Whitman County Health Department

2012

Maternal and Child Health Assessment

Whitman County Health Department

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INTRODUCTION

The Public Health Improvement Partnership, a collaborative network of local public health agencies, tribes, and partners, released the Agenda for Change Action Plan to help guide local public health agencies with their program and community planning efforts. The Agenda for Change describes a strategic framework from which public health agencies in Washington State can plan their work and respond to a rapidly changing environment, which includes an uncertain economic landscape and a health care system in transition due to health care reform.

The Agenda for Change defines a set of services considered to be foundational to a strong public health system in our state. Community health assessment is a core function of public health and considered to be a foundational capability for public health in the state of Washington. Community health assessment refers to the range of activities that our public health system performs to learn about the health of our communities and to plan responses to local needs. Public health agencies conduct assessments by collecting, analyzing, and disseminating information, including statistics on health status and community health needs and strengths. Through this work public health agencies learn where, when, and how health threats are occurring.

The Agenda for Change also outlines a list of critical programs considered to be necessary for a strong public health system. Maternal and child health continues to be a priority area for public health focus, since research continues to provide strong evidence linking a mother's health, both before and during pregnancy, to the health of her infant. Efforts to promote maternal and child health are critical to establishing and maintaining good health for individuals across their lifespans. The Agenda for Change established three key objectives for maternal and child health:

1. Implement policy, environmental, and system changes that give all babies a planned, healthy start in life.
2. Implement policy, environmental, and system changes that prevent or reduce the impact of Adverse Childhood Experiences, such as abuse and neglect on children and families.
3. Implement policy, environmental, and system changes that help adults make healthy choices for themselves and their families.

The purpose of this assessment is to analyze maternal and child population health data. The data in this assessment publication can be used in Whitman County to help identify local priorities for action. The objectives listed above can be used to help guide action strategies for the priority areas identified in Whitman County, including program or service changes and local policy, to improve the health of women and children in the community. If counties work together to align their local priorities to the statewide strategic objectives provided in the Agenda for Change, there is greater potential for achieving long-term improvements in health outcomes across the state, despite limited public health resources.

KEY FINDINGS FOR WHITMAN COUNTY

Demographics and Social Characteristics

- The median age was approximately 25 years.
- A quarter of the population was 20 to 24 years of age.
- Approximately 29% of the population were women in their reproductive years (15 to 44 years of age).
- The median household income was approximately $36,368; $21,000 less than Washington State.
- 50% of adults had a college degree or more compared to 38% for Washington State, making it one of the more educated counties in the state.
- 61% of residents were employed for wages, while only 3% were unemployed.
- 85% of the population were white non-Hispanic compared to 75% for Washington State. Proportionately, Asian Pacific Islanders were the largest ethnic minority group, comprising 7% of the population.
- Approximately one in three individuals were below 100% FPL, which was significantly more than Washington State (13.3%).
- 50% of individuals were below 200% FPL compared to 30% in Washington State.
- Approximately one-third of males and females were below 100% FPL; significantly more than Washington State (one in eight).
- One-third of adults 25 years or older who did not graduate from high school were below 100% FPL.
- 14.2% of families were below 100% FPL. Of that, 23.7% were with related children under 18 years of age.
- Participation in the SNAP program increased by 87% from 2001 to 2010.
- Participation in the Child Support Services program increased by 16% from 2001 to 2010.
- Participation in the TANF program and State Family Assistance decreased by 36% from 2001 to 2010.
- Participation in Medicaid increased by 16% from 2001 to 2010.

Maternal Health

- 94% of births were to women 20-39 years of age.
- 78.2% of births were to white non-Hispanic women.
- Eight in 10 births were to mothers with an education level of at least some college.
- 55% of all births were to women with at least a four-year college degree. The proportion was two times higher than the state.
- Approximately 20% of all births were to unmarried women.
- Medicaid as a primary source of insurance significantly decreased as age increased. 85% of pregnant women 15 to 19 years of age and approximately 50% of pregnant women 20 to 29 years of age were on Medicaid.
- Utilization of WIC services decreased as age increased. Approximately eight in 10 pregnant women 15 to 19 years of age utilized WIC services.
- In 2010, 40% of births were delivered by cesarean section.
- Cesarean section rate increased by 16% from 2006 to 2010.
- Repeat cesarean section rate increased by 67% from 2006 to 2010.
- The rate of infection among women on Medicaid was significantly higher by 72%.
- Women with a history of a previous preterm birth were 4.1 times more likely to have another preterm birth compared to women without a history of a preterm birth.
- As education increased, women with a previous preterm birth were more likely to have a preterm birth.
- Women in their 40s were more likely to have high blood pressure during their pregnancy. Approximately one in five births among women in this age group experienced high blood pressure during their pregnancy.
- Pregnant women in their 40s were 2.4 to 4.2 times more likely to test positive for group B strep when compared to other age groups. Approximately one in three births among women in this age group had group B strep.
- College graduates had significantly higher rates of group B strep during pregnancy than any other educational group. College graduates were 1.5 to 2.7 times more likely to have group B strep when compared to other educational groups.
- Women on Medicaid were less likely to have group B strep than women not on Medicaid.
- Approximately 10% of pregnant women smoked during their pregnancy.
- Compared to women who graduated from college, women who did not finish high school were 41.3 times more likely to smoke while pregnant, and women whose highest level of education was high school were 21.1 times more likely to smoke.
- Pregnant women on Medicaid were 4.3 times more likely to smoke during their pregnancy than women not on Medicaid.
- Pregnant women on Medicaid were two times less likely to begin prenatal care in the first trimester.
- Women on Medicaid were two times more likely to delay prenatal care or not receive any prenatal care than women not on Medicaid.

Infant Health—Birth Outcomes

- One in 10 births were premature; a significantly higher proportion than the state (8.8%).
- Approximately one in four births among pregnant women in their 40s were premature.
- The proportion of births with low birth weight decreased significantly from 2006 to 2009 by 56%, but in 2010 the proportion increased significantly by 97%.
- Average length of stay in hospital for a newborn was three days. Among infants born prematurely, the average length of stay was 10 days.
- Preterm infants were 12 times less likely to be healthy when compared to full-term infants.
- Average cost of full-term newborns was $6,409 and the average cost of preterm newborns was $35,914.
- Average cost of healthy newborns was $2,008 and the average cost of unhealthy newborns was $61,020.

METHODOLOGY

Organization of Report

This report examines the population, demographics, social characteristics (includes public assistance programs), maternal concerns during pregnancy (maternal health), the health of the infant (infant health), and child health for Whitman County. Data on public assistance programs was reviewed from 2001 to 2010 by conducting a trend analysis and then compared to Washington State. Data was also aggregated for this same time period and the differences in the aggregated data for the geographic areas were examined. Maternal and infant health indicators were reviewed from 2006 to 2010 with a trend analysis being conducted and then compared to Washington State. Aggregation of data was then performed for this time period and results between Whitman County and Washington State were assessed. In addition, maternal and infant health characteristics for Whitman County were examined by mother's age group, education, and Medicaid status. Data for child health indicators were limited and analysis was restricted to a simple comparison of the proportions of the geographic areas. Women, Infant, and Children (WIC) data was aggregated from 2009 to 2011 for Whitman County and Washington State and compared. Data on children with special health care needs was aggregated from 2005 to 2006 and compared Washington State to the United States.

A list of topics for this project was presented to Whitman County Health Department and agreed upon for inclusion in the final report. The following indicators had limited data (small numbers): maternal mortality, sexually transmitted diseases, folic acid, infant mortality, sudden infant death syndrome (SIDS), child mortality, teen suicide, and motor vehicle deaths among children. As a result of the small numbers, data was unreliable and thus analysis of these indicators was not performed.

Data Sources

Washington State Office of Financial Management (OFM), Forecasting Division, Age and Historical Data, Intercensal and Postcensal Estimates of April 1 County Population by Age and Sex: 1980 to 2011.

Behavioral Risk Factor Surveillance System (BRFSS), Washington State Department of Health (DOH), Center for Health Statistics, supported in part by 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 to 2010. Calculations, analysis, and presentation of data were conducted by Spokane Regional Health District, Community Health Assessment, Planning and Evaluation.

United States Census Bureau, Quick Facts 2006 to 2010 and American Community Survey 2009 to 2011.

Washington State Department of Social and Health Services (DSHS), Research and Data Analysis, Economic Services Administration, Temporary Assistance for Needy Families (TANF) and State Family Assistance 2001 to 2010; Supplemental Nutrition Assistance Program (SNAP) 2001 to 2010; Child Support Services 2001 to 2010; Medicaid 2001 to 2010. Calculations, analysis, and presentation of data were conducted by Spokane Regional Health District, Community Health Assessment, Planning, and Evaluation Program.

Birth certificates include information on the mother and infant on each birth in Washington State, 2006 to 2010. The data is available through the Washington State Department of Health (DOH). Calculations, analysis, and presentation of data were conducted by Spokane Regional Health District, Community Health Assessment, Planning, and Evaluation Program.

Washington State Department of Health, Comprehensive Hospital Abstract Reporting System (CHARS) uses coded hospital inpatient discharge information derived from billing systems,

2006 to 2010. Calculations, analysis, and presentation of data were conducted by Spokane Regional Health District, Community Health Assessment, Planning, and Evaluation Program.

Washington State Department of Health, Community and Family Health, Women Infant and Children Nutrition Program, Client Data, 2009 to 2011. Calculations, analysis, and presentation of data were conducted by Spokane Regional Health District, Community Health Assessment, Planning, and Evaluation Program.

Centers for Disease Control and Prevention (CDC), National Survey of Children with Special Health Care Needs, Data Resource Center for Child and Adolescent Health, 2005 to 2006.

Data Analysis

Data regarding topics in this report were analyzed using Stata version 11, or EpiInfo version 7. Linear regressions were conducted for trend analysis using Jointpoint Regression Program 3.3.1. Differences in the data between geographic areas or between groups within a geographic area were identified using a chi-square or logistic regression test. A p-value of <0.05 was used to determine if the findings were statistically significant.

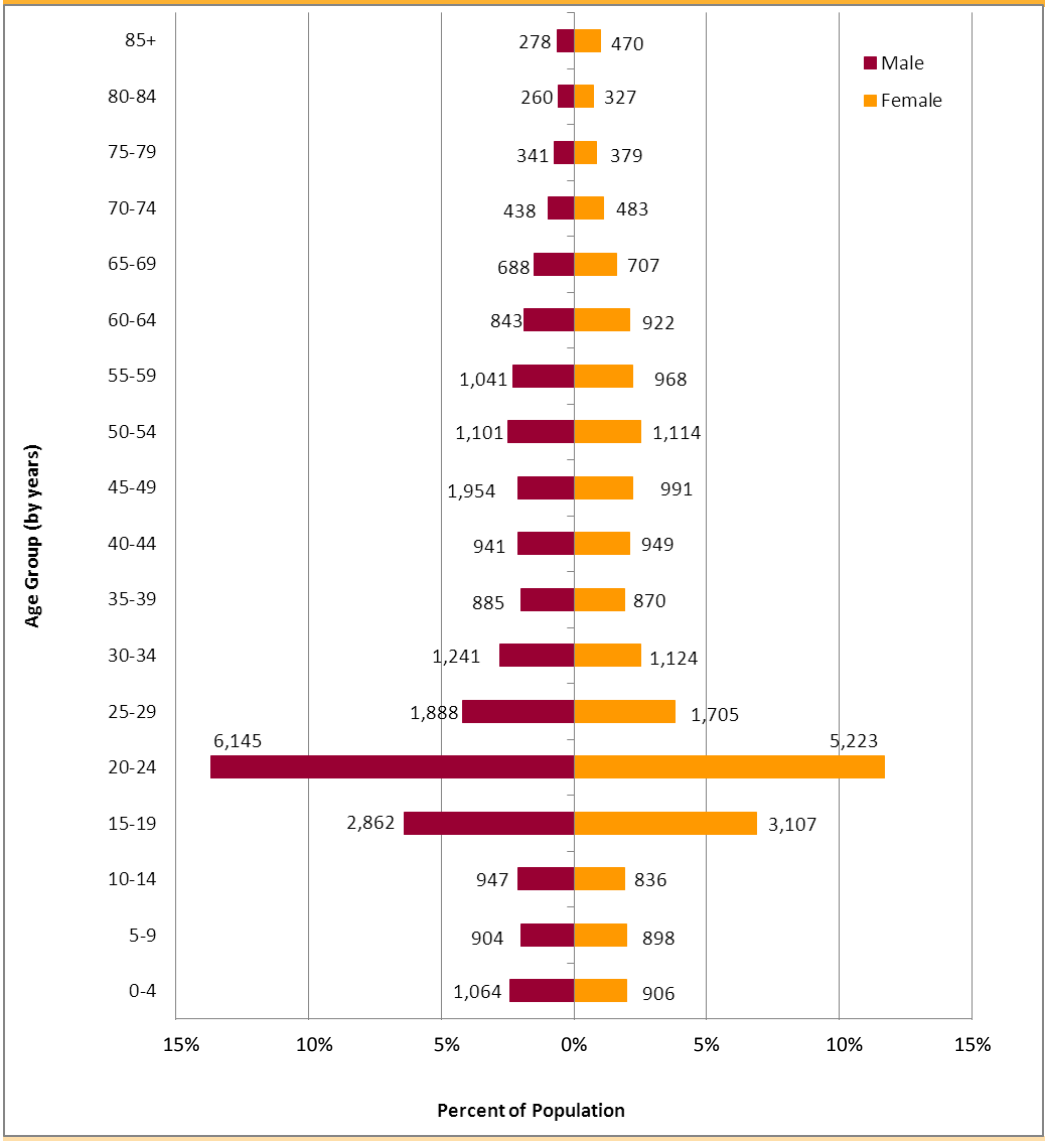
Confidence intervals were used to show the differences in the outcomes for specific indicators displayed in bar graphs and in tables. Confidence intervals are ranges of numbers used to assess the accuracy of a point estimate and measure the variability in the data. The point estimate may be a rate, such as a fertility rate, or a frequency, such as the percent of mothers who are diabetic. The confidence intervals account for the uncertainty that arises from the natural variation inherent in the world around us. Confidence intervals also account for the difference between a sample from a population and the population itself. For the analysis of this report, confidence intervals were calculated at the 95% confidence level. This means that 95 times out of 100, the confidence interval captures the true value for the population.

Odds ratios were calculated for some indicators and defined as the ratio of the odds of an event occurring in one group to the odds of it occurring in another group. The odds ratio specifies the likelihood or probability of a condition or event for one group compared to another group. An odds ratio of one indicates that the condition or event under study is equally likely to occur in both groups. An odds ratio greater than one indicates that the condition or event is more likely to occur in the first group than the second group. An odds ratio less than one indicates that the condition or event is less likely to occur in the first group than the second group.

POPULATION

In 2011, the population of Whitman County was 44,800, making it the 22nd most populated county in Washington State out of 39 counties. There were equal proportions of men and women residing in Whitman County. From 2006 to 2011, the overall population increased by 4.6%. The median age in Whitman County was 24.8 years of age; 12.7 years less than the median age for Washington State (37.5 years of age). A quarter of the population was 20-24 years of age, which made this the largest age group in Whitman County (this did not include students residing on the campus of Washington State University; it did include students residing off campus, however). Approximately 10% of the population were seniors (65 years of age or older). Approximately 29% of the population were women in their reproductive years (15-44 years of age). From 2006 to 2011, the proportion of women in their reproductive years increased by 3% for Whitman County (Figure 2).

FIGURE 1 | DISTRIBUTION OF POPULATION BY AGE AND GENDER | Whitman County, 2011



Data Source: Washington State Department of Health, Office of Financial Management, 2011

FIGURE 2 | POPULATION BY AGE AND GENDER | Whitman County, 2006-2011

Age Group	2006			2007			2008			2009			2010			2011		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-4	1,897	1,013	884	1,899	1,016	883	1,944	1,045	899	1,954	1,055	899	1,987	1,069	909	1,970	1,064	906
5-9	1,834	935	899	1,807	916	891	1,824	926	898	1,796	909	887	1,810	908	902	1,801	904	898
10-14	1,873	975	898	1,809	947	862	1,798	945	853	1,770	938	832	1,789	950	839	1,784	947	836
15-19	58,579	2,642	2,937	5,638	2,686	2,952	5,886	2,818	3,068	5,970	2,864	3,106	6,072	2,911	3,161	5,969	2,862	3,107
20-24	11,174	6,007	5,167	11,159	5,994	5,165	11,477	6,161	5,316	3,578	1,891	1,687	3,621	1,899	1,722	3,593	1,888	1,705
25-29	3,273	1,753	1,520	3,362	1,795	1,567	3,574	1,903	1,671	3,578	1,891	1,687	3,621	1,899	1,722	3,593	1,888	1,705
30-34	2,124	1,098	1,026	2,095	1,091	1,004	2,165	1,133	1,032	2,190	1,155	1,035	2,324	1,220	1,104	2,365	1,241	1,124
35-39	1,918	972	946	1,898	970	928	1,893	965	928	1,829	933	896	1,806	912	894	1,755	885	870
40-44	2,029	1,011	1,018	1,935	963	972	1,907	950	957	1,860	931	929	1,864	927	937	1,890	941	949
45-49	2,095	1,055	1,040	2,054	1,030	1,024	2,062	1,026	1,036	2,024	1,002	1,022	2,003	980	1,023	1,946	954	991
50-54	2,055	1,014	1,041	2,068	1,024	1,044	2,150	1,068	1,082	2,146	1,070	1,076	2,212	1,099	1,113	2,215	1,101	1,114
55-59	1,859	947	912	1,824	934	890	1,878	969	909	1,890	977	913	1,967	1,018	949	2,009	1,041	968
60-64	1,315	637	678	1,402	679	723	1,503	723	780	1,556	751	805	1,679	804	875	1,765	843	922
65-69	1,048	524	524	1,086	543	543	1,178	591	587	1,247	622	625	1,343	664	679	1,395	688	707
70-74	798	387	411	796	386	410	835	401	434	852	408	444	885	420	465	920	438	483
75-79	727	335	392	715	330	385	715	336	379	703	332	371	716	338	378	720	341	379
80-84	612	262	350	588	251	337	595	259	336	581	257	324	584	255	329	587	260	327
85+	638	235	403	658	244	414	682	251	461	710	262	448	729	270	459	748	278	470
Total	**42,848**	**21,802**	**21,046**	**42,793**	**21,799**	**20,994**	**44,066**	**22,470**	**21,596**	**44,005**	**22,445**	**21,560**	**44,776**	**22,806**	**21,970**	**44,800**	**22,821**	**21,979**
15	388	195	193	375	189	186	370	188	182	352	180	172	349	178	171	339	172	167
16	439	234	205	431	229	202	438	235	203	427	230	197	425	228	197	411	220	191
17	413	202	211	413	204	209	410	203	207	395	197	198	390	197	193	373	185	187
18	1,398	621	777	1,415	634	781	1,531	690	841	1,537	689	848	1,584	716	868	1,551	701	850
19	2,941	1,390	1,551	3,004	1,430	1,574	3,137	1,502	1,635	3,259	1,568	1,691	3,324	1,592	1,732	3,296	1,584	1,712
0-9	3,731	1,948	1,783	3,706	1,932	1,774	3,768	1,971	1,797	3,750	1,964	1,786	3,788	1,977	1,811	3,772	1,968	1,804
10-17	3,113	1,606	1,507	3,028	1,569	1,459	3,016	1,571	1,445	2,944	1,545	1,399	2,953	1,553	1,400	2,906	1,524	1,381
18-24	15,513	8,018	7,495	15,578	8,058	7,520	16,145	8,353	7,792	16,145	8,345	7,800	16,302	8,470	7,832	16,214	8,430	7,785
25-34	5,397	2,851	2,546	5,457	2,886	2,571	5,5739	3,036	2,703	5,768	3,046	2,722	5,945	3,119	2,826	5,958	3,129	2,829
35-44	3,947	1,983	1,964	3,833	1,933	1,900	3,800	1,915	1,885	3,689	1,864	1,825	3,670	1,839	1,831	3,645	1,826	1,819
45-54	4,150	2,069	2,081	4,122	2,054	2,068	4,212	2,094	2,118	4,170	2,072	2,098	4,215	2,079	2,136	4,161	2,056	2,105
55-64	3,174	1,584	1,590	3,226	1,613	1,613	3,381	1,692	1,689	3,446	1,728	1,718	3,646	1,822	1,824	3,774	1,884	1,890
65+	3,823	1,743	2,080	3,843	1,754	2,089	4,005	1,838	2,167	4,093	1,881	2,212	4,257	1,947	2,310	4,370	2,005	2,365

