

# Preconception & Interconception Health, Utah 2009-2011

Utah 2013

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# INTRODUCTION

## Background

Improving the health of women from menarche to menopause, in the context of their individual reproductive goals, is an important focus of public health. These improvements affect the health of not just women, but their children, families, and society as a whole. Through a combination of effective clinical practice, public health programming, and education, women can achieve optimal health before, during, and after pregnancy. Improving women's health during their reproductive years is an ongoing process that should be integrated into every health encounter and tailored to individual women across their reproductive lifespan, regardless of whether they plan to have children.

*"While most women know that improving their health once they become pregnant is important many women don't know that improving their health before pregnancy—even long before it's a consideration—is also important for the health of a mother-to-be and her baby." Show Your Love, CDC Communication<sup>5</sup>*

The U.S. Centers for Disease Control and Prevention (CDC) defines preconception health as the health of both men and women throughout their reproductive years. Preconception care is a defined set of interventions aimed at identifying and altering risks that affect a woman's health, as well as her future pregnancies.<sup>1</sup> The CDC emphasizes that preconception care "is not limited to a single visit to a health professional, but is a process of care that is designed to meet the needs of a woman during the different stages of her reproductive life."<sup>1</sup> Implementing interventions and providing assistance for women with risk factors prior to pregnancy are important steps to improving the health of both mother and child. Preconception interventions may target biological, behavioral, and social risk factors with the goal of positively affecting maternal and child health.<sup>1</sup> Emphasizing the importance of primary prevention and preconception care is vital to improving the health of mothers and children across Utah and throughout the United States.

Providing women with resources and educational materials prior to pregnancy is particularly important in nurturing optimal health for women of reproductive age. Unhealthy behaviors and certain exposures during the first few weeks of pregnancy can negatively affect fetal development and pregnancy outcomes.<sup>1</sup> During this early period, women may not even be aware they are pregnant, yet poor nutrition and lack of folic acid, exposure to alcohol, tobacco, and drugs, unmanaged chronic conditions, exposure to certain medications, undiagnosed genetic conditions, and environmental exposures can adversely affect fetal development and may increase the risk of complications and poor outcomes for both mother and baby.<sup>1-2</sup> Given that 1 out of 3 women in Utah have an unintended pregnancy, it is important for all women of reproductive age to participate in healthy behaviors, manage chronic conditions, and receive routine preventive care regardless of their immediate reproductive goals.

National programs have been developed to monitor and improve the health of Americans. Many of the benchmarks for success are based on the Healthy People 2020 (HP 2020) objectives. The Department of Health and Human Services created the Healthy People Initiative in 1990 with the intention of measuring baseline data, setting 10-year goals, monitoring outcomes, and evaluating efforts. HP2020 represents the 4<sup>th</sup> iteration of Healthy People objectives. Many of the goals focus on maternal and child health (MCH) and health care. Large scale reports such as this one can serve to align health research, strategies, and resources, as well as identify emerging priorities in the field of MCH.<sup>3</sup>

In 2006, the CDC released a Morbidity and Mortality Weekly Report (MMWR) that included recommendations to improve preconception health and health care. These recommendations include: individual responsibility across the lifespan; consumer awareness; preventive visits; interventions for identified risks; interconception care; prepregnancy checkups; health insurance coverage for women with low incomes; public health programs and strategies; research; and monitoring improvements. As a follow up, the CDC Public Health Work group was assembled in 2007 to define key health measures for women of reproductive age in order to measure progress in improvements.<sup>1</sup> There were 11 domains and 45 indicators chosen as priorities in the field of preconception health. These health domains include general health status and life satisfaction, social determinants of health, health care, reproductive and family planning, tobacco, alcohol, and substance use, nutrition and physical activity, mental health, emotional and social support, chronic conditions, and infections. The identification of these indicators created a nationwide standard for monitoring and evaluating the health of females between the ages of 18 and 44.<sup>4</sup>

In 2010, Utah began a statewide preconception campaign called *Power Your Life*. The project kicked off with a 6-month social media outreach campaign designed to raise awareness of and promote healthy behaviors of women before pregnancy. The overall goals of *Power Your Life* were to raise awareness of preconception health and increase consumption of folic acid. The objectives were to raise awareness of and promote healthy behaviors for young women before they become pregnant, including proper nutrition and exercise, regular consumption of vitamins with folic acid, knowledge of family history, keeping up to date on vaccinations, avoidance of tobacco, alcohol, and other substances, prevention of risky sexual behaviors leading to unplanned pregnancy or sexually transmitted infections, and sustaining healthy relationships. The targeted campaign increased awareness of folic acid by 13%. Additionally, young women who had heard of the campaign were 3 times more likely to consider taking folic acid. Awareness of the campaign also increased by seven-fold the likelihood of an individual's taking a daily multivitamin. Although the canvassing portion of the campaign has come to an end, the Utah Department of Health (UDOH) continues to maintain the website, ([www.poweryourlife.org](http://www.poweryourlife.org)), provide education, and make resources available to women of reproductive age. *Power Your Life* also has resources for health care providers.

*"Living a healthy lifestyle is a way to show love to yourself and your future baby, long before a baby is in the plans. By taking a few simple steps toward becoming as healthy as possible before pregnancy, woman can experience long-lasting benefits for herself and her future children" CDC Communication<sup>5</sup>*

# INTRODUCTION

The focus on modifying behaviors and risk factors before conception is expanding. Researchers are discovering more ways women can improve their chances of having a healthy baby long before they become pregnant. A national campaign called *Show Your Love* was launched in February, 2013 by the Preconception Health and Health Care Initiative (PCHHCI) at the CDC. In addition to the national campaign, Utah is continuing to emphasize the importance of general health for women of reproductive age by incorporating preconception health messages into various arenas, including reports like this one.

This report uses HP 2020 Objectives and National Key Preconception Indicators to examine the state of preconception health in Utah, in hopes that this information can be used to improve the health of Utah women and improve birth outcomes.

Utah's preconception report contains 31 of the priority indicators identified by the preconception work group. The report is intended for use by health care providers, state and local public health professionals, researchers, decision makers, and members of the public who wish to have a strong foundation regarding issues that affect women of reproductive age. Leaders and decision makers in the field of women's health can use this report as a reference for Utah's baseline data, sociodemographic risk factors, and resources, as well as to help target interventions, identify priority areas, and increase awareness of state-specific resources for each of the topic areas.

#### References:

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2. Wahabi HA, Alzeidan RA, Bawazeer GA, Alansari LA, Esmail SA. Preconception care for diabetic women for improving maternal and fetal outcomes: a systematic review and meta-analysis. *BMC Pregnancy and Childbirth* 2010;10(63):1-14.
3. Koh, H. K. (2010). A 2020 vision for healthy people. *New England Journal of Medicine*, 362, 1653-1656
4. Broussard, D.L., Sappenfield, W.B., Fussman, C., Kroelinger C.D., & Grigorescu, V. (2011). Core state preconception health indicators: A voluntary multi-state selection process. *Maternal-Child Health*, 15: 158-168.
5. CDC (2013). *Show Your Love Campaign Highlights Importance of Health Habits Before Pregnancy*. CDC Press Release. February 7, 2013.

## Key Messages

The key messages for preconception and interconception health are to:

- Plan pregnancies
- Eat healthy foods
- Be active
- Take 400 micrograms of folic acid daily
- Protect against sexually transmitted infection
- Protect from other infections
- Avoid harmful chemicals and toxins
- Update vaccinations
- Manage and reduce stress and address mental health
- Learn about family health history
- Get regular health and dental checkups
- Stop smoking and reduce alcohol intake before trying to get pregnant
- Stop drinking while trying to get pregnant and during pregnancy
- Screen for partner violence
- Manage health conditions, such as asthma, diabetes, and overweight/obesity prior to becoming pregnant

# EXECUTIVE SUMMARY

This report presents the state of women's preconception health in Utah. The following are highlights from the report:

- Utah women of reproductive age have high rates of self-reported good health. Over 90% of women rate their health as excellent, very good, or good. In general, Utah women have a more positive view of their health than women in the U.S. as a whole. Utah women have low rates of tobacco use and alcohol consumption.
- Utah falls short of meeting the goal for high school graduation among reproductive age women. The nationwide goal is for 97.9% of the population to complete a high school education, yet only 88.9% of women in Utah report high school graduation or GED. With education being a strong predictor of health, this finding underscores the need to ensure youth stay in school and that there is adequate access to adult education opportunities.
- Among women with a live birth, 20.5% reported having no health insurance coverage in the month before they became pregnant according to the Pregnancy Risk Assessment Monitoring System (PRAMS). These figures are very similar to the uninsured rates reported among reproductive-age women in the Behavioral Risk Factor Surveillance System (BRFSS) survey. Lack of health care coverage negatively impacted many of the other preconception health behaviors and conditions included in this report.
- Utah women have low rates of preventive screening for cervical cancer. Preventive screening visits with a health care provider are opportunities for general health and preconception education.
- Only 28.8% of women who delivered a live birth reported seeing a health care provider for preconception counseling and planning for a healthy baby. This low rate reflects missed opportunities to improve pregnancy outcomes by evaluating health status and recommending risk reduction efforts and interventions as needed.
- While the recommendation is that all pregnant women be screened for HIV, only 41.5% of Utah women report being tested. Nearly 19% of women did not know if they had been screened. Given the success rate in preventing perinatal transmission of HIV, testing is essential.
- Although rates of obesity are greater than ideal, Utah meets the Healthy People 2020 goal for less than 30% of adults with an obese body mass index (BMI). Obesity negatively impacts many aspects of general and reproductive health. Coaching women to attain a healthy weight through exercise and good nutrition can prevent chronic diseases, reduce poor pregnancy outcomes, and improve women's overall health.
- Adequate folic acid levels are known to reduce the risk of birth defects. Less than a third of Utah women reported taking a daily multivitamin in the month before becoming pregnant. This finding is similar to the rate reported by all women of reproductive age in the BRFSS survey.
- Waiting at least 18 months between pregnancies is recommended to reduce adverse pregnancy outcomes, particularly preterm birth. Among Utah women giving birth, 27.4% conceived less than 18 months after delivering their previous child. Only 42% of women reported their provider discussed pregnancy spacing with them. An increase in counseling regarding contraception during prenatal care may contribute to a reduction in short interpregnancy pregnancy spacing.

## Acknowledgments and Citations

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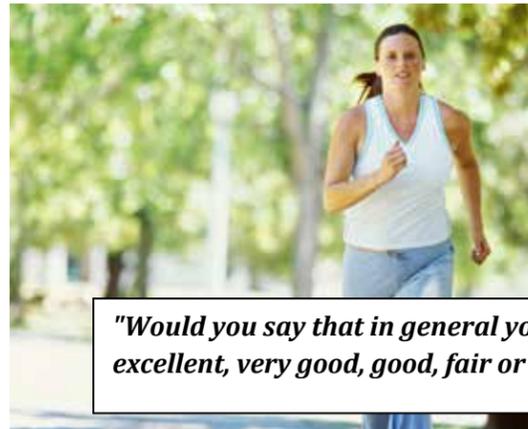
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This report is available online at <http://health.utah.gov/mihp>

Suggested citation: Maternal and Infant Health Program, *Preconception & Interconception Health Report, Utah 2009-2011*. Salt Lake City, UT: Utah Department of Health 2013.

## Self-Rated Health Status



*"Would you say that in general your health is excellent, very good, good, fair or poor?"*

*"Lower ratings of subjective health status are associated with increased mortality, adverse health events, health care utilization, and illness severity." Council of State and Territorial Epidemiologists <sup>2</sup>*

### Public Health Importance

- Self-reported health status is an indicator of self-perceived health. It is influenced by the variety of factors that affect one's overall well-being and is not limited to specific health conditions.
- Self-reported health status is an independent predictor of health outcomes including mortality, morbidity, and functional status, as well as hospitalization and future disability. <sup>1</sup>
- Self-assessed health status has been validated as a useful indicator of health and allows for broad comparisons across different conditions and populations. <sup>1</sup>
- Improvements in social, economic, and environmental conditions positively influence health and in turn improve self-reported health status.
- In 2011, 87.7% of women aged 18-45 in the U.S. reported excellent, very good, or good health status.

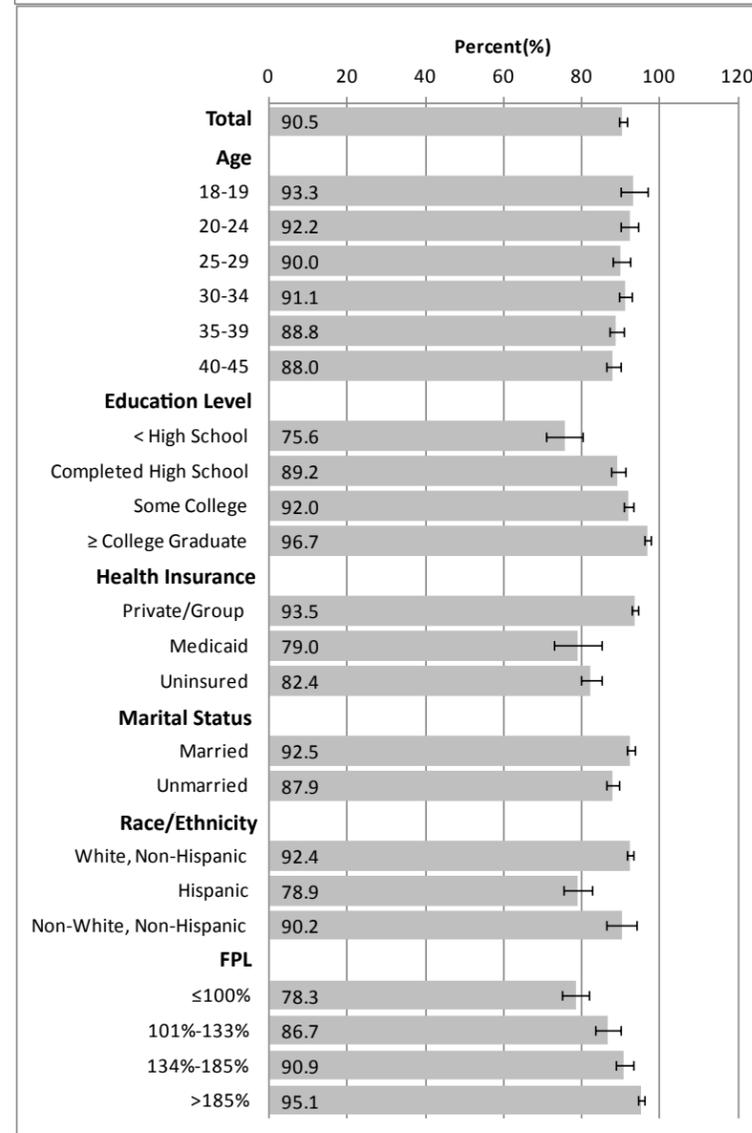
Women who reported excellent, very good, or good health status, by select characteristics.				
Characteristics	%	95% CI	P-Value	
Total	90.5	89.6	91.3	
<b>Age</b>				<0.05
18-19	93.3	88.7	96.1	
20-24	92.2	89.6	94.2	
25-29	90.0	87.7	91.9	
30-34	91.1	89.2	92.7	
35-39	88.8	86.8	90.5	
40-45	88.0	85.9	89.9	
<b>Education Level</b>				<.0001
<High School	75.6	70.7	80.0	
Completed High School	89.2	87.3	90.8	
Some College	92.0	90.8	93.1	
≥College graduate	96.7	95.7	97.4	
<b>Health Insurance</b>				<.0001
Private/Group	93.5	92.6	94.2	
Medicaid	79.0	72.1	84.5	
Uninsured	82.4	79.6	84.8	
<b>Marital Status</b>				<.0001
Married	92.5	91.5	93.3	
Unmarried	87.9	86.1	89.4	
<b>Race/Ethnicity</b>				<.0001
White, Non-Hispanic	92.4	91.4	93.2	
Hispanic	78.9	75.1	82.2	
Non-White, Non-Hispanic	90.2	85.7	93.4	
<b>FPL*</b>				<.0001
≤100%	78.3	74.8	81.5	
101%-133%	86.7	83.1	89.7	
134%-185%	90.9	88.2	93.0	
>185%	95.1	94.3	95.9	

Source: Utah BRFSS, 2009-2011

\* Federal Poverty Level

## Self-Rated Health Status

Women who reported excellent, very good, or good health status, by select characteristics, BRFSS 2009-2011.



### Healthy People 2020 Objectives

HP 2020 will assess the general health status of the US population by monitoring a number of general health indicators, including self-assessed health status.

National Target: None

### Utah Prevalence

During 2009-2011, 90.5% of reproductive age women reported excellent, very good, or good health status.

### Sociodemographic Risk Factors

The prevalence of "excellent", "very good", or "good" was lower among women who were high school graduates or had lower education, women who were unmarried, women who had Medicaid or were uninsured, and women who were below 100% FPL.

### Recommendations and Resources

It is anticipated that self-reported health status will be used to monitor the two major goals of Healthy People 2020: Improving the Quality and Years of Healthy Life and Eliminating Health Disparities.

The Utah Department of Health, through many programs, works to prevent avoidable illness, injury, disability, and premature death; assures access to affordable, quality health care; and promotes healthy lifestyles.

The *Power Your Life* campaign specifically targets women of reproductive age and has a variety of tools to help women improve their health. [www.poweryourlife.org](http://www.poweryourlife.org)

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1. Idler E, Benyamini Y. Self-rated health and mortality: A review of 28 studies. *J Health Soc Behav.* 1997;38(1):21-37.
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## High School Completion

## High School Completion



“What is the highest grade or year of high school you completed?”

“It is not possible to eliminate health disparities without simultaneously reducing disparities in educational achievement.”  
**Nicholas Freudenberg, DrPH<sup>1</sup>**

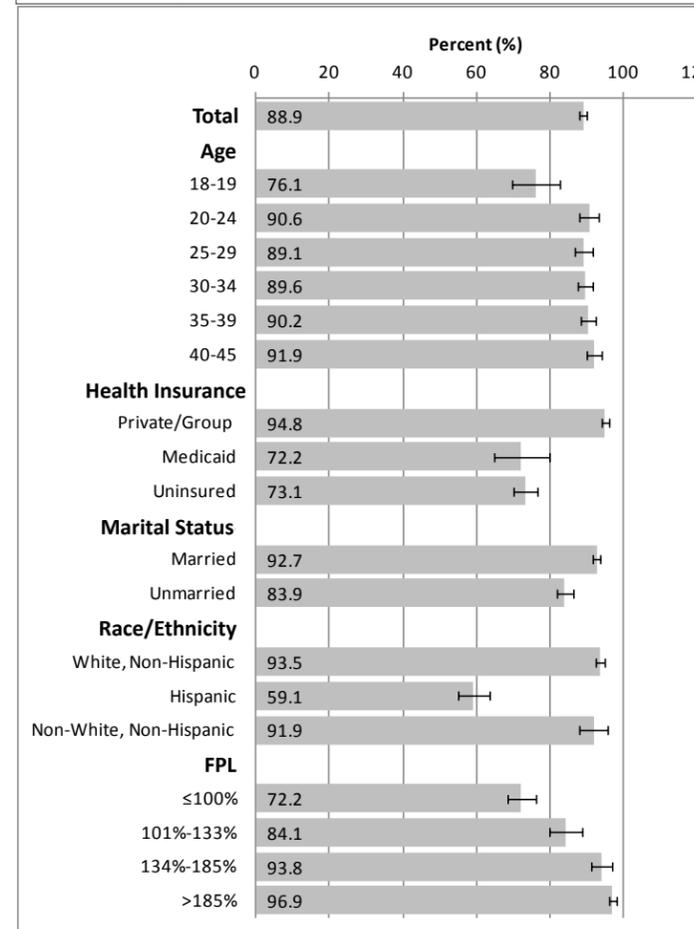
### Public Health Importance

- Education is one of the strongest predictors of health; the more schooling people have the better their health is likely to be.<sup>1</sup>
- Low levels of education limit access to employment and social resources, and increase the risk of falling into poverty.<sup>2</sup>
- High school graduation is commonly used as a proxy for socioeconomic status.<sup>2</sup>
- Evidence suggests that improving high school graduation rates to reduce health disparities and improve health may be more cost-effective than investing in medical interventions alone.<sup>2</sup>
- The less schooling people have, the higher their levels of risky health behaviors such as smoking, being overweight, or having a low level of physical activity,<sup>3</sup> all of which can impact a woman’s preconception health and eventual pregnancy.

Women with a high school education/GED or greater, by select characteristics.				
Characteristics	%	95% CI		P-Value
Total	88.9	87.7	90.0	
<b>Age</b>				<0.05
18-19	76.1	69.1	82.0	
20-24	90.6	87.5	93.0	
25-29	89.1	86.3	91.4	
30-34	89.6	87.3	91.4	
35-39	90.2	87.9	92.1	
40-45	91.9	89.7	93.7	
<b>Health Insurance</b>				<.0001
Private/Group	94.8	93.7	95.7	
Medicaid	72.2	64.0	79.1	
Uninsured	73.1	69.8	76.2	
<b>Marital Status</b>				<.0001
Married	92.7	91.6	93.6	
Unmarried	83.9	81.5	86.1	
<b>Race/Ethnicity</b>				<.0001
White, Non-Hispanic	93.5	92.3	94.6	
Hispanic	59.1	54.8	63.3	
Non-White, Non-Hispanic	91.9	87.1	95.0	
<b>FPL</b>				<.0001
≤100%	72.2	68.2	75.8	
101%-133%	84.1	79.1	88.1	
134%-185%	93.8	90.4	96.1	
>185%	96.9	95.8	97.7	

Source: Utah BRFSS, 2009-2011

Women with a high school education/GED or greater, by select characteristics, BRFSS 2009-2011.



### Healthy People 2020 Objectives

**ECBP-6** Increase the proportion of the population that completes high school education

National Target: 97.9%

### Utah Prevalence

Of women aged 18-45 living in Utah, 88.9% report having completed high school or receiving their GED.

### Sociodemographic Risk Factors

The prevalence of self-reported high school completion is lower among women on Medicaid or those who are uninsured, women who are unmarried, Hispanic women, and women under 134% FPL.

