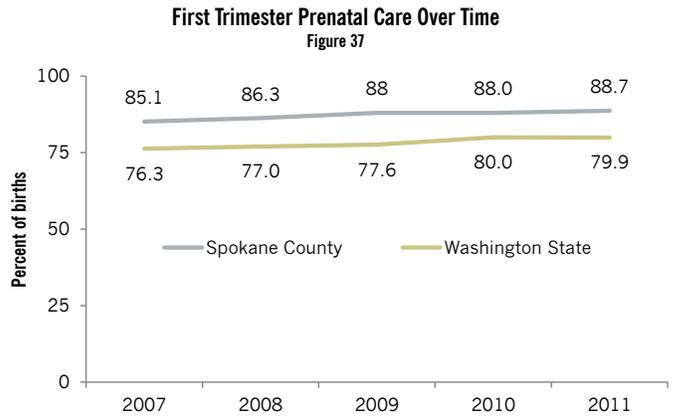
**Short Interpregnancy Interval by Demographics**  
Spokane County, 2007-2011  
Figure 36



Source: Washington State Department of Health, Center for Health Statistics

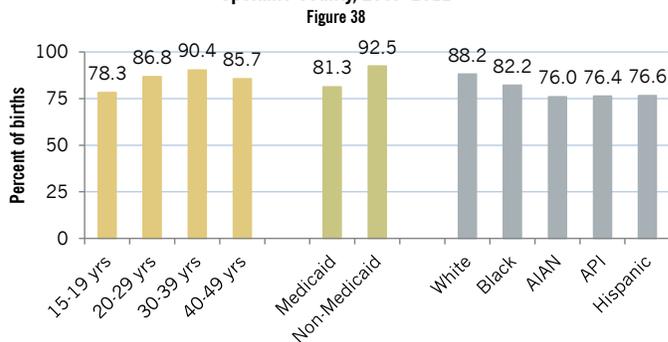
Among Spokane County births, there was no difference in having a short interpregnancy interval by Medicaid status or race. A short interpregnancy interval decreased significantly as age increased (Figure 36).

**Prenatal care** was defined as births where the mother began prenatal care in the first trimester. In 2011, 88.7% of births in Spokane County had first trimester prenatal care. The proportion of births with first trimester prenatal care increased significantly from 2007 to 2011 in Spokane County. During 2007-2011, Spokane County had a significantly higher proportion of births with first trimester prenatal care compared to Washington state (Figure 37).



Source: Washington State Department of Health, Center for Health Statistics

First Trimester Prenatal Care by Demographics  
Spokane County, 2007-2011

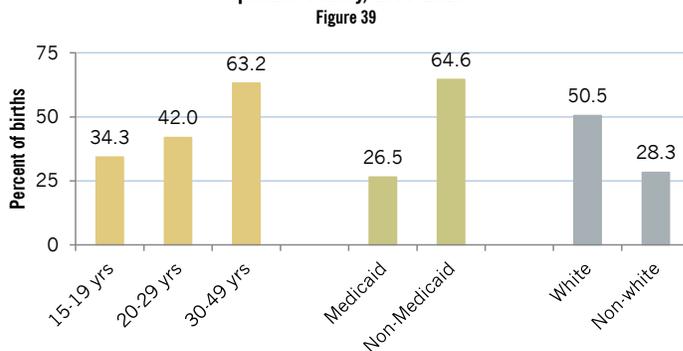


Source: Washington State Department of Health, Center for Health Statistics

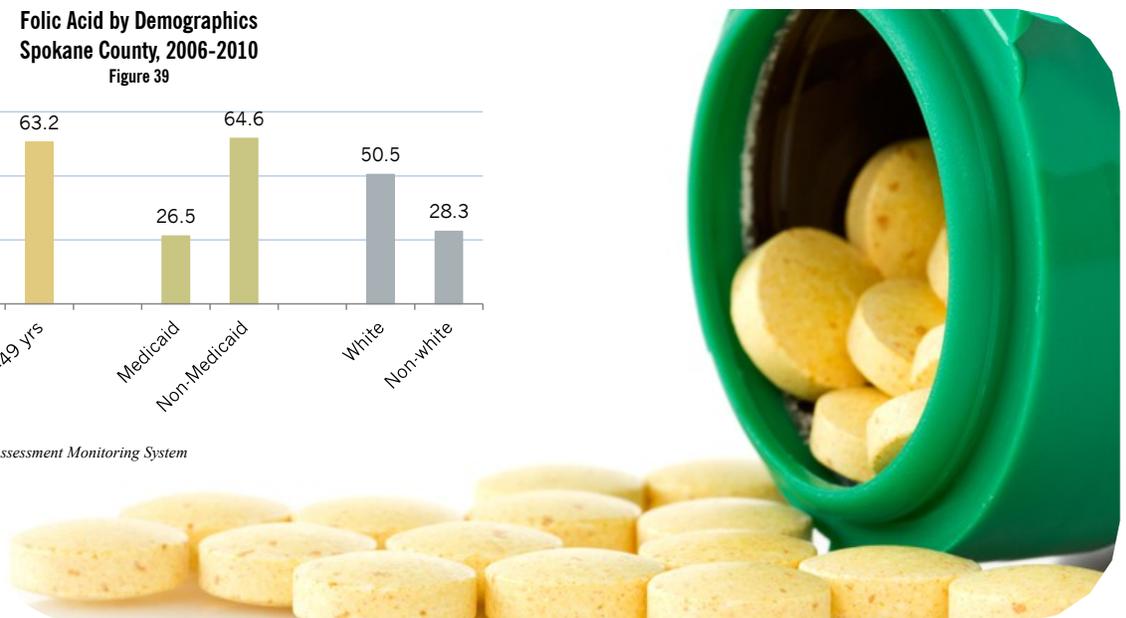
Among Spokane County births, first trimester prenatal care increased significantly as age increased. Women on Medicaid were significantly less likely to have first trimester prenatal care compared to women not on Medicaid. Compared to whites, all other races were significantly less likely to have first trimester prenatal care (Figure 38).

**Folic acid** was defined as a pregnancy where the mother took a multivitamin or prenatal vitamin during the month before getting pregnant. During 2006-2010, nearly half (48.3%) of mothers took folic acid in Spokane County. The statewide rate was similar at 46.8%. Among Spokane County women, taking folic acid increased as age increased and was lower among women on Medicaid and non-whites (Figure 39).

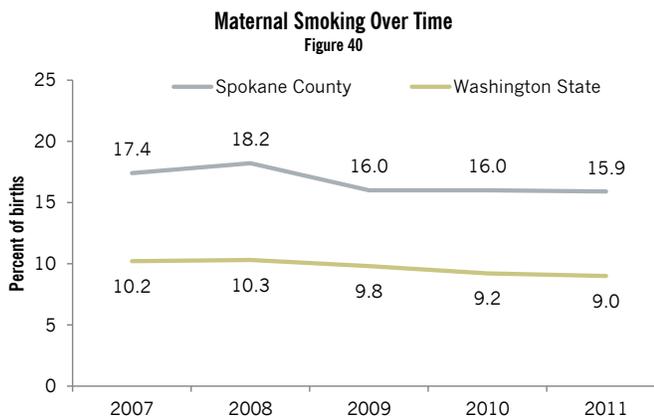
Folic Acid by Demographics  
Spokane County, 2006-2010



Source: Pregnancy Risk Assessment Monitoring System



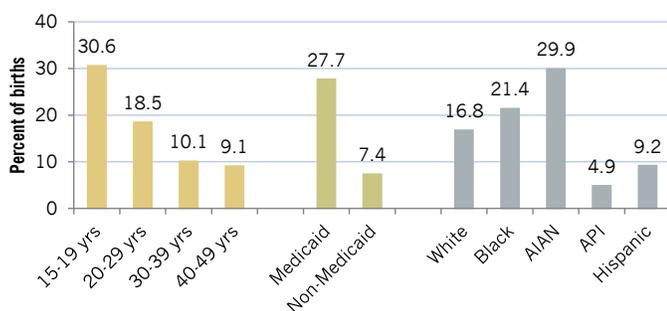
**Maternal smoking** was defined as births where the mother smoked during the pregnancy. In 2011, 15.9% of births in Spokane County were to mothers who smoked. The maternal smoking rate decreased significantly from 2007 to 2011 in Spokane County. During 2007-2011, Spokane County had a significantly higher rate of maternal smoking compared to Washington state (Figure 40).