Data Source: Washington State Department of Health, Office of Financial Management, 2006-2011

DEMOGRAPHICS AND SOCIAL CHARACTERISTICS

Socioeconomic status (SES) is the social standing of an individual or group in terms of their income, education, employment, race/ethnicity, and marital status. An individual's income, education, employment status, race/ethnicity, and marital status are often closely inter-related with one another and can ultimately impact an individual's health. Research suggests that both physical and mental health are associated with SES. Lower SES is linked to poorer health outcomes. Poor health may decrease an individual's capacity to work and hold a job. Consequently, this may impact a person's ability to improve their SES. Economic hardships can lead to marital distress and disrupt an individual's capacity to parent, creating an environment filled with stress for the entire family. Children coming from families experiencing stress and economic and social burdens may exhibit mental health and physical health problems, such as depression, substance abuse, behavior problems, and increased morbidity rates of certain ailments.[1]

- 10% of Whitman County adults had an annual household income of less than $20,000, which was similar to Washington State.
- Approximately 43% of Whitman County adults had an annual household income between $20,000 and $49,999, compared to 35% for Washington State.
- The median household income for Whitman County ($36,368) was approximately $21,000 less than Washington State ($57,244).
- Approximately one in four adults in Whitman County had a high school education or less, compared to approximately one in three for Washington State.
- 50% of Whitman County adults had a college degree or more, compared to 38% for Washington State, making it one of the more educated counties in the state.
- 61% of Whitman County residents were employed for wages, while only 3% were unemployed.
- Seven in 10 adults in Whitman County were married and one in 10 were either divorced or separated.
- 60% of households in Whitman County did not have any children.
- 90% of adults in Whitman County had health care insurance.
- 85% of the population in Whitman County were white non-Hispanic, compared to 75% for Washington State. Asian Pacific Islanders were the largest ethnic minority group in Whitman County, comprising 7% of the overall population.

FIGURE 3 | DEMOGRAPHICS BY INDICATOR | Whitman County, 2006-2010

Indicator	Whitman County	Washington State
Annual Household Income		
<$10,000	3.3%	2.6%
$10,000-14,999	4.2%	2.9%
$15,000-19,999	3.3%	4.6%
$20,000-24,999	12.3%	10.0%
$25,000-34,999	12.0%	10.9%
$35,000-49,999	18.2%	15.5%
$50,000-74,999	21.3%	18.8%
>=$75,000	25.4%	34.7%
Median Household Income*	$36,368	$57,244
Education		
<High school graduate	3.4%	7.7%
High school graduate/GED	19.1%	23.9%
Some college (Associate's Degree)	28.3%	30.5%
College graduate	49.2%	37.9%
Employment		
Employed	60.8%	59.7%
Unemployed	2.9%	6.8%
Homemaker	8.2%	8.3%
Student	9.4%	4.9%
Retired	15.9%	15.9%
Unable to work	2.8%	4.4%
Marital Status		
Married	68.4%	61.9%
Divorced/separated	8.7%	10.2%
Widowed	5.7%	4.9%
Never married	14.0%	18.3%
Unmarried couple	3.3%	4.8%
Number of Children in Household		
None	59.8%	58.8%
One	16.2%	16.6%
Two	14.3%	15.8%
Three	6.9%	6.0%
Four or more	2.8%	2.8%
Health Care Insurance		
Yes	90.9%	85.9%
No	9.1%	14.1%
Race and Ethnicity^		
White non-Hispanic	84.5%	74.8%
Black non-Hispanic	1.8%	3.5%
AIAN non-Hispanic	0.7%	1.5%
API non-Hispanic	7.2%	7.2%
Two or more races non-Hispanic	2.2%	2.8%
Hispanic	3.6%	10.2%

*Data Sources: Behavioral Risk Surveillance System, 2006-2010, *US Census Bureau, 2006-2010, ^Washington State Department of Health, Office of Financial Management, 2010*
AIAN=American Indian Alaska Native, API=Asian Pacific Islander

Poverty

The relationship between higher levels of economic wealth and optimal health, and lower levels of economic wealth and poor health, has been well documented. It has been illustrated that different levels of income have significant differences in health outcomes. Income is the indicator that most directly measures material resources and can influence health by its direct effect on living standards, specifically access to better quality food, housing, and health care services.[2] In addition, income is fundamental in measuring an individual's socioeconomic status (SES). As a result, SES is a primary cause of health outcomes as it provides access to a wide range of advantages. Such advantages include higher education, access and availability of professional occupations that offer benefits, and a better living environment.[3] The Federal Registrar's 2011 Federal Poverty Guidelines identifies that the gross income of a family of four (two adults and two children) at 100% federal poverty level (FPL) equates to $22,350 and the gross income of a family of four at 200% FPL equates to $44,700.[4]

FIGURE | POVERTY LEVEL BY INDICATOR | Whitman County, 2009-2011

Indicator	Whitman County	Washington State
Below 50% FPL	20.5%	5.9%
Below 100% FPL	33.2%	13.3%
Below 125% FPL	37.3%	17.3%
Below 150% FPL	40.8%	21.5%
Below 185% FPL	47.3%	27.5%
Below 200% FPL	49.4%	29.7%
Gender (percent below 100% FPL)		
Male	34.5%	12.3%
Female	31.8%	14.2%
Age Groups (percent below 100% FPL)		
Under 18 years of age	24.7%	17.7%
18 to 64 years of age	39.3%	12.7%
65 years of age and over	5.0%	7.7%
Education (percent below 100% FPL, 25 years of age and older)		
<High school graduate	33.2%	26.3%
High school graduate/GED	16.3%	12.1%
Some college (Associate's Degree)	14.5%	9.3%
College graduate	9.9%	4.1%
Families		
Below 100% FPL	14.2%	8.9%
With related children under 18 years of age	23.7%	14.4%

Data Source: US Census Bureau, American Community Survey, 2009-2011

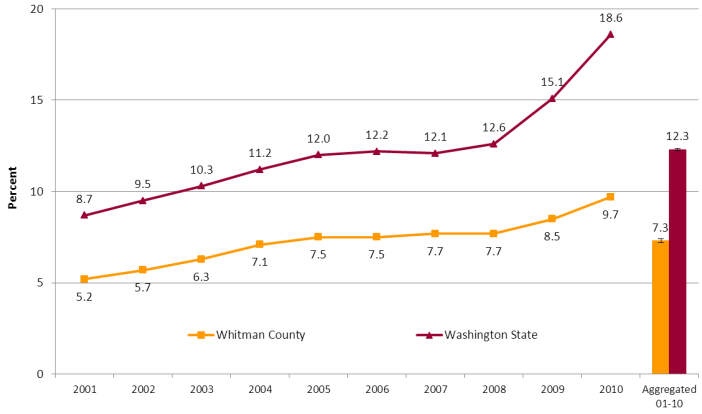
- Approximately one in three individuals in Whitman County were below 100% FPL, which was significantly more than Washington State (13.3%).
- 50% of all individuals in Whitman County were below 200% FPL compared to 30% in Washington State.
- Approximately one-third of both males and females were below 100% FPL for Whitman County; significantly more than Washington State.
- One in four children in Whitman County were below 100% FPL.
- One-third of adults 25 years of age or older who did not graduate from high school were below 100% FPL.
- Of families in Whitman County, 14.2% were below 100% FPL. Of families with related children under 18 years of age, 23.7% were below 100% FPL.

Public Assistance Programs

Supplemental Nutrition Assistance Program (SNAP)

The Supplemental Nutrition Assistance Program (SNAP) provides benefits to individuals and families with a gross monthly income of below 130% of federal poverty level and whose resources are below established limits. The program is comprised of the federal Food Stamp Program (FSP) and the state Food Assistance Program for legal immigrants ineligible for the federal FSP. Basic Food benefits entails both programs and can only be used to purchase food items at participating stores.[5]

FIGURE 5 | SNAP PARTICIPATION BY YEAR | Whitman County and Washington State, 2001-2010



Data Source: Washington State Department of Social and Health Services, Research and Data Analysis Division, 2001-2010

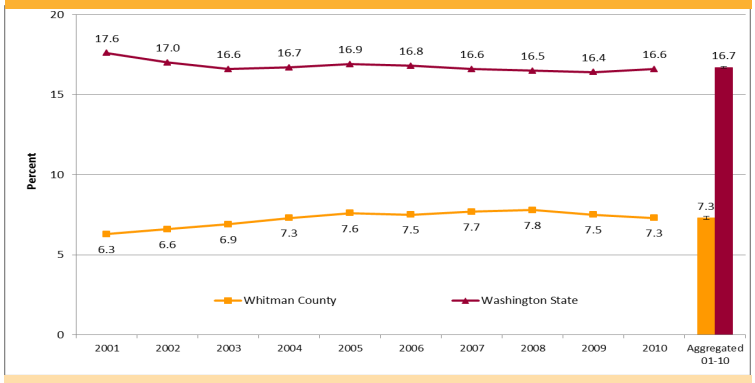
The proportion of the population that participated in the Basic Food Program significantly increased for both Whitman County and Washington State from 2001 to 2010. Whitman County experienced an 87% increase in participation and Washington State saw an increase of 114%. The proportion of participants for Whitman County consistently remained below the state of Washington for each year from 2001 to 2010. During 2001 to 2010 the proportion of the population that participated in SNAP was significantly lower than the proportion for the state. Of residents from Whitman County, 7% participated in SNAP compared to 12% for the state of Washington (Figure 5).

Child Support Services

The Division of Child Support Services under the Economic Services Administration (ESA) for the Washington State Department of Social and Health Services provides services to establish paternity, locate non-custodial parents, and establish and enforce child support orders. This directly impacts custodial parents and the children under their supervision by establishing regular payments of child support for their families and medical support coverage for their children. Custodial parents who receive regular court-ordered payments are less likely to use government assistance such as TANF and Medicaid programs. The impacts of Child Support Services are substantial and make large contributions to family self-sufficiency, thus reducing public expenses for families. Currently in Washington State, only about one-half of custodial parents receive full payment. About 25% receive partial payment and 25% do not receive anything.[6]

The proportion of the population that received Child Support Services in Whitman County significantly increased by 16%, while Washington State significantly decreased by 6% from 2001 to 2010. Whitman County had a significantly lower percentage of clients utilizing Child Support Services than the state of Washington each year; approximately 54% less. During 2001 to 2010, the proportion of clients utilizing Child Support Services for Washington State was approximately 2.3 times higher than Whitman County (Figure 6).

FIGURE 6 | CHILD SUPPORT SERVICES USE BY YEAR | Whitman County and Washington State, 2001-2010



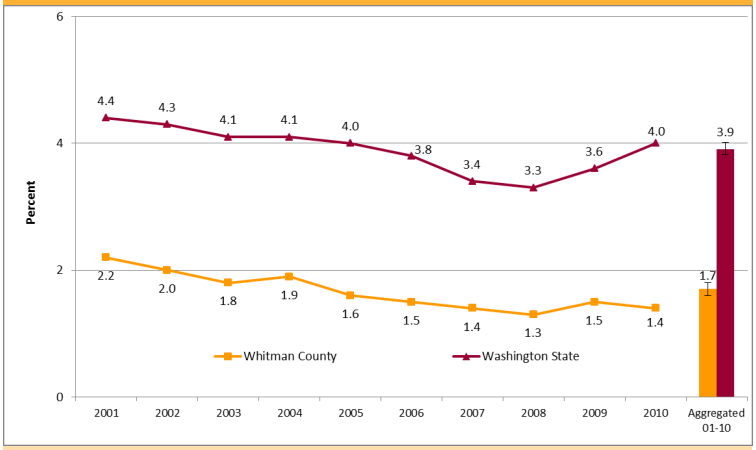
Data Source: Washington State Department of Social and Health Services, Research and Data Analysis Division, 2001-2010

Temporary Assistance for Needy Families (TANF) and State Family Assistance

Temporary Assistance for Needy Families (TANF) provides temporary cash and medical help for families in need. Some families participate in the WorkFirst Program. The WorkFirst Program helps participants find and keep jobs. Persons who are caring for a relative's child, or legal guardians, or who are acting in the place of a parent, are also able to apply for TANF benefits on behalf of these children through the Non-Needy Relative, In Loco Parentis and Legal Guardian Program.[7]

The proportion of the population receiving TANF and State Family Assistance in Whitman County was significantly lower each year from 2001 to 2010 compared to Washington State. From 2001 to 2010 participation in TANF significantly decreased by 36% in Whitman County. In Washington State, participation significantly decreased overall by 9% from 2001 to 2010, however participation reached a low in 2008 and began to significantly increase in 2009 and 2010. During 2001 to 2010 a significantly lower proportion of the population participated in TANF and State Family Assistance for Whitman County (1.7%) compared to Washington State (3.9%). The proportion was 56% lower for Whitman County than for the state of Washington (Figure 7).

FIGURE 7 | TANF PARTICIPATION BY YEAR | Whitman County and Washington State, 2001-2010

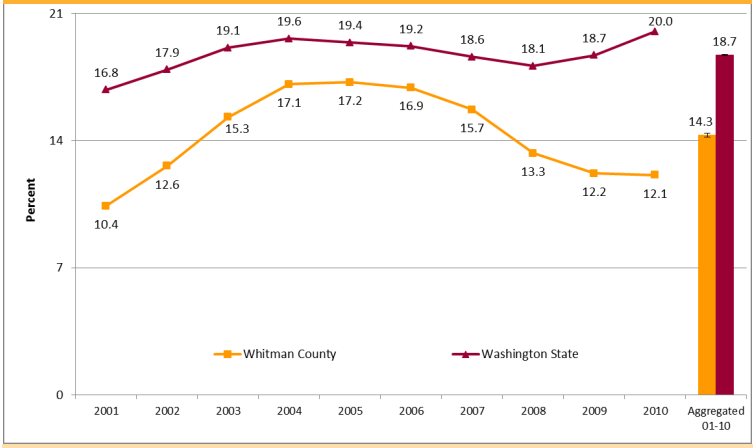


Data Source: Washington State Department of Social and Health Services, Research and Data Analysis Division, 2001-2010

Medicaid

Medicaid is a program that provides health coverage to some low-income Washington State residents. If state and federal guidelines are met, Medicaid covers families with children and pregnant women, medically needy individuals, the elderly, and people with disabilities. Legal residents who are not U.S. citizens may be eligible for Medicaid after they have been in the U.S. for five years.[8]

FIGURE 8 | MEDICAID PARTICIPATION BY YEAR | Whitman County and Washington State, 2001-2010



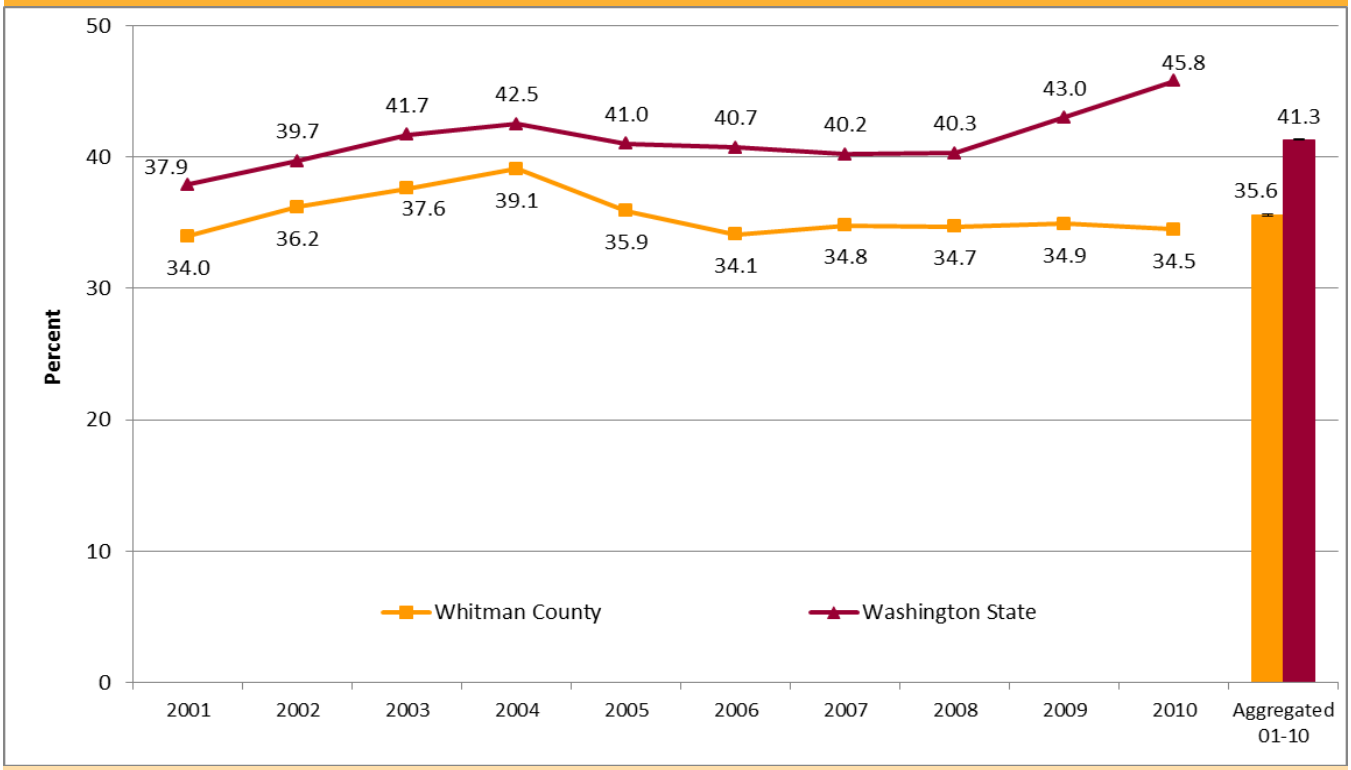
Data Source: Washington State Department of Social and Health Services, Research and Data Analysis Division, 2001-2010

The proportion of the population that participated in Medicaid significantly increased overall for both Whitman County and Washington State from 2001 to 2010. Whitman County experienced a 16% increase in participation and Washington State increased by 19%. The proportion of participants for Whitman County consistently remained below the state of Washington for each year from 2001 to 2010. In Whitman County from 2001 to 2005, participation in Medicaid increased significantly by 65% but decreased significantly from 2005 to 2010 by 30%. During 2001 to 2010 the proportion of the population that participated in Medicaid was significantly lower than the proportion for the state. In Whitman County 14.3% of the population participated in Medicaid compared to 18.7% for the state of Washington (Figure 8).