Barriers to graduation may include substance use, pregnancy, psychological, emotional, and behavioral problems.<sup>1</sup>

Teen pregnancy creates substantial barriers to finishing high school. An estimated 30%-40% of teenage female dropouts are mothers.<sup>1</sup>

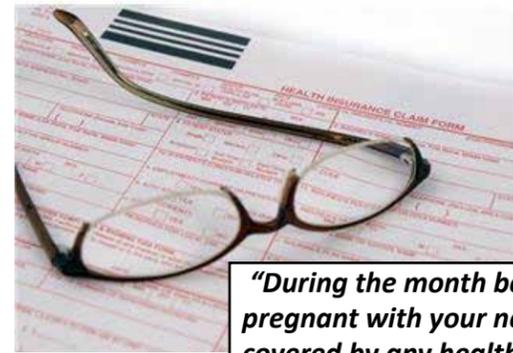
### Recommendations and Resources

Utah has developed Prosperity 2020 goals which include benchmarks for graduation rates, reading proficiency, ACT testing, and post-secondary certifications. Reframing school dropout as a public health issue has the potential to bring the community as a whole into the effort and to encourage policy makers to think of the dropout problem as central to community health, women’s health, and as a long-term solution beneficial to population health.<sup>1</sup>

### References

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# Health Care Coverage Prior to Pregnancy



**“During the month before you got pregnant with your new baby, were you covered by any health insurance plan?”**

*“We have too often witnessed how the lack of health insurance can negatively affect a patient’s health. According to the Institute of Medicine, coverage is essential to health and wellness.”* Dr. Howard Koh<sup>2</sup>

## Public Health Importance

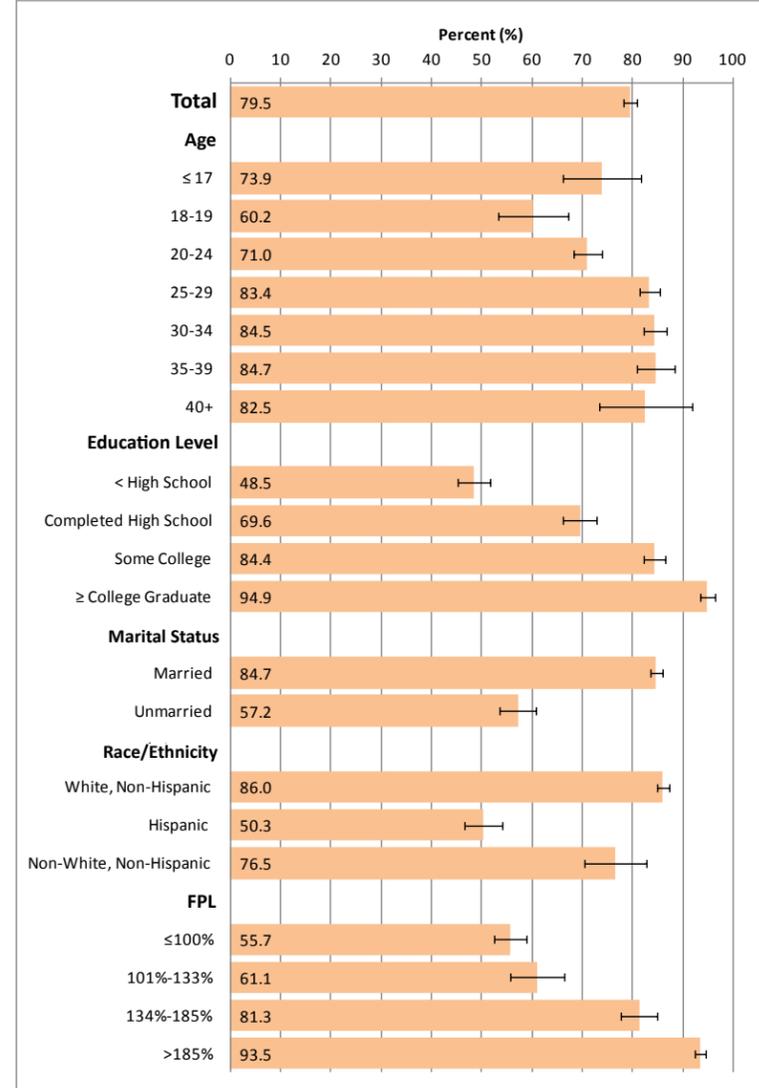
- Women should be asked about their health insurance coverage and their usual source of care. If they do not have health insurance, they should be encouraged to find insurance. United Way 2-1-1 can assist in finding the right resources.
- Lack of health insurance may decrease the use of preventive services and delay important medical attention.
- Lack of health insurance has been associated with poor health status.<sup>1</sup>
- Women in Utah who do not have health insurance prior to pregnancy are less likely to see a provider to discuss how to prepare for a healthy pregnancy and baby.
- Women who have health insurance are more likely to access routine preventive care and begin prenatal care during their first trimester.
- Health insurance plans differ in maternity care coverage, but women typically depend on their health insurance for prenatal care through delivery and into the postpartum period.
- Many chronic conditions such as hypertension and diabetes, need to be controlled prior to pregnancy in order to optimize future maternal and infant health.<sup>3</sup>

Characteristics	%	95% CI	P-Value
<b>Total</b>	79.5	78.3	80.8
<b>Age</b>			<.0001
≤17	73.9	66.1	81.7
18-19	60.2	53.2	67.1
20-24	71.0	68.1	73.9
25-29	83.4	81.4	85.4
30-34	84.5	82.2	86.7
35-39	84.7	81.0	88.5
40+	82.5	73.3	91.7
<b>Education Level</b>			<.0001
< High School	48.5	45.3	51.8
Completed High School	69.6	66.2	72.9
Some College	84.4	82.3	86.5
≥ College Graduate	94.9	93.4	96.4
<b>Race/Ethnicity</b>			<.0001
White, Non-Hispanic	86.0	84.7	87.3
Hispanic	50.3	46.6	54.0
Non-White, Non-Hispanic	76.5	70.3	82.6
<b>Marital Status</b>			<.0001
Married	84.7	83.4	85.9
Unmarried	57.2	53.6	60.9
<b>FPL</b>			<.0001
≤100%	55.7	52.6	58.9
101%-133%	61.1	55.8	66.5
134%-185%	81.3	77.7	84.9
>185%	93.5	92.4	94.5

Source: Utah PRAMS, 2009-2011

# Health Care Coverage Prior to Pregnancy

**Women who had health care coverage during the month prior to pregnancy, by select characteristics, PRAMS 2008-2011.**



## Healthy People 2020 Objectives

**AHS-1.1** Increase the proportion of persons with medical insurance

National Target: 100%

## Utah Prevalence

During 2009-2011, 79.5% of new Utah mothers reported having health care coverage during the month prior to their pregnancy. Of these women, 90.2% were covered by private or group insurance and 9.8% of women with coverage were covered by Medicaid prior to their pregnancy.

## Sociodemographic Risk Factors

Utah is lower than the national baseline for health insurance coverage. Additional sociodemographic disparities exist as well.

The prevalence of health insurance coverage prior to pregnancy was lower for women with less than a high school education, women of Hispanic ethnicity, single women and women with incomes less than 133% FPL.

## Recommendations and Resources:

Women should be asked about their health insurance coverage during routine care. If a woman does not have health insurance, they should be encouraged to find insurance. The Health Insurance Marketplace opens 10/1/13. More information is available at [Healthcare.gov](http://Healthcare.gov). Take Care Utah can be reached at 801-433-2299 to answer questions and provide assistance for individuals in need of health insurance.

The Utah Department of Health provides a portal and access point to Medicaid services and information.

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## Postpartum Checkup



*"Since your new baby was born, have you had a postpartum checkup for yourself?"*

*"It was too hard to find time to go to my own doctor after I had my baby." A PRAMS mom*

### Public Health Importance

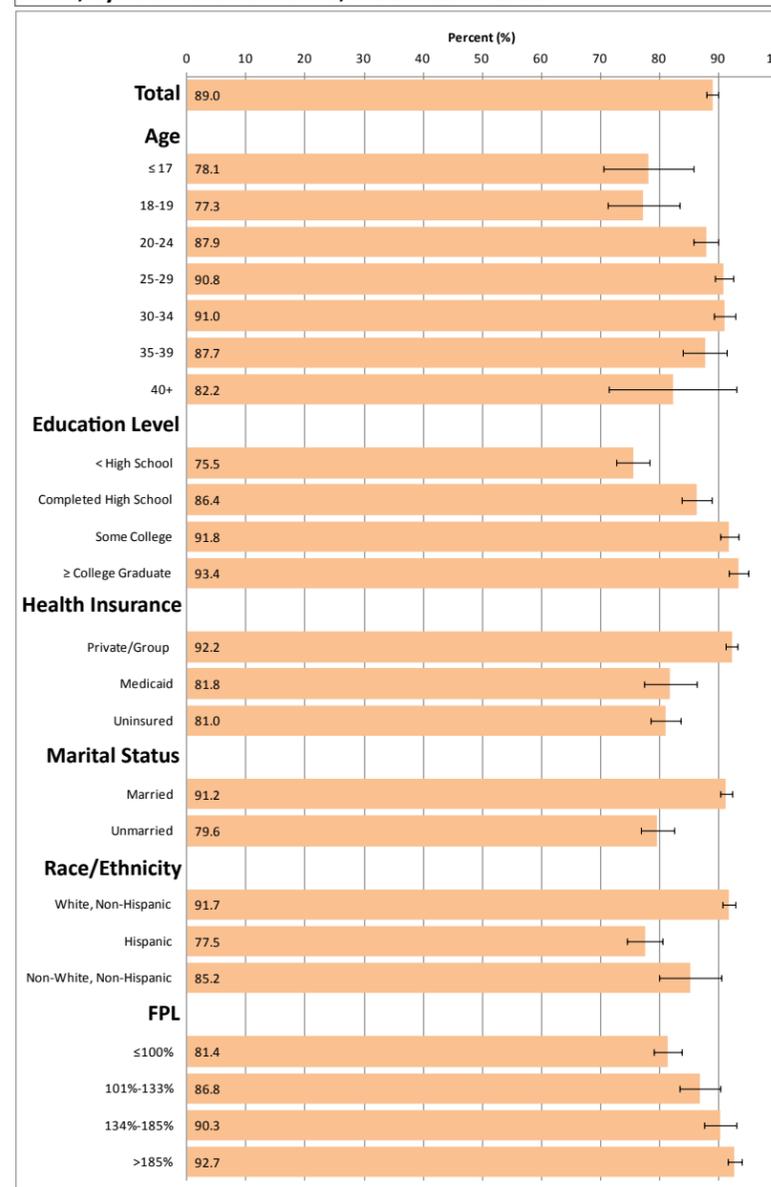
- A postpartum checkup is a routine follow-up visit for women that occurs around six weeks post-delivery.
- New moms are often focused on the health and well-being of their infant and may overlook their own physical and emotional health.
- Like prenatal care, postpartum care is considered important to new mothers' health and is an opportunity to educate new mothers and enhance their health and ensure adequate family planning.
- Common postpartum morbidities include fatigue, postpartum depression, breastfeeding problems, backaches, headaches, and pain in the perineum/cesarean incisions.<sup>1</sup>
- These health conditions can affect both the mother's health as well as the health of the infant and other children in the household.<sup>2</sup>
- Utah moms who did not receive a postpartum checkup were more likely to report that their pregnancy was unintended and they had less than adequate prenatal care.
- Women who had a postpartum checkup were more likely than women who did not have one to report using postpartum contraception, placing their infants to sleep appropriately on their backs, and breastfeeding their infant at the time of delivery.

Women who received a postpartum checkup after their most recent birth, by select characteristics.				
Characteristics	%	95% CI		P-Value
<b>Total</b>	89.0	88.0	89.9	
<b>Age</b>				
≤17	78.1	70.5	85.7	<.0001
18-19	77.3	71.2	83.3	
20-24	87.9	85.8	90.0	
25-29	90.8	89.3	92.4	
30-34	91.0	89.2	92.8	
35-39	87.7	83.9	91.4	
40+	82.2	71.4	93.1	
<b>Education Level</b>				<.0001
< High School	75.5	72.7	78.4	
Completed High School	86.4	83.8	88.9	
Some College	91.8	90.2	93.4	
≥ College Graduate	93.4	91.7	95.0	
<b>Health Insurance</b>				<.0001
Private/Group	92.2	91.1	93.3	
Medicaid	81.8	77.4	86.2	
Uninsured	81.0	78.5	83.5	
<b>Marital Status</b>				<.0001
Married	91.2	90.2	92.2	
Unmarried	79.6	76.8	82.5	
<b>Race/Ethnicity</b>				<.0001
White, Non-Hispanic	91.7	90.7	92.7	
Hispanic	77.5	74.5	80.4	
Non-White, Non-Hispanic	85.2	79.9	90.4	
<b>FPL</b>				<.0001
≤100%	81.4	78.9	83.8	
101%-133%	86.8	83.3	90.3	
134%-185%	90.3	87.5	93.0	
>185%	92.7	91.5	93.8	

Source: Utah PRAMS, 2009-2011

## Postpartum Checkup

Women who received a postpartum checkup after their most recent birth, by select characteristics, PRAMS 2009-2011.



### Healthy People 2020 Objectives

**MICH-19** Increase the proportion of women giving birth who attend a postpartum care visit with a health worker.

National Target: Developmental

### Utah Prevalence

During 2009-2011, 89% of new Utah mothers report seeing their provider after giving birth.

### Sociodemographic Risk Factors

Women who were under the age of 19, had lower education, were on Medicaid, were uninsured prior to pregnancy, were unmarried, under 100% FPL, or Hispanic were less likely to see a provider for a postpartum checkup.

### Recommendations and Resources

It is important to remind new mothers to keep up healthy habits and address areas of diet, nutrition, exercise, physical adjustment, emotional adjustment, sexuality, and contraception.

A guide published by the Association of Reproductive Health Professionals contains important information regarding a woman's postpartum check-up.

<http://www.arhp.org/Publications-and-Resources/Clinical-Practice-Tools/6-Week-Tear-Off>

### References

1. Cheng C, MSN, RN, Fowles E., PhD, RNC, Walker L. EdD, RN, FAAN. Postpartum Maternal Health Care in the United States: A Critical Review. J Perinat Educ. 2006 Summer; 15(3): 34-42.
2. Kahn R.S, Zuckerman B, Bauchner H, Homer C.J, Wise P.H. Women's Health After Pregnancy and Child Outcomes at Age 3 Years: A Prospective Cohort Study. American Journal of Public Health. 2002;92:1312-1318.

## Recent Pap Smear



*“Have you ever had a Pap test? How long has it been since your last Pap smear?”*

*“6 in 10 cases of cervical cancer occur in women who have not had a Pap test in the last 5 years.”*  
Centers for Disease Control and Prevention <sup>1</sup>

### Public Health Importance

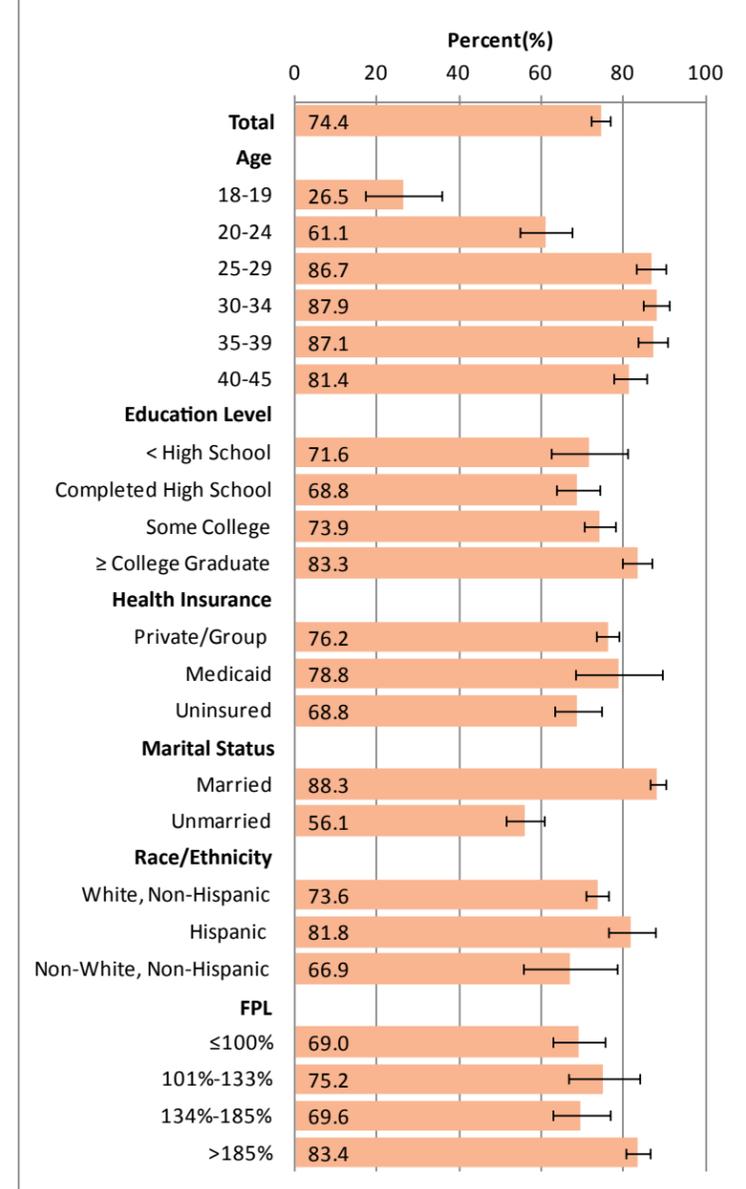
- The Papanicolaou (Pap) smear, one of the most reliable and effective cancer screening tests available, screens for precancerous cellular changes on a woman’s cervix.<sup>1</sup>
- Effective and timely treatment of precancerous cervical cells can prevent 40%-60% of all cervical cancer deaths.<sup>1</sup>
- A Pap test is recommended every 3 years starting at age 21 and up until age 65.<sup>2</sup>
- Five years of co-testing (combination of a Pap with and HPV test) is appropriate for women age 30 to 65, with no history of abnormal cervical cytology results.<sup>2</sup>
- Human papillomavirus (HPV) infections are associated with nearly all cases of cervical cancer.
- Of sexually active people, 75% will get HPV during their lifetime.<sup>1</sup>
- Women who have had many children, engaged in sex at an early age, had multiple sex partners, smoke cigarettes, or used oral contraception, are at an increased risk of getting HPV.<sup>1</sup>
- In the US, 80.6% of women 18 and older report having a Pap test in the last three years

Characteristics	%	95% CI	P-Value
<b>Total</b>	74.4	71.8	76.8
<b>Age</b>			<0.001
18-19	26.5	18.2	36.8
20-24	61.1	54.5	67.3
25-29	86.7	82.5	90.0
30-34	87.9	84.6	90.6
35-39	87.1	83.2	90.2
40-45	81.4	77.1	85.1
<b>Education Level</b>			<0.001
<High School	71.6	61.5	80.0
Completed High School	68.8	63.5	73.7
Some College	73.9	70.0	77.6
≥College Graduate	83.3	79.4	86.7
<b>Insurance Status</b>			NS
Private/Group	76.2	73.3	78.9
Medicaid	78.8	66.4	87.5
Uninsured	68.8	62.7	74.3
<b>Marital Status</b>			<0.001
Married	88.3	86.4	89.9
Unmarried	56.1	51.5	60.6
<b>Race/Ethnicity</b>			<0.05
White, Non-Hispanic	73.6	70.8	76.3
Hispanic	81.8	75.3	86.8
Non-White, Non-Hispanic	66.9	54.8	77.1
<b>FPL</b>			<0.001
≤100%	69.0	62.2	75.1
101%-133%	75.2	65.7	82.7
134%-185%	69.6	62.1	76.1
>185 %	83.4	80.2	86.1

Source: Utah BRFSS, 2010  
NS=Not Significant

## Recent Pap Smear

Women who received a Pap smear within the last 3 years, by select characteristics, BRFSS 2010.



### Healthy People 2020 Objectives

**C-15** Increase the proportion of women who receive a cervical cancer screening based on the most recent guidelines.

National Target: 93.0%

### Utah Prevalence

During 2010, 74% of women in Utah report receiving cervical cancer screening within the last 3 years. Utah received an F and ranked 51<sup>st</sup> on the HP2010 Report card for Pap smears.<sup>3</sup>

### Sociodemographic Risk Factors

Utah women report fewer Pap smears than the national average.

Further disparity exists even within the Utah community. These include women younger than 25, women with lower education, women who are uninsured, women who are not married, women who report their race and ethnicity as non-White, non-Hispanic, and women who are below 186% FPL.

### Recommendations and Resources

The Utah Cancer Control Program (UCCP) provides free and low cost Pap tests and pelvic exams to women who meet age and income guidelines. Eligible women with abnormal screening exams are offered diagnostic evaluation by participating providers. Women must meet all requirements as outlined in the National Breast and Cervical Cancer Treatment Act. <http://www.cancerutah.org>

In addition, the Utah Immunization Program’s Vaccines for Children (VFC) program provides low cost HPV vaccines to females aged 9 to 18 who meet income guidelines. <http://www.immunize-utah.org>

### References

1. Centers for Disease Control and Prevention (CDC), “Cervical Cancer. Inside Knowledge Fact Sheet,” 2012, available at: [http://www.cdc.gov/cancer/cervical/pdf/cervical\\_facts.pdf](http://www.cdc.gov/cancer/cervical/pdf/cervical_facts.pdf)
2. U.S. Preventive Services Task Force (USPSTF), *Screening for Cervical Cancer: Clinical Summary of U.S. Preventive Services Task Force Recommendation*. AHRQ Publication No. 11-05156-EF-3, March 2012. <http://www.uspreventiveservicestaskforce.org/uspstf11/cervcancer/cervcancersum.htm>
3. National Women’s Law Center. Health Care making the grade on women’s health: A National and State by State Report Card, 2008, available at <http://hrc.nwlc.org/status-indicators/pap-smears>

## Routine Dental Care



During the 12 months before you got pregnant with you new baby, did you have your teeth cleaned?"