Source: Washington State Department of Health, Center for Health Statistics

**Maternal Smoking by Demographics  
Spokane County, 2007-2011**

Figure 41



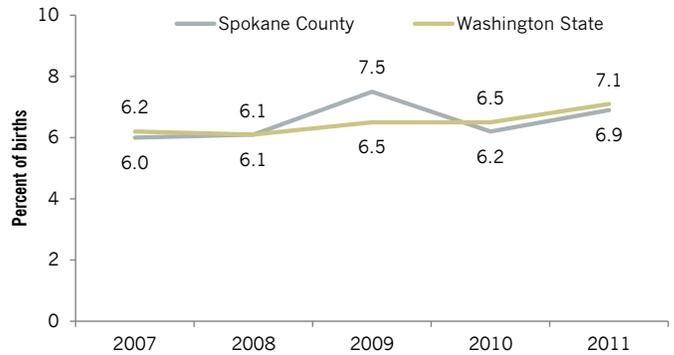
Source: Washington State Department of Health, Center for Health Statistics

Among Spokane County births, maternal smoking decreased significantly as age increased. Women on Medicaid were significantly more likely to smoke during pregnancy compared to women not on Medicaid. Compared to whites, blacks and Americans Indians/Alaska Natives were significantly more likely to smoke during pregnancy. Asians/Pacific Islanders and Hispanics were less likely to smoke during pregnancy (Figure 41).



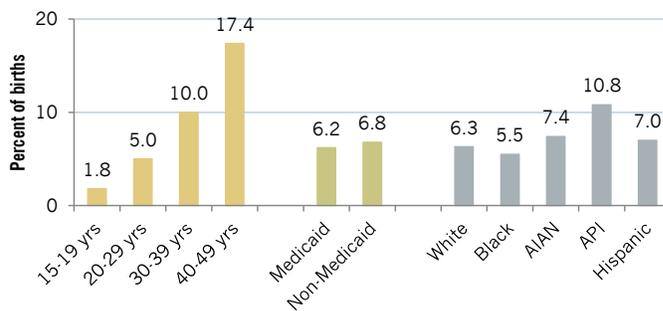
**Diabetes** was defined as births where the mother had diabetes during the pregnancy. In 2011, 6.9% of births in Spokane County had a mother with diabetes. The diabetes rate increased significantly from 2007 to 2011 in Spokane County. During 2007-2011, the diabetes rate was similar in Spokane County and Washington state (Figure 42).

**Mothers With Diabetes Over Time**  
Figure 42



Source: Washington State Department of Health, Center for Health Statistics

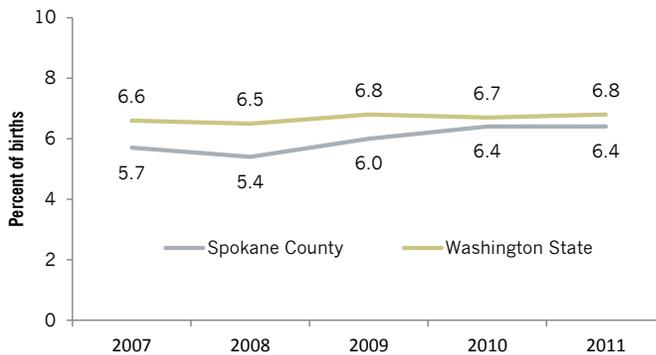
**Mothers With Diabetes by Demographics**  
Spokane County, 2007-2011  
Figure 43



Source: Washington State Department of Health, Center for Health Statistics

Among Spokane County births, diabetes increased significantly as age increased. Women on Medicaid were significantly less likely to have diabetes compared to women not on Medicaid. Compared to whites, Asians/Pacific Islanders were significantly more likely to have diabetes (Figure 43).

**Mothers With Hypertension Over Time**  
Figure 44

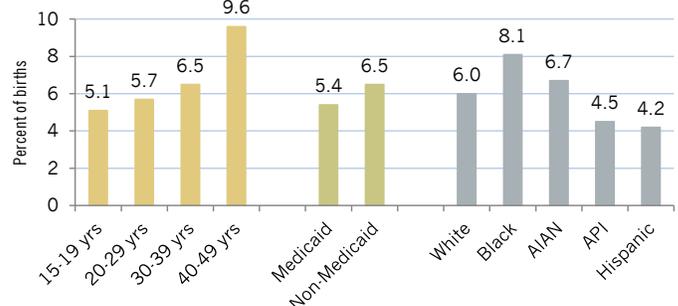


Source: Washington State Department of Health, Center for Health Statistics

**Hypertension** was defined as births where the mother had high blood pressure during the pregnancy. In 2011, 6.4% of births in Spokane County had a mother with hypertension. The hypertension rate increased significantly from 2007 to 2011 in Spokane County. During 2007-2011, Spokane County had a significantly lower hypertension rate compared to Washington state (Figure 44).

Among Spokane County births, hypertension increased significantly as age increased. Women on Medicaid were significantly less likely to have hypertension compared to women not on Medicaid. Compared to whites, blacks were significantly more likely to have hypertension. Asians/Pacific Islanders were significantly less likely to have hypertension (Figure 45).

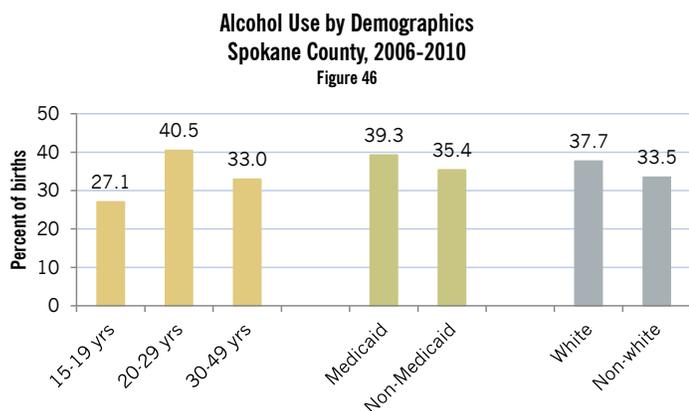
**Mothers With Hypertension by Demographics**  
Spokane County, 2007-2011  
Figure 45



Source: Washington State Department of Health, Center for Health Statistics

**Alcohol use** was defined as a pregnancy where the mother drank alcohol during the last trimester of pregnancy. During 2006-2010, more than one in three (37.3%) mothers in Spokane County drank alcohol in the last trimester. The statewide rate was similar at 33.9%.

Among Spokane County women, there was no difference in alcohol use by age, Medicaid status, or race (Figure 46).

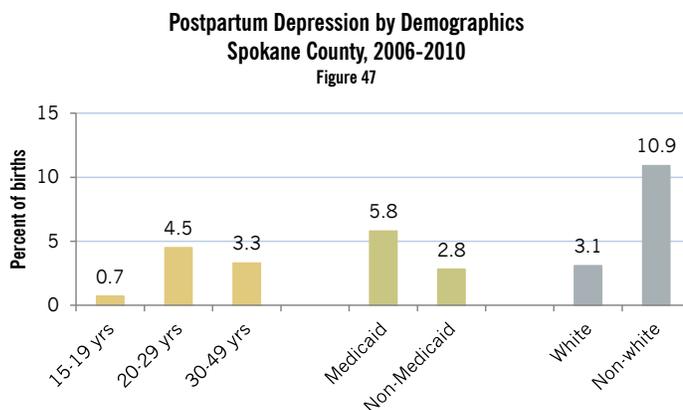


Source: Pregnancy Risk Assessment Monitoring System



**Postpartum depression** was defined as a pregnancy where the mother reported feeling down, depressed, or hopeless always or often since the new baby was born. During 2006-2010, 3.9% of mothers in Spokane County had postpartum depression. The statewide rate was significantly higher at 9.3%.

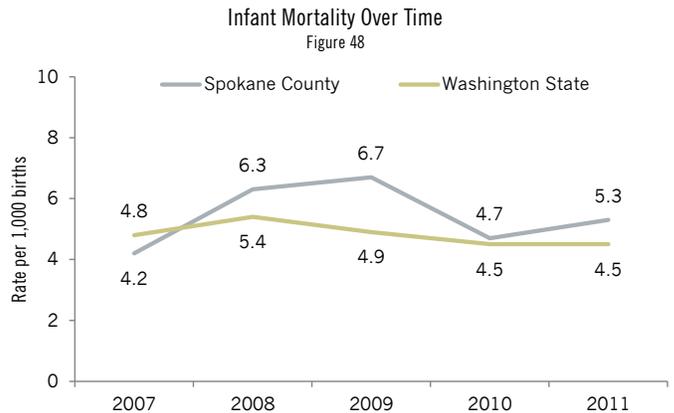
Among Spokane County women, there was no statistically significant difference in postpartum depression by age, Medicaid status, or race (Figure 47).