Medicaid – Youth (0-17 Years of Age)

The proportion of youth who participated in Medicaid consistently remained lower for Whitman County compared to Washington State from 2001 to 2010. In Whitman County, participation experienced its highest level in 2004, significantly increasing by 15% compared to 2001, but significantly decreased by 12% from 2004 to 2010. In Washington State, participation significantly increased from 2001 to 2010 by 21%. During 2001 to 2010, Whitman County had a significantly lower participation in Medicaid among youth compared to Washington State; 35.6% of youth participated in the Medicaid program compared to 41.3% in Washington State (Figure 9).

FIGURE 9 | MEDICAID—YOUTH PARTICIPATION BY YEAR | Whitman County and Washington State, 2001-2010



Data Source: Washington State Department of Social and Health Services, Research and Data Analysis Division, 2001-2010

MATERNAL HEALTH
General Fertility Rates and Births

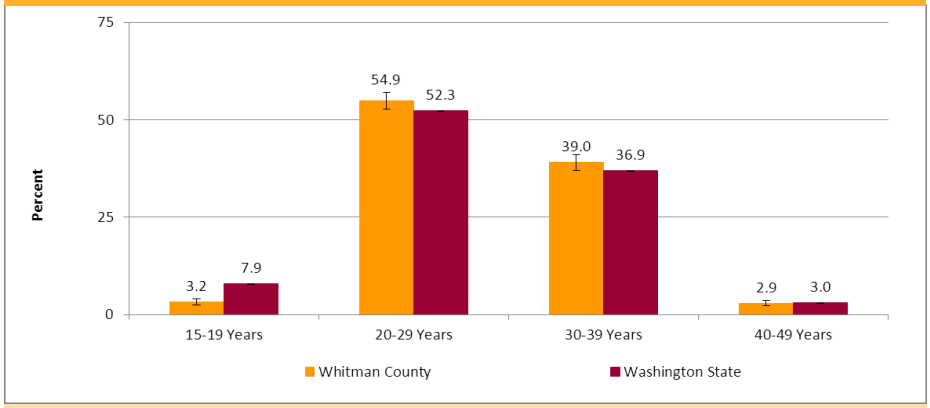
The fertility rate measures the number of live births occurring per 1,000 women between 15-49 years of age in a particular year while birth rate refers to the ratio of births to the total population in a place in a given time. Age-specific rate refers to the number of live births for women in a specified age range per 1,000 women in that age range. Tracking trends in fertility and birth rates is essential in planning for the current and future needs of multiple generations. Sustained high fertility rates lead to disproportionately large populations of young dependents, driving the demand for support of social services for young families, increasing the number of schools and the need for affordable child care.[9, 10] Tracking age-specific and race/ethnicity-specific trends in fertility and birth rates also provides information on the divergent needs of different population groups.

FIGURE 10 | NUMBER OF BIRTHS PER YEAR | Whitman County and Washington State, 2006-2010

Resident of	Number of Births per Year					
	2006	2007	2008	2009	2010	Total
Whitman County	413	431	442	445	422	2,153
Washington State	86,845	88,921	90,270	89,242	86,480	441,758

Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

FIGURE 11 | BIRTHS BY MATERNAL AGE GROUP | Whitman County and Washington State, 2006-2010

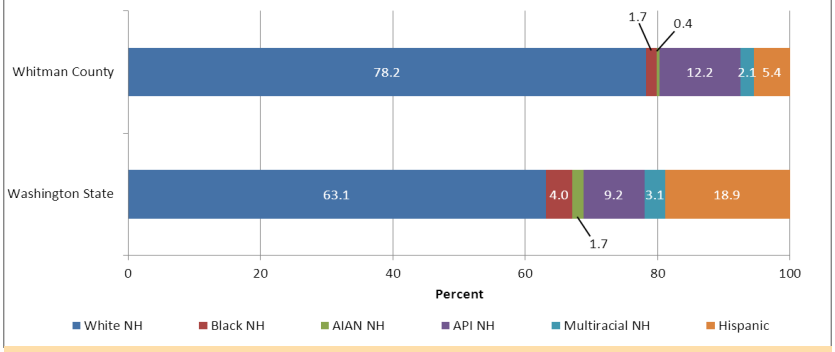


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

There were a total of 2,153 births in Whitman County from 2006 to 2010 and 441,758 births in Washington State. Among all births in Whitman County from 2006 to 2010, 55% were from mothers 20-29 years of age and approximately 40% were from mothers 30-39 years of age. The proportions of births for both age groups were significantly higher in Whitman County than Washington State (Figures 10 and 11).

From 2006 to 2010, 78.2% of all births in Whitman County were to white non-Hispanic women, compared to 63.1% for Washington State. Approximately one in five births were to non-white, multiracial, or Hispanic women, compared to just over one in three in Washington State. Asian Pacific Islander women comprised the largest proportion of minority births for Whitman County (12.2%), however Hispanics comprised the largest proportion for Washington State (18.9%) (Figure 12).

FIGURE 12 | BIRTHS BY MATERNAL RACE | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010
AIAN=American Indian Alaska Native, API=Asian Pacific Islander, NH=Non-Hispanic

FIGURE 13 | PERCENT OF MULTIPLE BIRTHS BY AGE GROUP | Whitman County and Washington State, 2006-2010

Age Group	Whitman County	Washington State
15-19 Years of Age	0.0%	1.5%
20-29 Years of Age	2.2%	2.5%
30-39 Years of Age	5.8%	4.3%
40-49 Years of Age	9.7%	7.1%

Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Multiple births comprised 4% of all births in Whitman County and 3.2% in Washington State. Women in their 40s had the largest proportion of multiple births of any age group for both Whitman County and Washington State. The occurrence of multiple births increased as maternal age increased (Figure 13).

Overall, Whitman County maintained a significantly lower general fertility from 2001 to 2010 than Washington State. Age-specific fertility rates for women 15-19 years of age and 20-29 years of age were significantly lower in Whitman County than Washington State, while women 30-39 years of age were significantly higher. Since 2001, Whitman County experienced a significant downward trend in fertility rates among teenage women and women in their 20s while experiencing a significant upward trend for women in their 30s (Figure 14).

FIGURE 14 | GENERAL FERTILITY RATE AND AGE SPECIFIC RATES BY YEAR | Whitman County and Washington State, 2001-2010

Year	Region	General Fertility Rate^	Maternal Age (Age Specific Rates+)			
			15-19 Years of Age	20-29 Years of Age	30-39 Years of Age	40-49 Years of Age
2001	Whitman County	29.3	7.1	35.8	65.4	2.4
	Washington State	51.8	35.7	105.5	63.6	4.4
2002	Whitman County	32.1	6.6	32.3	79.4	2.8
	Washington State	51.1	33.0	102.6	64.6	4.6
2003	Whitman County	31.4	7.6	39.4	65.9	5.7
	Washington State	51.8	31.4	102.3	67.7	4.9
2004	Whitman County	28.2	4.6	32.8	70.3	5.7
	Washington State	52.3	31.1	102.5	68.7	4.8
2005	Whitman County	31.9	3.8	40.8	73.6	3.8
	Washington State	52.6	30.7	101.2	70.2	4.8
2006	Whitman County	30.3	4.8	34.3	81.6	4.4
	Washington State	54.5	31.8	103.0	72.5	5.3
2007	Whitman County	31.7	6.1	33.7	88.0	8.0
	Washington State	55.4	32.8	102.3	74.1	5.2
2008	Whitman County	31.6	3.3	35.8	85.2	7.5
	Washington State	56.0	32.4	102.7	74.5	5.6
2009	Whitman County	31.9	4.8	35.0	90.6	6.2
	Washington State	55.4	30.1	99.5	75.5	5.9
2010	Whitman County	30.0	3.8	33.5	83.6	5.1
	Washington State	53.9	26.7	96.3	75.3	5.7

Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2001-2010
^ The number of live births per 1,000 women 15 to 49 years of age.
+ The number of live births to women in a specified age range per 1,000 women in that age range.

In Whitman County, eight in 10 births were to mothers with an education level of at least some college, compared to six in 10 for Washington State. In Whitman County, 55% of all births were to mothers with at least a four-year college degree, which was approximately two times higher than the state's proportion of 27.6%. Approximately two in 10 births were to women with less than a high school education in Washington State. For Whitman County, the proportion of births to mothers with less than a high school education was approximately 75% less (4.8% of total births) (Figure 15).

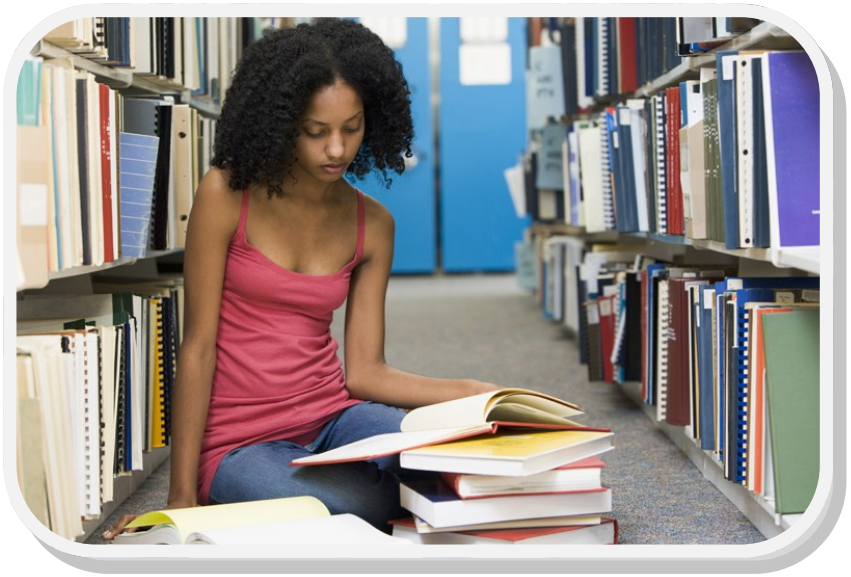
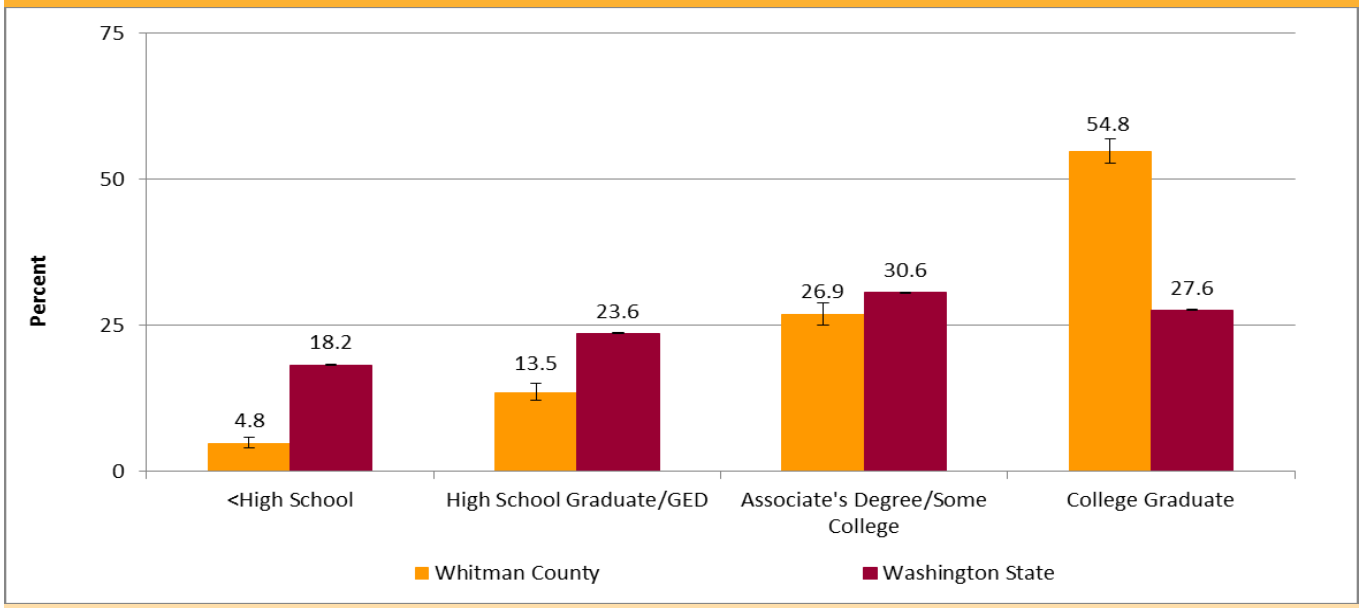


FIGURE 15 | BIRTHS BY MATERNAL EDUCATION LEVEL | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

FIGURE 16 | BIRTHS TO UNMARRIED WOMEN | Whitman County and Washington State, 2006-2010

Age Group	Whitman County	Washington State
15-19 Years	76.8%	82.8%
20-29 Years	20.9%	38.4%
30-39 Years	7.0%	16.0%
40-49 Years	14.5%	17.4%
Overall	17.1%	33.0%

Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

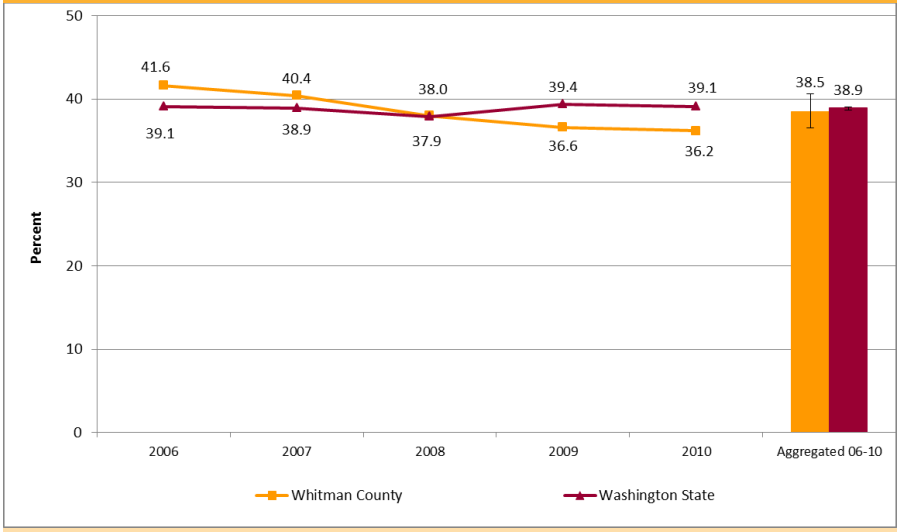
Less than one in five births were to unmarried women in Whitman County, compared to one in three births for Washington State; a significant difference. There was no difference in the proportion of births to unmarried women in their teens and 40s between Whitman County and Washington State, however Whitman County had a significantly lower proportion of births to unmarried women in their 20s compared to the state of Washington.

Service Utilization

Medicaid

Medicaid plays a key role in child and maternal health, financing 40% of all births in the United States. Medicaid coverage for pregnant women includes prenatal care through the pregnancy, labor and delivery, and for 60 days postpartum as well as other pregnancy-related care. Infants born to pregnant women who are receiving Medicaid for the date of delivery are automatically eligible for Medicaid. Medicaid eligibility continues until the child's first birthday and citizenship documentation is not required. Pregnant women receive care related to the pregnancy, labor and delivery, and any complications that may occur during pregnancy, as well as perinatal care for 60 days post-partum.[11]

FIGURE 17 | USE OF MEDICAID AMONG WOMEN GIVING BIRTH | Whitman County and Washington State, 2006-2010



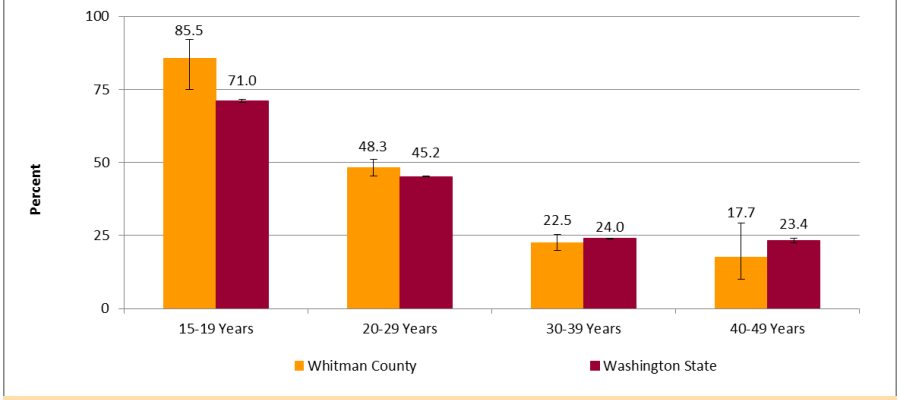
Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Nearly four in 10 births in Whitman County and Washington State were to women with Medicaid as their primary source of insurance during 2006 to 2010. From 2006 to 2010, the proportion of births paid by Medicaid remained stable for both Whitman County and Washington State and there was no difference between the two (Figure 17).