*"Oral Health is a mirror for general health and well-being"* David Satcher, MD, PhD, US Surgeon General<sup>5</sup>

### Public Health Importance

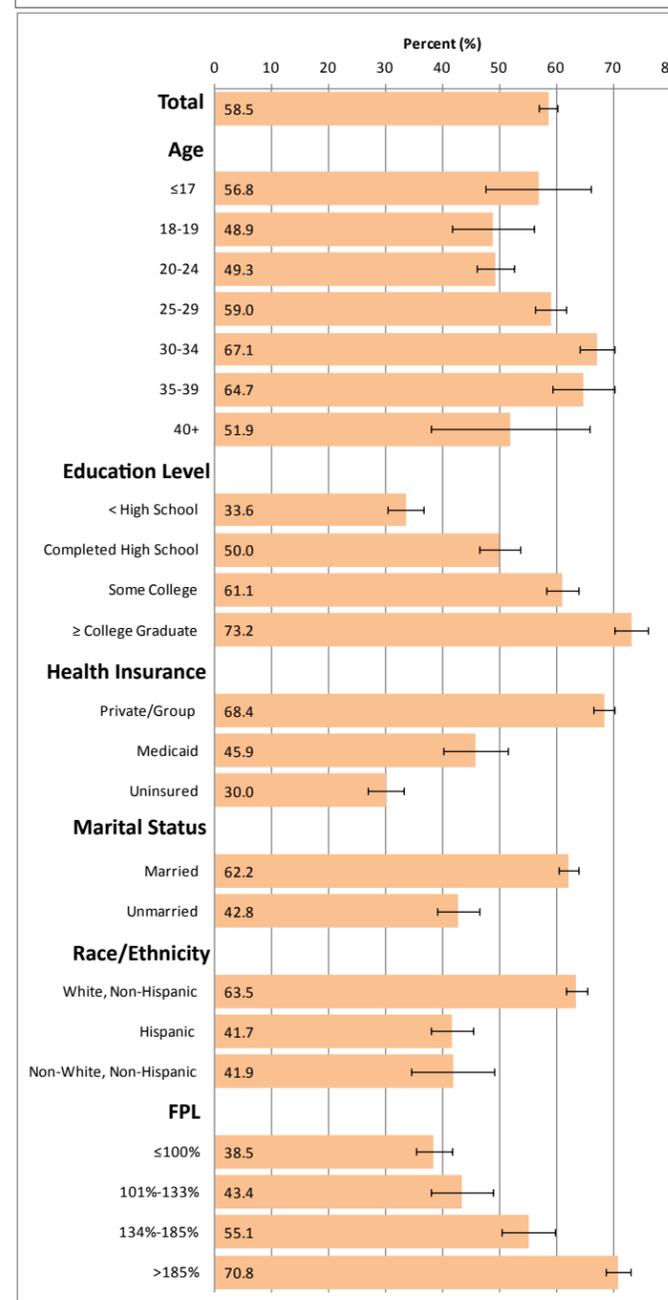
- Maintaining good oral health can prevent oral infections, tooth decay, tooth loss, and have a positive effect on diabetes, cardiovascular disease, and other health conditions.<sup>1</sup>
- Women of childbearing age who do not regularly see a dental provider run the risk of having undetected oral infections that can worsen and lead to more serious health complications.
- Dental caries and other oral diseases are common among women of childbearing age (>80% of women aged 20-39 years) and are associated with pregnancy complications, including preterm birth and low birthweight babies, as well as the child's future risk of dental caries.<sup>2-4</sup>
- In the US, approximately 40% of women have some form of periodontal (gum) disease, 56% of women do not get regular dental care, and 60% did not have their teeth cleaned during their most recent pregnancy.<sup>1</sup>
- During pregnancy, women's bodies undergo complex physiological changes that can adversely affect oral health.
- Common oral health conditions that develop during pregnancy include: pregnancy gingivitis, benign oral gingival lesions, tooth mobility, tooth erosion, dental carries, and periodontitis.<sup>1</sup>
- Dental exams, including x-rays and teeth cleaning, are safe and recommended during pregnancy.<sup>1</sup>
- It is best for women to enter into pregnancy with good oral health and continue to receive routine and acute dental care throughout pregnancy.<sup>3-4</sup>

Women who had their teeth cleaned during the 12 months prior to pregnancy, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	58.5	56.9	60.1	
<b>Age</b>				<.0001
≤17	56.8	47.6	66.0	
18-19	48.9	41.7	56.1	
20-24	49.3	46.0	52.6	
25-29	59.0	56.2	61.8	
30-34	67.1	64.1	70.2	
35-39	64.7	59.3	70.1	
40+	51.9	38.0	65.8	
<b>Education Level</b>				<.0001
< High School	33.6	30.4	36.7	
Completed High School	50.0	46.4	53.6	
Some College	61.1	58.3	63.9	
≥ College Graduate	73.2	70.3	76.1	
<b>Health Insurance</b>				<.0001
Private/Group	68.4	66.6	70.3	
Medicaid	45.9	40.2	51.5	
Uninsured	30.0	26.8	33.2	
<b>Marital Status</b>				
Married	62.2	60.4	64.0	
Unmarried	42.8	39.1	46.6	
<b>Race/Ethnicity</b>				<.0001
White, Non-Hispanic	63.5	61.7	65.4	
Hispanic	41.7	38.0	45.5	
Non-White, Non-Hispanic	41.9	34.6	49.2	
<b>FPL</b>				<.0001
≤100%	38.5	35.3	41.7	
101%-133%	43.4	37.9	48.9	
134%-185%	55.1	50.4	59.8	
>185%	70.8	68.7	72.9	

Source: Utah PRAMS, 2009-2011

## Routine Dental Care

Women who had their teeth cleaned during the 12 months prior to pregnancy, by select characteristics, PRAMS 2009-2011.



### Healthy People 2020 Objectives

Although not directly comparable to this preconception indicator, the HP 2020 Objective OH-7 is to increase the proportion of children, adolescents and adults who use the oral health care system in the past year.

National Target: 49.0%

### Utah Prevalence

During 2009-2011, 58.5% of new Utah mothers reported having their teeth cleaned during the 12 months prior to pregnancy.

### Sociodemographic Risk Factors

In Utah, women who had lower FPL, were uninsured prior to pregnancy, were Hispanic, or non-White non-Hispanic, were unmarried, or had lower education levels, reported lower rates of prepregnancy teeth cleaning.

Access to dental care is directly related to income level; due to financial constraints, lack of insurance coverage, and access to transportation that affect access to care. Oral health in these underserved populations may also be affected by poor nutrition and higher rates of tobacco and alcohol use.<sup>1</sup>

### Recommendations and Resources

Preconception and pregnancy are important teaching moments in a woman's life. Health care providers have a unique opportunity to provide oral health counseling to promote healthy behaviors during preconception and prenatal visits. Education about oral health can reduce the transmission of bacteria from mothers to infants and young children, thereby delaying the onset of childhood caries.

A full list of recommendations for pregnant and postpartum women is available at [http://www.acog.org/Resources\\_And\\_Publications/Committee\\_Opinions/Committee\\_on\\_Health\\_Care\\_for\\_Underserved\\_Women/Oral\\_Health\\_Care\\_During\\_Pregnancy\\_and\\_Through\\_the\\_Lifespan](http://www.acog.org/Resources_And_Publications/Committee_Opinions/Committee_on_Health_Care_for_Underserved_Women/Oral_Health_Care_During_Pregnancy_and_Through_the_Lifespan).

Utah specific oral health resources are also available at <http://health.utah.gov/oralhealth/resources.php>

### References

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3. Lopez NJ, Smith PC, Gutierrez J. Periodontal therapy may reduce the risk of preterm low birth weight in women with periodontal disease: a randomized controlled trial. J Periodontol 2002;73:911-24.
4. CDC. Surveillance for dental caries, dental sealants, tooth retention, edentulism, and enamel fluorosis---United States, 1988--1994 and 1999--2002. In: Surveillance Summaries, August 26, 2005. MMWR 2005;54(No. SS-3).
5. U.S Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.

## Preconception Counseling



Before you got pregnant with your new baby, did a doctor, nurse, or other health care worker talk with you about how to prepare for a healthy pregnancy and baby?

“Women should get a physical exam before thinking about becoming pregnant to make sure that there will be no risks during pregnancy.” (Translated from Spanish) **A PRAMS mom**

### Public Health Importance

- Good health before becoming pregnant is an important contributor to a healthy pregnancy and baby.
- Optimal health includes healthy nutrition, maintaining a healthy weight, managing chronic diseases effectively, and being tobacco, alcohol and substance-free.<sup>1</sup>
- Health care providers can assess pre-pregnancy risk and recommend changes to lifestyle behaviors and prevention strategies prior to pregnancy.
- Women who were seen prior to pregnancy were more likely to take a multivitamin daily and receive first trimester prenatal care.
- In Utah, about 28.8% of women report seeing a health care worker to talk about how to prepare for a healthy pregnancy. This number is slightly better for women who indicated that they were trying to become pregnant (34.1%).

Percentage of women having a live birth who received preconception counseling about how to prepare for a healthy pregnancy, by select characteristics.				
Characteristics	%	95% CI	P-value	
<b>Total</b>	28.8	27.3	30.3	
<b>Age</b>				
≤17	12.6	6.4	18.9	<.0001
18-19	22.7	17.0	28.5	
20-24	25.1	22.2	28.0	
25-29	32.1	29.5	34.7	
30-34	29.0	25.9	32.0	
35-39	33.8	28.3	39.3	
40+	18.5*	8.2	28.9	
<b>Education Level</b>				
<High School	22.9	20.1	25.6	<.0001
Completed High School	25.6	22.4	28.8	
Some College	27.7	25.1	30.2	
≥ College Graduate	35.5	32.4	38.7	
<b>Insurance Before</b>				<.0001
Private/Group/Other	31.3	29.4	33.2	
Medicaid	37.4	32.0	42.9	
No Insurance	17.6	15.0	20.2	
<b>Race/Ethnicity</b>				NS
White, Non-Hispanic	29.1	27.3	30.8	
Hispanic	26.3	23.1	29.6	
Non-White, Non-Hispanic	32.6	25.7	39.5	
<b>Marital Status</b>				
Married	30.7	29.0	32.4	<.0001
Unmarried	20.8	17.8	23.8	
<b>FPL</b>				
≤100%	23.8	21.1	26.6	<.0001
101%-133%	20.0	15.6	24.5	
134%-185%	25.6	21.5	29.8	
>185%	33.5	31.3	35.7	

Source: Utah PRAMS, 2009-2011  
NS=Not Significant

\*Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.

## Preconception Counseling

### Healthy People 2020 Objectives

**MICH - 16.1** Increase the proportion of women delivering a live birth who discussed preconception health with a health care worker prior to pregnancy.

National Target: Not defined to date

### Utah Prevalence

During 2009-2011, 28.8% of new Utah mothers reported seeing their provider prior to pregnancy.

### Sociodemographic Risk Factors

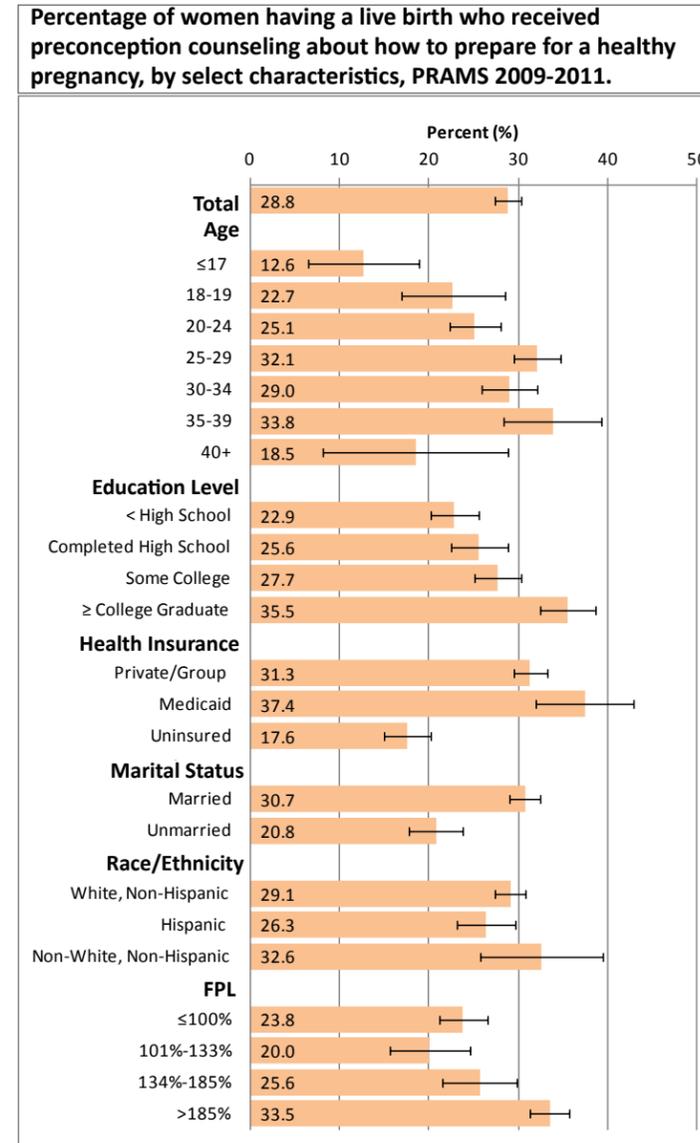
Women who were younger, less educated, had no insurance prior to pregnancy, were unmarried, and had lower federal poverty levels had lower rates of preconception visits.

Access to insurance coverage and pregnancy intention may affect a woman's decision to seek preconception care.

### Recommendations and Resources

The CDC recommends that all women who are considering pregnancy should have a screening history taken during the preconception visit. Providers should ask about risks to pregnancy on the basis of maternal age, maternal and paternal medical conditions, obstetric history, and family history. Ideally, a three-generation family medical history should be obtained for both members of the couple.<sup>1</sup>

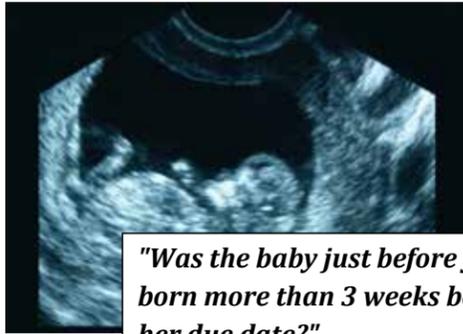
Women can prepare for visits by bringing in questions and taking notes using the following tools:  
<http://www.womenshealth.gov/publications/our-publications/preconception-visit.pdf>  
[http://www.cdc.gov/preconception/documents/ClinicalContent\\_WomensHistoryFactsheet2.pdf](http://www.cdc.gov/preconception/documents/ClinicalContent_WomensHistoryFactsheet2.pdf)



### References

1. Centers for Disease Control and Prevention. Preconception Health and Health Care. 2013. Available from: <http://www.cdc.gov/preconception/careforwomen>

## Previous Preterm Birth



"Was the baby just before your new one born more than 3 weeks before his or her due date?"

"Both my babies were born 7 weeks early." A PRAMS mom

### Public Health Importance

- Preterm birth is defined as a birth that occurred prior to 37 completed weeks' gestation.
- Preterm birth is the leading cause of perinatal death.
- Having a previous preterm birth is the strongest predictor for a subsequent preterm birth.<sup>1</sup>
- A woman's risk for preterm birth is 2.5-3 times higher if she has a history of preterm birth.
- There are things women can do to reduce their risks of having a repeat preterm birth:
  - Smoking cessation if a current tobacco user
  - Maintain a healthy weight
  - Refrain from becoming pregnant again for at least 18 months
  - Chronic disease management
- Pregnant women who have had a previous spontaneous preterm birth, particularly in the immediately preceding pregnancy, should be assessed and offered 17 alphahydroxyprogesterone (17P) beginning at 16-20 weeks' gestation if she is an appropriate candidate. This drug has been shown to reduce recurrent preterm birth.

Women with a preterm birth prior to their most recent pregnancy, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	12.2	10.9	13.5	
<b>Age</b>				NS
≤17 <sup>^</sup>	^	^	^	
18-19	10.2*	2.6	17.7	
20-24	14.4	11.2	17.6	
25-29	12.8	10.7	14.9	
30-34	11.0	8.8	13.2	
35-39	10.0	6.7	13.4	
40+	12.9*	3.6	22.3	
<b>Education Level</b>				<.0001
< High School	19.1	15.9	22.2	
Completed High School	15.0	11.7	18.2	
Some College	11.2	9.1	13.3	
≥ College Graduate	8.6	6.4	10.8	
<b>Health Insurance</b>				<0.001
Private/Group	10.8	9.4	12.3	
Medicaid	20.0	14.9	25.1	
Uninsured	13.7	10.9	16.4	
<b>Marital Status</b>				<0.01
Married	11.4	10.1	12.8	
Unmarried	17.1	13.2	20.9	
<b>Race/Ethnicity</b>				<.0001
White, Non-Hispanic	10.8	9.4	12.2	
Hispanic	15.8	12.6	18.9	
Non-White, Non-Hispanic	20.9	13.7	28.1	
<b>FPL</b>				<0.001
≤100%	17.5	14.5	20.4	
101%-133%	12.2	8.0	16.5	
134%-185%	10.7	7.6	13.9	
>185%	10.4	8.7	12.1	

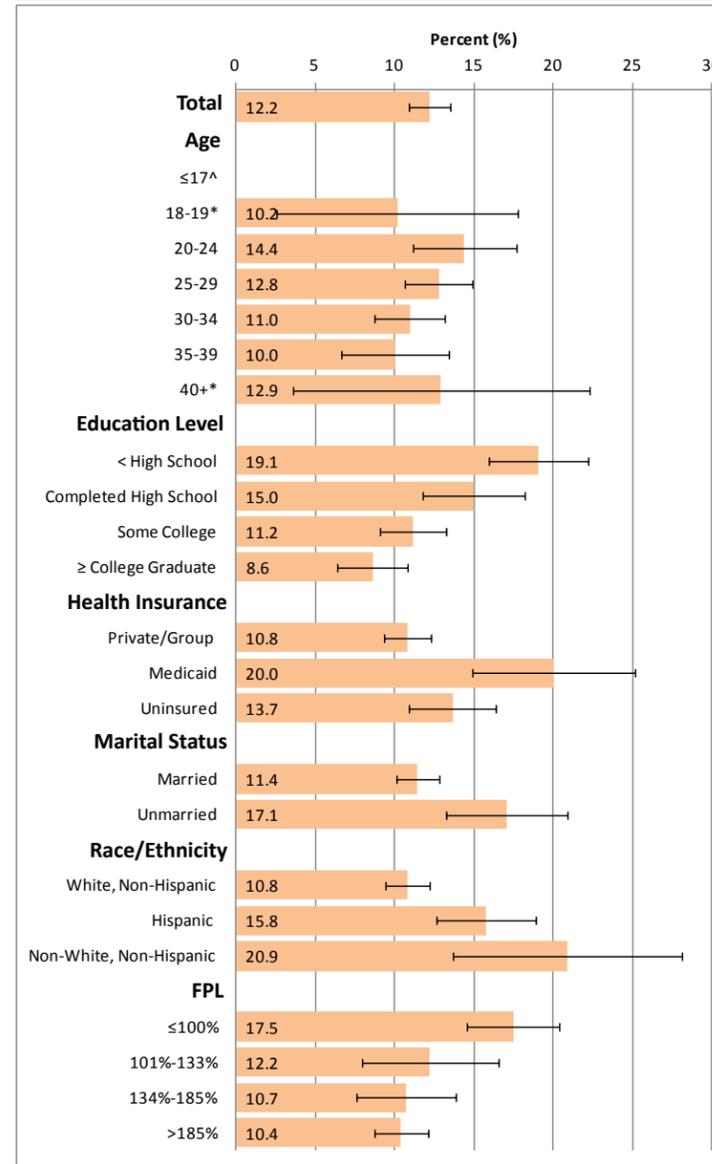
Source: Utah PRAMS, 2009-2011

<sup>\*</sup>Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.

<sup>^</sup> The estimate has been suppressed because the relative standard error greater than 50% or the observed number of events is very small and not appropriate for publication.

NS=Not Significant

Women with a preterm birth prior to their most recent pregnancy, by select characteristics, PRAMS 2009-2011.



### References

1. Utah March of Dimes Prematurity Symposium, 2012 Synopsis. Accessed at: [http://www.health.utah.gov/mihp/pdf/Prematurity\\_Symposium\\_2012.pdf](http://www.health.utah.gov/mihp/pdf/Prematurity_Symposium_2012.pdf)

## Previous Preterm Birth

### Healthy People 2020 Objectives

While there is no HP 2020 objective that specifically addresses previous preterm births, there is a goal to reduce preterm births to 11.4%.

National Target: None

### Utah Prevalence

During 2009-2011, 12.2% of Utah mothers who had been pregnant before reported that the baby born just before their new baby was preterm.

Preterm birth rates were nearly four times higher among women reporting a prior preterm birth when compared to women who did not (21.7% vs. 5.9%).

### Sociodemographic Risk Factors

While preterm birth impacts all women, there are groups of women with higher rates of prior preterm birth.

Women were more likely to report a prior preterm birth if they were younger than 18 or older than 40, had less than a high school education, were Hispanic or of non-White non-Hispanic race, had lower income levels, or were insured by Medicaid.

### Recommendations and Resources

Women with a preterm birth should have a perinatal consultation within the first month after delivery where recurrence risk is discussed and preventive strategies for the future are recommended. In addition, women with a preterm birth should have a preconception visit when planning their next pregnancy. Women at risk for recurrent preterm birth should be assessed and prescribed progesterone in early pregnancy as appropriate or other interventions depending on the cause of the preterm birth, e.g., cervical incompetence.

The March of Dimes, Utah Chapter has valuable information on preterm birth. [www.marchofdimes.com/utah/](http://www.marchofdimes.com/utah/)

## Contraception (Access, Availability, and Use)

## Contraception (Access, Availability, and Use)



When you got pregnant with your new baby, were you trying to get pregnant? Were you doing anything to keep from getting pregnant?