Source: Pregnancy Risk Assessment Monitoring System

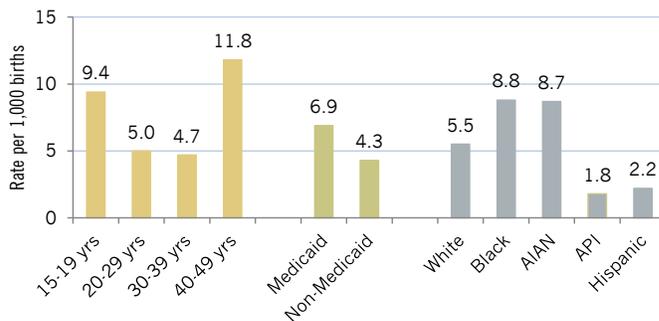
# Infant Health

**Infant mortality** was defined as the number of infants who died before their first birthday per 1,000 infants in the birth year. In 2011, there were 31 infant deaths in Spokane County. While there was some variability from year to year, there was no overall change in the infant mortality rate from 2007 to 2011 in Spokane County. During 2007-2011, the infant mortality rate was similar between Spokane County and Washington state (Figure 48).



Source: Washington State Department of Health, Center for Health Statistics

Infant Mortality by Demographics  
Spokane County, 2007-2011  
Figure 49



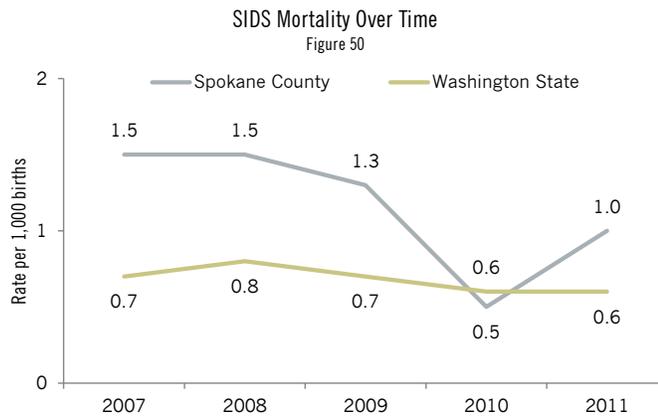
Source: Washington State Department of Health, Center for Health Statistics

Among Spokane County births, women 15-19 years of age and those 40-49 years of age were significantly more likely to experience infant mortality when compared to women 20-29 years of age. Women on Medicaid were significantly more likely to experience infant mortality than women not on Medicaid. There was no difference in infant mortality by race (Figure 49).

During 2007-2011 in Spokane County, 58.3% of infant deaths occurred in the neonatal period, up to 28 days after birth. The neonatal infant mortality rate was 3.2 per 1,000 births. The remaining 41.7% of infant deaths occurred in the post-neonatal period; 29-364 days after birth. The post-neonatal infant mortality rate was 2.3 per 1,000 births.



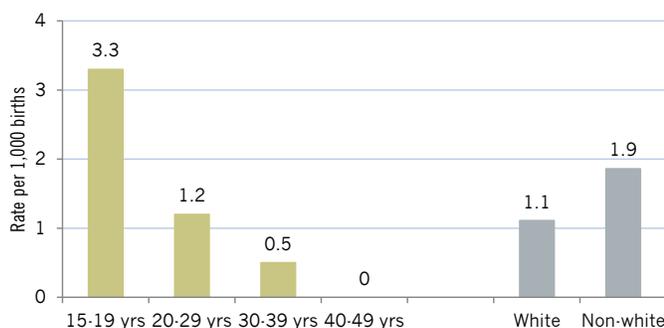
**Sudden Infant Death Syndrome (SIDS)** was defined as the number of deaths of an infant less than one year of age that cannot be explained after a thorough investigation was conducted, per 1,000 births. During 2007-2011, there was an average of five SIDS deaths in Spokane County per year. The small number of SIDS deaths each year leads to variability in the rate from year to year, but overall there was no change in the SIDS mortality rate from 2007 to 2011 in Spokane County. During 2007-2011, the SIDS mortality rate was significantly higher in Spokane County compared to Washington state (Figure 50).



Source: Washington State Department of Health, Center for Health Statistics



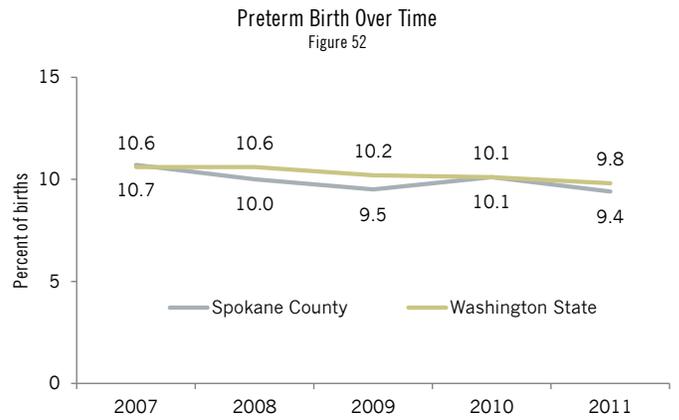
SIDS Mortality by Demographics  
Spokane County, 2007-2011  
Figure 51



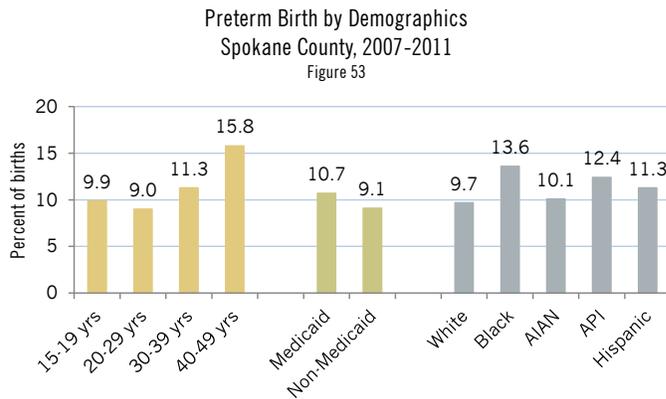
Source: Washington State Department of Health, Center for Health Statistics

Among Spokane County infants, the likelihood of a SIDS death decreased significantly as maternal age increased. There was no statistically significant difference in the SIDS mortality rate between whites and non-whites (Figure 51).

**Preterm birth** was defined as a birth with a calculated gestational age of less than 37 weeks. In 2011, 9.4% of births in Spokane County were preterm. The proportion of births that were preterm significantly decreased from 2007 to 2011 in Spokane County. During 2007-2011, the preterm birth rate was similar between Spokane County and Washington state (Figure 52).



Source: Washington State Department of Health, Center for Health Statistics

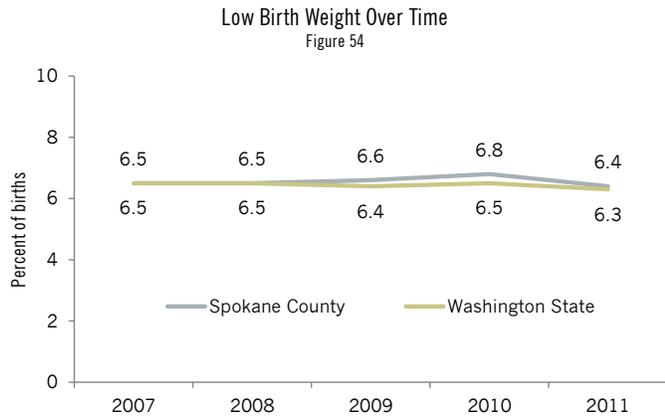


Source: Washington State Department of Health, Center for Health Statistics

Among Spokane County infants, the proportion born preterm increased significantly as maternal age increased. Women on Medicaid were significantly more likely to have a preterm birth compared to women not on Medicaid. Compared to whites, blacks and Asians/Pacific Islanders were significantly more likely to have a preterm birth (Figure 53).

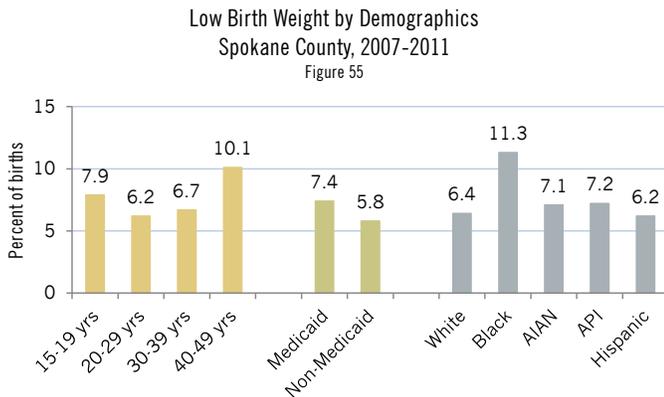


**Low birth weight** was defined as an infant having a birth weight of less than 2,500 grams (5.5 pounds). In 2011, 6.4% of births in Spokane County had a low birth weight. The proportion of births with a low birth weight remained stable from 2007 to 2011 in Spokane County. During 2007-2011, the low birth weight rate was similar between Spokane County and Washington state (Figure 54).