During 2006 to 2010, the use of Medicaid was highest amongst women 15 to 19 years of age and significantly decreased as age increased for both Whitman County and Washington State. Whitman County had significantly higher utilization rates for women 15-19 years of age and women in their 20s compared to Washington State; there was no difference among women in their 30s and 40s, however (Figure 18).

A very small proportion of births were to women without insurance for both Whitman County and Washington State. Of all births in Whitman County, 1.5% were self-paid, compared to 1.2% for Washington State; there was no significant difference between the two.

FIGURE 18 | BIRTHS TO UNMARRIED WOMEN | Whitman County and Washington State, 2006-2010



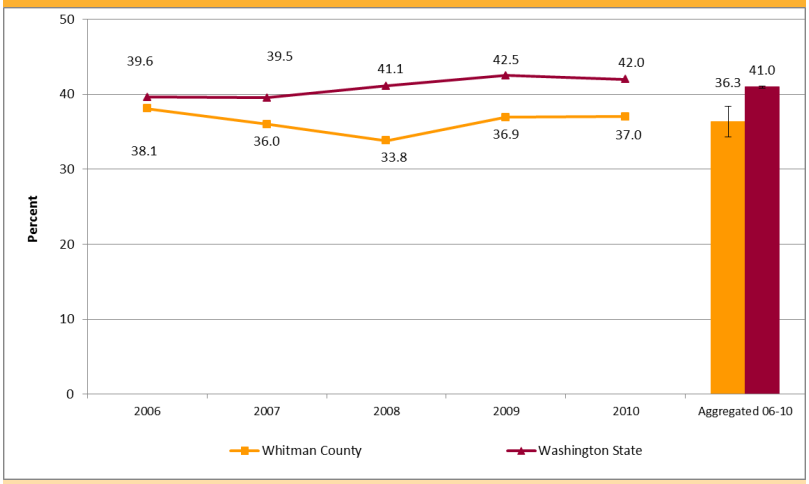
Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Women, Infants, and Children (WIC)

The program Women, Infants, and Children, better known as WIC, serves low-income pregnant women and families with children younger than five years of age. WIC provides education and counseling on nutrition, breastfeeding, and accessing health care or other social services. The goal of WIC is to encourage healthy diets for optimal growth and development. The WIC program has been shown to have many benefits. Pregnant women access prenatal care earlier in pregnancy and have fewer preterm births, low birth weight infants, and infant deaths. Children on WIC are more likely to have normal childhood growth.[12]

During 2006 to 2010, a significantly lower proportion of women giving birth utilized WIC services in Whitman County (36.3%) compared to Washington State (41.0%). In 2006 and 2007, there was no difference in the utilization of WIC services among women giving birth between Whitman County and Washington State. From 2008 to 2010, a significantly lower proportion of women giving birth utilized WIC services in Whitman County than in Washington State, however. From 2006 to 2010, the use of WIC services remained stable in Whitman County but increased significantly by 6% in Washington State (Figure 19).

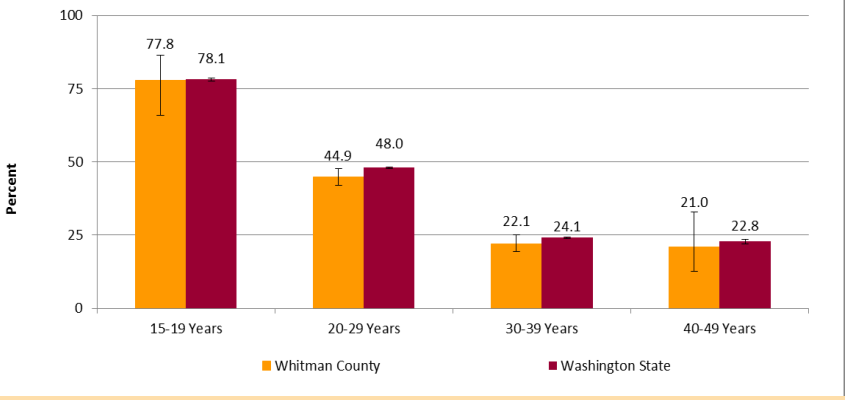
FIGURE 19 | USE OF WIC AMONG WOMEN GIVING BIRTH | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

During 2006 to 2010, the use of WIC was highest among younger women and significantly decreased as age increased for both Whitman County and Washington State. Whitman County had significantly lower utilization rates for women in their 20s compared to Washington State, however there was no difference among women 15-19 years of age, women in their 30s, and women in their 40s (Figure 20).

FIGURE 20 | USE OF WIC BY MATERNAL AGE GROUP | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Medical Risks

Maternal Mortality

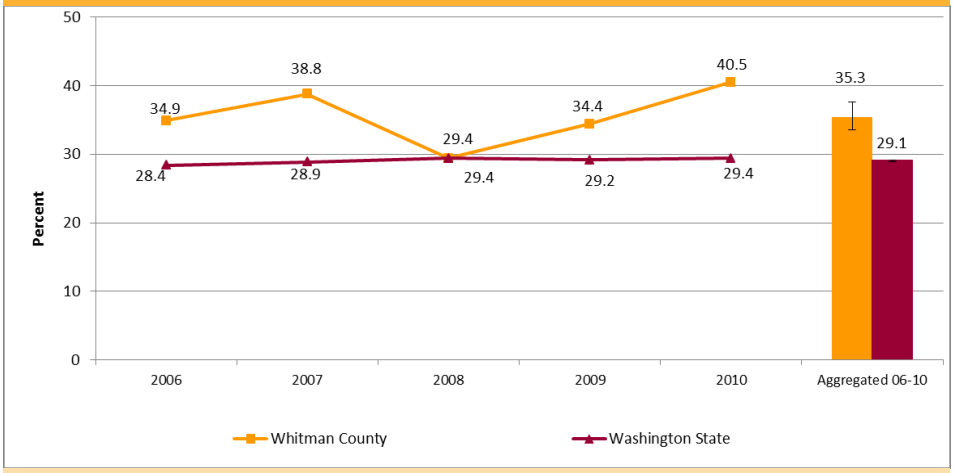
Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.[13] The major causes of maternal death are bacterial infection, variants of gestational hypertension (including pre-eclampsia), obstetrical hemorrhage, ectopic pregnancy, and complications of abortions. In the United States, the maternal mortality rate in 2009 was 16.1 per 100,000 live births.[14] Maternal mortality is highest among women 35 years of age or older and lowest among women 20 years of age or younger.[15]

Due to the few cases identified as maternal mortality for Whitman County from 2006 to 2010, data could not be aggregated or stratified for review. An assessment on maternal mortality was not conducted by reason of data limitation.

Cesarean Section (C-Section)

A cesarean section is the delivery of a baby through a surgical incision in the pregnant mother's abdomen and uterus and is considered a major surgery. In certain circumstances a c-section is scheduled in advance, in others it's done in response to an unforeseen complication. Recovery from a c-section takes longer than the recovery from a vaginal birth and may pose additional risks for complications. Pregnant women who have c-sections are more likely to have infections, excessive bleeding, blood clots, more postpartum pain, a longer hospital stay, significantly longer recovery, injuries to the bladder or bowel, uterine rupture, placenta previa, adverse reactions to anesthesia, and breathing problems for the newborn infant.[16, 17]

FIGURE 21 | CESAREAN SECTION | Whitman County and Washington State, 2006-2010

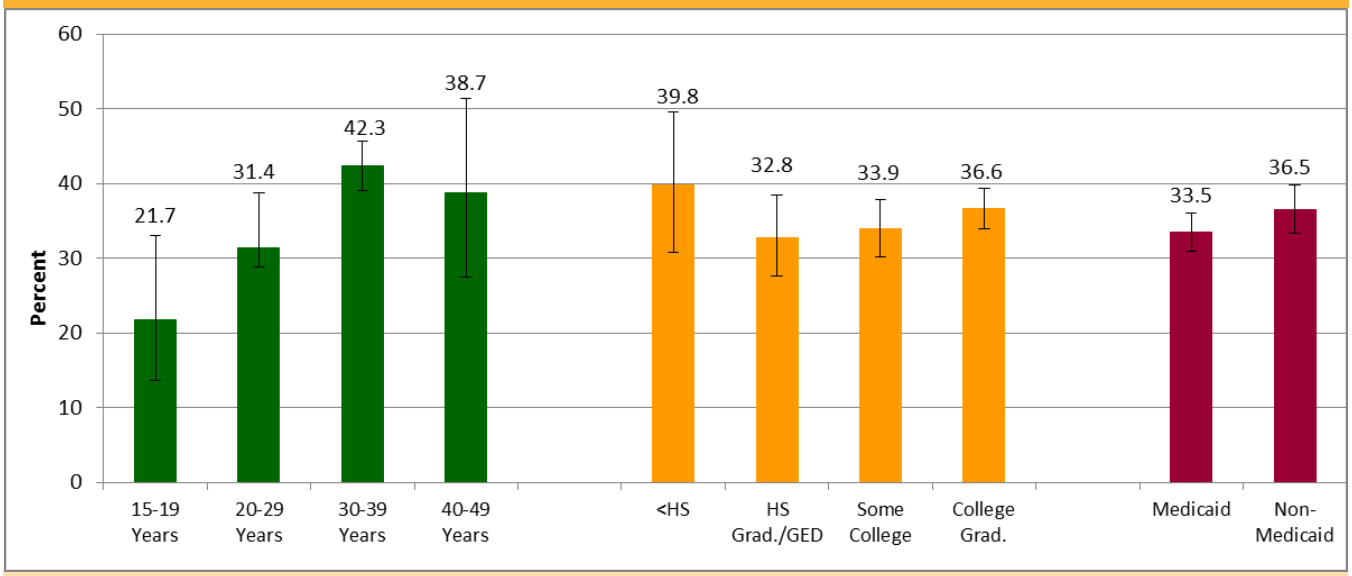


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

In 2010, cesarean sections accounted for 40% of all births in Whitman County, which was significantly higher than Washington State (29.4%). From 2006 to 2010 the cesarean section rate increased by 16% for Whitman County, but this increase was not significant. Washington State however, experienced a significant increase of 4% from 2006 to 2010 (Figure 21).

During 2006 to 2010, repeat cesarean sections in Whitman County accounted for 11.5% of all births; a significantly higher proportion compared to Washington State (9.5%). Approximately one-third of all cesarean sections in Whitman County and Washington State were repeat cesarean sections. From 2006 to 2010, the repeat cesarean section rate increased significantly by 67% for Whitman County and 18% for Washington State.

FIGURE 22 | CESAREAN SECTION BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

The proportion of cesarean deliveries increased as age increased for Whitman County during 2006 to 2010. Approximately 40% of births were cesarean sections for women 30 years of age or older, but only 30% for women in their 20s and approximately 20% for women 15-19 years of age.

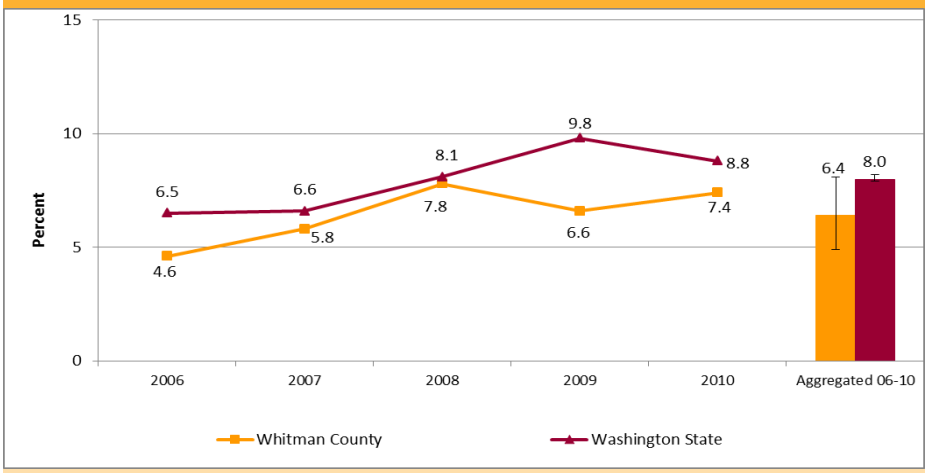
There was no difference in the proportion of cesarean deliveries among the different education groups or by Medicaid status (Figure 22).

Infectious Diseases and Sexually Transmitted Diseases (STDs)

During pregnancy, there are infections that may cause the woman to become ill, complicate the pregnancy, or place the baby at risk for illness. Infection may occur while the fetus is still in the uterus (congenital) or during labor and delivery (perinatal). A congenital infection is an infection that crosses the placenta to infect the fetus. Many infectious microbes can cause congenital infections, leading to problems in fetal development or even death. Perinatal infections refer to infections that occur as the baby moves through an infected birth canal and include, but are not limited to sexually transmitted diseases (STDs).[18] Information about infections during pregnancy are collected for gonorrhea, syphilis, herpes simplex virus (HSV), chlamydia, hepatitis B, hepatitis C, HIV infection, and "other" infections.

STDs cause the same consequences in pregnant women as they do in women who are not pregnant. There are additional STD-related risks for pregnant women, including early onset of labor, premature rupture of the membranes surrounding the baby in the uterus, and a uterine infection after delivery, however. STDs can be passed to the baby from the pregnant woman. Depending on the specific STD, the infant can become infected before birth, during birth, and/or through breastmilk.[19] Harmful effects of an STD in a baby include low birth weight, eye infection, pneumonia, sepsis, blindness, deafness, and neurologic damage. STDs can be treated during pregnancy and women should ask their doctor about testing if the provider does not routinely perform the tests.[20]

FIGURE 23 | INFECTIONS DURING PREGNANCY | Whitman County and Washington State, 2006-2010



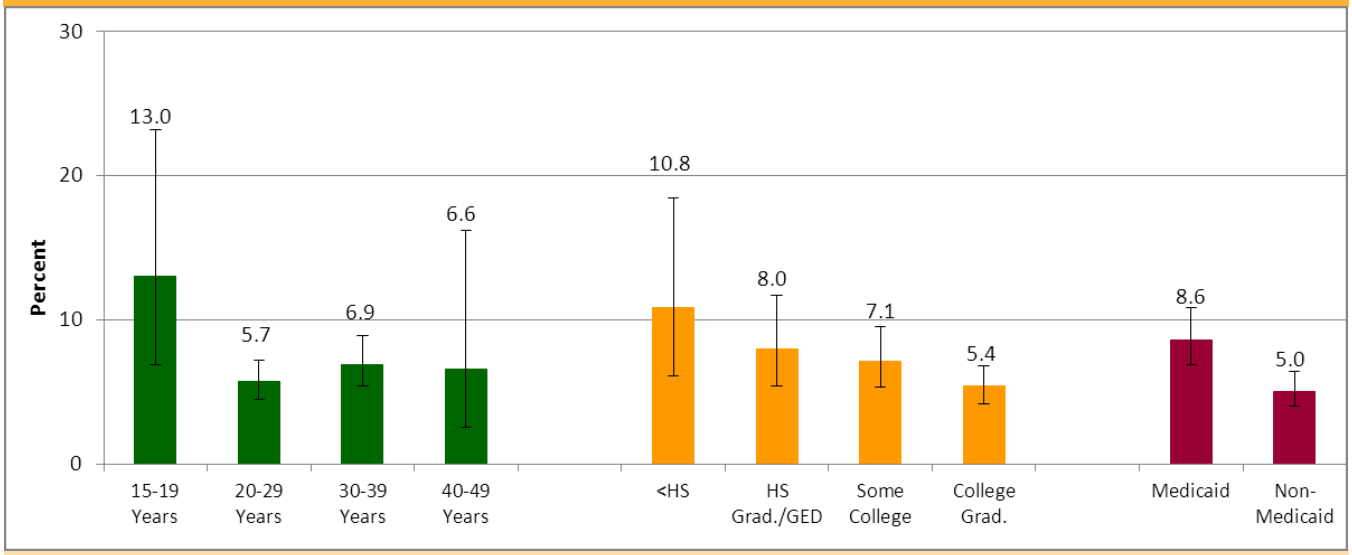
Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

During 2006 to 2010, Whitman County had a significantly lower proportion of births to women with an infection (6.4%) compared to Washington State (8.0%). From 2006 to 2010, the rate of infection during pregnancy in Whitman County remained stable, yet increased significantly for Washington State by 35% (Figure 23).

There was no difference in the proportion of births with an infection by age group or by education level in Whitman County. Women on Medicaid were more likely to have an infection compared to women not on Medicaid. The rate of infection among women on Medicaid in Whitman County was significantly higher by 72% (Figure 24).

During 2006-2010, 96% of all STD cases in Whitman County among pregnant women were identified as chlamydia, however this accounts for only 1% of all births or 17.4% of all infections. The number of pregnancies identified with an STD were too few and could not be stratified by any other group.