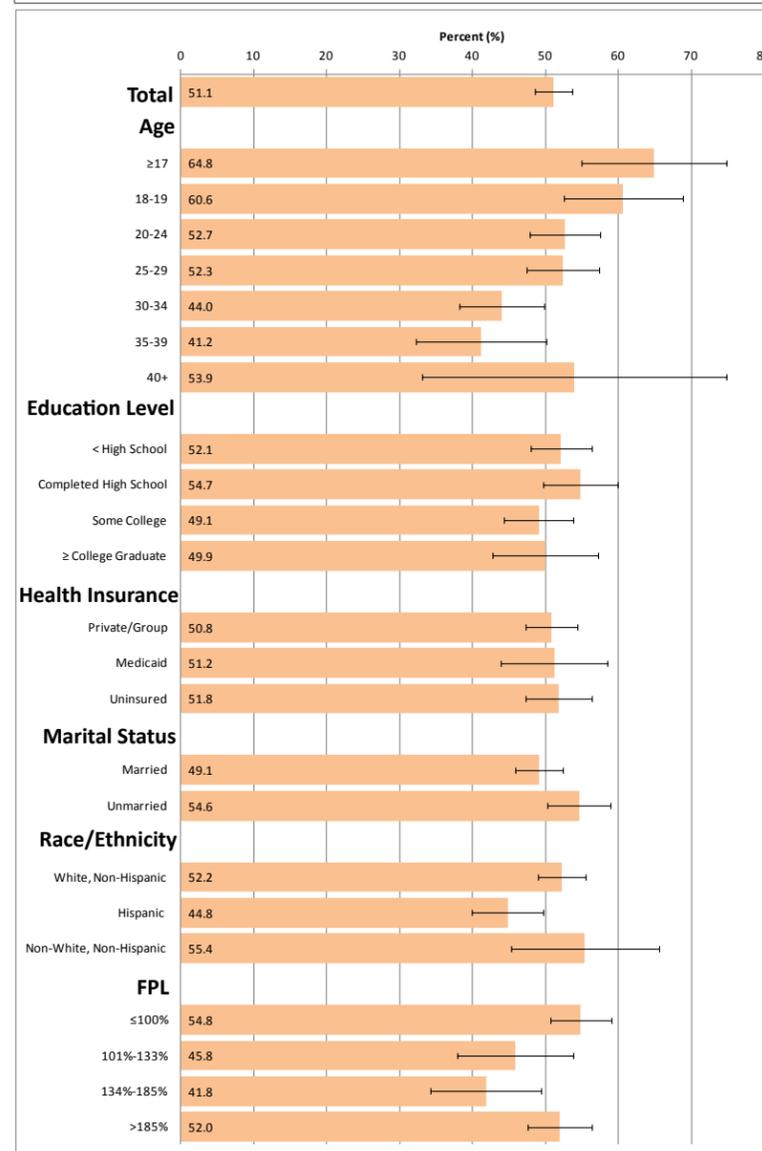
*“The best way to reduce the risk of unintended pregnancy among women who are sexually active is to use effective birth control correctly and consistently.” Centers for Disease Control and Prevention<sup>2</sup>*

### Public Health Importance

- Nearly half of all pregnancies in the United States are unintended.<sup>1</sup>
- Unintended pregnancy results primarily from the lack of, inconsistent, or incorrect use of effective contraception methods.<sup>2</sup>
- Couples who do not use any method of contraception have an approximately 85% chance of experiencing a pregnancy over the course of a year.<sup>3</sup>
- Without publicly funded family planning services, the number of unintended pregnancies and abortions occurring in the United States would be nearly two-thirds higher; the number of unintended pregnancies among poor women would nearly double.<sup>4</sup>
- Between 2009 and 2011, roughly one-third of Utah women who had a live birth reported that their pregnancies were unintended.
- Between 2009 and 2011, 51.1% of Utah women who were not trying to get pregnant were not using any form of contraception to prevent pregnancy when they conceived.

Characteristics	%	95% CI	P-Value	
<b>Women who were not trying to get pregnant at the time of conception and neither they nor their husbands or partners were doing anything to keep from getting pregnant, by select characteristics.</b>				
<b>Total</b>	51.1	48.5	53.7	
<b>Age</b>				
≥17	64.8	54.9	74.7	<0.01
18-19	60.6	52.5	68.7	
20-24	52.7	47.8	57.5	
25-29	52.3	47.3	57.3	
30-34	44.0	38.2	49.8	
35-39	41.2	32.2	50.1	
40+	53.9	33.1	74.7	
<b>Education Level</b>				
< High School	52.1	47.9	56.3	NS
Completed High School	54.7	49.6	59.8	
Some College	49.1	44.3	53.8	
≥ College Graduate	49.9	42.7	57.2	
<b>Health Insurance</b>				
Private/Group	50.8	47.2	54.4	NS
Medicaid	51.2	43.8	58.5	
Uninsured	51.8	47.3	56.3	
<b>Marital Status</b>				
Married	49.1	45.8	52.4	<0.05
Unmarried	54.6	50.2	58.9	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	52.2	49.0	55.5	NS
Hispanic	44.8	39.8	49.7	
Non-White, Non-Hispanic	55.4	45.3	65.5	
<b>FPL</b>				
≤100%	54.8	50.7	59.0	<0.05
101%-133%	45.8	37.9	53.7	
134%-185%	41.8	34.2	49.4	
>185%	52.0	47.6	56.4	
Source: Utah PRAMS, 2009-2011				
NS=Not Significant				

Women who were not trying to get pregnant at the time of conception and neither they nor their husbands or partners were doing anything to keep from getting pregnant, by select characteristics, PRAMS 2009-2011.



### References

- Finer L, Zolna M. Unintended pregnancy in the United States: Incidence and disparities, 2006. *Contraception*, 2011, 84(5): 478-485.
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### Healthy People 2020 Objectives

FP-6 Increase the proportion of females or their partners at risk of unintended pregnancy who used contraception at most recent sexual intercourse.

National Target: 91.3%

### Utah Prevalence

During 2009-2011, 51.1 % of new Utah mothers who were not trying to get pregnant at the time of conception reported they were not doing anything to keep from getting pregnant, meaning 48.9% were using a form of contraception.

### Sociodemographic Risk Factors

In 2008, 187,400 Utah women ages 13-44 were in need of publicly funded family planning services.<sup>5</sup>

Further disparity exists with contraceptive use among Utah women. Women under age 19, those with less than a high school education, those with no insurance or with Medicaid, those who are unmarried and women under 100% FPL all were less likely to use contraception at the time they conceived.

### Recommendations and Resources

The *Power Your Life* campaign sponsored by the Utah Department of Health encourages positive preconception health behaviors including contraception. This resource is available at: <http://poweryourlife.org>

Low cost contraceptive services and information are provided in Planned Parenthood clinics throughout Utah as well as some local health departments throughout the state. More information can be found at [www.ppau.org](http://www.ppau.org) and at the Utah Department of Health's Maternal and Infant Health Program website: [www.health.utah.gov/mihp](http://www.health.utah.gov/mihp)

# Unintended Pregnancy



“Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant?”

“I feel that because my last pregnancy was planned it was a better experience, and having my husband be more willing to go with me to the appointments, and be at the birth was rewarding.” **A PRAMS mom**

## Public Health Importance

- Unintended pregnancy is a general term that includes pregnancies that were either mistimed or unwanted.
- Unintended pregnancies are associated with poorer health outcomes and increased health care costs.
- Women with an unintended pregnancy are more likely to:
  - Receive late or inadequate prenatal care.
  - Expose the fetus to harmful substances such as cigarette smoke and alcohol.
  - Not breastfeed their new baby, or to stop breastfeeding early (<4 months).
- In 2011, \$12 billion of publicly financed US medical care was spent on women who experienced unintended pregnancies and those infants who were conceived.<sup>1</sup>
- In Utah, the public cost for births that resulted from unintended pregnancies was estimated at \$94.7 million, or \$10,450 per birth.<sup>1</sup>

Women who reported having an unintended or unwanted pregnancy, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	32.6	31.1 34.1		
<b>Age</b>			<.0001	
≤17	78.5	71.2 85.9		
18-19	69.5	63.0 76.0		
20-24	39.5	36.3 42.8		
25-29	27.0	24.5 29.5		
30-34	26.2	23.3 29.2		
35-39	24.6	19.8 29.4		
40+	36.3	22.4 50.1		
<b>Education Level</b>			<.0001	
< High School	53.3	50.1 56.6		
Completed High School	41.5	37.9 45.1		
Some College	31.9	29.2 34.6		
≥ College Graduate	17.5	15.1 20.0		
<b>Health Insurance</b>			<.0001	
Private/Group	26.4	24.6 28.2		
Medicaid	50.3	44.7 56.0		
Uninsured	47.4	44.0 50.8		
<b>Marital Status</b>			<.0001	
Married	25.2	23.6 26.8		
Unmarried	63.9	60.3 67.4		
<b>Race/Ethnicity</b>			<.0001	
White, Non-Hispanic	29.3	27.5 31.0		
Hispanic	44.5	40.9 48.2		
Non-White, Non-Hispanic	41.7	34.5 48.9		
<b>FPL</b>			<.0001	
≤100%	51.3	48.0 54.5		
101%-133%	41.9	36.4 47.4		
134%-185%	32.9	28.4 37.4		
>185%	22.3	20.3 24.2		

Source: Utah PRAMS, 2009-2011  
 \* Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.  
 ^ The estimate has been suppressed because the relative standard error is greater than 50% or the observed number of events is very small and not appropriate for publication.

# Unintended Pregnancy

## Healthy People 2020 Objectives

**FP-1** Increase the proportion of pregnancies that are intended.

National Target: 56.0%

## Utah Prevalence

During 2009-2011, 67.4% of new Utah mothers reported that their pregnancies were intended.

Of all women giving birth who had an unintended pregnancy, 58.8% reported using a birth control method at the time of conception.

Additionally, 41.2% of women who had an unintended pregnancy reported that they were not using any birth control method or doing anything to prevent pregnancy when they conceived.

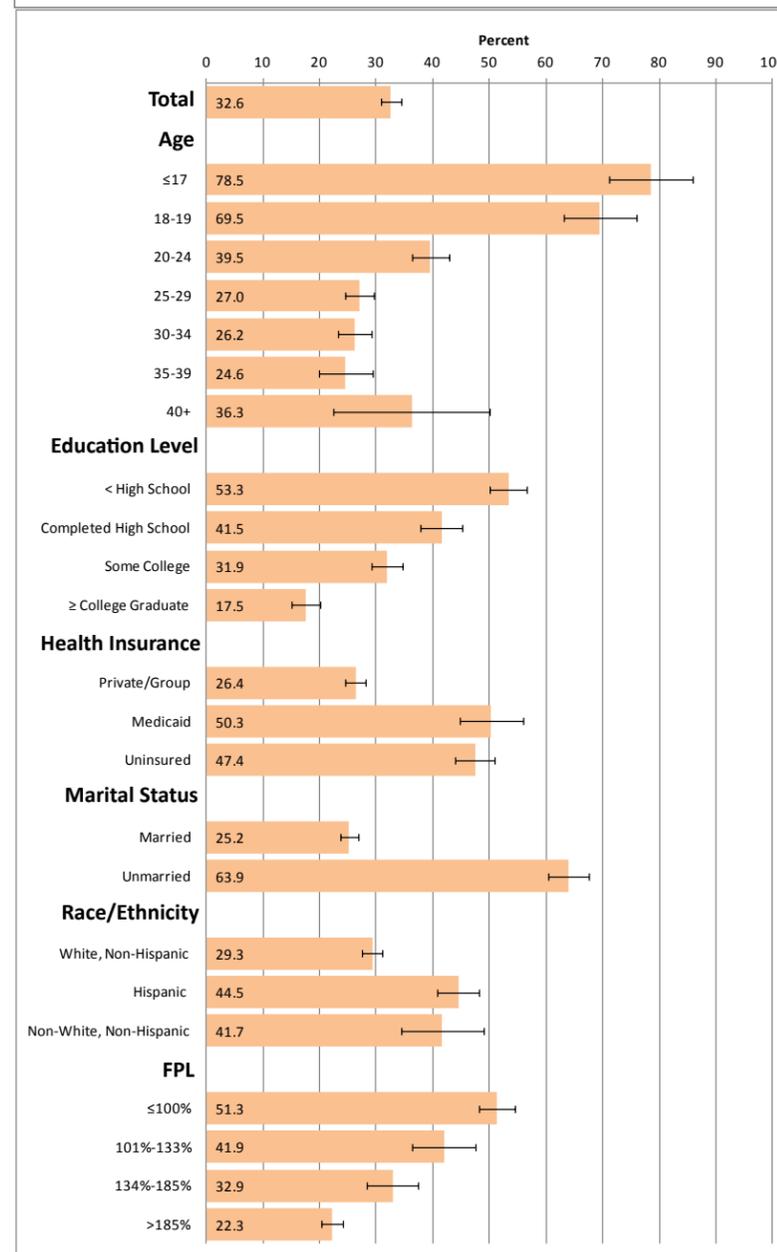
## Sociodemographic Risk Factors

Even though Utah meets the HP2020 goal of more than 56% intended pregnancies, there are groups that report significantly higher proportions of unintended pregnancy. These groups include women less than 19 years of age, those with an education level of high school or less, those on Medicaid, women who are not married, and individuals under 100% FPL.

## Recommendations and Resources

Increased use of highly-effective, low-error contraception methods such as IUDs and implants can help reduce the number of unintended pregnancies. Resources such as the *Power Your Life* campaign also aim to increase intended births by creating health goals for all women of reproductive age, educating about healthy birth spacing, and providing materials and resources regarding contraception. The resource is available at <http://health.utah.gov/precon/plan/birth-control/>.

Women who reported having an unintended or unwanted pregnancy, by select characteristics, PRAMS 2009-2011.



## References

1. Monea E, Thomas A. Unintended pregnancy and taxpayer spending. Perspectives on sexual and reproductive health. 2011; 43:88-93.

# Infertility Treatments



"Did you take any fertility drugs or receive any medical procedures from a doctor, nurse, or other health care worker to help you get pregnant with your new baby?"

"Fertility treatment does help many women get pregnant. But it can cause certain problems." **The March of Dimes<sup>1</sup>**

## Public Health Importance

- Infertility is commonly defined as 12 months or longer of frequent sexual intercourse without any contraception and without achieving a pregnancy. Many practitioners decrease the time to achieving pregnancy to six months for women 35 years of age or older.
- Treatments may include medications to increase the potential of pregnancy through intercourse, artificial insemination, and/or in-vitro fertilization.
- Women who conceive using infertility treatments are more likely to:
  - Have twin, triplet or higher order pregnancies.
  - Deliver a preterm infant.
- Multiple gestations are considered an undesirable outcome of infertility treatments and multifetal pregnancies are a major contributor to adverse pregnancy outcomes.
- Single embryo transfers with artificial reproductive technology (ART) have been found to produce lower rates of preterm birth and low birthweight.
- Women contemplating any infertility treatment should be thoroughly counseled about the risks.

Women who used fertility drugs or medical procedures to help them get pregnant with their most recent baby, by select characteristics.			
Characteristics	%	95% CI	P-Value
<b>Total</b>	8.7	7.5	9.8
<b>Age</b>			<.0001
≤17	^	^	^
18-19	^	^	^
20-24	5.6	3.5	7.7
25-29	9.2	7.3	11.2
30-34	10.4	7.9	12.8
35-39	9.0	4.9	13.1
40+	19.0*	3.6	34.4
<b>Education Level</b>			<0.05
<High School	4.2	2.1	6.3
Completed High School	7.2	4.6	9.8
Some College	10.0	7.9	12.1
≥College Graduate	8.8	6.8	10.8
<b>Insurance Status</b>			<.0001
Private/Group	10.1	8.7	11.6
Medicaid	3.6*	0.5	6.7
Uninsured	2.0	0.8	3.3
<b>Race/Ethnicity</b>			NS
White, Non-Hispanic	9.3	8.0	10.7
Hispanic	6.4	3.6	9.2
Non-White, Non-Hispanic	4.8	1.0	8.6
<b>Marital Status</b>			<0.05
Married	9.1	7.8	10.3
Unmarried	3.7*	0.7	6.6
<b>FPL</b>			<.0001
<100%	1.9*	0.7	3.1
101%-133%	4.2*	1.1	7.2
134%-185%	5.7	3.0	8.4
>185%	11.5	9.8	13.2

Source: Utah PRAMS, 2009-2011

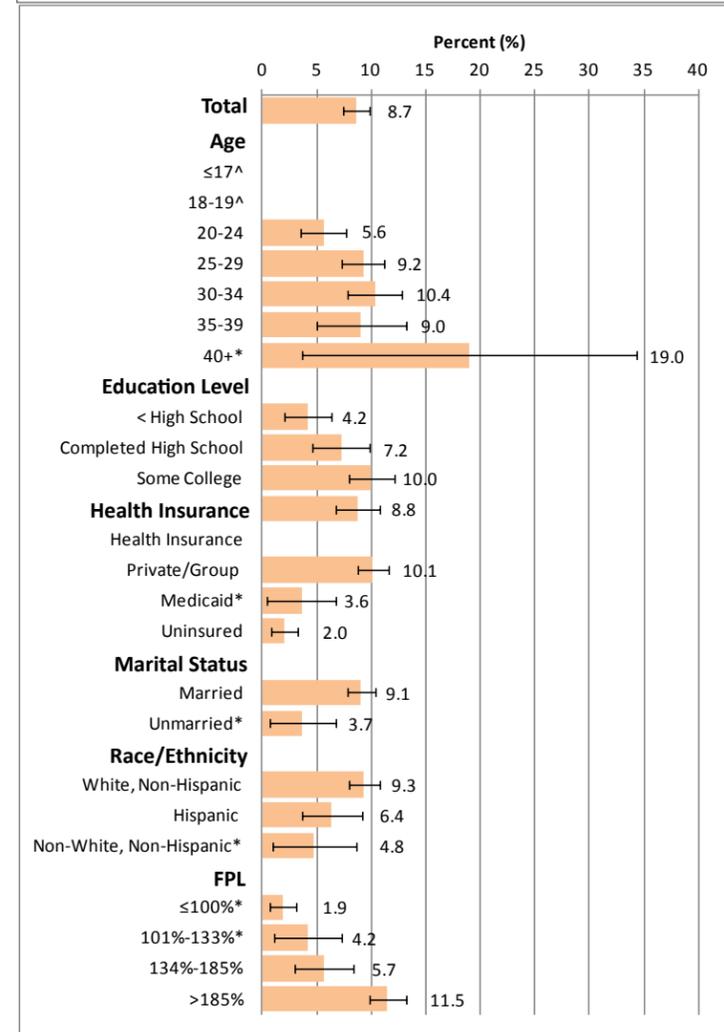
\* Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.

^ The estimate has been suppressed because the relative standard error is greater than 50% or the observed number of events is very small and not appropriate for publication.

NS=Not Significant

# Infertility Treatments

Women who used fertility drugs or medical procedures to help them get pregnant with their most recent baby, by select characteristics, PRAMS 2009-2011.



## Healthy People 2020 Objectives

Although not directly comparable, HP 2020 has an objective to reduce the proportion of women aged 18 to 44 years who have impaired fecundity to 10.8% (MICH-17).

## Utah Prevalence

During 2009-2011, 8.7% of new Utah mothers who were trying to become pregnant reported using infertility treatments to become pregnant.

The rate of multiples was nearly three times higher in women who reported using infertility treatments (2.1% vs. 0.8%).

## Sociodemographic Risk Factors

The use of infertility treatments is more common among women who were married, older, of higher education, and higher incomes.

## Recommendations and Resources

The best option for reducing the need for infertility treatments is to lower the incidence of infertility. Known modifiable factors that contribute to the incidence of infertility include obesity, smoking, sexually transmitted infections, and advanced maternal age. Women of reproductive age should be counseled about the risks of fertility and how to avoid them.

The March of Dimes, Utah Chapter has valuable information about infertility. <http://www.marchofdimes.com/pregnancy/thinking-about-fertility-treatment.aspx>

## References

1. March of Dimes, Trying to get Pregnant. 2008. Available from <http://www.marchofdimes.com/pregnancy/thinking-about-fertility-treatment.aspx>

## Postpartum Contraception Use

## Postpartum Contraception Use



Are you or your husband or partner doing anything now to keep from getting pregnant?

*“Experts recommend waiting 18-24 months before becoming pregnant again. You are 40% more likely to deliver prematurely if you become pregnant again only 6 months after giving birth.”*  
**Power Your Life<sup>4</sup>**

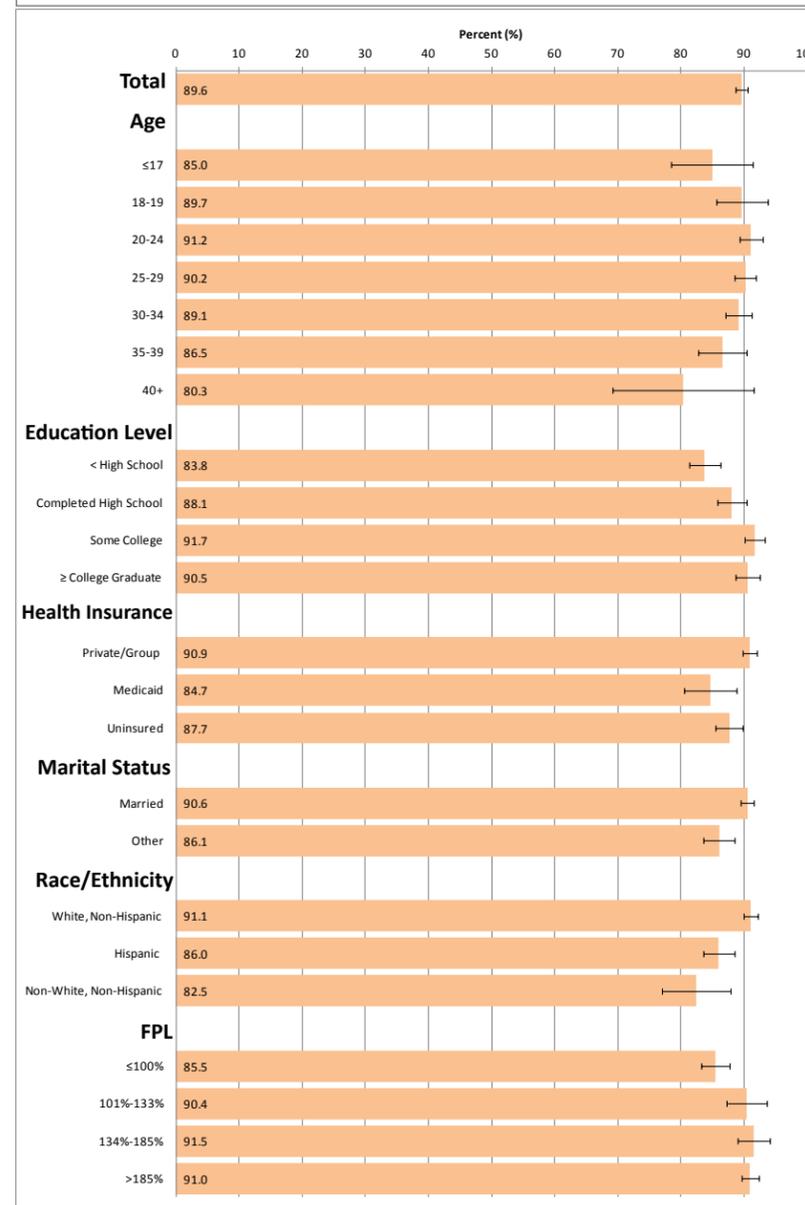
### Public Health Importance

- The best way to reduce the risk of unintended pregnancy among women who are sexually active is to use effective birth control correctly and consistently.<sup>1</sup>
- More than 99% of women aged 15–44 who have ever had sexual intercourse have used at least one contraceptive method.<sup>2</sup>
- Women use contraceptives to have healthier pregnancies, and couples use them to help time and space births, and achieve their desired family size.<sup>3</sup>
- Pregnancies that occur too early or too late in a woman’s life, or that are spaced too closely, negatively affect maternal health and increase the risk of prematurity and low birth weight.<sup>3</sup>
- Between 2009 and 2011, 89.6 % of Utah women reported that they were doing something to keep from getting pregnant after their most recent live birth. This may include natural family planning or rhythm method, withdrawal, or using birth control methods such as the pill, condoms, vaginal ring, IUD, having tubes tied, or a partner having a vasectomy.