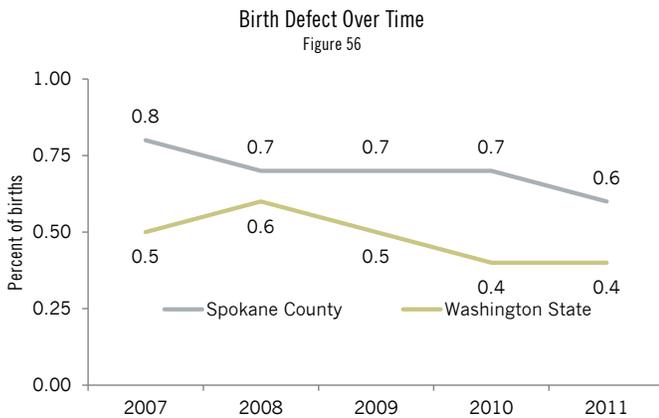


Source: Washington State Department of Health, Center for Health Statistics

Among Spokane County infants, those with mothers aged 15-19 years or 40-49 years were significantly more likely to have low birth weight when compared to those with mothers aged 20-29 years. Women on Medicaid were significantly more likely to have a low birth weight infant compared to women not on Medicaid. Compared to whites, blacks were significantly more likely to have an infant with a low birth weight (Figure 55).



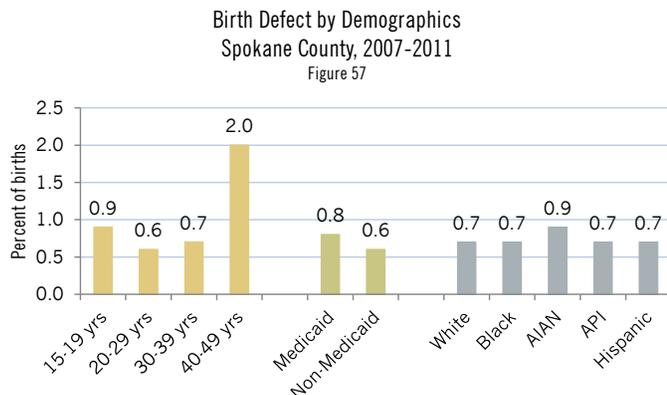
Source: Washington State Department of Health, Center for Health Statistics



Source: Washington State Department of Health, Center for Health Statistics

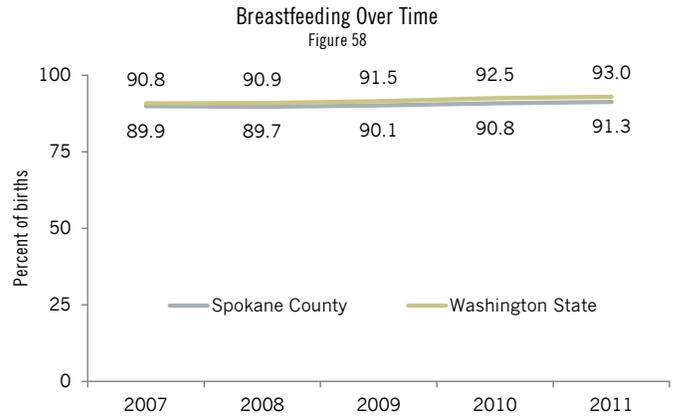
**Birth defect** was defined as a birth with a congenital anomaly noted in the first 24 hours. In 2011, 0.6% of births in Spokane County had a birth defect. The proportion of births with a birth defect remained stable from 2007 to 2011 in Spokane County. During 2007-2011, the birth defect rate was significantly higher in Spokane County compared to Washington state (Figure 56).

In Spokane County, women 40-49 years of age were significantly more likely to have an infant with a birth defect compared to women 20-29 years of age. There was no difference in the proportion of infants with a birth defect by Medicaid status or race (Figure 57).

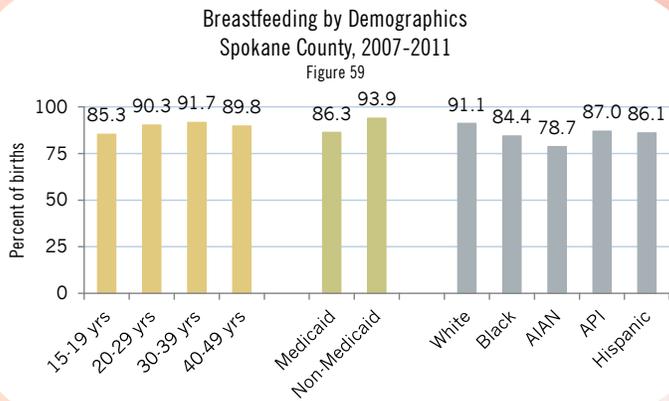
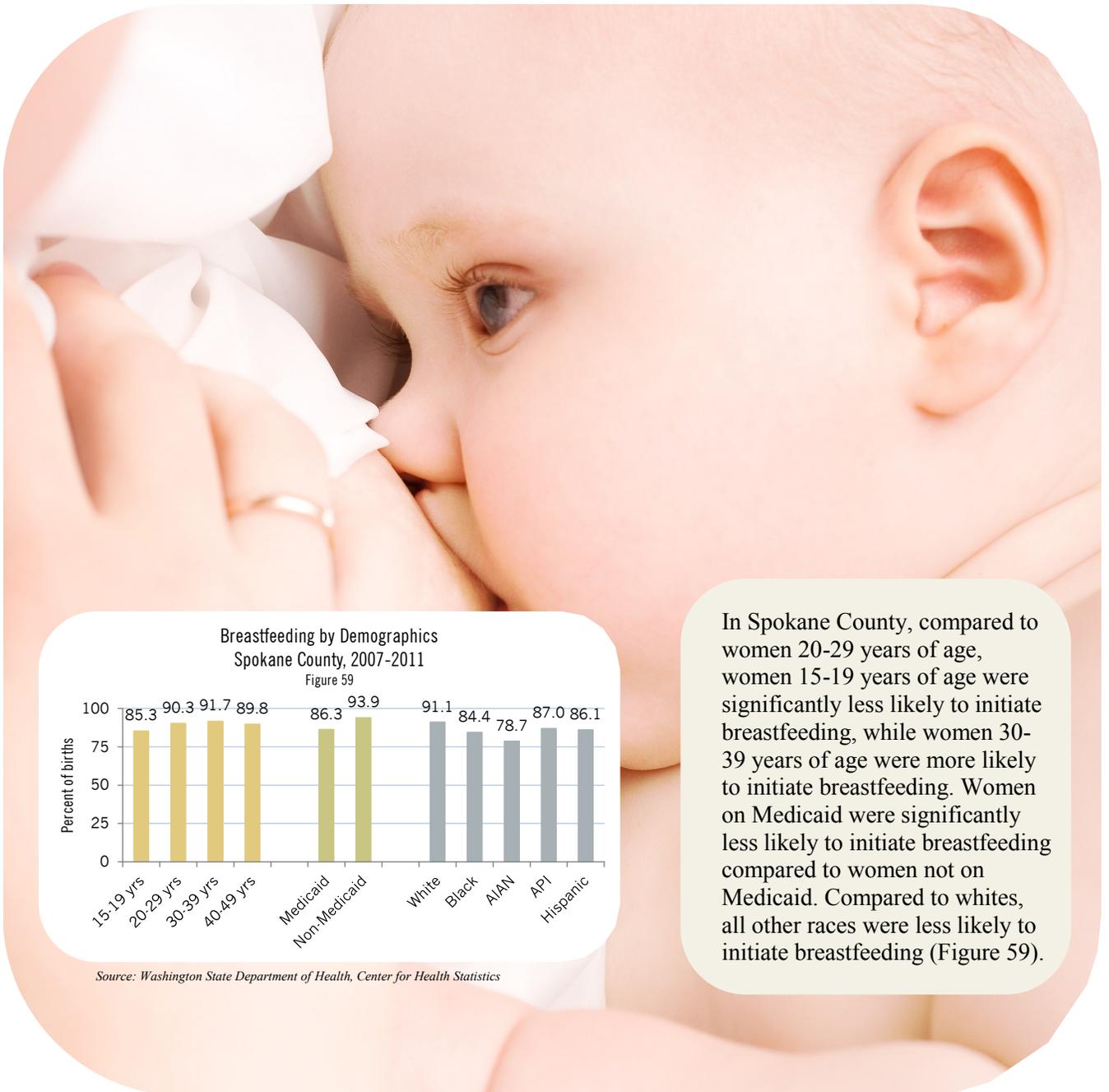


Source: Washington State Department of Health, Center for Health Statistics

**Breastfeeding** was defined as an infant being breastfed at birth. In 2011, in 91.3% of births in Spokane County, it was reported that breastfeeding was initiated. The proportion of births where breastfeeding was initiated significantly increased from 2007 to 2011 in Spokane County. During 2007-2011, breastfeeding initiation was significantly lower in Spokane County compared to Washington state (Figure 58).