FIGURE 24 | INFECTIONS DURING PREGNANCY BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010

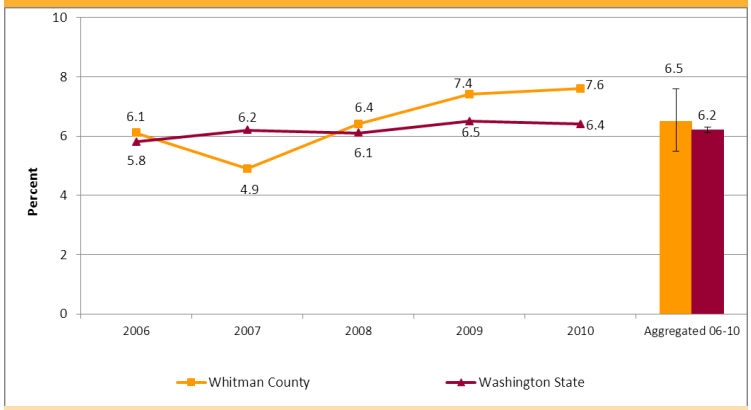


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Gestational Diabetes

Gestational diabetes mellitus (GDM) is diagnosed during pregnancy. It is a condition that can lead to pregnancy complications. GDM is the body's inability to effectively process carbohydrates, leading to increased glucose in the blood stream. Although GDM usually goes away after delivery, up to 33% of affected women have diabetes or impaired glucose metabolism at their postpartum screening. An estimated 15% to 50% will develop diabetes in the decades following the affected pregnancy.[21] Women with diabetes have a higher risk for complications during their pregnancy than do women without diabetes. Additionally, infants born to women with diabetes are at an increased risk for adverse birth outcomes.[22] In general, babies born to mothers with untreated gestational diabetes are typically at increased risk of problems, such as being large for gestational age (which may lead to delivery complications), low blood sugar (which may provoke seizures), jaundice, preterm birth, respiratory distress, and Type 2 diabetes later in life. If GDM is untreated, it can also cause seizures or still births. Gestational diabetes is a treatable condition and women who have adequate control of glucose levels can effectively decrease these risks.[23, 24]

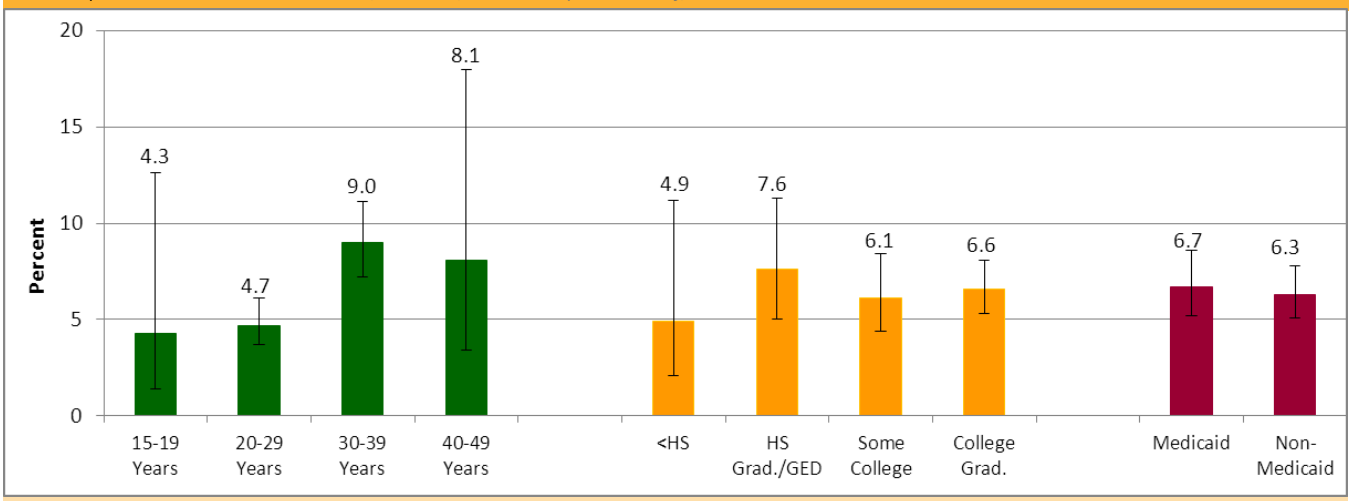
FIGURE 25 | GESTATIONAL DIABETES | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Approximately one in 15 births or about 6% of births were to women with gestational diabetes during 2006 to 2010 in Whitman County and Washington State. Diabetic pregnancies remained stable for Whitman County but increased significantly for Washington State by 10% from 2006 to 2010. There was no difference in the prevalence of pregnant women with diabetes between Whitman County and Washington State (Figure 25).

FIGURE 26 | GESTATIONAL DIABETES BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

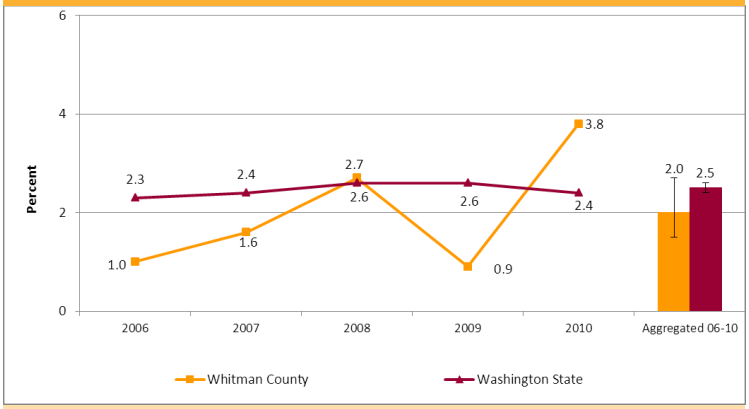
There was no difference in the proportion of pregnant women with gestational diabetes by age group, education group, or Medicaid status in Whitman County during 2006 to 2010 (Figure 26).

Previous Preterm Birth

Preterm birth is defined as a gestational age of less than 37 weeks. Women who have had a previous preterm birth are more likely to have another preterm birth when compared to women without a history of preterm birth.[25, 26, 27] Preterm infants often experience long-term health problems. Previous preterm birth was evaluated only among women for whom the current birth was not their first.[28, 29]

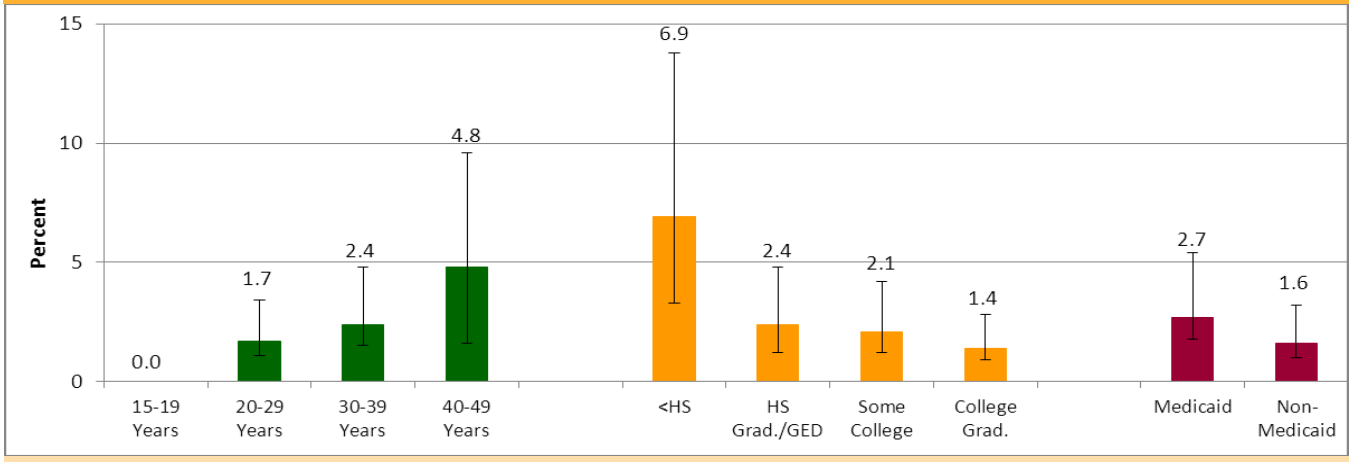
Approximately 4% of births in Whitman County in 2010 were to women with a history of preterm birth. There was no difference when compared to Washington State (2.4%). The risk of women having a preterm birth was 4.1 times greater for Whitman County and 3.8 times greater statewide for women with a history of preterm birth compared to women without a history of a preterm birth. Trend analysis was not evaluated due to too few numbers of previous preterm births. During 2006 to 2010, the proportion of births to women with a previous preterm birth was similar for Whitman County and Washington State (Figure 27).

FIGURE 27 | BIRTHS WITH A HISTORY OF PRETERM BIRTH | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

FIGURE 28 | GESTATIONAL DIABETES BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010

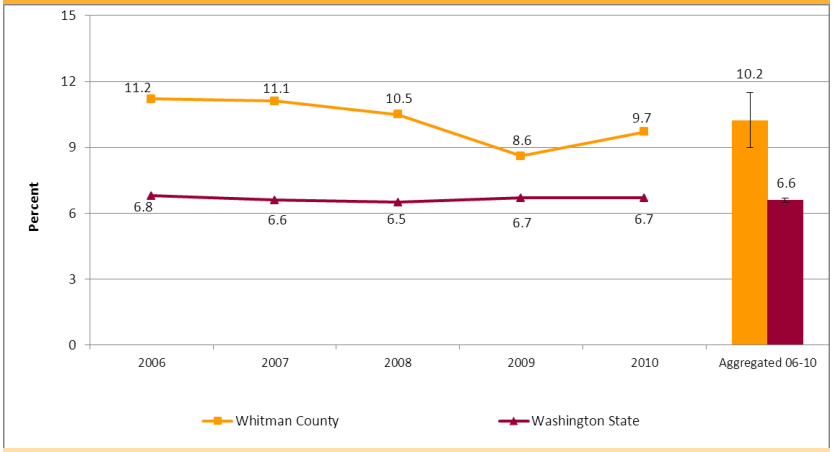


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

During 2006 to 2010 there was no difference in the proportion of births to women with a previous preterm birth among the different age groups or Medicaid status in Whitman County. There was a significant difference among the different education groups. As education increased, women were less likely to have a history of preterm birth.

High Blood Pressure

FIGURE 29 | BIRTHS WITH MATERNAL HIGH BLOOD PRESSURE | Whitman County and Washington State , 2006-2010



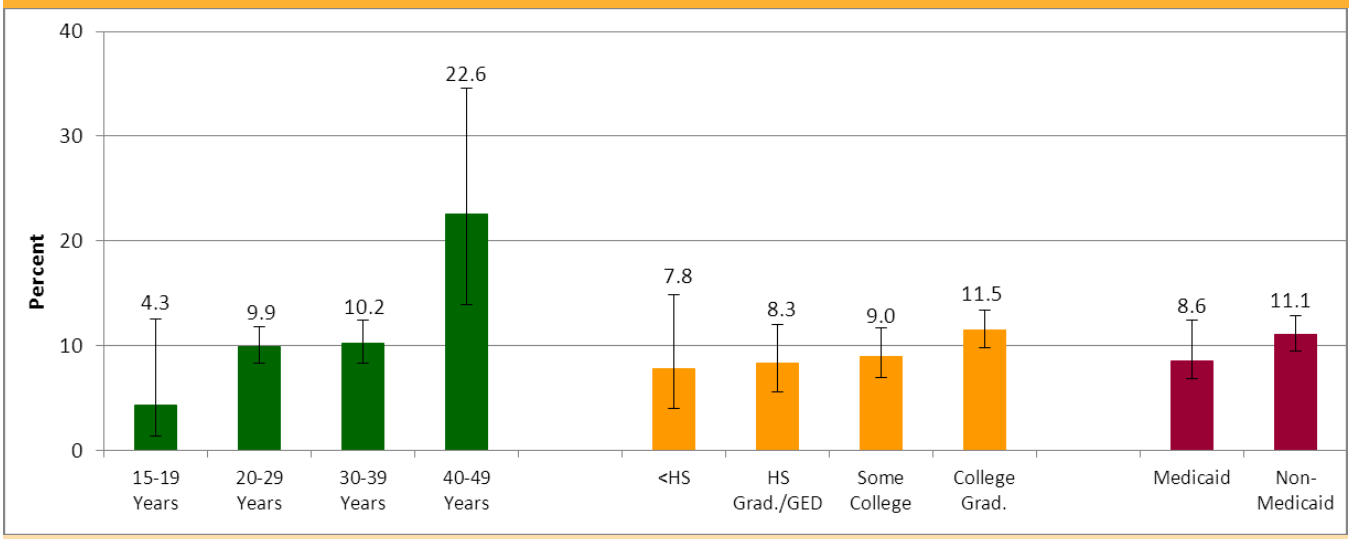
Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Although many pregnant women with high blood pressure have healthy babies without serious problems, high blood pressure can be dangerous for both the mother and the fetus. Women with pre-existing or chronic high blood pressure are more likely to have certain complications during pregnancy than those with normal blood pressure. However, some women develop high blood pressure while they are pregnant (gestational hypertension). The effects of high blood pressure range from mild to severe. High blood pressure can harm the mother's kidneys and other organs, and it can cause low birth weight and early delivery. In the most serious cases, the mother develops pre-eclampsia (toxemia of pregnancy) which can threaten the lives of both the mother and the fetus.[30]

From 2006 to 2010, the proportion of births with maternal high blood pressure for Whitman County and Washington State remained stable; high blood pressure was statistically higher in Whitman County compared to the state, however. During 2006 to 2010, 10% of births were to women who experienced high blood pressure during their pregnancy.

During 2006 to 2010, there was a significantly higher proportion of pregnant women in their 40s experiencing high blood pressure in Whitman County compared to any other age group. Approximately one in five births in this age group were identified as having high blood pressure during their pregnancy. There was no difference in high blood pressure between the different levels of education and Medicaid status (Figure 30).

FIGURE 30 | HIGH BLOOD PRESSURE DURING PREGNANCY BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010

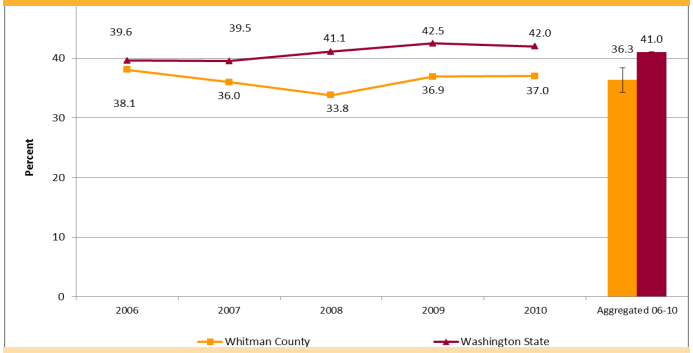


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Group B Strep

Group B streptococcus (group B strep) is bacteria normally found in the body of many people and it may not cause any symptoms or illness. Approximately one-quarter of pregnant women in the United States are positive for group B strep. Colonization of the bacteria in the vagina is not a sexually transmitted disease. It is recommended that pregnant women be tested in their pregnancy to determine if they are positive for group B strep. The bacteria can be transmitted to a newborn during delivery and cause illness. Group B strep is the most common cause of life-threatening infections in newborns. It can cause sepsis, meningitis, and pneumonia. Intravenous antibiotics during labor can prevent most group B strep disease in newborns.[31]

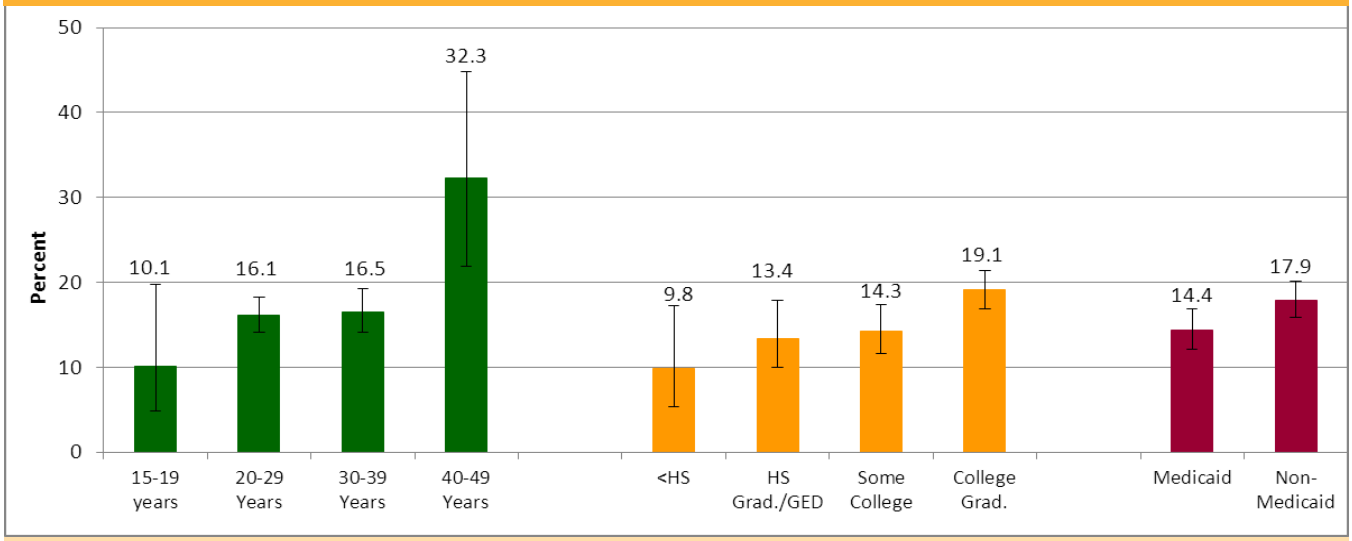
FIGURE 31 | BIRTHS WITH MATERNAL GROUP B STREP | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

In 2010, approximately one in five Whitman County births were to women with group B strep. The statewide proportion was similar to Whitman County. The proportion of births to women with group B strep increased by 51% in Whitman County from 2006 to 2010; this was not a significant increase, however. Group B strep remained stable for Washington State from 2006 to 2010 (Figure 31).

FIGURE 32 | GROUP B STREP DURING PREGNANCY BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

During 2006 to 2010, there was a significantly higher proportion of group B strep among women 40-49 years of age in Whitman County compared to any other age group. Approximately one-third of births for women in their 40s were positive for group B strep. Women in their 40s were 2.4 to 4.2 times more likely to have group B strep when compared to the other age groups.

College graduates for Whitman County had significantly higher rates of group B strep during pregnancy than any other educational group. College graduates were 1.5 to 2.7 times more likely to have group B strep when compared to other educational groups.

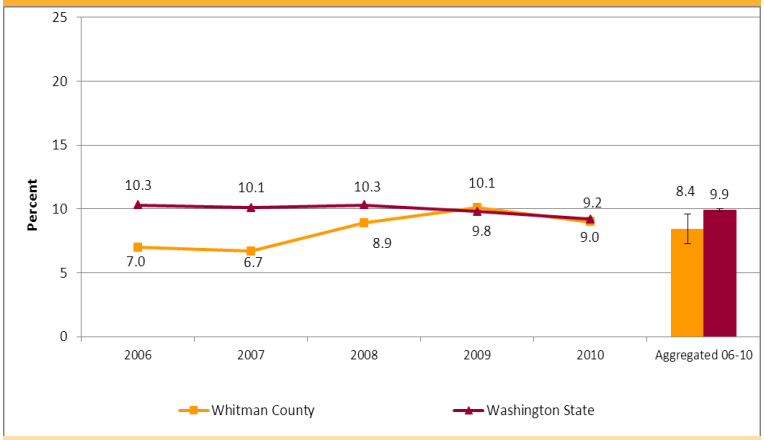
Women on Medicaid were 23% less likely to have group B strep than women not on Medicaid for Whitman County.