Women who reported that they or their husbands or partners are currently doing something to keep from getting pregnant, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	89.6	88.6	90.6	
<b>Age</b>				<.05
≤17	85.0	78.5	91.4	
18-19	89.7	85.6	93.7	
20-24	91.2	89.3	93.0	
25-29	90.2	88.6	91.9	
30-34	89.1	87.1	91.2	
35-39	86.5	82.7	90.4	
40+	80.3	69.2	91.5	
<b>Education Level</b>				<.0001
< High School	83.8	81.3	86.2	
Completed High School	88.1	85.7	90.5	
Some College	91.7	90.1	93.3	
≥ College Graduate	90.5	88.6	92.5	
<b>Health Insurance</b>				<.0001
Private/Group	90.9	89.7	92.0	
Medicaid	84.7	80.5	88.8	
Uninsured	87.7	85.5	89.8	
<b>Marital Status</b>				<.0001
Married	90.6	89.5	91.6	
Other	86.1	83.6	88.6	
<b>Race/Ethnicity</b>				<.0001
White, Non-Hispanic	91.1	90.0	92.1	
Hispanic	86.0	83.5	88.5	
Non-White, Non-Hispanic	82.5	77.1	87.9	
<b>FPL</b>				<.0001
≤100%	85.5	83.3	87.7	
101%-133%	90.4	87.2	93.6	
134%-185%	91.5	89.0	94.1	
>185%	91.0	89.6	92.3	

Source: Utah PRAMS, 2009-2011

Women who reported that they or their husbands or partners were currently doing something to keep from getting pregnant, by select characteristics, PRAMS 2009-2011.



### Healthy People 2020 Objectives

**FP-6** Increase the proportion of females at risk of unintended pregnancy or their partners who used contraception at most recent sexual intercourse.

National Target: 91.6%

### Utah Prevalence

During 2009-2011, 89.6% of new Utah mothers were using a form of contraception to prevent a pregnancy.

### Sociodemographic Risk Factors

Among Utah women who have recently given birth, those who are under 17 years of age, those with less than a high school education, those on Medicaid, who are Hispanic, unmarried, and those women whose income was less than or equal to 100% FPL are less likely to be using contraception to prevent a pregnancy.

### Recommendations and Resources

The *Power Your Life* campaign sponsored by the Utah Department of Health encourages positive preconception health behaviors including contraception information. This resource is available at: <http://health.utah.gov/precon/>

Low cost contraceptive services and information are provided in Planned Parenthood clinics, some local health departments, community health centers and other clinics. More information can be found at [www.ppau.org](http://www.ppau.org) and at the Utah Department of Health’s Maternal and Infant Health Program website: [www.health.utah.gov/mihp](http://www.health.utah.gov/mihp)

### References

1. Mosher WD, Jones J, Use of contraception in the United States: 1982–2008, *Vital and Health Statistics*, 2010, Series 23, No. 29, [http://www.cdc.gov/nchs/data/series/sr\\_23/sr23\\_029.pdf](http://www.cdc.gov/nchs/data/series/sr_23/sr23_029.pdf)
2. Centers for Disease Control and Prevention. “Contraception.” Feb 2013 <http://www.cdc.gov/reproductivehealth/UnintendedPregnancy/Contraception.htm>
3. Guttmacher Institute, 2011. Testimony of Guttmacher Institute, submitted to the Committee on Preventive Services for Women, Institute of Medicine, 2011, <http://www.guttmacher.org/pubs/CPSW-testimony.pdf>
4. Utah Department of Health. Power Your Live; Power Your Health. Accessed <http://health.utah.gov/precon/>

## Interpregnancy Spacing



"I feel that women need to be told about the risks to their health & baby if they get pregnant too soon after having a baby. Women need to know that their bodies and minds need time to recover from pregnancy/delivery/new baby." **A PRAMS mom**

### Public Health Importance

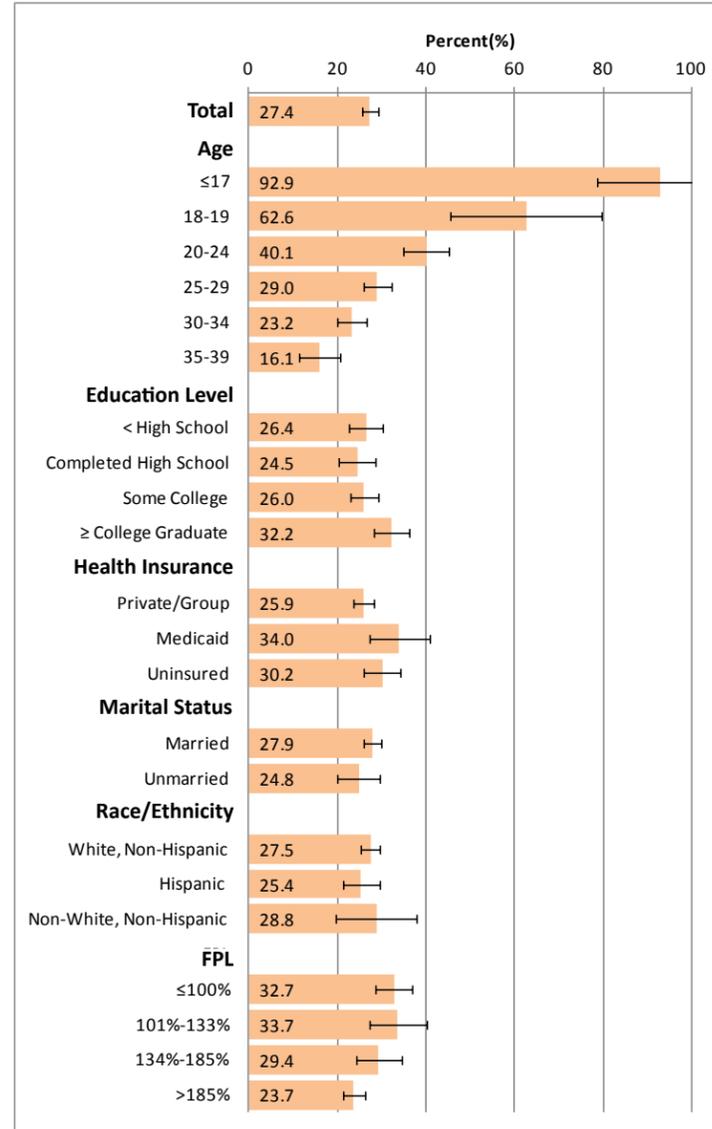
- The interpregnancy interval is defined as the time from delivery of one baby to the conception of the next pregnancy.
- It is recommended that women wait at least eighteen months after delivery to become pregnant again.
- Short periods between pregnancies have been associated with poor birth outcomes including low birthweight, preterm birth, and infant morbidity. The shorter the interval, the higher the risk.<sup>1</sup>
- Many closely spaced pregnancies are not planned and women may not be back to optimal health before getting pregnant again.
- Longer pregnancy intervals allow a woman's body to fully heal and for her nutritional stores to return to favorable levels.<sup>1</sup>

Women who report fewer than 18 months between their previous live birth and the conception of the most recent pregnancy, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	27.4	25.5	29.3	
<b>Age</b>				
≤17	92.9	78.5	100.0	<.0001
18-19	62.6	45.5	79.6	
20-24	40.1	35.0	45.2	
25-29	29.0	25.8	32.1	
30-34	23.2	20.0	26.4	
35-39	16.1	11.4	20.7	
<b>Education Level</b>				
< High School	26.4	22.5	30.3	<0.05
Completed High School	24.5	20.3	28.6	
Some College	26.0	22.8	29.1	
≥ College Graduate	32.2	28.4	36.1	
<b>Health Insurance</b>				<0.05
Private/Group	25.9	23.7	28.2	
Medicaid	34.0	27.1	40.9	
Uninsured	30.2	26.0	34.3	
<b>Marital Status</b>				
Married	27.9	25.8	29.9	NS
Unmarried	24.8	19.9	29.7	
<b>Race/Ethnicity</b>				
White, non-Hispanic	27.5	25.3	29.7	NS
Hispanic	25.4	21.1	29.7	
Non-White, Non-Hispanic	28.8	19.7	38.0	
<b>FPL</b>				
≤100%	32.7	28.6	36.8	<0.001
101%-133%	33.7	27.1	40.3	
134%-185%	29.4	24.2	34.5	
>185%	23.7	21.1	26.2	

Source: Utah PRAMS, 2009-2011  
NS=Not Significant

## Interpregnancy Spacing

Women who report fewer than 18 months between their previous live birth and the conception of the most recent pregnancy, by select characteristics, PRAMS 2009-2011



### Healthy People 2020 Objectives

**FP-5** Reduce the proportion of pregnancies conceived within 18 months of a previous birth.

National Target: 29.8%

### Utah Prevalence

During 2009-2011, 27.4% of Utah women with a live birth became pregnant less than 18 months after their last birth.

During 2009-2011, 42.1% of women reported that their health care provider discussed pregnancy spacing with them after their most recent delivery.

### Sociodemographic Risk Factors

Even though Utah meets the HP2020 target, disparities exist in some populations. Women younger than 25 exceed the target, as well as women living at less than 134% of FPL, and women who were insured by Medicaid or had no insurance prior to pregnancy.

### Recommendations and Resources

Because short pregnancy spacing is associated with poor birth outcomes, all women should be counseled about how long to wait before getting pregnant again. Family planning methods that will suit a woman's lifestyle should also be discussed.

The Utah Department of Health's *Power Your Life* Campaign contains valuable information on planning pregnancies and interconception health. <http://www.poweryourlife.org/>

### References

- Fuentes-Afflick E and Hessel NA, Interpregnancy interval and the risk of premature infants, *Obstetrics & Gynecology*, 2000, 95(3):383-390.

## Smoking Cigarettes

## Smoking Cigarettes



"Do you currently smoke every day or some days?" "Did you smoke during the 3 months prior to pregnancy?" "Do you allow smoking in your home?"

"I think that my smoking had [a] part in me going into early labor. I regret it..." **A PRAMS mom**

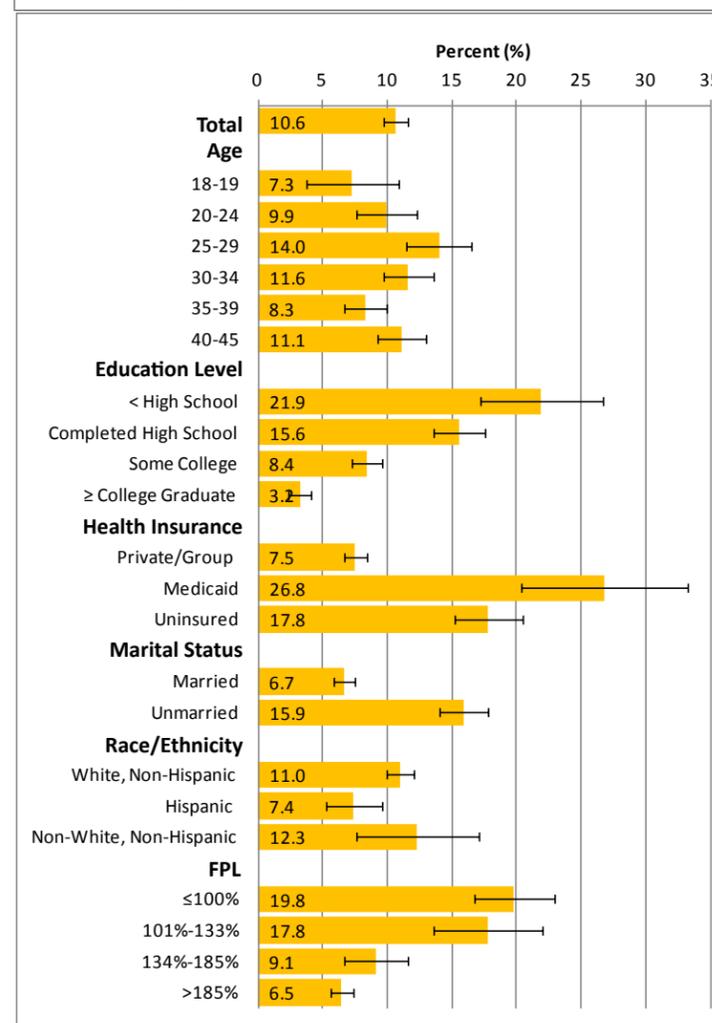
### Public Health Importance

- Cigarette smoking is defined as having smoked at least 100 cigarettes in one's entire life and smoking every day or some days at the time of the BRFSS survey.
- Smoking is associated with many adverse health effects including adverse reproductive outcomes and pregnancy complications.
- Women who smoke are more likely to:
  - experience delayed conception
  - experience both primary infertility (first time conception) and secondary infertility (infertility after at least one conception)
  - experience menstrual problems, such as lack of menses (amenorrhea) and painful menstruation (dysmenorrhea)
  - have a miscarriage or sick baby<sup>1</sup>
- Regardless of pregnancy status, women who smoke are at increased risk of lung, cervical, pancreatic, bladder, and kidney cancers, as well as cardiovascular disease and pulmonary disease.<sup>2</sup>
- Cigarette smoking kills approximately 173,940 women in the US each year.<sup>3</sup>
- It is estimated that eliminating smoking during pregnancy could reduce infant death by 5% and reduce the proportion of low birth weight singletons by 10%.<sup>2</sup>
- Secondhand smoke exposure to a child or infant can cause asthma, bronchitis, and other respiratory illnesses, as well as ear infections, and increase the risk for sudden infant death syndrome (SIDS).<sup>2</sup>

Percentage of women who currently smoke every day or some days by select characteristics.				
Characteristics	%	95% CI		P-Value
<b>Total</b>	10.6	9.7	11.6	
<b>Age</b>				
18-19	7.3	4.5	11.7	<0.05
20-24	9.9	7.8	12.5	
25-29	14.0	11.7	16.7	
30-34	11.6	9.8	13.7	
35-39	8.3	6.8	10.1	
40-45	11.1	9.4	13.1	
<b>Education Level</b>				
< High School	21.9	17.6	27.0	<.0001
Completed High School	15.6	13.7	17.7	
Some College	8.4	7.3	9.7	
≥ College Graduate	3.2	2.5	4.2	
<b>Health Insurance</b>				
Private/Group	7.5	6.7	8.5	<.0001
Medicaid	26.8	20.9	33.6	
Uninsured	17.8	15.3	20.6	
<b>Marital Status</b>				
Married	6.7	5.9	7.6	<.0001
Unmarried	15.9	14.2	17.8	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	11.0	10.0	12.0	<0.05
Hispanic	7.4	5.5	9.9	
Non-White, Non-Hispanic	12.3	8.3	17.9	
<b>FPL</b>				
≤100%	19.8	16.9	23.1	<.0001
101%-133%	17.8	14.0	22.4	
134%-185%	9.1	6.9	11.9	
>185%	6.5	5.6	7.4	

Source: Utah BRFSS, 2009-2011

Women who currently smoke every day or some days by select characteristics, BRFSS 2009-2011.



### Healthy People 2020 Objective

**TU-1** Reduce cigarette smoking by adults.

National Target: 12.0%

### Utah Prevalence

In Utah, 10.6% of women between the ages of 18 and 45 report smoking cigarettes every day or some days.

Among new moms who smoked in the previous two years, 12.1% smoked during the 3 months prior to their most recent pregnancy.

### Sociodemographic Risk Factors

Women who had lower education, were on Medicaid or were uninsured, were unmarried, non-Hispanic, and below 134% FPL were more likely to report smoking every day or some days.

### Recommendations and Resources

All childbearing aged women should be screened for tobacco use. A brief intervention should be provided to all tobacco users that includes: counseling describing the benefits of not smoking before, during, and after pregnancy; a discussion of medications to help with cessation; and referral to more intensive services (individual, group, or telephone counseling).<sup>2</sup> Clinicians should also consider screening patients for the use of newer products that contain tobacco or nicotine (e.g., e-cigarettes), which are not well studied and not included in this report.

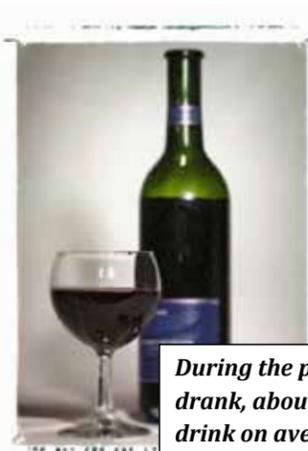
The Tobacco Prevention and Control Program's (TPCP) FREE phone-based coaching is available at 1-800-QUIT-NOW. Additional resources are available at <http://www.tobaccofreeutah.org>

### References

1. Women and Smoking: A Report of the Surgeon General, 2001. [http://www.cdc.gov/tobacco/data\\_statistics/sgr/sgr\\_2001/index.htm](http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2001/index.htm) accessed August 2013.
2. Floyd et al. "The clinical content of preconception care: alcohol, tobacco, and illicit drug exposures."
3. American Lung Association. Women and Smoking. <http://www.lung.org/stop-smoking/about-smoking/facts-figures/women-and-tobacco-use.html> Accessed August 2013.

## Heavy Drinking

## Heavy Drinking



*During the past 30 days, on days you drank, about how many drinks did you drink on average? How many days per week did you have at least one drink?*

*“There is no guaranteed safe level of alcohol use at any time during your pregnancy or even when you’re trying to get pregnant.”* Centers for Disease Control and Prevention<sup>2</sup>

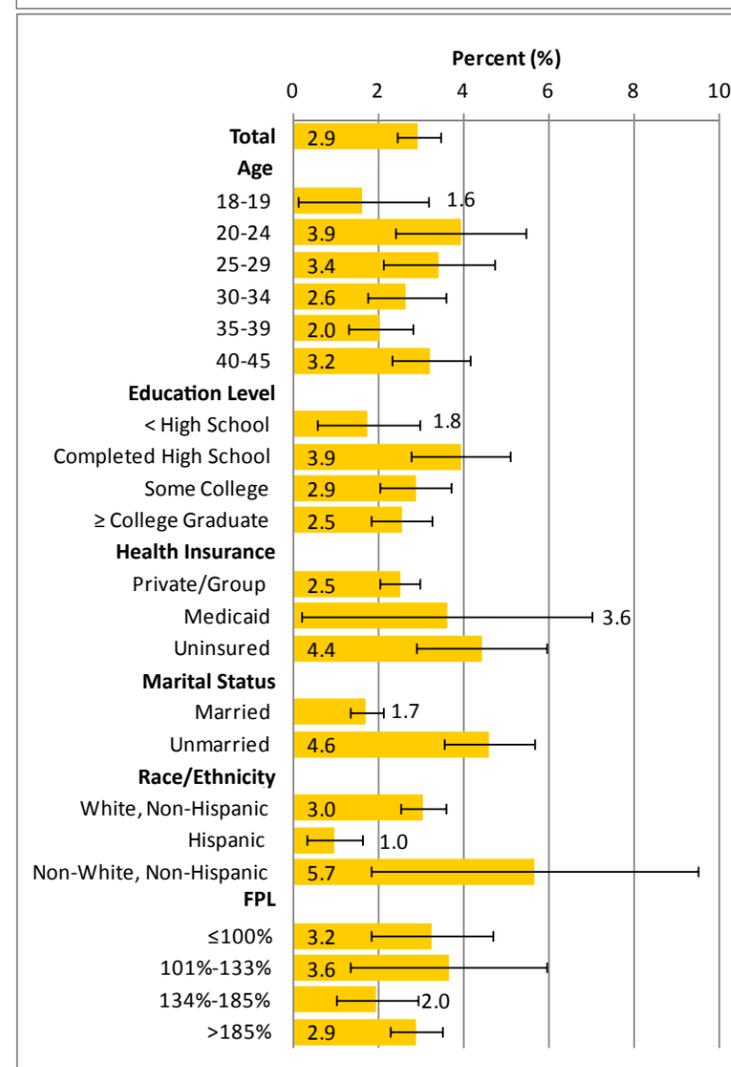
### Public Health Importance

- For women, heavy drinking is typically defined as consuming an average of more than 1 drink per day.<sup>1</sup>
- Excessive drinking is associated with numerous health problems, including:
  - Liver cirrhosis, pancreatitis, cancer, high blood pressure, heart disease, and psychological disorders.
  - Unintentional injuries, such as motor-vehicle crashes, falls, drowning, burns, and firearm injuries.<sup>1</sup>
- Heavy alcohol use before pregnancy is predictive of continued use during pregnancy.<sup>2</sup>
- Alcohol use during pregnancy is associated with spontaneous abortions, birth defects, and developmental disorders which can occur before a woman is aware that she is pregnant.<sup>3</sup>
- Studies have shown that about 1 in 20 pregnant women drank excessively before finding out they were pregnant. This period during early pregnancy is critical for fetal development.<sup>4</sup>
- In Utah, 23.8% of new mothers reported drinking during the 3 months prior to becoming pregnant. Heavy drinking was reported by 2.9% of women of reproductive age.

Women of reproductive age who consumed >30 drinks per month, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	2.9	2.5	3.5	
<b>Age</b>				
18-19	1.6	0.5	4.8	NS
20-24	3.9	2.6	5.8	
25-29	3.4	2.3	5.0	
30-34	2.6	1.9	3.8	
35-39	2.0	1.4	2.9	
40-45	3.2	2.4	4.3	
<b>Education Level</b>				
< High School	1.8	0.9	3.5	NS
Completed High School	3.9	2.9	5.3	
Some College	2.9	2.1	3.8	
≥ College Graduate	2.5	1.9	3.4	
<b>Health Insurance Status</b>				
Private/Group	2.5	2.1	3.0	NS
Medicaid	3.6	1.4	9.1	
Uninsured	4.4	3.1	6.2	
<b>Marital Status</b>				
Married	1.7	1.4	2.1	<.0001
Unmarried	4.6	3.6	5.8	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	3.0	2.5	3.6	<.0001
Hispanic	1.0	0.5	1.9	
Non-White, Non-Hispanic	5.7	2.8	11.0	
<b>Federal Poverty Level</b>				
≤100%	3.2	2.1	5.0	NS
101%-133%	3.6	1.9	6.8	
134%-185%	2.0	1.2	3.2	
>185%	2.9	2.3	3.5	

Source: Utah BRFSS, 2009-2011  
NS=Not Significant

Women of reproductive age who consumed >30 drinks per month, by select characteristics, BRFSS 2009-2011.



### Healthy People 2020 Objectives

**SA – 15** Reduce the proportion of adults who drank excessively in the last 30 days.

National Target: 25.4%

### Utah Prevalence

Between 2009 and 2011, 2.9% of Utah women reported drinking heavily (more than 1 drink per day) in the past 30 days.

### Sociodemographic Risk Factors

Even though Utah falls far below the national baseline of 28.2% of adults who drink heavily, disparities are present among certain women.

These include women who are non-Hispanic, women who have a high school education or less, women who are uninsured, women who are not married, and women who are less than 134% of the federal poverty level.