Source: Washington State Department of Health, Center for Health Statistics

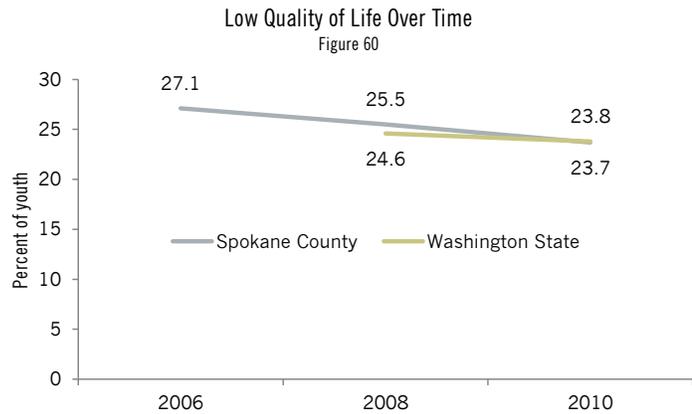


Source: Washington State Department of Health, Center for Health Statistics

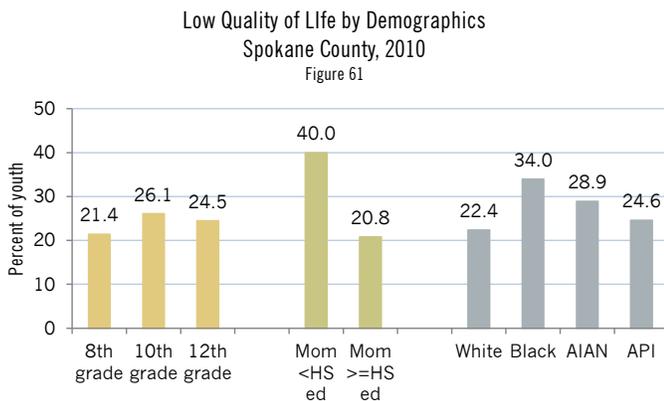
In Spokane County, compared to women 20-29 years of age, women 15-19 years of age were significantly less likely to initiate breastfeeding, while women 30-39 years of age were more likely to initiate breastfeeding. Women on Medicaid were significantly less likely to initiate breastfeeding compared to women not on Medicaid. Compared to whites, all other races were less likely to initiate breastfeeding (Figure 59).

# Child Health

**Low quality of life** was defined as youth in grades eight, 10, and 12 having a low quality of life based on scores from a series of six questions. In 2010, 23.7% of youth in Spokane County had a low quality of life. The proportion of youth with a low quality of life significantly decreased from 2006 to 2010 in Spokane County. The low quality of life rate was similar between Spokane County and Washington state in 2010 (Figure 60).



Source: Healthy Youth Survey



Source: Healthy Youth Survey

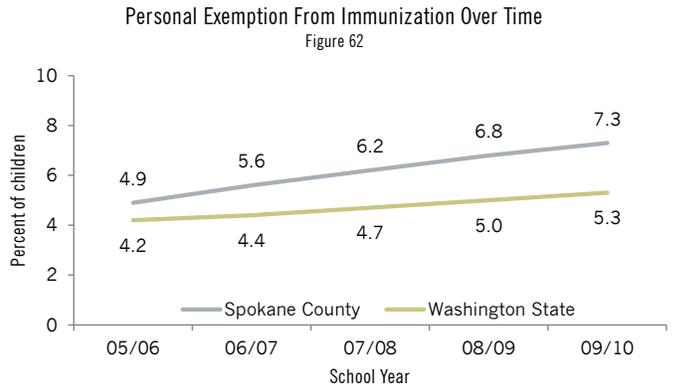
Among Spokane County youth, a significantly high proportion of 10th graders reported a low quality of life compared to eighth and 12th graders. Youth whose mother has less than a high school education were significantly more likely to have a low quality of life compared to youth whose mother has a high school education or higher. Compared to whites, blacks were significantly more likely to have a low quality of life (Figure 61).



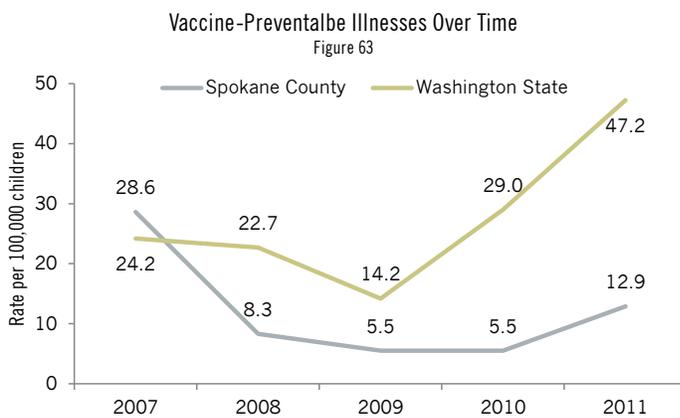
**Uninsured** was defined as children younger than 18 years of age who do not have health insurance. In Spokane County, 4% of children were uninsured in 2009/2010. The same proportion of children was uninsured in Spokane County in 2008. Statewide, 5% of children were uninsured.

Washington state has an initiative called Apple Health for Kids, which helps families acquire health insurance. For families with an income below 200% of the Federal Poverty Level, Apple Health for Kids is free. Families exceeding the income limit can still acquire health care, but will pay a monthly premium. The health insurance covers medical costs for injury, illness, preventive care, immunizations, physical exams, and dental checkups.

**Immunization exemption** was defined as children in grades K-12 with a personal exemption from immunizations. During the 2009/10 school year in Spokane County, 7.3% of school-age children were not fully immunized due to having a personal exemption. The rate of personal exemptions significantly increased from 2005/06 to 2009/10. The personal exemption rate in Spokane County was significantly higher than that of Washington state in 2009/10 (Figure 62).



Source: Washington State Department of Health, Immunization Program

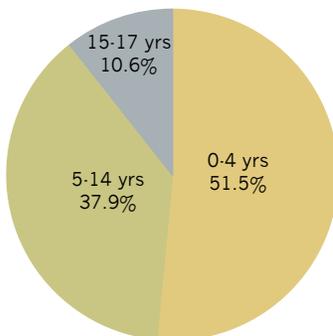


Source: Washington State Department of Health, Center for Health Statistics

**Vaccine-preventable illness** was defined as reported cases of vaccine-preventable diseases among children 0-17 years of age. This measure includes Haemophilus influenza, acute hepatitis A, acute hepatitis B, measles, mumps, pertussis, rubella, tetanus, and meningococcal disease. There were 14 cases of vaccine-preventable disease among children in Spokane County in 2011. The rate of vaccine-preventable diseases significantly decreased in Spokane County from 2007 to 2011. The 2011 rate in Spokane County (12.9 per 100,000) was significantly lower than the Washington state rate of 47.2 per 100,000 (Figure 63).

Children younger than five years old accounted for half of vaccine-preventable illnesses (Figure 64). The greatest proportion was caused by pertussis (89.4%). The other illnesses were meningococcal disease (9.1%) and hepatitis A (1.5%).

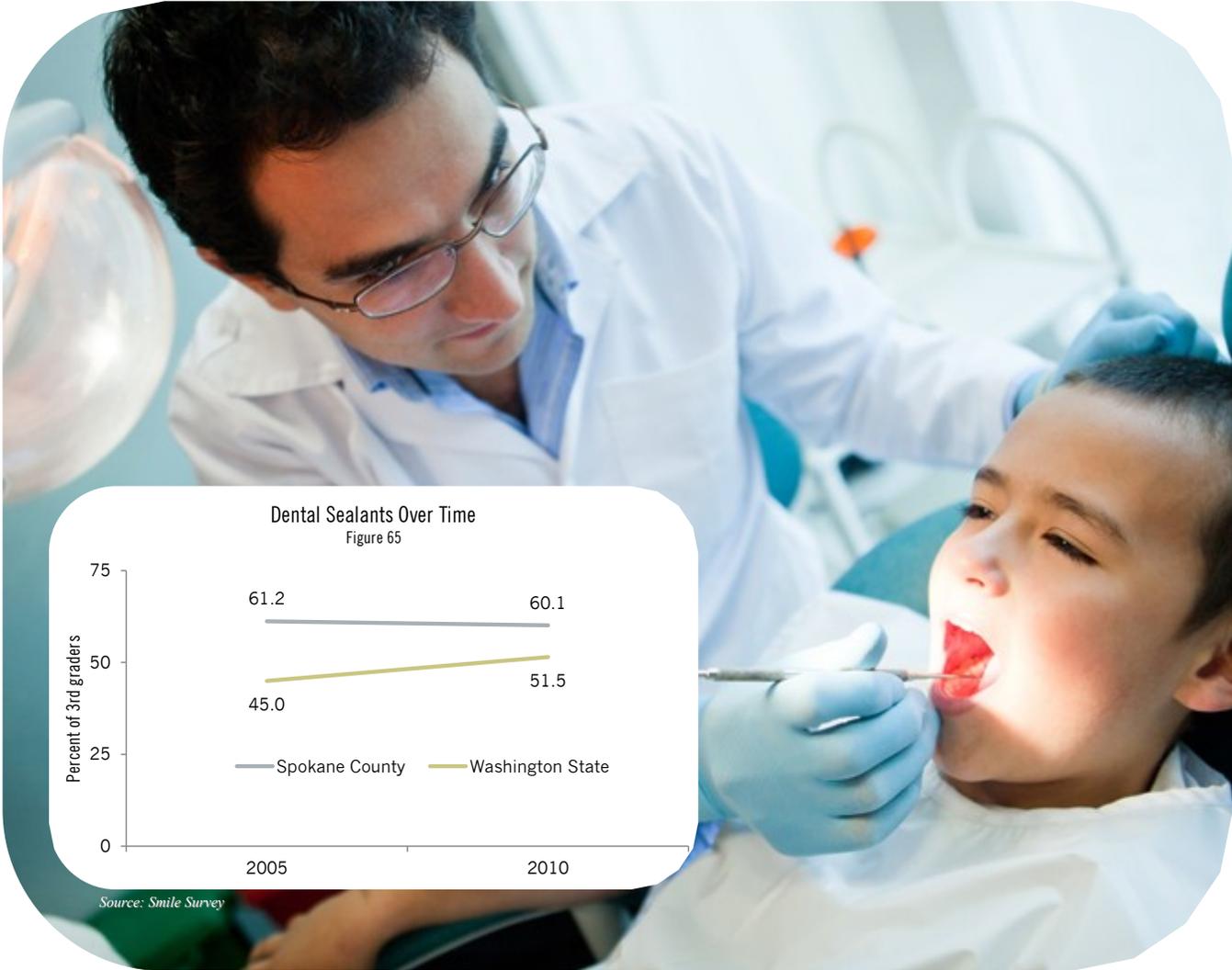
Vaccine Preventable Illnesses  
Spokane County, 2007-2011  
Figure 64