Behavioral Risks

Maternal Smoking

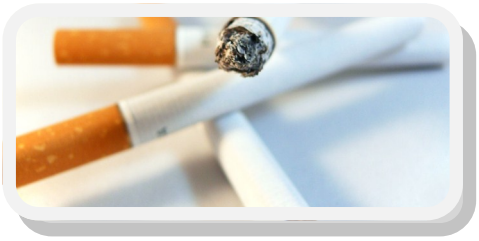
Smoking before and during pregnancy is the single most preventable cause of illness and death among mothers and infants. Maternal smoking can result in complications during the delivery for the mother and her newborn, and may result in adverse outcomes for the infant. Complications include: low birth weight, preterm birth, ectopic pregnancy, miscarriage, stillbirths, slow fetal growth, placenta previa and abruption, severe vaginal bleeding, intrauterine growth restriction, sudden infant death syndrome (SIDS), and birth defects.[32, 33]

FIGURE 33 | SMOKING DURING PREGNANCY | Whitman County and Washington State , 2006-2010



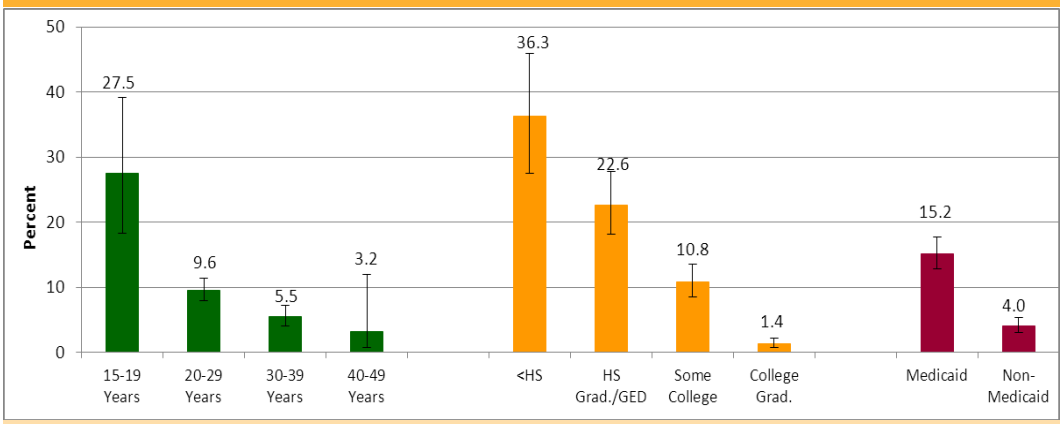
Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

From 2006 to 2010, maternal smoking remained stable in Whitman County but significantly decreased by approximately 11% in Washington State. During 2006 to 2010, maternal smoking was significantly lower in Whitman County (8.4%) compared to Washington State (9.9%) (Figure 33).



During 2006 to 2010 in Whitman County, a significantly higher proportion of women 15-19 years of age smoked while pregnant compared to other age groups. As age increased, maternal smoking decreased. Slightly more than one in four women 15-19 years of age smoked while pregnant.

FIGURE 34 | SMOKING DURING PREGNANCY BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

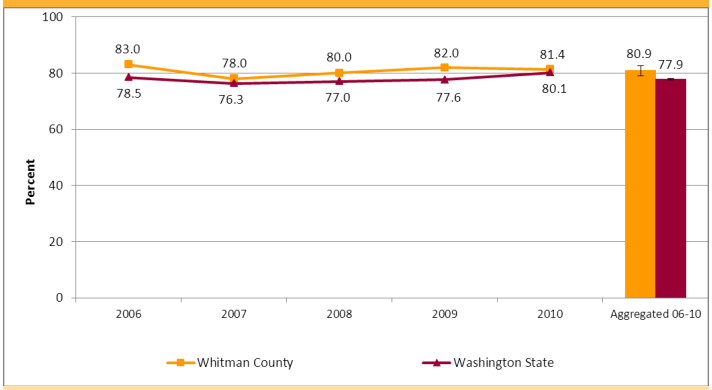
In Whitman County, as a woman's education increased, the likelihood of her smoking while pregnant decreased. Compared to women who graduated from college, women who did not finish high school were 41.3 times more likely to smoke while pregnant, and women whose highest level of education was high school were 21.1 times more likely to smoke.

In Whitman County, a significantly higher proportion of women on Medicaid smoked while pregnant compared to women not on Medicaid. Women on Medicaid were 4.3 times more likely to smoke during their pregnancy (Figure 34).

Prenatal Care: First Trimester

Prenatal care is important to the health and future of unborn babies and can benefit every woman during her pregnancy.[34] Prenatal care refers to the medical attention received by a woman before and during her pregnancy, specifically addressing her well-being during the pregnancy and caring for the development of the baby. The goal of prenatal care is to detect potential problems early on in the pregnancy and to prevent potential complications. Timely and appropriate prenatal care is a significant component in ensuring a good pregnancy outcome. Although it is recommended for women to begin prenatal care during the first trimester, some women seek prenatal care at a later stage in their pregnancy.[35, 36] Women who seek a health care provider during their pregnancy have healthier babies, are less likely to deliver early, and are less likely to have other serious problems related to their pregnancy.[37]

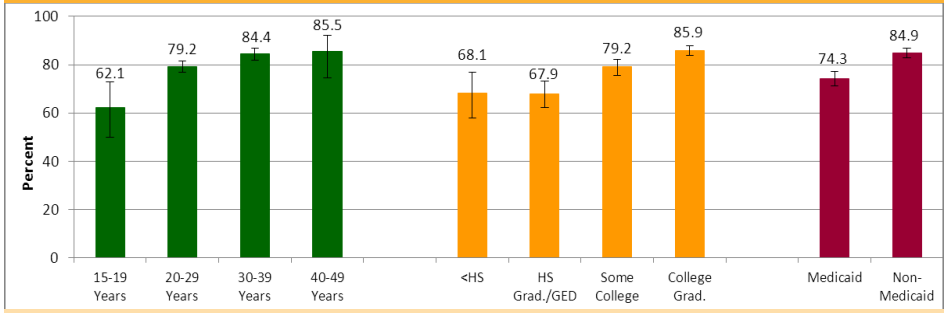
FIGURE 35 | FIRST TRIMESTER PRENATAL CARE | Whitman County and Washington State , 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

From 2006 to 2010, the proportion of pregnant women seeking prenatal care within the first trimester remained stable for Whitman County and increased significantly by 2% for Washington State. During 2006 to 2010, a significantly higher proportion of births were born to women who began prenatal care within the first trimester for Whitman County (80.9%) compared to the state (77.9%) (Figure 35).

FIGURE 36 | FIRST TRIMESTER PRENATAL CARE BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

During 2006 to 2010 in Whitman County, the proportion of pregnant women receiving prenatal care within the first trimester significantly increased as age increased. Women in the youngest age group had the lowest rate of first trimester prenatal care, while women in their 30s and 40s had the highest rate (Figure 36).

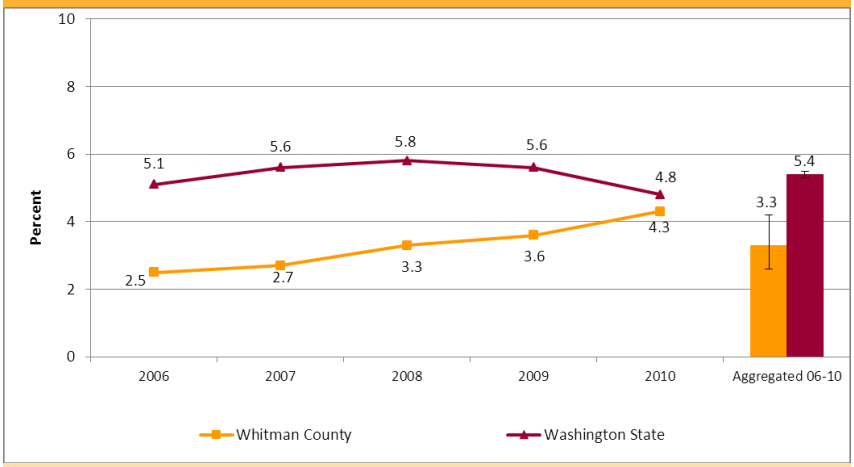
As education increased, the likelihood of pregnant women receiving prenatal care in the first trimester increased in Whitman County. Pregnant women with at least some college education were significantly more likely to receive prenatal care in the first trimester than women with a high school education or less (Figure 36).

In Whitman County, a significantly lower proportion of pregnant women on Medicaid received prenatal care in the first trimester compared to women not on Medicaid. Women on Medicaid were approximately two times less likely to begin prenatal care in the first trimester (Figure 36).

Prenatal Care: Late or No

Late prenatal care is defined as births where the pregnant mother began prenatal care in the third trimester. No prenatal care is defined as births where the pregnant mother did not receive any prenatal care during the pregnancy. Late or no prenatal care significantly decreases the likelihood of a pregnant mother delivering a healthy infant of normal birth weight. Mothers who do not receive timely prenatal care are three times more likely to give birth to a low-weight baby, and their baby is five times more likely to die.[38] In addition, late or no prenatal care postpones or eliminates the opportunity for health care providers to educate expectant mothers on high risk behaviors and to detect and treat pregnancy-related conditions or complications that may affect fetal development. Health care providers can educate mothers on important health issues, such as their diet and nutrition, exercise, immunizations, weight gain, and abstaining from drugs and alcohol. Health professionals also have an opportunity to instruct expecting parents on nutrition for their newborn, the benefits of breastfeeding, and injury and illness prevention, as well as monitor for health-compromising conditions, and help them prepare for the new emotional challenges of caring for an infant.[39]

FIGURE 37 | LATE (THIRD TRIMESTER) OR NO PRENATAL CARE | Whitman County and Washington State, 2006-2010

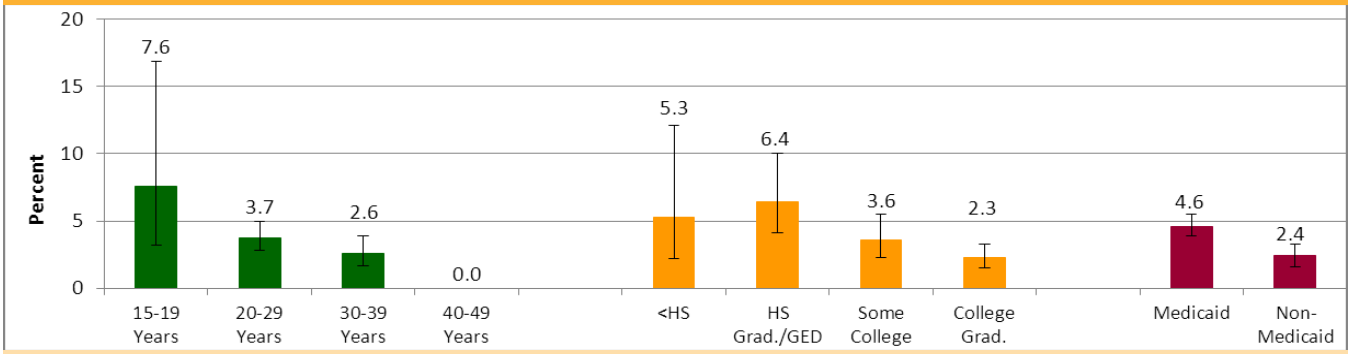


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

From 2006 to 2010 in Whitman County, the trend remained stable for pregnant women receiving late or no prenatal care. In Washington State, the trend increased significantly from 2006 to 2008 by 14%, however decreased significantly by 17% from 2008 to 2010. During 2006 to 2010, Whitman County had a significantly lower proportion of late or no prenatal care (Figure 37).

During 2006 to 2010 in Whitman County, the percent of births to women with late or no prenatal care significantly decreased as age increased. Pregnant women with a lower education were more likely to receive late or no prenatal care in Whitman County than women with a higher education. Women on Medicaid were two times more likely to delay prenatal care or not receive any prenatal care than women not on Medicaid in Whitman County (Figure 38).

FIGURE 38 | LATE (THIRD TRIMESTER) OR NO PRENATAL CARE BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Folic Acid

Adequate folate intake during the preconception period (the time right before and just after a woman becomes pregnant) helps protect against a number of congenital malformations, including neural tube defects. Neural tube defects are the most notable birth defects that occur from folate deficiency.[40] Neural tube defects produce malformations of the spine, skull, and brain, including spina bifida and anencephaly. The risk of neural tube defects is significantly reduced when supplemental folic acid is consumed in addition to a healthy diet before conception and during the first month after conception.[41, 42] Supplementation with folic acid has also been shown to reduce the risk of congenital heart defects, cleft lips,[43] limb defects, and urinary tract anomalies.[44] Folate deficiency during pregnancy may also increase the risk of preterm delivery, infant low birth weight, and fetal growth retardation, as well as increasing homocysteine level in the blood, which may lead to spontaneous abortion and pregnancy complications, such as placental abruption and pre-eclampsia.[45] Women who could become pregnant are advised to eat foods fortified with folic acid or take supplements in addition to eating folate-rich foods to reduce the risk of serious birth defects.[46] Taking 400 µg daily through a multivitamin or other means can reduce the risk of a neural tube defect by 50%.[47, 48]

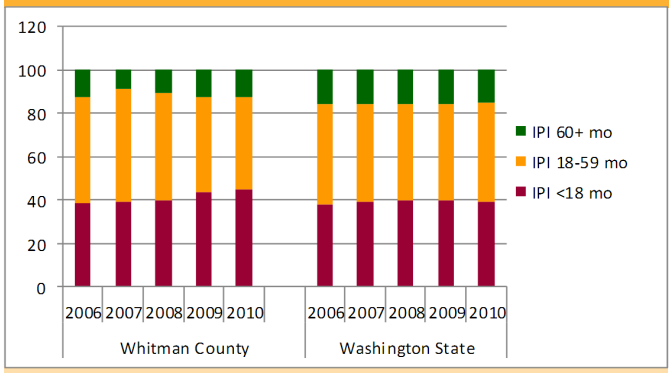
Due to limited data on folic acid for Whitman County from 2006 to 2010, data could not be aggregated or stratified for review. An assessment on folic acid was not conducted by reason of data limitation.

Interpregnancy Interval

The interpregnancy interval (IPI) is the amount of time between pregnancies. It is calculated from the date of the last pregnancy outcome (birth, fetal death, or other) to the date of the last menstrual cycle. Women with a short (<18 months) or long (60+ months) IPI are more likely to experience a poor birth outcome, such as preterm birth, low birth weight, or small for gestational age. The risk of a poor birth outcome among women with a short IPI is on a gradient scale with a shorter interval (<6 month) having a higher risk than women with an interval of 6-18 months. Possible explanations for these associations are nutritional depletion for short intervals and physiological regression for long intervals. Interpregnancy intervals were categorized as short (<18 months), medium (18-59 months), and long (60+ months).[49, 50, 51, 52, 53]

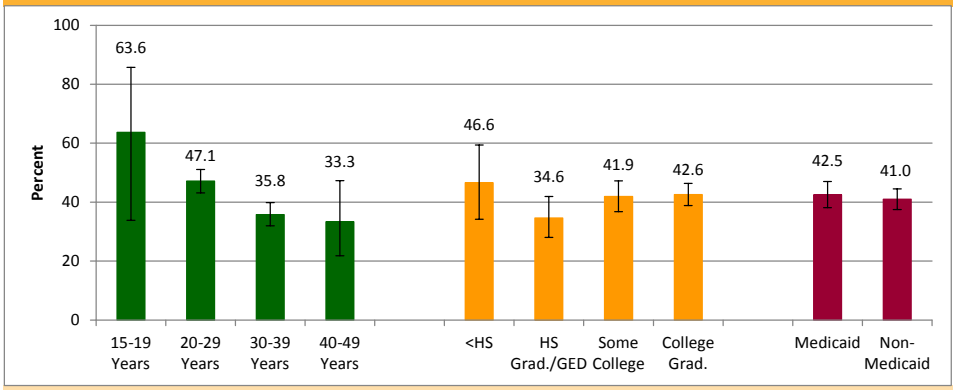
In 2010, nearly half of Whitman County births had an interpregnancy interval of less than 18 months. The statewide proportion was lower, but not significantly different than Whitman County. The proportion of births with a short interpregnancy interval increased by 16% in Whitman County from 2006 to 2010; this was a not a significant increase. Births with a short interpregnancy interval remained stable for Washington State from 2006 to 2010 (Figure 39).

FIGURE 38 | INTERPREGNANCY INTERVAL | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

FIGURE 39 | BIRTHS WITH A SHORT INTERPREGNANCY INTERVAL BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman county, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

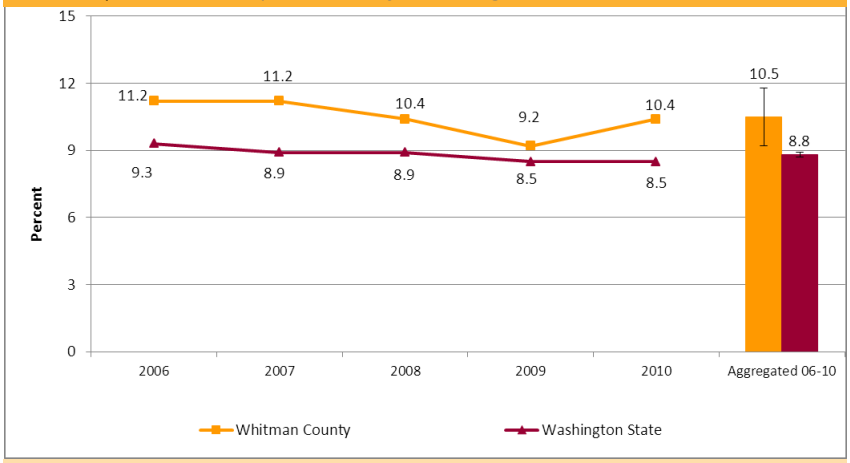
During 2006 to 2010 in Whitman County, having a short interpregnancy interval decreased as age group increased and having a long interpregnancy interval increased as age group increased (Figure 39).

There were no statistically significant differences in the interpregnancy interval by maternal education level or whether the mother was on Medicaid (Figure 39).