### Recommendations and Resources

No amount of alcohol is safe to drink during pregnancy. Since the first few weeks of pregnancy are critical in fetal development, women who are trying to become pregnant should stop drinking alcohol. Discontinuing alcohol may lower the risk of having a child with physical, mental, or emotional problems.

The Utah Department of Health’s *MotherToBaby* program provides education and information for women on various exposures prior to becoming pregnant, during their pregnancy, and after pregnancy. The *MotherToBaby* program is a valuable resource for women who have questions about alcohol exposure during pregnancy. 1-800-822-2229 or online at <http://health.utah.gov/prl/>.

### References

1. Centers for Disease Control and Prevention. [Alcohol use and binge drinking among women of childbearing age – United States, 2006-2010](#). MMWR 2012;61:534-538
2. Centers for Disease Control and Prevention. Alcohol use among women of childbearing age—United States 1991-1999. MMWR April 5 2002. 51(13); 273-6. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5113a2.htm>
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4. Floyd RL, Decoufle P, Hungerford DW. [Alcohol use prior to pregnancy recognition](#). Am J Prev Med 1999;17(2):101-107.

# Binge Drinking



"How many times during the past 30 days did you have four or more drinks on any occasion?"

"Drinking too much can seriously affect the health of women and girls." Centers for Disease Control and Prevention<sup>1</sup>

## Public Health Importance

- For women, binge drinking is typically defined as consuming 4 or more drinks within a short period of time.<sup>1</sup>
- Binge drinking is associated with an increased risk for various health problems, including: liver disease, breast cancer, heart disease, sexually transmitted diseases, and unintended pregnancy.<sup>2</sup>
- Women who experience an unintended pregnancy as a result of binge drinking may not discover they are pregnant until later in their pregnancy.
- If women binge drink while pregnant, they risk exposing their baby to high levels of alcohol during early and late development, which can lead to miscarriage, low birth weight, sudden infant death syndrome (SIDS), attention-deficit/hyperactivity disorder (ADHD), and fetal alcohol spectrum disorders (FASDs).<sup>2</sup>
- More than 14 million U.S. women binge drink (about 1 in 8) about 3 times a month, and consume an average of 6 drinks per binge.<sup>2</sup>
- Studies have shown that about 1 in 20 pregnant women drank excessively before finding out they were pregnant.<sup>3</sup>
- In Utah, 8.7% of women between 2009 and 2011 reported that they engaged in binge drinking during the past 30 days.
- However, of women who had a new baby who reported they drank alcohol in the last 2 years, 50.6% reported binge drinking at least once during the 3 months prior to becoming pregnant.

Women who participated in binge drinking (≥4 drinks on an occasion) at least once in the past month, by select characteristics.				
Characteristics	%	95%CI	P-Value	
<b>Total</b>	8.7	8.0	9.6	
<b>Age</b>				<0.001
18-19	4.9	2.8	8.4	
20-24	11.9	9.7	14.5	
25-29	10.8	8.9	13.0	
30-34	8.0	6.6	9.6	
35-39	7.1	5.7	8.6	
40-45	7.6	6.2	9.3	
<b>Education Level</b>				<0.05
< High School	8.6	5.9	12.3	
Completed High School	10.3	8.7	12.1	
Some College	8.8	7.6	10.1	
≥ College Graduate	7.0	5.9	8.4	
<b>Health Insurance</b>				<0.05
Private/Group	8.1	7.3	9.0	
Medicaid	9.6	5.6	16.0	
Uninsured	11.1	9.1	13.4	
<b>Marital Status</b>				<.0001
Married	6.4	5.6	7.2	
Unmarried	11.9	10.5	13.6	
<b>Race/Ethnicity</b>				<0.001
White, Non-Hispanic	9.2	8.4	10.2	
Hispanic	5.3	3.8	7.3	
Non-White, Non-Hispanic	9.5	5.9	15.0	
<b>FPL</b>				NS
≤100%	9.7	7.5	12.5	
101%-133%	8.4	5.9	11.9	
134%-185%	7.0	5.3	9.3	
>185%	9.3	8.2	10.4	

Source: Utah BRFSS, 2009-2011  
NS=Not Significant

# Binge Drinking

## Healthy People 2020 Objectives

SA -14 Reduce the proportion of adults engaging in binge drinking in the last 30 days.

National Target: 24.4%

## Utah Prevalence

Between 2009 and 2011, 8.7% of Utah women reported binge drinking in the past 30 days.

## Sociodemographic Risk Factors

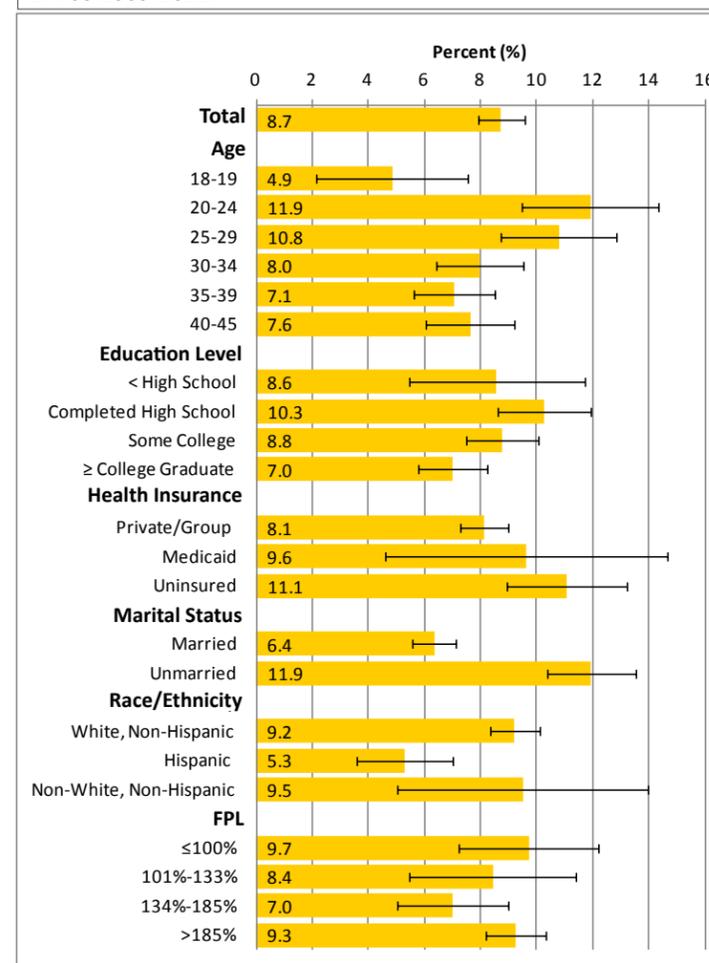
Utah falls far below the current national baseline of 27.1% of adults who binge drink; however, disparities are present among certain women. These include women who are ages 20-29, are non-Hispanic, have at most a high school education, are uninsured, and are unmarried.

## Recommendations and Resources

No amount of alcohol is safe to drink during pregnancy. For women who drink during pregnancy, stopping as soon as possible may lower the risk of having a child with physical, mental, or emotional problems.

The Utah Department of Health's *MotherToBaby* program provides education and information for women on various exposures prior to becoming pregnant, during their pregnancy, and after pregnancy. The *MotherToBaby* program is a valuable resource for women who have questions about alcohol exposure during pregnancy. 1-800-822-2229 or online at <http://health.utah.gov/prl/>.

Women who participated in binge drinking (≥4 drinks on an occasion) at least once in the past month, by select characteristics, BRFSS 2009-2011.



## References

- Centers for Disease Control and Prevention, Alcohol and Public Health, "Frequently Asked Questions," 2012. <http://www.cdc.gov/alcohol/faqs.htm#healthProb>
- Centers for Disease Control and Prevention. *Alcohol use and binge drinking among women of childbearing age – United States, 2006-2010*. MMWR 2012;61:534-538.
- Floyd RL, Decoufle P, Hungerford DW. *Alcohol use prior to pregnancy recognition*. Am J Prev Med 1999;17(2):101-107.

# Nutrition

# Nutrition



"How many fruit and vegetable servings do you consume per day?"

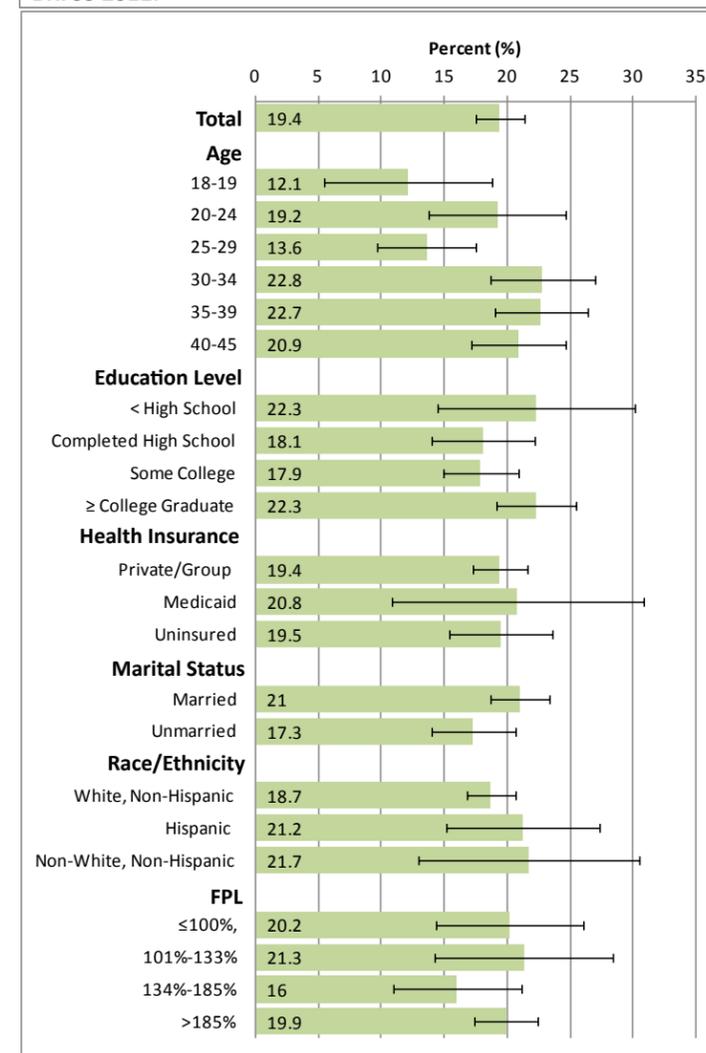
"I think a bigger emphasis should be made about healthy eating and exercising during pregnancy. The phrase "you're eating for two" is used so often as an excuse to eat as much of whatever you want." **A PRAMS mom**

## Public Health Importance

- Fruits and vegetables are essential, nutrient-dense components of a healthy diet.
- Consumption of fruits and vegetables is associated with reduced risk of obesity and many chronic diseases.
- Fruits and vegetables are major sources of a number of nutrients that are essential to healthy pregnancy outcomes and are under consumed in the U.S., including folate, magnesium, potassium, dietary fiber, and vitamins A, C, and K.<sup>1</sup>
- Women who consume recommended levels of fruits and vegetables before and during pregnancy are more likely to:
  - Enter pregnancy at a healthy weight and avoid excessive pregnancy weight gain
  - Have lower risk of their child developing asthma
  - Have a lower risk of having a small for gestational age infant, spontaneous miscarriage, preeclampsia, preterm birth, and low birth weight.
- In the US, very few adults and fewer adolescents consume the amounts of fruits and vegetables recommended as part of healthy eating patterns.

Women who eat ≥3 vegetables per day, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	19.4	17.5	21.3	
<b>Age</b>				
18-19	12.1	6.9	20.6	<0.01
20-24	19.2	14.3	25.2	
25-29	13.6	10.1	18.1	
30-34	22.8	18.9	27.3	
35-39	22.7	19.2	26.6	
40-45	20.9	17.3	24.9	
<b>Education Level</b>				
< High School	22.3	15.5	31.1	NS
Completed High School	18.1	14.4	22.4	
Some College	17.9	15.2	21	
≥ College Graduate	22.3	19.3	25.6	
<b>Health Insurance</b>				
Private/Group	19.4	17.2	21.7	NS
Medicaid	20.8	12.6	32.4	
Uninsured	19.5	15.7	23.9	
<b>Marital Status</b>				
Married	21	18.8	23.3	NS
Unmarried	17.3	14.3	20.8	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	18.7	16.8	20.9	NS
Hispanic	21.2	15.7	27.9	
Non-White, Non-Hispanic	21.7	14.1	31.7	
<b>FPL</b>				
≤100%	20.2	14.9	26.7	NS
101%-133%	21.3	15	29.3	
134%-185%	16	11.6	21.7	
>185%	19.9	17.6	22.5	
Source: Utah BRFSS, 2011				
NS=Not Significant				

Women who eat ≥3 vegetables per day, by select characteristics, BRFSS 2011.



## Healthy People 2020 Objectives

**NWS-15-1** Increase the contribution of vegetables to the diets of the population aged 2 years and older.

**NWS-15.2** Increase the contribution of dark green vegetables, orange vegetables, and legumes to the diets of the population aged 2 years and older

National target: 1.1 cup equivalent of total vegetables per 1,000 calories; 0.3 cup equivalent of dark green or orange vegetables or legumes per 1,000 calories

## Utah Prevalence

In 2011, 19.4% of Utah women ages 18-45 reported consuming at least 3 servings of vegetables per day.

## Sociodemographic Risk Factors

Women in Utah who are aged 18-24, have at most a high school education, are not married, are White, and have incomes between 134-185% FPL were the least likely to be eating 3 or more vegetables per day.

## Recommendations and Resources

Recommendations for fruit and vegetable consumption are based on calorie requirement, and vary by age, sex, and activity level. The recommended intake for women requiring 2000 calories per day includes 2 cups of fruit and 2 ½ cups of vegetables.<sup>1</sup> Individuals can determine their recommended intake and locate resources to meet the recommendations at Choose My Plate <http://www.choosemyplate.gov/food-groups> Additional resources, including recipes and videos can be found at Fruits and Veggies More Matters website <http://www.fruitsandveggiesmorematters.org>

## References

1. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2010*. 7<sup>th</sup> Edition, Washington, DC: U.S. Government Printing Office, December, 2010.

## Folic Acid Supplementation



"During the month before you got pregnant with your new baby, how many times a week did you take a multivitamin, a prenatal vitamin, or a folic acid vitamin?"

"Prior to getting pregnant, I had no idea about the importance of taking prenatal vitamins as it relates specifically to reducing the occurrence of spina bifida and other congenital abnormalities." **A PRAMS mom**

### Public Health Importance

- Vitamins and minerals help give the body the nutrients it needs to stay healthy.
- **Women who can get pregnant** should take a daily multivitamin containing 400 micrograms [µg] of folic acid every day to help prevent spina bifida and other neural tube defects (NTDs).
  - Folic acid may also protect pregnant women against cancer and stroke.<sup>1</sup>
  - The CDC estimates that 50% to 70% of NTDs could be prevented if this recommendation were followed before conception and during early pregnancy.<sup>1</sup>
- **Pregnant women** should get 600 mcg of folic acid every day from food and supplements, like prenatal vitamins that usually contain 600-1000 mcg.
- Natural folate comes from leafy greens, citrus fruits, beans, wheat germ, and fortified foods.<sup>2</sup>
  - However, it may be hard to get enough through food alone; women should take a supplement. B-complex vitamins and multivitamins are also good sources of folic acid.<sup>2</sup>
- In Utah, 32.9 percent of new mothers report taking a multivitamin, prenatal vitamin, or a folic acid supplement every day of the month prior to their pregnancy.

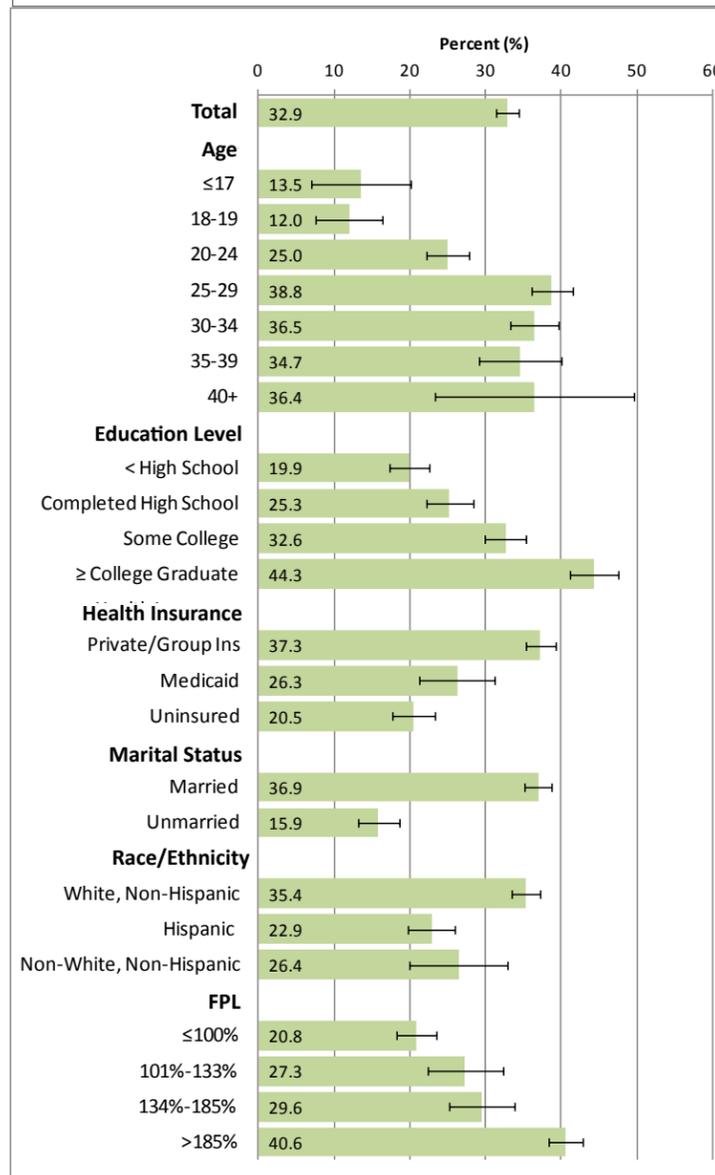
Women who took a multivitamin, prenatal vitamin, or a folic acid supplement every day of the month prior to pregnancy, by select characteristics.

Characteristics	%	95% CI	P-Value
<b>Total</b>	32.9	31.3	34.4
<b>Age</b>			
≤17	13.5	6.9	20.1
18-19	12.0	7.6	16.3
20-24	25.0	22.2	27.9
25-29	38.8	36.0	41.5
30-34	36.5	33.3	39.7
35-39	34.7	29.2	40.1
40+	36.4	23.2	49.6
<b>Education Level</b>			<.0001
< High School	19.9	17.3	22.5
Completed High School	25.3	22.1	28.4
Some College	32.6	30.0	35.3
≥ College Graduate	44.3	41.1	47.6
<b>Health Insurance</b>			<.0001
Private/Group Ins	37.3	35.3	39.2
Medicaid	26.3	21.3	31.2
Uninsured	20.5	17.7	23.3
<b>Marital Status</b>			<.0001
Married	36.9	35.2	38.7
Unmarried	15.9	13.1	18.6
<b>Race/Ethnicity</b>			<.0001
White, Non-Hispanic	35.4	33.5	37.2
Hispanic	22.9	19.8	26.0
Non-White, Non-Hispanic	26.4	20.0	32.9
<b>FPL</b>			<.0001
≤100%	20.8	18.2	23.5
101%-133%	27.3	22.4	32.3
134%-185%	29.6	25.3	33.9
>185%	40.6	38.3	42.9

Source: Utah PRAMS, 2009-2011

## Folic Acid Supplementation

Women who took a multivitamin, prenatal vitamin, or a folic acid supplement every day of the month prior to pregnancy, PRAMS 2009-2011.



### References

1. Centers for Disease Control and Prevention. Recommendations for the Use of Folic Acid to Reduce the Number of Cases of Spina Bifida and Other Neural Tube Defects September 11 1992. 41(RR-14);001http://www.cdc.gov/mmwr/preview/mmwrhtml/00019479.htm.
2. Watkins ML, Erickson JD, Mulinare J. Folic acid fortification. The New England journal of medicine 1999;341(12):923-4
3. Kannan S, Menotti E, Scherer HK, Dickinson J, Larson K. Folic acid and the prevention of neural tube defects: A survey of awareness among Latina women of childbearing age residing in southeast Michigan. Health promotion practice 2007;8(1):60-8.
4. Institute of Medicine. Dietary reference intakes for thiamine, riboflavin, niacin, vitamin B6, folate, vitamin B12, pantothenic acid, biotin, and choline: A report of the Standing Committee on the Scientific Evaluation of Dietary Reference Intakes and its Panel on Folate, other B Vitamins, and Choline Subcommittee

### Healthy People 2020 Objectives

**MICH -14** Increase the proportion of women of childbearing potential with intake of at least 400 mg. of folic acid from fortified foods or dietary supplements.

National Target: 26.2%

### Utah Prevalence

During 2009-2011, 32.9% of new Utah mothers reported taking a multivitamin, prenatal vitamin, or folic acid supplement every day of the month prior to pregnancy.

### Sociodemographic Risk Factors

Even though Utah meets the HP2020 goal regarding folic acid, certain disparities do exist. Women who are less likely to use folic acid supplementation include women under the age of 19, women with less than a high school education, women who are uninsured or on Medicaid, women who are unmarried, Hispanic and non-White, non-Hispanic women, and women at or below 100% of the Federal Poverty Level.

Mexican Americans are at a 50%-200% increased risk of having a pregnancy affected by a neural tube defect (NTD), or a baby born with spina bifida, which is neural tube defect.<sup>3</sup>

### Recommendations and Resources

The Institute of Medicine and the U.S. Public Health Service recommends that "all women of childbearing age consume 400 micrograms of folic acid daily from supplements or fortified foods, in addition to eating a diet containing natural folate."<sup>4</sup>

The Utah Department of Health's *Power Your Life* Program has valuable information on preconception health, including the importance of taking a multivitamin/prenatal vitamin containing folic acid. This information can be found at: <http://health.utah.gov/precon/do/vitamins/>

## Aerobic Physical Activity



“Those who think they have not time for bodily exercise will sooner or later have to find time for illness.”