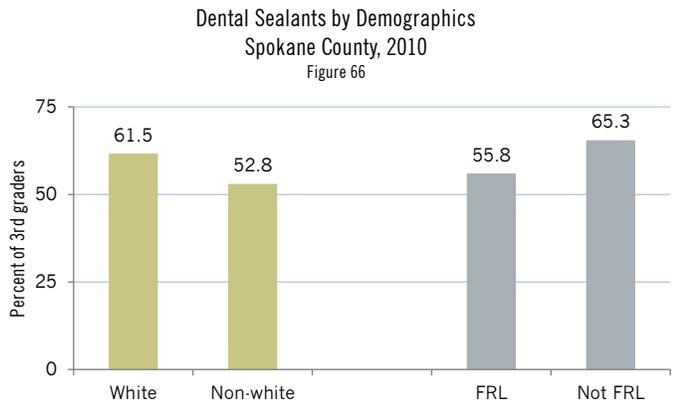
Source: Washington State Department of Health, Center for Health Statistics



**Dental sealants** was defined as the percent of third grade children who had dental sealants. Dental sealants are thin plastic coatings applied to the grooves on the chewing surfaces of the back teeth as soon as they erupt in the mouth. In 2010, 60.1% of children had dental sealants. The proportion of children having dental sealants was stable from 2005 to 2010. The proportion of children with dental sealants was significantly higher in Spokane County compared to that of Washington state in 2010 (Figure 65).

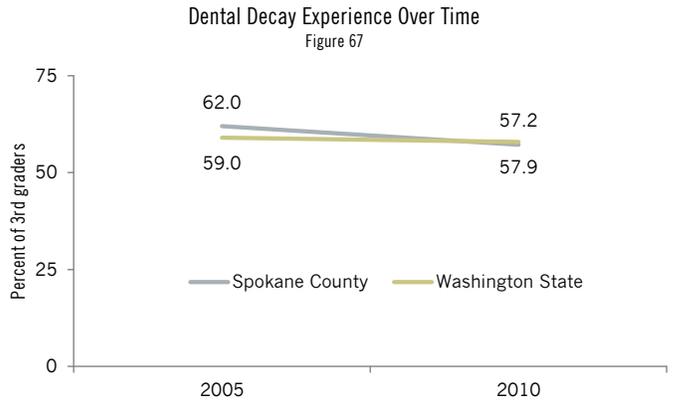


Among Spokane County children, lower income children (those eligible for free or reduced-fee lunch, FRL) and non-white children were less likely to have dental sealants (Figure 66).

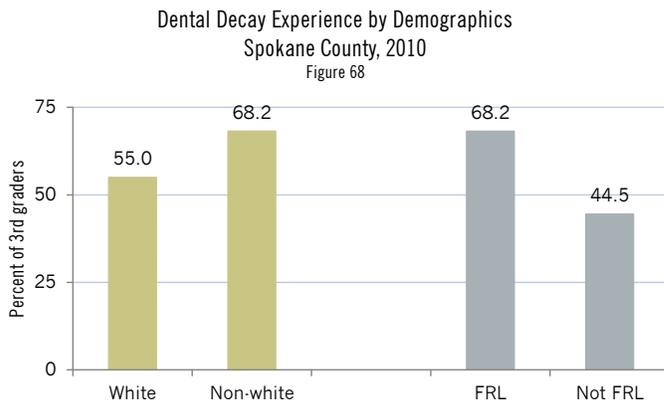


Source: Smile Survey

**Dental caries** was defined as the percent of third grade children who have had a cavity in a primary or permanent tooth. In 2010, 57.2% of children had ever had a cavity. The proportion of children having had a cavity was stable from 2005 to 2010. Spokane County has a proportion of children with dental decay similar to that of Washington state in 2010 (Figure 67).

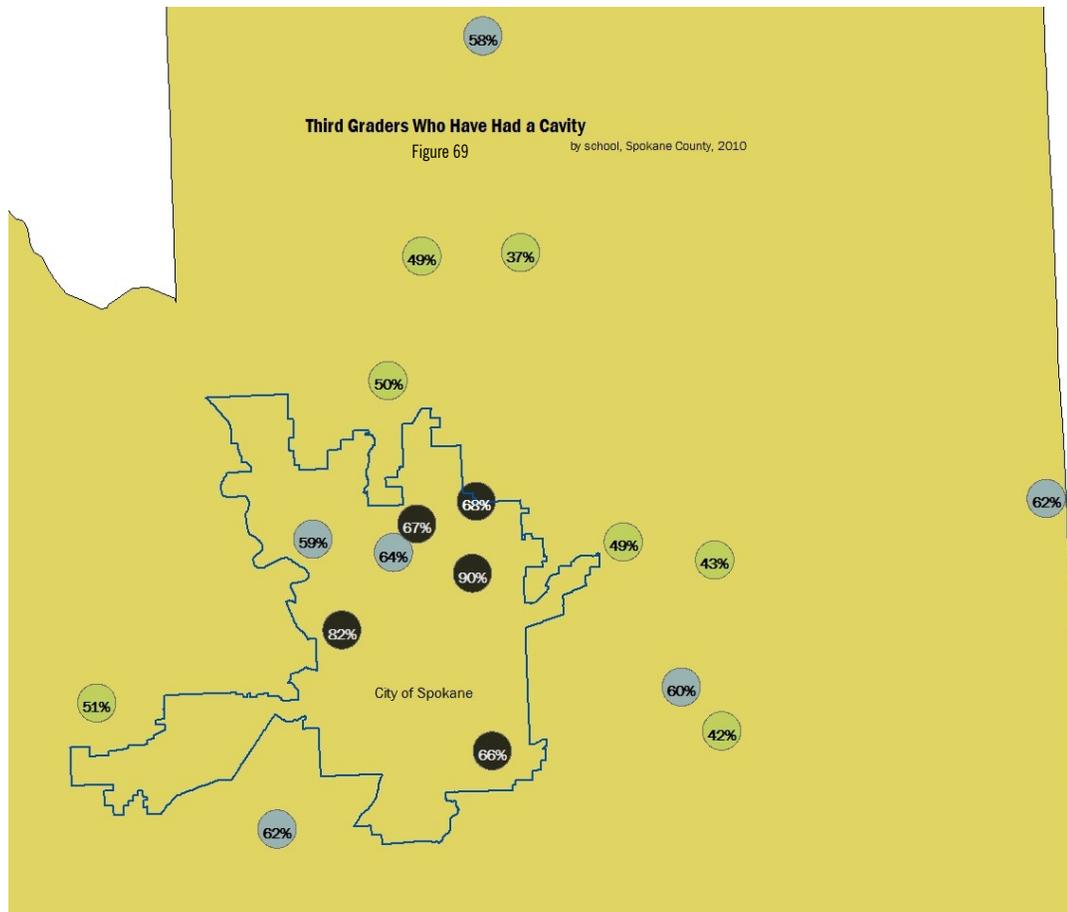


Source: Smile Survey

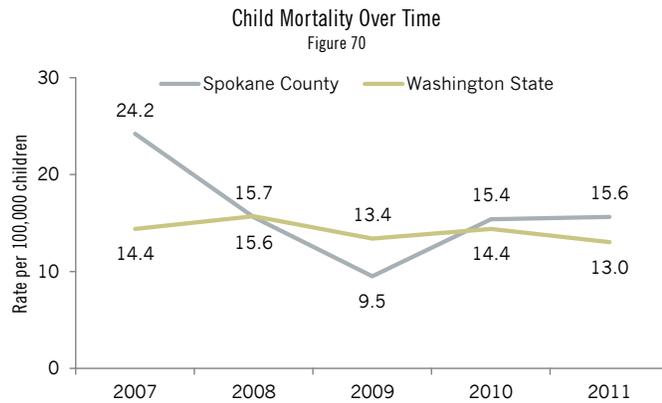


Source: Smile Survey

Among Spokane County children, lower income children (those eligible for free or reduced-fee lunch, FRL) and non-white children were more likely to have experienced dental decay (Figure 68). Students within the City of Spokane had higher proportions of dental decay compared to students outside the city (Figure 69).