Preterm Birth

Preterm birth is defined as childbirth occurring earlier than 37 completed weeks of pregnancy. In the United States, one in eight births are premature.[54] Infants born prematurely have an increased risk of health complications, including infant mortality, and are at a greater risk for developing long-term disabilities and conditions, such as cerebral palsy, chronic lung disease, gastrointestinal problems, and vision and hearing loss. The risk of adverse outcomes is directly related to the length of a woman's pregnancy; the shorter the term of the pregnancy, the greater the risk the newborn has for complications and disabilities, ranging from mild to severe.[55]

FIGURE 40 | PRETERM BIRTHS | Whitman County and Washington State , 2006-2010

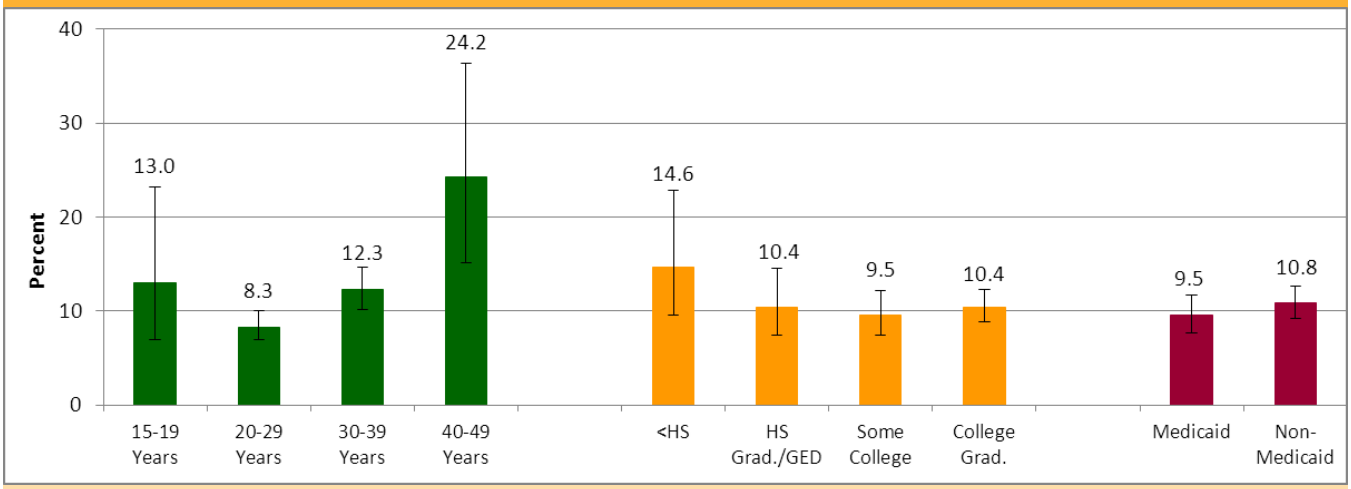


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

The proportion of preterm births remained stable for Whitman County from 2006 to 2010, however significantly decreased by approximately 9% for Washington State. During 2006 to 2010, a significantly higher proportion of births were premature in Whitman County (10.5%) compared to Washington State (8.8%). Pregnant women in Whitman County were 1.2 times more likely to have a preterm birth than pregnant women statewide (Figure 40).

During 2006 to 2010 in Whitman County, the rate of preterm birth was highest among women 40-49 years of age. Approximately one in four births among pregnant women in their 40s was a premature birth. There was no difference in the rate of premature births by education or Medicaid status (Figure 41).

FIGURE 41 | PRETERM BIRTHS BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010

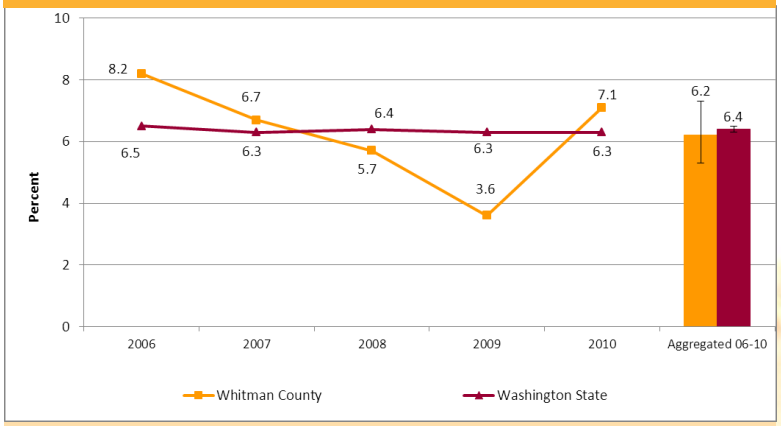


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Low Birth Weight

Low birth weight is defined as <2,500 grams (5.5 pounds). About one in every 13 infants born in the United States is born with low birth weight (approximately 8%) and 67% of low birth weight infants are born prematurely.[56] Infants who are low birth weight have a 25% chance of dying before the age of one. More than three-quarters of infant deaths are caused by babies being born too small or too early.[57] Low birth weight infants have higher rates of subnormal growth and of adverse health conditions. They are also at an increased risk of serious health problems as newborns, of developmental problems, of lasting disabilities, and even of death.[58]

FIGURE 42 | LOW BIRTH WEIGHT | Whitman County and Washington State , 2006-2010

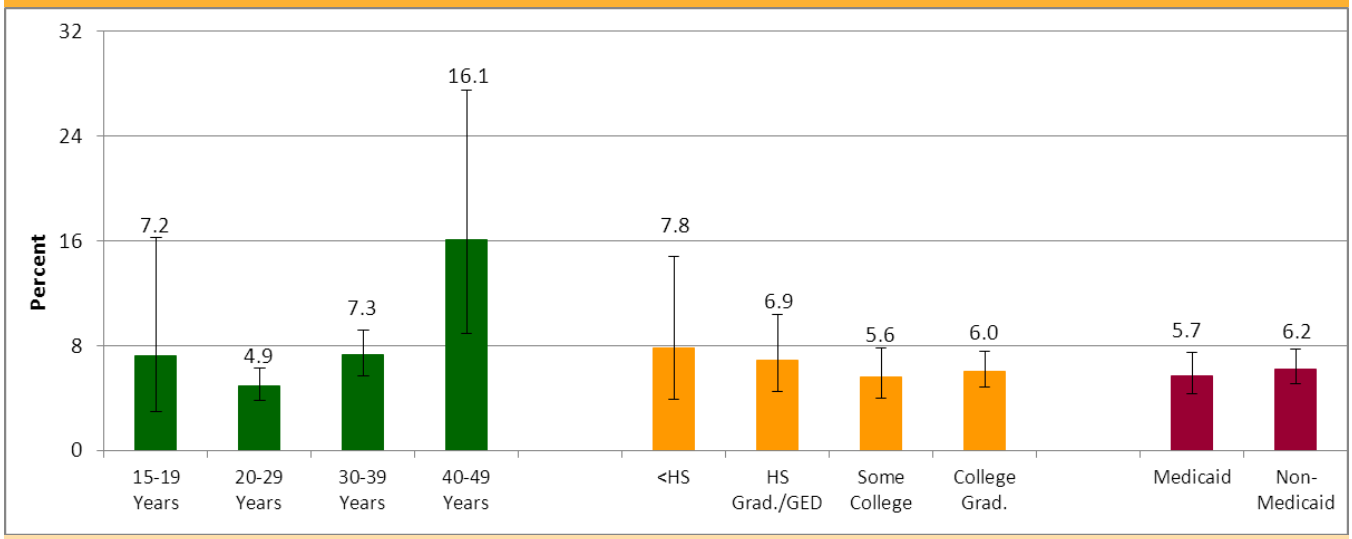


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

In Whitman County, the proportion of births with low birth weight decreased significantly from 2006 to 2010 by 56%, but in 2010 the proportion increased significantly by 97%. For Washington State, the trend remained stable from 2006 to 2010. During 2006 to 2010, there was no difference in the proportion of births with low birth weight between Whitman County and Washington State (Figure 42).

During 2006 to 2010 in Whitman County, women in their 40s had a significantly higher proportion of low birth weight births compared to women in their 20s and 30s. Approximately one in six births among pregnant women in their 40s resulted in a low birth weight infant. There was no difference in the proportion of low birth weight infants by education and Medicaid status (Figure 43).

FIGURE 43 | LOW BIRTH WEIGHT BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010

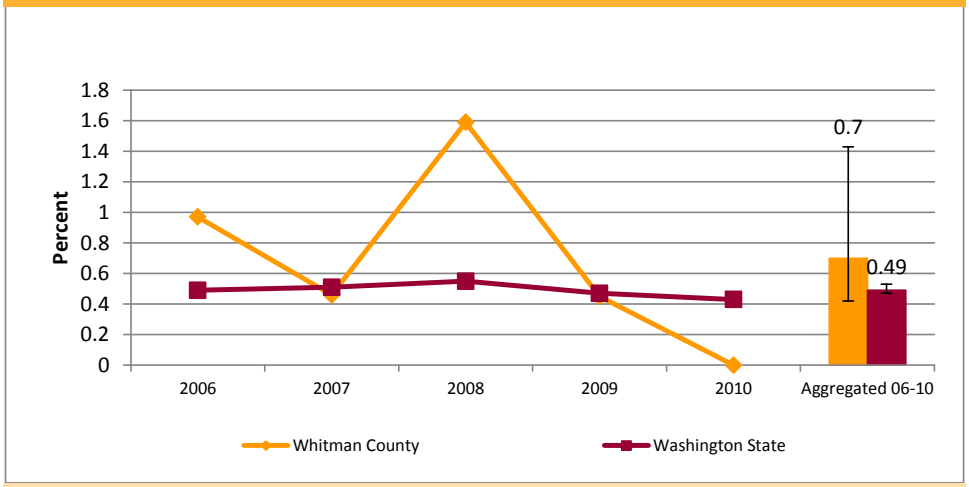


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Congenital Anomalies

Congenital anomalies are birth defects that cause structural changes in one or more parts of the body which are recognizable at birth and are significant enough to be considered a problem.[59] About one in every 33 babies is born with a birth defect.[60] Birth defects are a leading cause of infant death, accounting for more than one of every five infant deaths.[61] In addition, babies born with birth defects have a greater chance of illness and long-term disability than babies without birth defects.[62] Women who smoke, drink alcohol, or take certain drugs during their pregnancy have a higher chance of having a child with a birth defect. In addition, women with certain medical conditions, such as uncontrolled diabetes or obesity before or during pregnancy, and women over the age of 35 years are also at risk of having a child with a birth defect. Birth defects noted on the birth certificate include physical structural defects and chromosomal defects.[63] Two common congenital anomalies are orofacial clefts, such as cleft lip or cleft palate, and chromosomal disorders, such as Down syndrome.[64]

FIGURE 44 | CONGENITAL ANOMALIES IDENTIFIED AT BIRTH | Whitman County and Washington State, 2006-2010



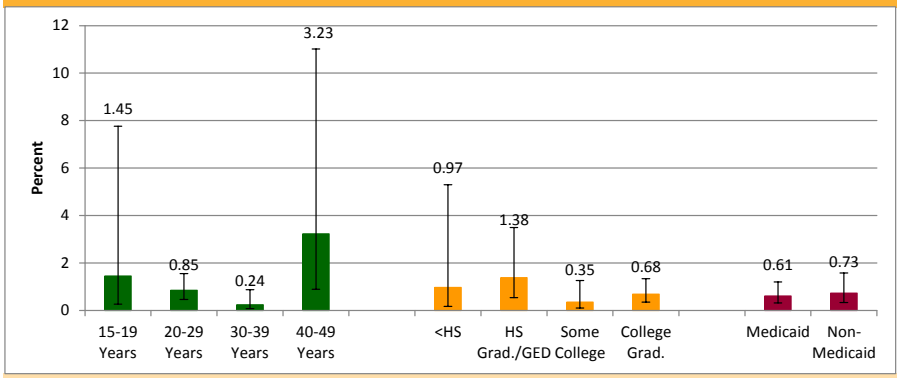
Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

In 2010, none of the Whitman County births had a congenital anomaly observed within the first 24 hours after delivery. The statewide proportion was not significantly different from that in Whitman County. A trend analysis for Whitman County is not reported due to the small number of cases per year. The proportion of births statewide with a congenital anomaly decreased 12% from 2006 to 2010; this was a statistically significant decrease (Figure 44).

During 2006 to 2010, there were a significantly higher proportion of births with a congenital anomaly among mothers 40-49 years of age in Whitman County compared to younger mothers. Women in their 40s were 5.3 times more likely to have a newborn with a congenital anomaly (Figure 45).

There were no statistically significant differences in the proportion of newborns with a congenital anomaly by maternal education level or whether the mother was on Medicaid (Figure 45).

FIGURE 45 | CONGENITAL ANOMALIES IDENTIFIED AT BIRTH BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Hospitalizations

During 2006-2010, the average length of stay in a hospital for a newborn for Whitman County 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 10 days. Preterm infants were 12 times less likely to be healthy when compared to full-term infants. Among full-term infants, 95.1% were healthy. Comparatively, 61.1% of preterm infants were healthy. On hospitalization records, 7.6% of newborns were identified as preterm, which is less than the proportion identified using the birth certificate data.

Hospitalization Cost

The average charge for a newborn hospitalization was about $6,400 in Whitman County. Infants born preterm and infants who were not healthy and were hospitalized longer than three days had substantially higher average charges than full-term or healthy infants. Although 7% of newborn hospitalizations were for preterm births, they accounted for nearly half of the total charges. Similarly, one in 10 newborn hospitalizations were for infants who were not healthy; these hospitalizations accounted for more than three-quarters of the total charges (Figure 46).

FIGURE 46 | HOSPITAL CHARGES FOR NEWBORNS | Whitman County, 2006-2010

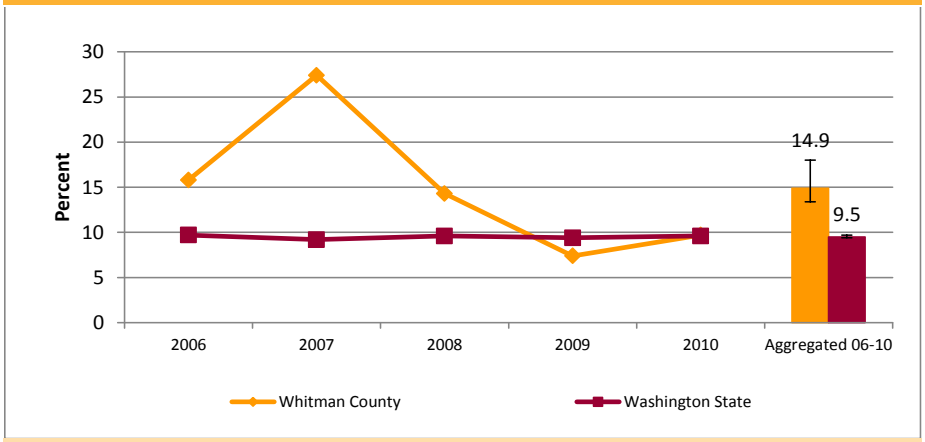
	Average Charges	Percent of Total Charges
All newborns	$6,409	100%
Full-term newborns	$3,997	58%
Preterm newborns	$35,914	42%
Healthy newborns	$2,008	29%
Unhealthy newborns	$61,020	71%

Data Source: Comprehensive Abstract Reporting System (CHARS), Washington State Department of Health, Office of Hospital and Patient Data Systems, 2006-2010

Conditions Requiring Medical Attention

Conditions that required medical attention for the newborn in the first 24 hours are listed on birth certificates. They include: needing assisted ventilation, admission to the newborn intensive care unit (NICU), receipt of surfactant replacement therapy, neonatal sepsis, seizure or serious neurologic dysfunction, or a significant birth injury.

FIGURE 47 | BIRTHS WITH A CONDITION REQUIRING MEDICAL ATTENTION | Whitman County and Washington State, 2006-2010

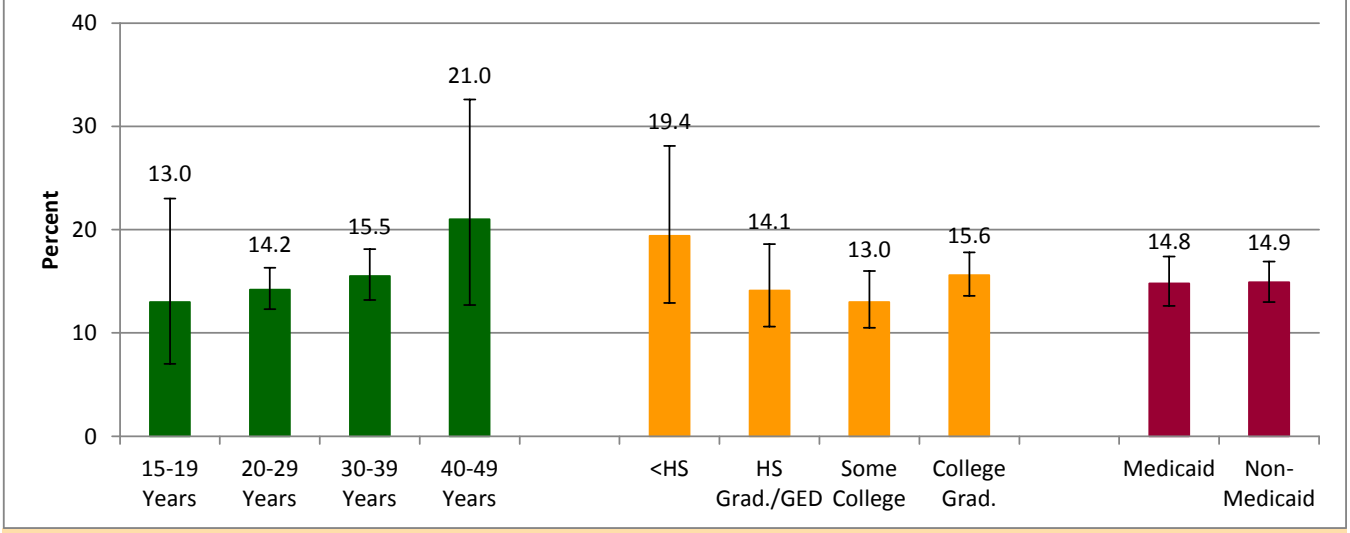


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

In 2010, approximately one in 10 Whitman County births had a condition that required medical attention in the first 24 hours. The statewide proportion was similar to Whitman County. The proportion of births with a condition requiring medical attention decreased by 38% in Whitman County from 2006 to 2010; this was a significant decrease. Births with a condition requiring medical attention remained stable for Washington State from 2006 to 2010 (Figure 47).

During 2006 to 2010, there were no statistically significant differences in the proportion of births requiring medical attention by maternal age, maternal education level, or whether the mother was on Medicaid (Figure 48).