Edward Stanley, Earl of Derby (1435-1504)

Women who meet the minimum aerobic physical activity guidelines of 150 minutes/week of moderate-vigorous physical activity by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	55.2	52.7	57.6	
<b>Age</b>				
18-19	58.2	47.4	68.4	NS
20-24	56.4	49.4	63.2	
25-29	51.0	45.0	56.9	
30-34	54.1	49.2	59.0	
35-39	58.4	53.9	62.8	
40-45	54.0	49.3	58.6	
<b>Education Level</b>				
< High School	45.6	36.9	54.6	NS
Completed High School	55.7	50.7	60.7	
Some College	56.0	52.0	59.9	
≥ College Graduate	57.9	53.7	62.0	
<b>Health Insurance</b>				
Private/Group	55.7	52.8	58.6	NS
Medicaid	48.7	37.8	59.7	
Uninsured	55.1	49.7	60.4	
<b>Marital Status</b>				
Married	53.9	51.1	56.6	NS
Unmarried	56.8	52.3	61.2	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	56.9	54.2	59.6	<0.01
Hispanic	44.7	37.8	51.8	
Non-White, Non-Hispanic	55.5	44.1	66.4	
<b>FPL</b>				
≤100%	55.8	49.0	62.5	<0.05
101%-133%	48.3	40.1	56.5	
133%-185%	46.4	39.3	53.7	
>185%	57.9	54.5	61.2	

Source: Utah BRFSS, 2011

NS=Not Significant

### Public Health Importance

- Aerobic activities, also called endurance activities, are physical activities in which people move their large muscles in a rhythmic manner for a sustained period. Running, brisk walking, bicycling, playing basketball, dancing, and swimming are all examples of aerobic activities.
- Adults who are physically active are healthier and less likely to develop many chronic diseases than adults who are inactive.
- Women who are physically inactive during the preconception period are more likely to:
  - Be at risk for diabetes <sup>1-2</sup>
  - Have postpartum depressive symptoms <sup>3</sup>
  - Exceed pregnancy weight gain recommended by the Institute of Medicine.<sup>4</sup>
- Exercise can protect women from chronic conditions such as high blood pressure, diabetes, and obesity. Rates of these conditions have increased over the last decade across the US among women prior to pregnancy.<sup>5</sup>

### References

1. Baptiste-Roberts, K., Ghosh, P., & Nicholson, W. K. (2011). Pregravid physical activity, dietary intake, and glucose intolerance during pregnancy. *Journal of Women's Health, 20*(12), 1847-1851.
2. Oken, E., Ning, Y., Rifas-Shiman, S. L., Radesky, J. S., Rich-Edwards, J. W., & Gillman, M. W. (2006). Associations of physical activity and inactivity before and during pregnancy with glucose tolerance. *Obstetrics and Gynecology, 108*(5), 1200-1207.
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6. Behavioral Risk Factor Surveillance Survey, 2011. Retrieved on July 25, 2013 from Utah Department of Health, Center for Health Data, Indicator-based Information System for Public Health website: <http://health.utah.gov/>.
7. Xaverius, P. K., Salas, J., & Tenkku, L. E. (2012). Preconception wellness: Differences in health by immigrant status. *Journal of Immigrant and Minority Health, 14*(2), 216-222.

## Aerobic Physical Activity

### Healthy People 2020 Objectives

PA-2 Increase the proportion of adults who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity

National Target: 47.9%

### Utah Prevalence

Among Utah women of reproductive age, 55.2% reported meeting the physical activity guideline. Of new mothers, 53% exercised at least 3 times/week prior to pregnancy.

### Sociodemographic Risk Factors

Utah meets the HP2020 goal of adults engaging in aerobic physical activity. However, sociodemographic disparities exist that could be improved.<sup>6</sup>

In Utah, fewer Hispanic women met aerobic physical activity guidelines compared to non-Hispanic women. Fewer women in the middle categories of FPL met the guidelines as well.

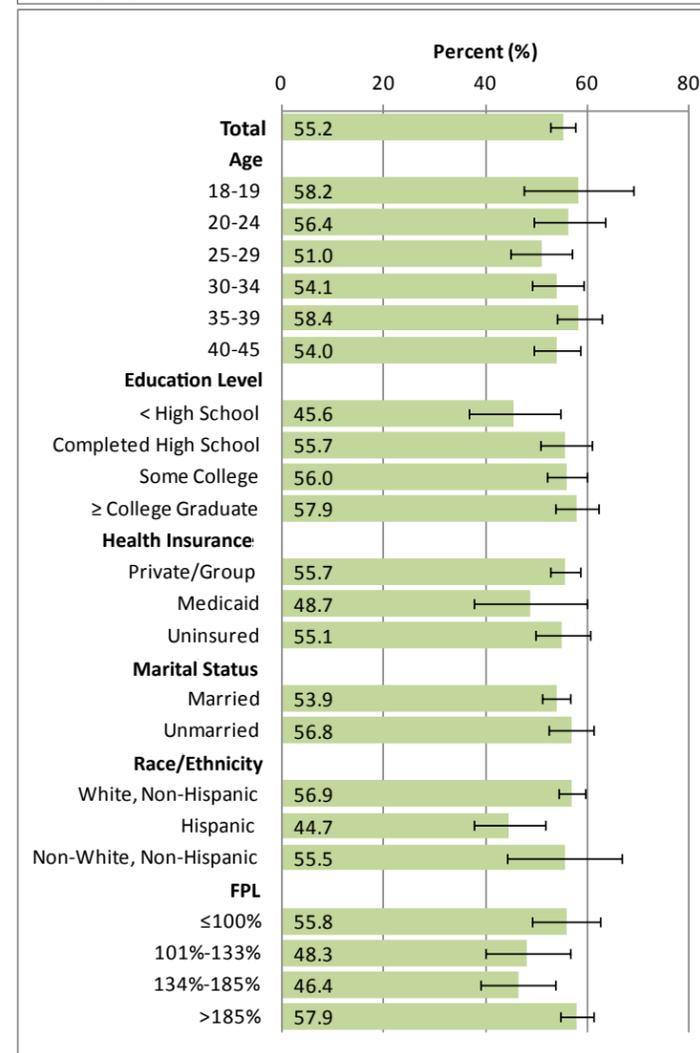
U.S. born women of childbearing age are nearly 70% more likely to engage in moderate-intensity physical activity than their non-U.S. born counterparts.<sup>7</sup>

### Recommendations and Resources

To maintain and promote health, all adults should engage in at least 150 minutes/week of moderate-vigorous aerobic physical activity performed in bouts of at least 10 continuous minutes, or 75 minutes of vigorous physical activity in ≥10 minute bouts. See [www.cdc.gov/physicalactivity](http://www.cdc.gov/physicalactivity).

Health care providers should emphasize the importance of exercise before, during, and after pregnancy.

Women who meet the minimum aerobic physical activity guidelines of 150 minutes/week of moderate-vigorous physical activity by select characteristics, BRFSS 2011.



# Overweight & Obese



“About how much do you weigh without shoes?  
About how tall are you without shoes?”

“Being at a healthy weight prior to pregnancy and taking care not to gain too much weight during pregnancy can substantially improve a woman’s chances of having a favorable birth outcome.”  
**Carol Rasmussen, MSN FNP-C CDE FADE<sup>3</sup>**

## Public Health Importance

- Overweight or obese is defined as a BMI of 25 or more. BMI is calculated by dividing weight in kilograms by the square of height in meters.
- Being overweight increases the risk of many chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and some cancers.<sup>1</sup>
- Obesity is the second leading cause of preventable death in the United States.<sup>1</sup>
- Obesity is associated with menstrual cycle disturbances, decreased fertility, and increased risk of miscarriages.<sup>2</sup>
- Being overweight during pregnancy, even without being obese, is linked to an increased risk of adverse birth outcomes.
- Women who are overweight or obese are at an increased risk of excessive weight gain during pregnancy.
- Women who gain excessive weight during pregnancy have an increased risk for having large for gestational age infants, cesarean delivery, as well as long term weight retention.<sup>3</sup>
- Adverse perinatal outcomes associated with maternal obesity include neural tube defects, preterm delivery, diabetes, cesarean delivery, and hypertensive and thromboembolic disease.<sup>4</sup>
- Appropriate weight loss and nutritional intake before pregnancy reduce maternal and infant risks.
- Even modest weight loss in overweight or obese women, such as 5%-10%, can reduce risks and improve health.<sup>1</sup>

Women who are overweight or obese based on body mass index (BMI) by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	43.4	41.9	44.9	
<b>Age</b>				
18-19	21.0	16.0	27.1	<.0001
20-24	33.2	29.4	37.1	
25-29	47.6	44.2	51.1	
30-34	47.1	44.3	50.0	
35-39	50.3	47.5	53.2	
40-45	54.3	51.5	57.1	
<b>Education Level</b>				
< High School	55.8	49.4	62.1	<.0001
Completed High School	45.0	42.1	47.9	
Some College	43.1	40.8	45.4	
≥ College Graduate	36.5	34.2	38.8	
<b>Health Insurance</b>				
Private/Group	42.0	40.4	43.7	<.0001
Medicaid	60.0	52.2	67.4	
Uninsured	45.6	42.1	49.2	
<b>Marital Status</b>				
Married	45.1	43.5	46.8	<0.05
Unmarried	41.2	38.6	43.9	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	42.1	40.5	43.7	0.0001
Hispanic	53.0	48.3	57.5	
Non-White, Non-Hispanic	43.5	36.9	50.4	
<b>FPL</b>				
≤100%	51.9	47.7	56.0	<.0001
101%-133%	52.4	46.9	57.9	
134%-185%	48.6	44.3	53.0	
>185%	41.3	39.4	43.2	
Source: BRFSS, 2009 -2011				
Weighted crude prevalence and 95% confidence interval				

# Overweight & Obese

## Healthy People 2020 Objectives

**NWS-9** Reduce the proportion of adults (aged 20 and older) who are obese.

National Target: 30.5%

## Utah Prevalence

- Of women between the ages of 18-45, 19.7% are obese.
- Of women between the ages of 18-45, 23.7% are overweight.
- Total of 43.4% of women are overweight or obese
- Among new mothers, 24.8% of women were overweight prior to their pregnancy; 18.6% were obese prior to pregnancy.

## Sociodemographic Risk

Women in some groups have excess risk of being overweight or obese:

- Older women are more likely to be overweight or obese.
- Obesity among non-high school graduates is about twice that of college graduates
- Low income is linked to higher rates of obesity
- Food insecurity is associated with an increased risk of overweight among women -but not among men and children
- As many as 80% of African American women are overweight or obese.<sup>5</sup>

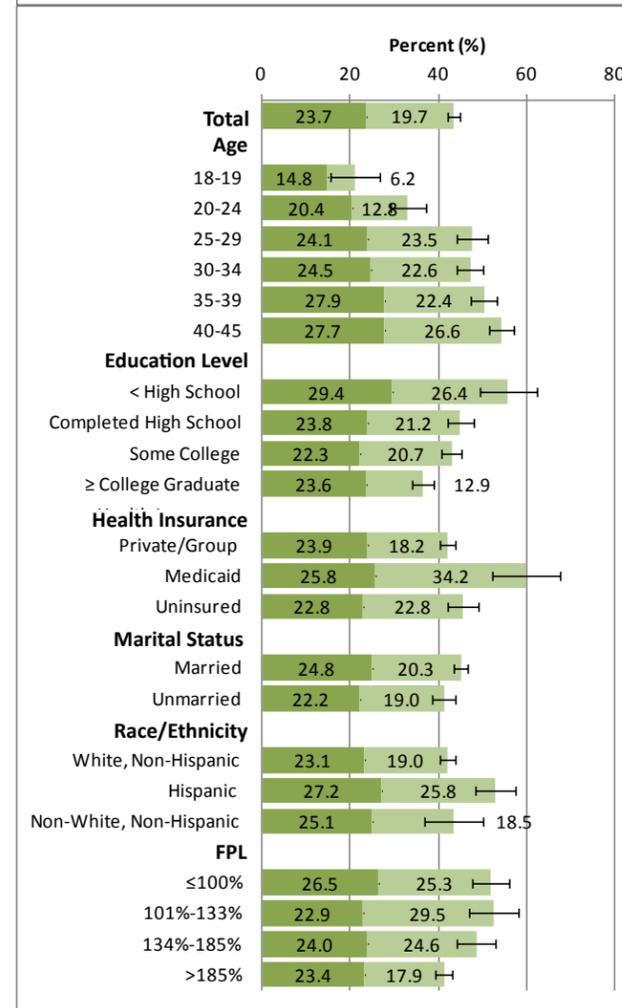
## Recommendation

Preconception counseling for obese and overweight women should include the medical, obstetric, and neonatal risks of obesity and longer-term implications for offspring. Providers may want to encourage women to use effective contraception until they reach a healthy weight.

The *Check Your Health* media campaign promotes the message "Eat Healthy, Be Active!" The campaign specifically targets females ages 25-54.

*Power Your Life*, has tools to assess BMI and encourages healthy food choices and regular exercise. Poweryourlife.org

Women Who are Overweight (Dark Green) or Obese (Light Green), BRFSS 2009-2011.



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## Self-Rated Mental Health Status



*“Thinking about your mental health, for how many days during the past 30 days was your mental health not good?”*

*“Among developed nations, including the United States, major depression is the leading cause of disability.” David Satcher, M.D., Ph.D., US Surgeon General <sup>4</sup>*

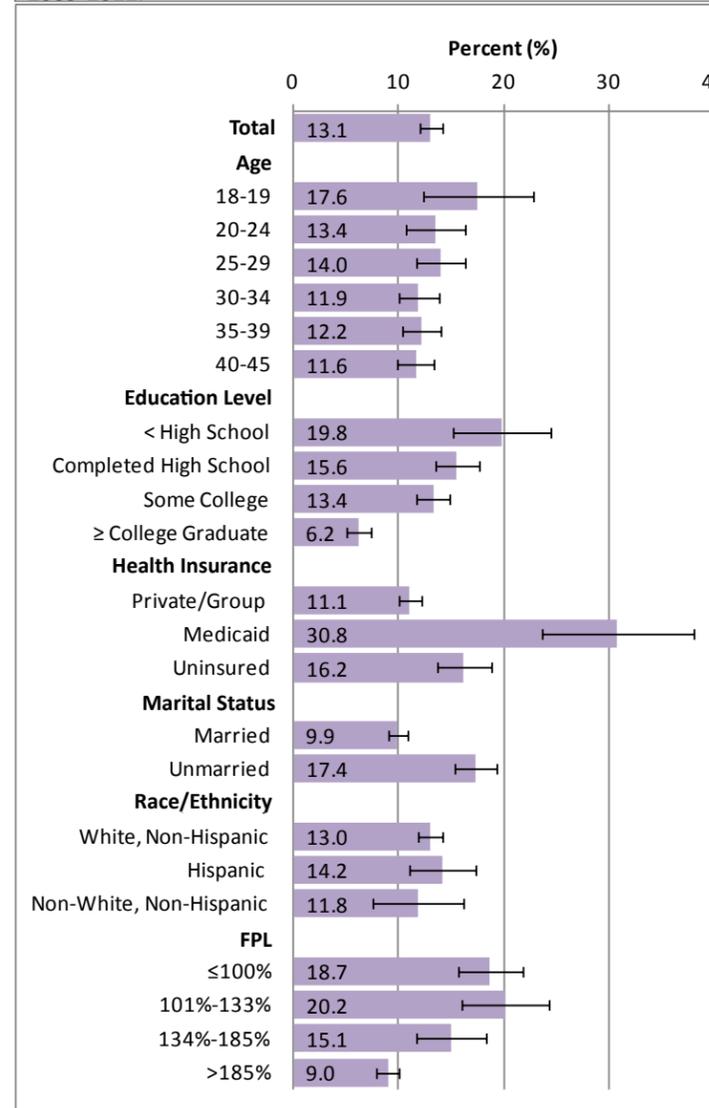
### Public Health Importance

- Research has shown poor mental health is a major source of distress, disability, and social burden and can have a serious impact on both home and professional life. <sup>1</sup>
- Mental health is indispensable to personal well-being, family and interpersonal relationships, and contribution to community and society. <sup>2</sup>
- Poor mental health interferes with social functioning and needs to be monitored as an overall indicator of chronic disease burden. <sup>3</sup>
- Women experience twice the rate of depression as men, regardless of race or ethnicity. <sup>2</sup>
- An estimated 75% of mental illnesses are treatable with supportive services, counseling, and medication, yet stigma and misinformation are still major barriers to treatment and recovery. <sup>2</sup>
- Reproductive events including menstruation, birth control changes, pregnancy, postpartum, infertility, menopause, and the decision to not have children can trigger mood fluctuations. <sup>2</sup>
- Overall, the prevalence of frequent mental distress among U.S. adult women increased from 10.2% in 1993 to 10.6% in 2001. <sup>3</sup>
- In Utah, 13.1% of women reported that their mental health was not good for at least 14 out of the past 30 days.

Women who report that their mental health was not good for at least 14 out of the past 30 days, by select characteristics.				
Characteristics	%	95% CI		P-Value
Total	13.1	12.1	14.2	
<b>Age</b>				NS
18-19	17.6	12.9	23.5	
20-24	13.4	10.9	16.5	
25-29	14.0	11.8	16.5	
30-34	11.9	10.2	13.9	
35-39	12.2	10.5	14.2	
40-45	11.6	10.0	13.5	
<b>Education Level</b>				<.0001
< High School	19.8	15.5	24.8	
Completed High School	15.6	13.6	17.8	
Some College	13.4	11.9	15.0	
≥ College Graduate	6.2	5.1	7.5	
<b>Health Insurance Status</b>				<.0001
Private/Group	11.1	10.0	12.2	
Medicaid	30.8	24.1	38.5	
Uninsured	16.2	13.9	18.9	
<b>Marital Status</b>				<.0001
Married	9.9	9.0	11.0	
Unmarried	17.4	15.4	19.5	
<b>Race/Ethnicity</b>				NS
White, Non-Hispanic	13.0	11.9	14.1	
Hispanic	14.2	11.4	17.5	
Non-White, Non-Hispanic	11.8	8.2	16.9	
<b>Federal Poverty Level</b>				<.0001
≤100%	18.7	15.8	22.0	
101%-133%	20.2	16.4	24.6	
134%-185%	15.1	12.0	18.7	
>185%	9.0	7.9	10.2	
Source: Utah BRFSS, 2009-2011				
NS=Not Significant				

## Self-Rated Mental Health Status

Women who report that their mental health was not good for at least 14 out of the past 30 days, by select characteristics, BRFSS 2009-2011.



### Healthy People 2020 Objectives

**MHMD-4** Reduce the proportion of persons (18 and older) who experience major depressive episodes (MDEs)

National Target: 5.8%

### Utah Prevalence

In Utah, 13.1% of women aged 18-45 reported that their mental health was not good for at least 14 out of the past 30 days.

### Sociodemographic Risk Factors

More Utah women are experiencing mental distress than the current national baseline of 6.4%.

Further disparity in general mental health and well-being exists even within the Utah community. Women who experience greater mental distress are those who are 18-19 years of age, women with a high school or less than high school education, women on Medicaid, women who are not married, Hispanic women, and women who are below 134% FPL.

Access, utilization, and quality of care do contribute to inequalities in mental health care. Language, cost of care, cultural stigma, and fragmented organization of services pose additional barriers.<sup>3</sup>

### Recommendations and Resources

The Utah Department of Human Services' Division of Substance Abuse and Mental Health ensures that mental health treatment services are available throughout the state. The Division contracts with Community Mental Health Centers (CMHC) to provide these services. <http://www.dsamh.utah.gov/mentalhealthtreatment.htm>

NAMI is the National Alliance on Mental Illness. NAMI Utah's mission is to ensure the dignity and improve the lives of those who live with mental illness and their families through support, education and advocacy. <http://www.namiut.org>

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## Anxiety and Depression

## Anxiety and Depression



“Primary care-based screening, diagnosis, and management improved mother’s depression outcomes at 12 months” **Barbara P. Yawn, MD,MSc<sup>5</sup>**

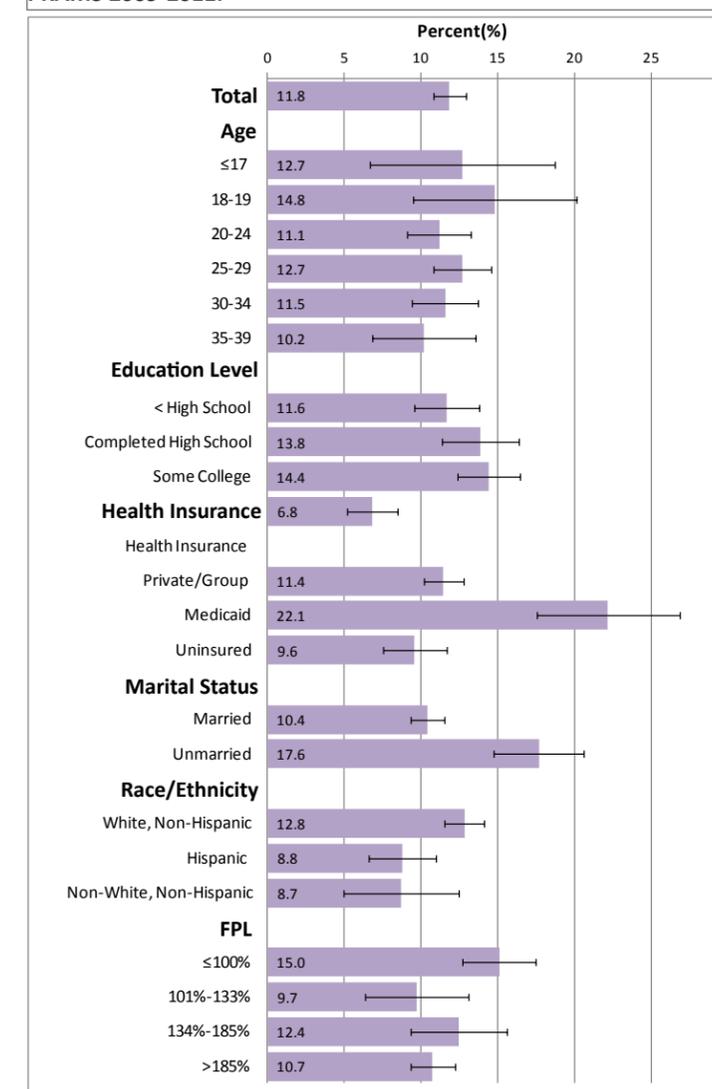
At any time during the 12 months before you got pregnant with your new baby, did you visit a health care worker to be checked or treated for depression or anxiety?

Women who visited a health care worker to be checked or treated for depression or anxiety during the 12 months prior to pregnancy, by select characteristics.