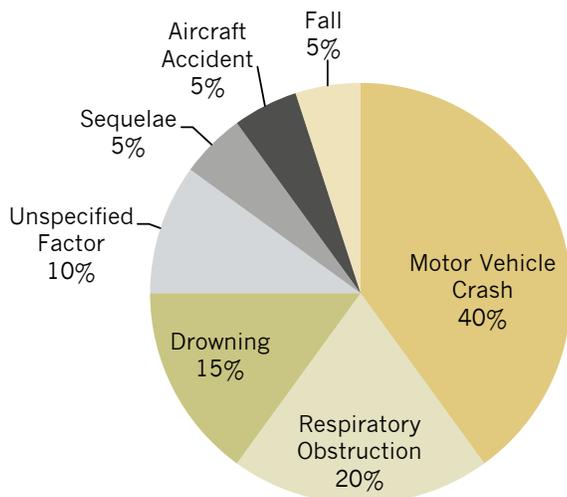


**Child mortality** was defined as the number of children 1-14 years of age who died. In 2011, 15.6 per 100,000 children died in Spokane County. While there was variability in the rate of child mortality from year to year, there was no significant trend from 2007 to 2011. Spokane County had a child mortality rate similar to that of Washington state in 2011 (Figure 70).



Source: Washington State Department of Health, Center for Health Statistics

Cause of Accidental Child Mortality  
Spokane County, 1-14 Year Olds, 2007-2011  
Figure 71

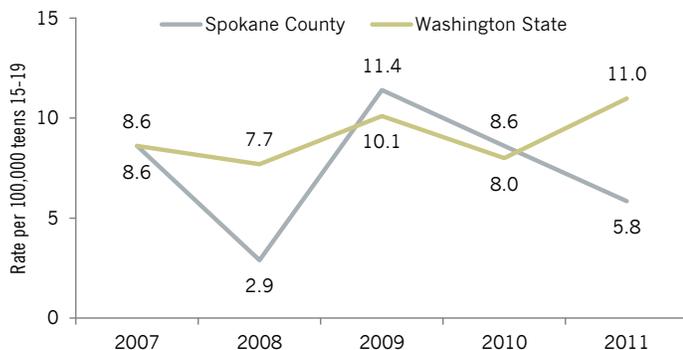


Source: Washington State Department of Health, Center for Health Statistics

Among Spokane County children, the leading cause of child mortality was accidents, accounting for 29.0% of all child deaths. This was followed by congenital malformations with 13.0% of child deaths, and cancer with 10.1% of child deaths. Homicide accounted for 5.8% of all child deaths.

Among children 1-14 years of age who died from an unintentional injury, motor vehicle crashes accounted for two in five of those deaths. One in five was due to respiratory obstruction (Figure 71).

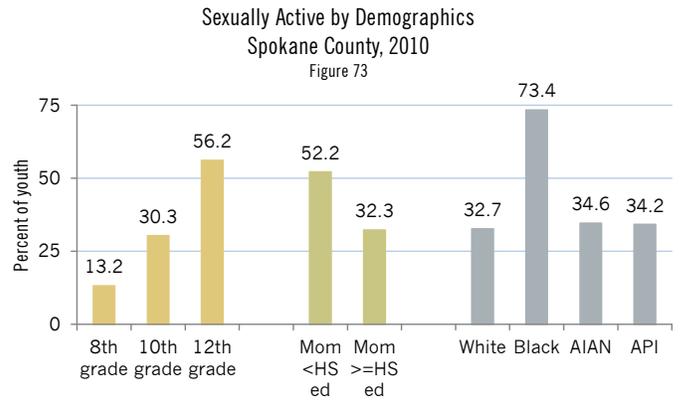
Teen Suicide Over Time  
Figure 72



Source: Washington State Department of Health, Center for Health Statistics

**Teen suicide** was defined as an individual 15-19 years of age who committed suicide. Each year in Spokane County, there was an average of two to three teen suicides. There was no significant trend in the teen suicide rate from 2007 to 2011 in Spokane County. During 2007-2011, there was no difference in the teen suicide rate between Spokane County and Washington state (Figure 72).

**Sexually active youth** was defined as youth in grades eight, 10, or 12 who reported they had ever had sexual intercourse. In 2010, one in three (34.0%) youth in Spokane County was sexually active. The statewide proportion of 34.7% was similar to that in Spokane County. Being sexually active increased significantly as grade level increased and was more prevalent among youth whose mothers had not graduated high school, and blacks (Figure 73).



Source: Healthy Youth Survey

**Kindergarten readiness** | The Washington Kindergarten Inventory of Developing Skills (WaKIDS) is a new process the school system is employing to consistently evaluate whether kindergarteners are ready to enter and thrive in school. Children were evaluated on social/emotional, physical, language, cognitive, literacy, and math development. WaKIDS is mandated for schools with full-day kindergarten, but other schools may opt to participate. In Spokane County, Cheney, East Valley, Spokane, and West Valley school districts participated. Math is the domain with the lowest proportion of children ready for kindergarten (Table 4). The proportion of students meeting standards in all six domains ranged from a low of 29.4% in West Valley school district to a high of 54.1% in Cheney school district (Table 5).



Table 4

Percent Demonstrating Characteristics of Domain						
School District	Social/ Emotional	Physical	Language	Cognitive	Literacy	Math
<b>Cheney</b>	76.6	87.5	76	83.4	88.8	72.8
<b>East Valley</b>	78.6	66.2	75.1	70.2	76.3	53.1
<b>Spokane</b>	68.4	75.6	58.8	64.2	68.7	51.0
<b>West Valley</b>	73.5	83.8	76.5	67.6	60.3	42.6

Source: Office of Superintendent of Public Instruction

Table 5

Percent Demonstrating Characteristics of Multiple Domains							
School District	0 of 6	1 of 6	2 of 6	3 of 6	4 of 6	5 of 6	6 of 6
<b>Cheney</b>	2.7	3.9	4.5	8.1	9.0	17.7	54.1
<b>East Valley</b>	9.6	8.6	5.6	5.6	11.1	22.7	36.9
<b>Spokane</b>	7.1	8.4	11.9	11.6	13.6	16.2	31.2
<b>West Valley</b>	5.9	2.9	11.8	14.7	19.1	16.2	29.4

Source: Office of Superintendent of Public Instruction

# Discussion

Since the publication of *A Healthy Start: Spokane's Future* in 2008, the country underwent a recession, the effects of which continue to reverberate throughout Spokane County. Despite the various valuable services that are provided, many of our maternal and child health indicators are getting worse. Additionally, many of these measures show a disproportionate impact on those on Medicaid, and racial minorities – especially African-Americans and American Indians. Many of these issues are deeply rooted in inequities such as educational attainment, household income, and the neighborhoods in which people live. Traditional public health approaches are not sufficient to address these problems.

Community-wide initiatives that impact the root causes of these issues will need to be initiated and/or expanded. This will need to include policy and system-level change while simultaneously focusing on social, organizational, and individual behavioral change. Partnerships within the community will need to be initiated or strengthened in order to build community capacity to address these complicated and diverse issues. Most importantly Spokane County must create a shared vision for the future of children and families in the community; one that is embraced by all residents of the county from the most marginalized to the most affluent.

The solutions will not be easy or quick to achieve. We must be in this for the long-term. Funders and policy makers must understand it may take a minimum of five years to begin to demonstrate results. Why should we seek policy and system-level changes? They are difficult, long term, and require new innovative and sometimes untried strategies. Because it is the right thing to do. Children are our most important asset and they cannot achieve their maximum potential without a safe, nurturing, and supportive community.