FIGURE 48 | BIRTHS WITH A CONDITION REQUIRING MEDICAL ATTENTION BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010

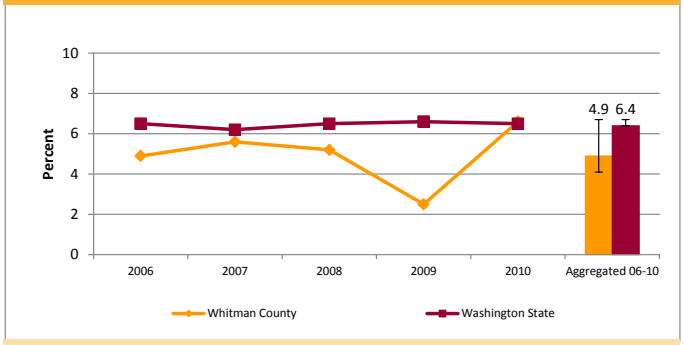


Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Newborn Intensive Care Unit (NICU)

The Newborn Intensive Care Unit (NICU) is an intensive care unit created for sick newborns who need specialized treatment. Babies who require admission to the NICU are often admitted within the first 24 hours after birth. Babies may be sent to the NICU if they are born prematurely, are low birth weight, experience a difficult delivery, are diagnosed with a medical condition and/or disease, or show signs of a problem in the first few days of life.[65, 66] Usually, very young babies who have not gone home yet are treated in the NICU after being born. The length of stay in the NICU depends on the severity of the illness.

FIGURE 49 | NEWBORNS ADMITTED TO NICU BY AGE GROUP, EDUCATION, AND MEDICAID | Whitman County, 2006-2010



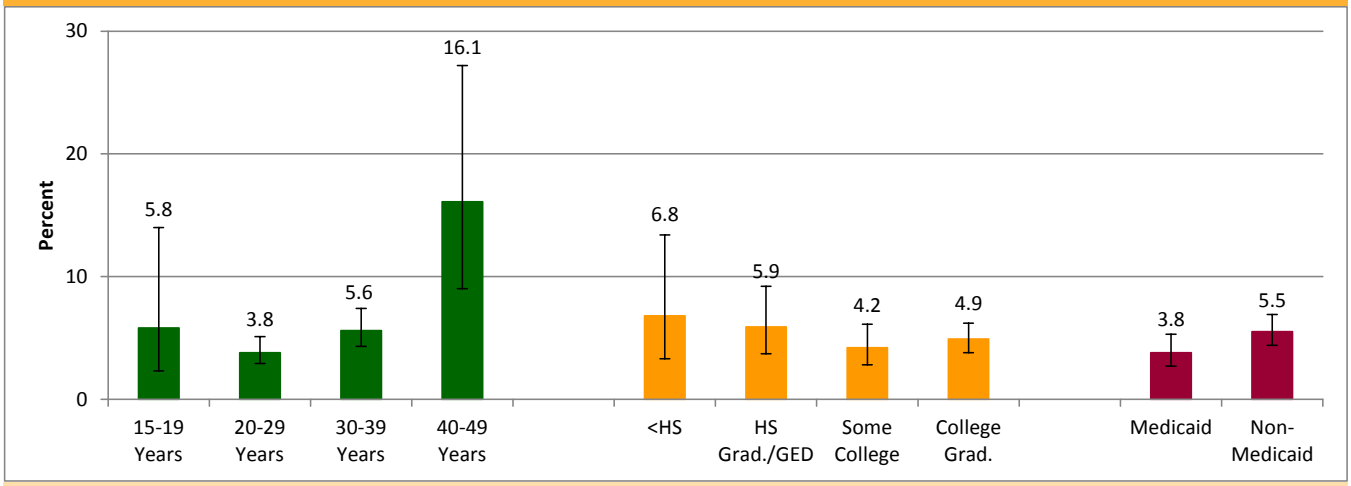
Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

In 2010, approximately one in 20 Whitman County newborns were admitted to the newborn intensive care unit (NICU) at birth. The statewide proportion was similar to Whitman County. The proportion of newborns admitted to the NICU increased by 37% in Whitman County from 2006 to 2010; however this was not a significant increase. The proportion of newborns admitted to the NICU remained stable for Washington State from 2006 to 2010 (Figure 49).

During 2006 to 2010, there was a significantly higher proportion of newborns admitted to the NICU among mothers 40-49 years of age in Whitman County compared to younger mothers. Women in their 40s were four times more likely to have their newborn admitted to the NICU (Figure 50).

There were no statistically significant differences in the proportion of newborns admitted to the NICU by maternal education level or whether the mother was on Medicaid (Figure 50).

FIGURE 50 | NEWBORNS ADMITTED TO NICU | Whitman County and Washington State, 2006-2010



Data Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics, 2006-2010

Infant Mortality

Infant mortality is a useful indicator for the level of health in a community. It is defined as the number of deaths of infants younger than one year of age, per 1,000 live births for a given period of time. Infant mortality is related to the underlying health of the mother, public health practices, socioeconomic conditions, and the availability and use of appropriate health care for infants and pregnant women.[67] Two-thirds of infant deaths occur in the first month after birth and are primarily due to health problems of the infant or the pregnancy (preterm delivery or birth defects), sudden infant death syndrome (SIDS), or injuries (suffocation).[68] Infant deaths occurring after the first month are influenced greatly by social or environmental factors, such as exposure to cigarette smoke or problems with access to health care.[69]

Due to the few cases identified as infant mortality for Whitman County from 2006 to 2010, data could not be aggregated or stratified for review. An assessment on infant mortality was not conducted by reason of data limitation.

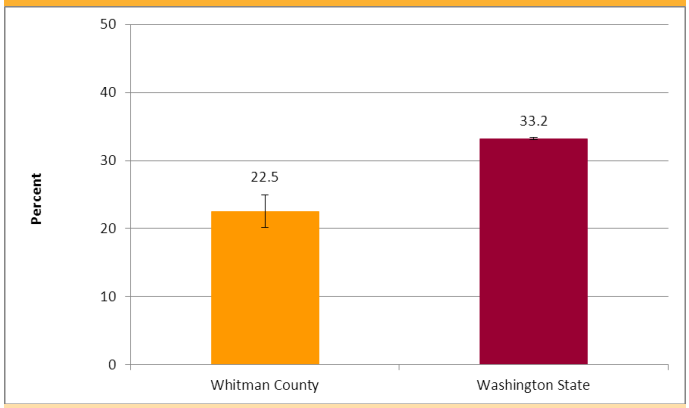
Sudden Infant Death Syndrome (SIDS)

Nationally, Sudden Infant Death Syndrome (SIDS) is the leading cause of death in infants between one to 12 months old and is responsible for roughly one death per 200,000 live births.[70] Most SIDS cases occur when an infant is between two and four months of age. Nine out of 10 SIDS victims die before six months. SIDS is a syndrome that can strike without warning and is marked by the sudden and unexplained death of an apparently healthy infant younger than one year. There is no proven method for preventing SIDS, and health care providers do not know specifically what causes SIDS.[71] A current trend in monitoring infant deaths is to monitor Sudden Unexplained Infant Deaths (SUID). Approximately half of SUID deaths are attributed to SIDS. Other causes of SUID include overlaying and suffocation. Risk factors associated with increased probability of SIDS include: infants sleeping on their stomach or side, infants sleeping on a soft surface/bedding or sleeping in an adult bed, bed sharing with an adult or another child, loose bedding around a sleeping infant, overheating of a sleeping infant, mother smoking during her pregnancy, newborn infant exposed to second-hand smoke, preterm pregnancy, low birth weight, delayed or no prenatal care, maternal drug and/or alcohol use, subsequent births less than one year apart, and teenage pregnancy. The American Academy of Pediatrics provides recommendations to reduce the risk of SIDS. They include: always placing an infant to sleep on their back when sleeping, placing an infant in a safety approved crib, and not placing an infant to sleep on an adult bed or other non-infant sleeping location.[72]

Due to the few cases identified as SIDS for Whitman County from 2006 to 2010, data could not be aggregated or stratified for review. An assessment on SIDS was not conducted by reason of data limitation.

Body Mass Index (BMI) of WIC Enrollees (2-5 years)

FIGURE 51 | WIC ENROLLEES AGES 2-5 YEARS WITH A BMI AT OR ABOVE THE 85TH PERCENTILE | Whitman County and Washington State, 2009-2011



Data Source: WIC Client Data

Having a BMI at or above the 85th percentile indicates the child is overweight or obese and runs a greater chance of increased health risks due to their weight.

Slightly more than two in 10 children ages two to five years enrolled in WIC for Whitman County were overweight or obese. This is significantly less than Washington State which had three in 10 children who were overweight or obese (Figure 51).

Children with Special Health Care Needs (CSHCN)

Children with special health care needs are children who have serious physical, behavioral, or emotional conditions that require health and related services beyond those required by children generally. In Washington State, children with special health care needs may participate in the Children with Special Health Care Needs Program. Children who participate in this program must be under 18 years of age at initial enrollment and have, or be at risk of developing, a serious or chronic condition such as: diabetes, neuromuscular disorders, cancer, AIDS, sickle cell anemia, asthma, cystic fibrosis, hearing or visual impairments, cleft palate, kidney disease, ventilator dependency, or metabolic disease. Some children who are already part of the program may be able to continue services until their 21st birthday, for purposes of transition to adult care.[73]

The Washington State rates of early and continuous screening and youth transition to adult services are statistically higher than the National rate. The percentage of parents in Washington State who report "services are organized in a way families can use them easily," is statistically lower than the National rate. All other Washington State National Performance Measure data are similar to National data.

FIGURE 52 | NATIONAL PERFORMANCE MEASURES, NS-CSHCN* | Washington State and United States, 2005-2006

National Performance Measures	Washington	United States
Family-Professional Partnership	56%	57%
Medical Home	48%	47%
Adequate Health Insurance	65%	62%
Early and Continuous Screening	69%	64%
Community–Based Services	85%	89%
Transition to Adult Life	47%	41%

Data Source: Child and Adolescent Health Measurement Initiative. 2005/06 National Survey of Children with Special Health Care Needs, Data Resource Center for Child and Adolescent Health Website.
**National Survey of Children with Special Health Care Needs*

The Maternal and Child Health Bureau requires State Title V Children with Special Health Care Needs Programs to report on six national performance measures. These performance measures are:

1. **Families of children and youth with special health care needs are partners in decision-making at all levels and are satisfied with the services they receive.** Family-professional partnerships ensure that a family participates as partner in decision-making with professionals at all levels in their child's care and that the family is satisfied with all health services the child receives. Family-centered care honors the strengths, cultures, traditions, and expertise that everyone brings to a family-professional partnership.[73]
2. **Children and youth with special health care needs receive coordinated comprehensive care within a medical home.** A Medical Home is an approach to delivering primary health care through a team partnership that ensures health care services are provided in a high quality and comprehensive manner.[74]
3. **Families of children and youth with special health care needs have adequate private and/or public insurance to pay for the services they need.** Adequate health insurance is the extent to which children with special health care needs have access to public or private insurance that meets their needs.[75]
4. **Children are screened early and continuously for special health care needs.** Early and continuous screening uses tools to identify children with special health care needs as early as possible so families can receive appropriate services to address those needs. Continuous screenings also help identify and prevent secondary conditions that interfere with a child's development and well-being.[75]

5. **Community-based services for children and youth with special health care needs are organized so families can use them easily.** Community-based services allow families of children and youth with special health care needs the opportunity to easily access health care providers, schools, and other needed services in their home area or neighborhood. It is a system of services provided to meet the needs of families from all cultures and languages.[75]
6. **Youth with special health care needs receive the services necessary to make transitions to all aspects of adult life, including health care, work, and independence.** Transition to adult life is the process of preparing a young adult with special needs for adult life. Adult life includes adult health care, work, and independence. Transition requires coordination and communication between families and youth with special health care needs and their care providers. This is particularly relevant in the transition from pediatric to adult health care.[75]

The performance measures are used to measure progress towards the overall goal of providing and promoting family-centered, community-based, and coordinated care for children and youth with special health care needs. It is also to facilitate the development of community-based systems of services for such children, youth, and their families. Information on what Washington State is doing related to the national performance measures in order to achieve the overall goal related to the national performance measures is provided (Figure 52).[75]

INDICATOR DATA FOR WHITMAN COUNTY AND WASHINGTON

	Whitman County	Washington State	Year of Data	Change Over Time (06-10)	15-19 Years of Age	20-29 Years of Age	30-39 Years of Age	40-49 Years of Age	Low Education	Low Income (Medicaid)
Medical Risks				2006-2010						
Maternal Mortality*	0.0	0.1	06-10	ne	ne	ne	ne	ne	ne	ne
Cesarean Section	40.5%	29.4%	2010	●	○	○	●	●	○	○
Infectious Diseases and STDs	7.4%	8.8%	2010	○	○	○	○	○	○	●
Gestational Diabetes	7.6%	6.4%	2010	○	○	○	○	○	○	○
Previous Preterm Birth	3.8%	2.4%	2010	ne	○	○	○	○	●	○
High Blood Pressure	9.7%	6.7%	2010	○	○	○	○	●	○	○
Group B Strep	18.2%	18.0%	2010	●	○	○	○	●	◐	◐
Behavioral Risks										
Maternal Smoking	9.0%	9.2%	2010	○	●	○	○	○	●	●
Prenatal Care: First Trimester	81.4%	80.1%	2010	○	●	◐	◐	○	●	●
Prenatal Care: Late or No	4.3%	4.8%	2010	○	●	○	○	◐	●	●
Short Interpregnancy Interval	45.0%	39.3%	2010	○	●	○	○	◐	○	○
Infant Health – Birth Outcomes										
Preterm Birth	10.4%	8.5%	2010	○	○	○	○	●	○	○
Low Birth Weight	7.1%	6.3%	2010	◐	○	○	○	●	○	○
Congenital Anomalies	0.0%	0.4%	2010	ne	○	○	○	●	○	○
Conditions Requiring Medical Attention	9.7%	9.6%	2010	◐	○	○	○	○	○	○
Newborn Intensive Care Unit (NICU)	6.6%	6.5%	2010	○	○	○	○	●	○	○
Child Health										
Teen Pregnancy**	3.8%	26.7%	2010	◐	ne	ne	ne	ne	ne	ne
% WIC Enrollees 2-5 Years Overweight	23%	33.2%	09-11	ne	ne	ne	ne	ne	ne	ne

* = rate per 100,000 live births

** = rate per 1,000 live births

ne = not evaluated

◐ = Decreased risk or better over time

● = Increased risk or worse over time

○ = No significant difference

GLOSSARY

Age specific fertility rate – Measures the number of live births to women in a specified age range per 1,000 women in that age range.

Birth – The complete expulsion or extraction of a product of human conception from its mother, irrespective of the duration of pregnancy, which, after such expulsion or extraction breathes, or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

Body mass index (BMI) – A standardized estimate of an individual's relative body fat calculated from his or her height and weight. The formula for calculating BMI is weight in kilograms (kg) divided by height in meters (m) squared. BMI can help classify weight as follows:

BMI = <18.5 Underweight

BMI = 18.5-24.9 Normal weight

BMI = 25-29.9 Overweight

BMI = >= 30 Obese

Cesarean section – The delivery of a baby through a surgical incision in the pregnant mother's abdomen and uterus and is considered a major surgery.

Children with special health care needs – Are children who have serious physical, behavioral, or emotional conditions that require health and related services beyond those required by children generally.

Congenital anomalies – Birth defects that cause structural changes in one or more parts of the body which are recognizable at birth and are significant enough to be considered a problem.

Federal poverty level (FPL) – The set minimum amount of gross income that a family needs for food, clothing, transportation, shelter, and other necessities. In the United States, this level is determined by the Department of Health and Human Services. FPL varies according to family size. The number is adjusted for inflation and reported annually in the form of poverty guidelines. Public assistance programs, such as Medicaid in the U.S., define eligibility income limits as some percentage of FPL.

First trimester prenatal care – Is defined as births where the pregnant mother began prenatal care in the first trimester.

Folic acid – Vitamin belonging to the vitamin B complex that is necessary for the formation of red blood cells and important in embryonic development.

General fertility rate – Measures the number of live births occurring per 1,000 women between 15-49 years of age in a particular year.

Gestational diabetes mellitus (GDM) – Diabetes diagnosed during a woman's pregnancy.

Group B streptococcus – A bacteria normally found in the body of many people that may not cause any symptoms or illness.

Infant mortality – Defined as the number of deaths of infants younger than one year of age per 1,000 live births for a given period of time.

Interpregnancy interval (IPI) – The amount of time between pregnancies. It is calculated from the date of the last pregnancy outcome (birth, fetal death, or other) to the date of the last menstrual cycle.

Late prenatal care – Is defined as births where the pregnant mother began prenatal care in the third trimester.

Low birth weight – Defined as an infant weighing <2,500 grams (5.5 pounds) at birth.

Maternal mortality – Defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Maternal smoking – Smoking during a woman's pregnancy.

Medicaid – Provides health coverage to some low-income Washington State residents. Medicaid covers families with children and pregnant women, medically needy individuals, the elderly, and people with disabilities, if state and federal guidelines are met.

Newborn Intensive Care Unit – Intensive care unit created for sick newborns that need specialized treatment.

Prenatal care – Refers to the medical attention received by a woman before and during her pregnancy, specifically addressing her well-being during the pregnancy and caring for the development of the baby.

Preterm birth (Premature) – Childbirth occurring earlier than 37 completed weeks of pregnancy.

Socio-economic status (SES) – The social standing of an individual or group in terms of their income, education, employment, race/ethnicity, and marital status.

Sudden Infant Death Syndrome (SIDS) – The unexplained death, usually during sleep, of a seemingly healthy baby.

Supplemental Nutrition Assistance Program (SNAP) – Provides benefits to individuals and families with gross monthly incomes below 130% of federal poverty level and whose resources are below established limits. The program is comprised of the federal Food Stamp Program (FSP) and the state Food Assistance Program for legal immigrants ineligible for the federal FSP.

Temporary Assistance for Needy Families (TANF) – Provides temporary cash and medical help for families in need.

Trimester – The duration of the human pregnancy, approximately 266 days, divided by three, resulting in three equal time periods equaling 88.67 days, or 12.67 weeks, or approximately three months each. Gestation weeks one through 12 are considered the first trimester of pregnancy; weeks 13 through 24 are considered the second trimester; and over 24 weeks, the third trimester.

Women, Infants, and Children (WIC) – Serves low-income pregnant women and families with children younger than five years of age. WIC provides education and counseling on nutrition, breastfeeding, and accessing health care or other social services.

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