We must develop Spokane County-specific solutions to address various indicators of maternal and child health. It is imperative that as a community we develop shared solutions that address a continuum of services including activities at the individual, interpersonal, organizational, community and policy level. We must also increase resiliency at the individual, family, and neighborhood level. By doing this we will promote protective factors. Protective factors are: nurturing and attachment; knowledge of parenting and child development; parental resilience; social connections; and, concrete supports for parents. Together the protective factors create safe, stable, nurturing relationships within families and in the broader community.



# Recommendations

Specific recommendations to improve the health and well-being of children and families in Spokane County include:

## Mitigate and/or prevent the impacts of adverse childhood experiences (ACEs) on children and families

- Build community resilience by promoting community connectivity.
- Support social service providers, medical professionals, educators, law enforcement, parents, and community members in adopting trauma-sensitive practices in their work and in the community.
- Promote positive community norms about parenting programs and acceptable parenting behaviors.
- Continue to support one-on-one interventions such as the Nurse Family Partnership (NFP) for the most vulnerable families.
- Invest in mental health resources.
- Strengthen safe, stable, nurturing relationships at the community level.

## Support the health of women during pre-conception and pregnancy

- Establish a Centering Pregnancy model to offer peer support for expectant mothers.
- Build connectivity among women through low-cost physical activity and nutrition programs.

## Ensure that children enter school ready to learn and successfully complete high school

- Develop and implement universal developmental screening for children 0-5 years of age. This will identify children with developmental delays or other special health care needs earlier and connect them to needed services.
- Invest in quality early childhood education.
- Address the achievement gap between white and non-white students.



## Address inequities in Spokane County

- Promote policies that meet families' basic needs including affordable housing, access to food, and access to health care.
- Provide adequate income support for young families.
- Increase minority representation on governing boards to assist in decision making that supports all people.
- Develop policies utilizing a child and family sensitive lens and advocate for a "health in all policies" standard.

Spokane County is at a cross roads. We can continue to do what we have always done and achieve at best the same results, or we can come together as a community and take bold steps to envision and create a community that is child and family friendly, free of inequities, and provides equal opportunities for all of its citizens regardless of race or income.

# Summary

Demographics	Population	Spokane County Prevalence	Significant Difference By:				
			WA State	Trend	Age	Income	Race
Fertility rate	women 15-49	52.6 per 1,000	no	decrease			
Birth rate	births	12.4 per 1,000	SC lower	decrease			
Teen birth rate	births, 15-17	11.3 per 1,000	no	no			
Satisfaction with Life	women 18-44	93.2%	no	no	no	yes	
Cost of a birth	births	\$10,000					
<b>Preconception health</b>							
Good general health	women 18-44	55.8%	no	decrease	no	yes	
Uninsured	women 18-44	19.0%	no	no	yes	yes	
No checkup	women 18-44	36.3%	no	no	no	yes	
No flu shot in last year	women 18-44	76.4%	SC higher	no	no	yes	
Poor mental health	women 18-44	17.0%	no	no	no	yes	
Pre-pregnancy obesity	births	24.1%	SC lower	increase	yes	yes	yes
Chlamydia	women 15-49	1,173 per 100,000	SC higher	increase	yes		
Unintended pregnancy	births	36.1%	no		yes	yes	no
<b>Family health</b>							
ACEs	women 18-44	45.9%	SC higher		no	yes	
Low social support	women 18-44	18.9%	no	no	no	yes	
Child abuse	children <18	48.1 per 1,000	SC higher	increase			
Smoking allowed in home	women 18-44	16.9%	SC higher	no	no	yes	
Domestic violence	births	2.2%	no		yes	yes	no
4+ life stressors	births	13.5%	no		yes	yes	yes
<b>Maternal health</b>							
Short interpregnancy interval	births	40.8%	SC higher	decrease	yes	no	no
Prenatal care first trimester	births	88.7%	SC higher	increase	yes	yes	yes
Folic acid	births	48.3%	no		yes	yes	yes
Maternal smoking	births	15.9%	SC higher	decrease	yes	yes	yes
Diabetes	births	6.9%	no	increase	yes	yes	yes
Hypertension	births	6.4%	SC lower	increase	yes	yes	yes
Alcohol in last trimester	births	37.3%	no		no	no	no
Postpartum depression	births	3.9%	SC lower		no	no	no
<b>Infant health</b>							
Infant mortality	births	5.3 per 1,000	no	no	yes	yes	no
SIDS	deaths	1.0 per 1,000	SC higher	no	yes		no
Preterm birth	births	9.4%	no	decrease	yes	yes	yes
Low birth weight	births	6.4%	no	no	yes	yes	yes
Birth defects	births	0.6%	SC higher	no	yes	no	no
Breastfeeding	births	91.3%	SC lower	increase	yes	yes	yes
<b>Child health</b>							
Low quality of life	adolescents	23.7%	no	decrease	yes	yes	yes
Uninsured	children <18	4%	no				
Immunization exemption	grades K-12	7.3%	SC higher	increase			
Vaccine-preventable illness	children <18	12.9 per 100,000	SC lower	decrease			
Dental sealants	3rd grade children	60.1%	SC higher	no		yes	yes
Dental caries	3rd grade children	57.2%	no	no		yes	yes
Child mortality	children 1-14	15.6 per 100,000	no	no			
Teen suicide	children 15-19	5.8 per 100,000	no	no			
Sexually active	adolescents	34.0%	no		yes	yes	yes

# Data Sources

1. Washington State Department of Health, Center for Health Statistics, birth certificates, 2007-2011.  
*Measures used were fertility rate, birth rate, teen birth rate, socioeconomic factors, pre-pregnancy weight status, interpregnancy interval, prenatal care in the first trimester, maternal smoking, maternal diabetes, maternal hypertension, preterm birth, low birth weight, birth defects, and breastfeeding initiation.*
2. Washington State Department of Health, Center for Health Statistics, death certificates, 2007-2011.  
*Measures used were infant mortality, SIDS, child mortality, and teen suicide.*
3. Washington State Department of Health, Infectious Disease, STD Services Section, PHIMS-STD, 2007-2011.  
*Measure used was chlamydia.*
4. Washington State Department of Health, Communicable Disease Epidemiology Office, PHIMS, 2007-2011.  
*Measure used was vaccine-preventable diseases.*
5. Washington State Department of Health, Immunization Program/CHILD Profile School and Childcare Assessment Database, 2004-2010.  
*Measure used was school-age immunization.*
6. Washington State Department of Health, Healthy Youth Survey, 2006-2010.  
*Measures used were quality of life and sexual activity.*
7. Washington State Department of Health, Smile Survey, 2005 and 2010.  
*Measures used were dental caries and dental sealants.*
8. Washington State Department of Health, Comprehensive Hospital Abstract Reporting System, 2007-2011.  
*Measure used was cost of a birth.*
9. Washington State Department of Social and Health Services, Research & Data Analysis Division. *Risk and Protection Profile for Substance Abuse Prevention in Spokane County*, July 2012.  
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10. U.S. Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, [2006-2010].  
*Measures used were life satisfaction, general health, uninsured adults and children, medical checkup, flu shot, poor mental health, social support, adverse childhood experiences, and smoking allowed in the home.*
11. U.S. Centers for Disease Control and Prevention (CDC). *Pregnancy Risk Assessment Monitoring System (PRAMS)*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, [2006-2010].  
*Measures used were unintended pregnancy, domestic violence before pregnancy, life stressors, folic acid, alcohol use in the last trimester, and postpartum depression.*
12. Washington State Office of Superintendent of Public Instruction.  
*Measure used was kindergarten readiness.*
13. Washington State Office of Financial Management.  
*Information used was population counts.*
14. U.S. Census Bureau, American Community Survey, 2007-2011.  
*Information used was family structure.*

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1. Bramlett MD, Blumberg SJ. Family Structure And children's Physical And Mental Health. *Health Affairs*, 26, no2 (2007): 549-558, Downloaded from content.healthaffairs.org on 01/18/13.
2. Rosenberg J, Wilcox WB. *The Importance of Fathers in the Healthy Development of Children*. U.S. Department of Health and Human Services; Administration for Children and Families; Administration on Children, Youth and Families; Children's Bureau; Office on Child Abuse and Neglect. 2006.
3. Allen S, Daly K. *The Effects of Father Involvement: An Updated Research Summary of the Evidence*. Centre for Families, Work & Well-Being, University of Guelph. May 2007.
4. Adverse Childhood Experiences (ACE) Study. Centers for Disease Control and Prevention. <http://www.cdc.gov/ace/index.htm>. Accessed 02/04/13.
5. Lucenko B, Sharkova I, Mancuso D, Felver BEM. Adverse Childhood Experiences Associated with Behavioral Health Problems in Adolescents. Department of social and Health Services. Report Number 11.178. [www.dshs.wa.gov/rda](http://www.dshs.wa.gov/rda).
6. Blodgett C, Harrington R, Lohan J, et al. Adverse Childhood Experience and Developmental Risk in Elementary Schoolchildren. Working paper 7-12 ACE Screening and Assessment in Child Serving Systems. Washington State University.





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