Characteristics	%	95% CI	P-Value
<b>Total</b>	11.8	10.8	12.9
<b>Age</b>			
≤17	12.7	6.7	18.7
18-19	14.8	9.4	20.1
20-24	11.1	9.1	13.2
25-29	12.7	10.8	14.5
30-34	11.5	9.4	13.7
35-39	10.2	6.8	13.6
40+ ^	^	^	^
<b>Education Level</b>			
< High School	11.6	9.5	13.8
Completed High School	13.8	11.3	16.3
Some College	14.4	12.3	16.4
≥ College Graduate	6.8	5.1	8.4
<b>Health Insurance</b>			<.0001
Private/Group	11.4	10.2	12.7
Medicaid	22.1	17.5	26.8
Uninsured	9.6	7.5	11.7
<b>Marital Status</b>			
Married	10.4	9.3	11.5
Unmarried	17.6	14.7	20.6
<b>Race/Ethnicity</b>			
White, Non-Hispanic	12.8	11.5	14.1
Hispanic	8.8	6.6	11.0
Non-White, Non-Hispanic	8.7	4.9	12.4
<b>FPL</b>			
≤100%	15.0	12.7	17.4
101%-133%	9.7	6.3	13.0
134%-185%	12.4	9.3	15.5
>185%	10.7	9.3	12.2

Source: Utah PRAMS, 2009-2011  
 \* Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.  
 ^ The estimate has been suppressed because the relative standard error is greater than 50% or the observed number of events is very small and not appropriate for publication.  
 NS=Not Significant

Women who visited a health care worker to be checked or treated for depression or anxiety during the 12 months prior to pregnancy, PRAMS 2009-2011.



### Public Health Importance

- Women are 1.7 times as likely to experience depression as men.<sup>1</sup>
- One out of eight women will suffer from depression at some point in her lifetime.<sup>2</sup>
- Women with depression are more likely to report symptoms such as anxiety, somatization, increases in weight and appetite, oversleeping, and expressed anger and hostility.<sup>2</sup>
- It is estimated that only half of women with depression have ever received a clinical diagnosis of the disorder.<sup>3</sup>
- Depression affects a woman's preconception, prenatal, and postnatal health.<sup>4</sup>
- Women who reported depression prior to pregnancy were significantly more likely to have preterm and low birthweight babies.<sup>5</sup>
- Poor preconception mental health is associated with pregnancy complications, fetal death, and low birth weight babies.<sup>5</sup>
- Poor mental health prior to pregnancy increases the likelihood of experiencing postpartum depression, which when left untreated, is associated with adverse outcomes for the woman, her infant, and family.<sup>5</sup>

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### Healthy People 2020 Objectives

**MHMD-11** Increase the proportion of primary care physicians who screen adults aged 19 years and older for depression during office visits.

National Target: 2.4%

### Utah Prevalence

Although different from the HP2020 goal, 11.8% of Utah women having had a live birth reported that they visited a health care worker to be checked or treated for depression or anxiety.

In Utah, 12.2 % of new mothers also reported anxiety and 12.3% reported depression during the three months prior to pregnancy.

Additionally, 11.6% of new mothers reported that during the 12 months prior to pregnancy they were checked or treated for depression.

### Sociodemographic Risk Factors

During the 3 months prior to pregnancy, 12% of women reported depression; however 20% of new moms who were 18-19 years old reported depression prior to getting pregnant.

Utah women who were on Medicaid and were under 100% FPL were more likely to visit a health care provider to be checked or treated for anxiety or depression prior to becoming pregnant.

### Recommendations and Resources

The *Power Your Life* campaign sponsored by the Utah Department of Health encourages positive preconception and interconception health behaviors and includes information on mental health and depression. This resource is available at: <http://health.utah.gov/precon/feel/depression-anxiety/>

The CDC has also initiated a preconception campaign entitled *Show Your Love* with a goal to increase the number of women who plan their pregnancies, visit their health care providers, and engage in healthy behaviors before becoming pregnant. Educational materials and information can be found at: <http://www.cdc.gov/preconception/women.html>

## Postpartum Depression

## Postpartum Depression



Since your new baby was born, how often have you felt down, depressed or hopeless – always, often, sometimes, rarely, or never?

*“Don't be afraid to ask for help if you are depressed. It is not taboo, it would be worse if something bad happened because you were afraid to ask. I had depression after my first pregnancy and the only reason I don't after my second is because I got over my fear and said something.” A PRAMS mom*

### Public Health Importance

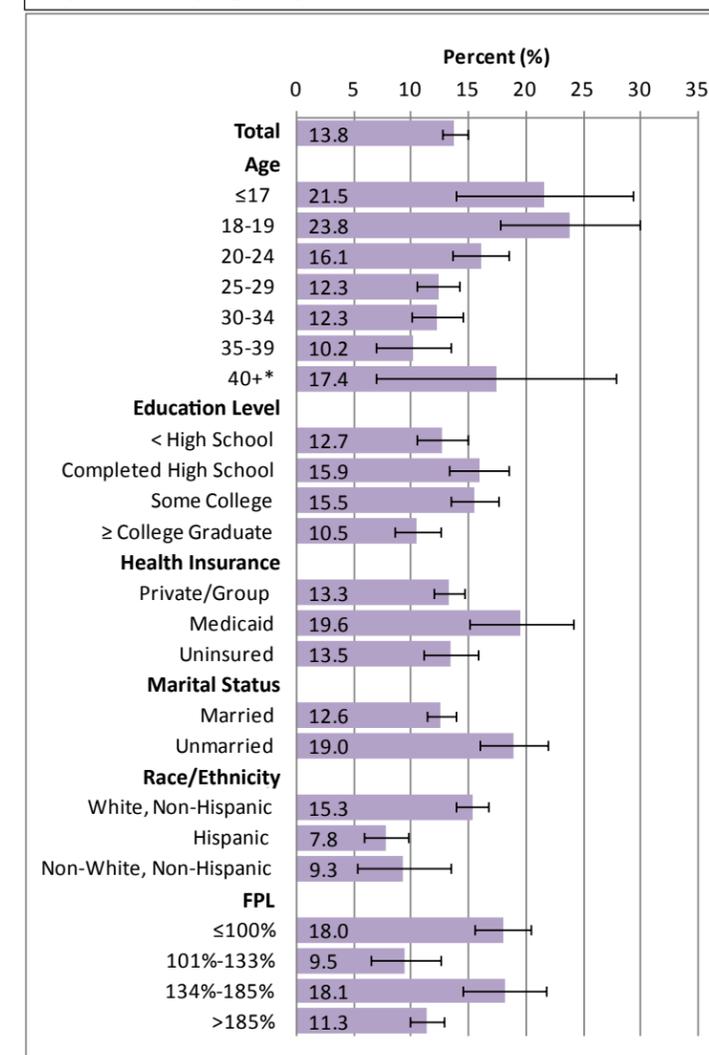
- Depression after delivery can range from “baby blues,” which occur within the first several weeks, to more severe depression that may require treatment and can manifest up to one year postpartum.
- Previous studies have found that any history of depression is one of the greatest risk factors for postpartum depression.<sup>1</sup>
- Depressed mothers, compared with non-depressed mothers, report a 3-fold greater risk of serious emotional problems in their children and a 10-fold greater risk of having poor mother-child relations.<sup>2</sup>
- Women who experience postpartum depression are less likely to continue breastfeeding.<sup>3</sup>
- According to a CDC survey, 8% to 19% of women report having frequent postpartum depressive symptoms.<sup>4</sup>
- Overall, 13.8% of Utah women report depressive symptoms after delivery.
- Utah women with postpartum depression are significantly more likely to have a preterm birth.

Percent of women having a live birth who experienced depressive symptoms after pregnancy, by select characteristics				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	13.8	12.7	14.9	
<b>Age</b>				<.0001
≤17	21.5	13.8	29.3	
18-19	23.8	17.7	29.9	
20-24	16.1	13.6	18.5	
25-29	12.3	10.5	14.2	
30-34	12.3	10.1	14.4	
35-39	10.2	7.0	13.4	
40+*	17.4*	7.0	27.9	
<b>Education Level</b>				<.0001
< High School	12.7	10.5	14.9	
Completed High School	15.9	13.2	18.5	
Some College	15.5	13.4	17.5	
≥ College Graduate	10.5	8.5	12.5	
<b>Health Insurance</b>				<.05
Private/Group	13.3	12.0	14.6	
Medicaid	19.6	15.1	24.1	
Uninsured	13.5	11.1	15.8	
<b>Marital Status</b>				<.0001
Married	12.6	11.4	13.8	
Unmarried	19.0	16.0	21.9	
<b>Race/Ethnicity</b>				<.0001
White, Non-Hispanic	15.3	13.9	16.7	
Hispanic	7.8	5.9	9.7	
Non-White, Non- Hispanic	9.3	5.3	13.4	
<b>FPL</b>				<.0001
≤100%	18.0	15.4	20.5	
101%-133%	9.5	6.4	12.5	
134%-185%	18.1	14.5	21.8	
>185%	11.3	9.9	12.8	

Source: Utah PRAMS, 2009-2011

\* Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.

Percent of women having a live birth who experienced depressive symptoms after pregnancy, PRAMS 2009-2011



### Healthy People 2020 Objective

While Healthy People 2020 does not directly address postpartum depression, HP 2020 Objective (MHMD-11) calls for an increase in depression screening by primary care providers.

National Target: 2.4%

### Utah Prevalence

13.8% of Utah women having a live birth report that they felt down, depressed, or hopeless after the birth of their baby.

### Sociodemographic Risk Factors

Utah women 19 and younger report depressive symptoms at much higher rates than older women.

Utah women who are on Medicaid and are unmarried also have higher rates of postpartum depressive symptoms.

Non-Hispanic White women in Utah report higher rates of postpartum depression than other races/ethnicities.

### Recommendations and Resources

The American Academy of Pediatrics (AAP) recommends screening mothers for depression at the 1-, 2-, 4- and 6-month well-child visits and beyond the postpartum period.<sup>5</sup>

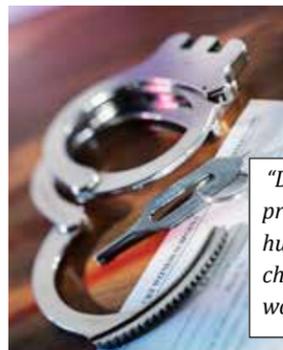
Educational resources are available through Baby Your Baby at <http://www.babyyourbaby.org/pregnancy/after-pregnancy/emotional-reactions.php>

The Maternal and Infant Health program has a postpartum depression screening tool for women who may be suffering from the condition. It can be accessed here: [http://health.utah.gov/mihp/pdf/Suffer\\_PPD.pdf](http://health.utah.gov/mihp/pdf/Suffer_PPD.pdf)

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## Physical Abuse



"During the 12 months before you got pregnant with your new baby, did your husband or partner push, hit, slap, kick, choke, or physically hurt you in any other way?"

"Women with a history of IPV (Intimate Partner Violence) are more likely to display behaviors that present further health risks (e.g., substance abuse, alcoholism, suicide attempts) than women without a history of IPV." Centers for Disease Control and Prevention <sup>10</sup>

### Public Health Importance

- Researchers as well as victims of domestic violence identify that the childbearing years are the years of highest risk for domestic violence to occur or intensify.<sup>1-3</sup>
- The Utah Department of Health's Violence and Injury Prevention Program (VIPP) projects that 40,000 Utah women are physically abused by an intimate partner each year.
- VIPP states that on average, 11 Utah women die each year from domestic violence.
- Research indicates that women who are subjected to domestic violence are more likely to have pregnancy complications such as low birthweight infants, preterm labor, intrauterine fetal death, smoking and substance abuse, late entry into prenatal care, vaginitis, sexually transmitted diseases and urinary tract infections.<sup>4-6</sup>
- Victims of domestic violence may be more likely to experience depression, anxiety and post-traumatic stress disorder.<sup>7-9</sup>

Women who were physically abused by their husband or partner during the 12 months prior to their pregnancy, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	2.0	1.6	2.5	
<b>Age</b>				
≤17	10.6*	5.0	16.2	<.0001
18-19	8.1	4.2	12.1	
20-24	2.0	1.1	2.9	
25-29	1.3	0.7	2.0	
30-34	1.7*	0.8	2.6	
35-39	1.5*	0.2	2.8	
40+	^	^	^	
<b>Education Level</b>				
< High School	5.9	4.3	7.5	<.0001
Completed High School	2.0*	1.0	3.0	
Some College	1.6	0.8	2.4	
≥ College Graduate	0.8*	0.2	1.4	
<b>Health Insurance</b>				<.0001
Private/Group	1.2	0.7	1.6	
Medicaid	5.7	3.1	8.3	
Uninsured	3.8	2.6	4.9	
<b>Marital Status</b>				
Married	1.2	0.8	1.6	<.0001
Unmarried	5.8	4.1	7.4	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	1.4	1.0	1.8	<.0001
Hispanic	3.8	2.5	5.2	
Non-White, Non-Hispanic	6.1*	2.8	9.4	
<b>FPL</b>				
≤100%	5.0	3.6	6.4	<.0001
101%-133%	1.5*	0.4	2.7	
134%-185%	2.0*	0.6	3.4	
>185%	0.8*	0.4	1.2	

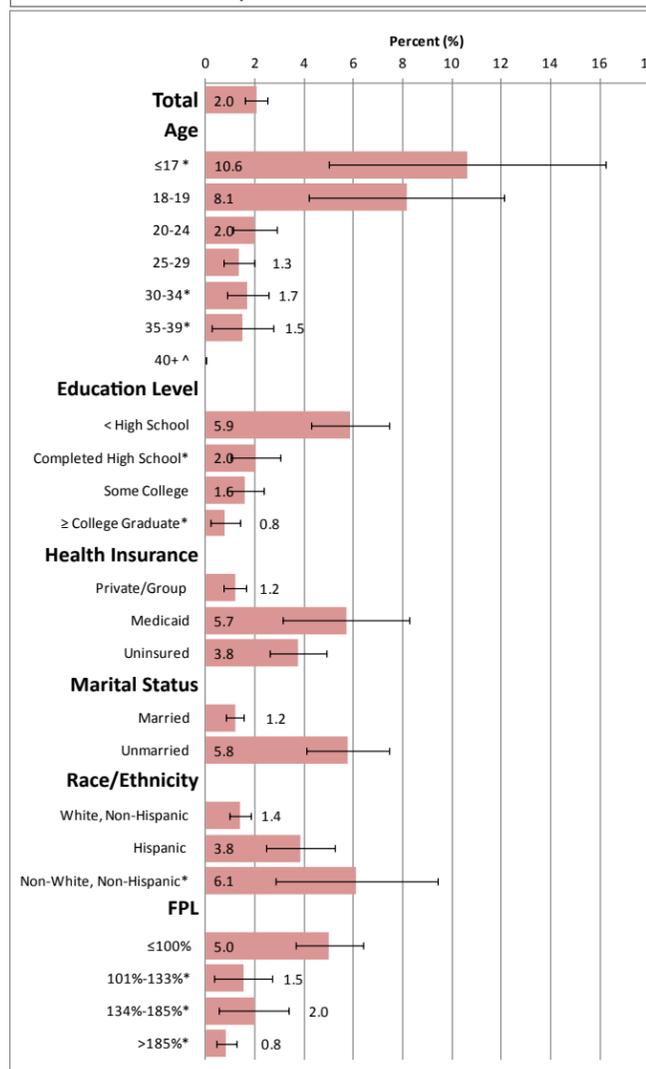
Source: Utah PRAMS, 2009-2011

\* Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.

^ The estimate has been suppressed because the relative standard error is greater than 50% or the observed number of events is very small and not appropriate for publication.

## Physical Abuse

Women who were physically abused by their husband or partner during the 12 months prior to their pregnancy, by select characteristics, PRAMS 2009-2011.



### Healthy People 2020 Objectives

IVP-39 Reduce violence by current or former intimate partners.

National Target: Not yet set

### Utah Prevalence

During 2009-2011, 2% of new Utah mothers reported that they were abused physically by their husband or partner during the 12 months prior to their pregnancy.

### Sociodemographic Risk Factors

Abuse is most common among younger women, those with low levels of education, those who are uninsured or who have Medicaid insurance, those who are non-Whites, those who are unmarried, and those who have lowest incomes.

### Recommendations and Resources

The childbearing years are a critical time to prevent physical violence through intervention as well as extra vigilance from health care providers.<sup>3</sup>

The Utah Domestic Violence Coalitions improve domestic violence intervention and prevention. They ensure coordinated, best-practice solutions are implemented and sustained, and are the "go-to" organizations for any questions about services or emerging issues in Utah. <http://udvc.org/>

The Utah Department of Health's Violence and Injury Prevention Program has valuable information on domestic violence at their website. <http://www.health.utah.gov/vipp/domesticViolence/overview.html>

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## Emotional and Social Support



"How often do you get the social and emotional support you need?"

"Having supportive relationships is one of the strongest predictors of well-being, having a notably positive effect." **David G. Myers, Ph.D.**<sup>5</sup>

### Public Health Importance

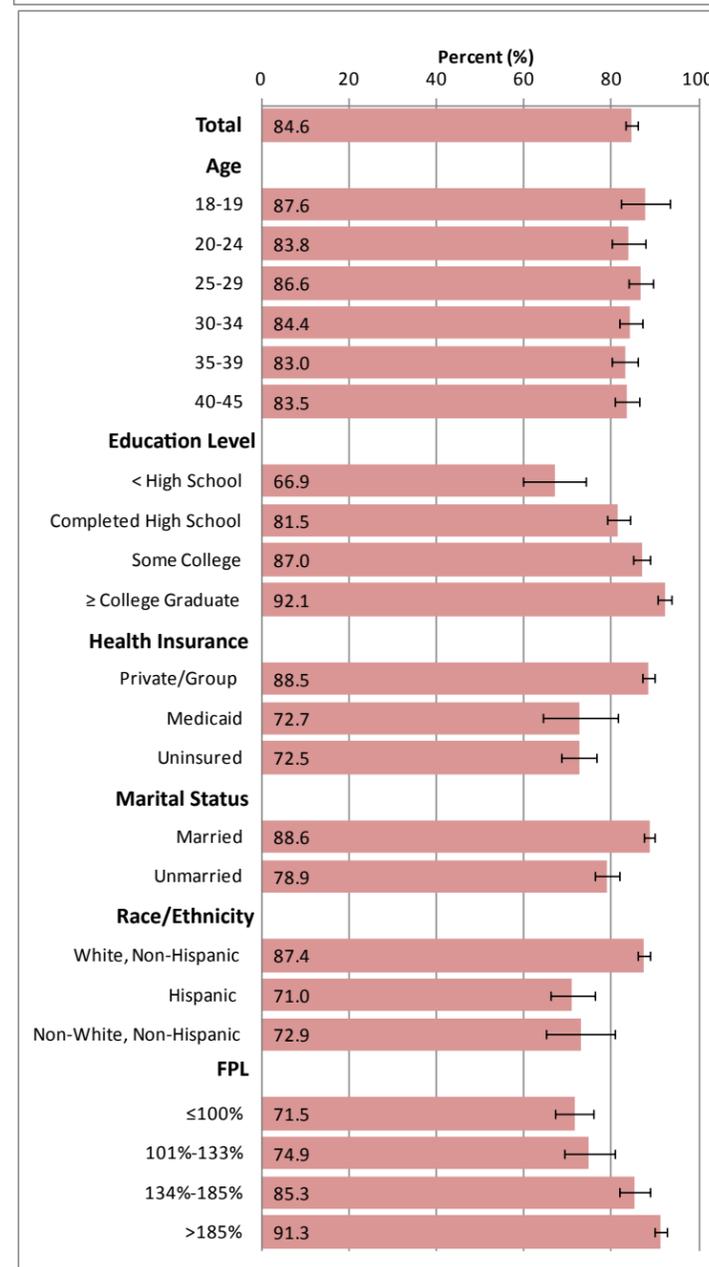
- Social and emotional support is associated with reduced risk of mental illness, physical illness, and mortality.<sup>1</sup>
- As the level of social and emotional support decreases, the prevalence of fair/poor general health, dissatisfaction with life, disability, physical distress, mental distress, activity limitation, depressive symptoms, anxiety symptoms, insufficient sleep, and pain increase.<sup>1</sup>
- The prevalence of smoking, obesity, physical inactivity, and heavy drinking increases with decreasing levels of social and emotional support.<sup>1</sup>
- Social and emotional support play an important role in maintaining health by providing an opportunity for communication and an outlet for emotional expression.
- Strong emotional support reduces stress and immune system abnormalities.
- Strong social and emotional support are correlated with a decreased risk of diabetes-associated mortality, as well as overall mortality.<sup>2-3</sup>
- A strong social support system prior to becoming pregnant can facilitate more support during pregnancy and into parenthood. Social support during the prenatal period, including familial support and general functional support, has been found to be associated with fetal growth and birth weight.<sup>4</sup>

Women who always or usually get the social and emotional support they need, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	84.6	83.2	85.9	
<b>Age</b>				
18-19	87.6	80.9	92.2	NS
20-24	83.8	79.6	87.3	
25-29	86.6	83.5	89.1	
30-34	84.4	81.7	86.7	
35-39	83.0	79.9	85.8	
40-45	83.5	80.4	86.2	
<b>Education Level</b>				
< High School	66.9	59.5	73.6	<.0001
Completed High School	81.5	78.7	84.1	
Some College	87.0	84.9	88.8	
≥ College Graduate	92.1	90.4	93.6	
<b>Health Insurance</b>				
Private/Group	88.5	87.1	89.7	<.0001
Medicaid	72.7	63.4	80.4	
Uninsured	72.5	68.3	76.3	
<b>Marital Status</b>				
Married	88.6	87.3	89.8	<.0001
Unmarried	78.9	76.1	81.5	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	87.4	86.0	88.7	<.0001
Hispanic	71.0	65.7	75.8	
Non-White, Non-Hispanic	72.9	64.3	80.0	
<b>FPL</b>				
≤100%	71.5	66.7	75.8	<.0001
101%-133%	74.9	68.6	80.3	
134%-185%	85.3	81.4	88.5	
>185%	91.3	89.9	92.6	

Source: Utah BRFSS 2009-2010  
NS=Not Significant

## Emotional and Social Support

Women who always or usually get the social and emotional support they need, by select characteristics, BRFSS 2009-2010.



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### Healthy People 2020 Objectives

While there is no HP 2020 objective that specifically addresses emotional support, mental health is an important component of the overall goal of Healthy People, 2020.

### Utah Prevalence

During 2009-2010, 84.6% of Utah women reported that they 'always' or 'usually' get the social and emotional support they need.

### Sociodemographic Risk Factors

Social and emotional support are least common among women with low levels of education, those who are uninsured or have Medicaid insurance, those who are not married, Hispanics and women of other races, and those who have lower income levels.

### Recommendations and Resources

The Utah Department of Human Services provides mental health information and referrals for support groups and resources. <http://www.dsamh.utah.gov/mentalhealthtreatment.htm>

NAMI Utah provides a variety of services to educate and support individuals who live with mental illness. <http://www.namiut.org/>

# Diabetes



*"I was diagnosed diabetic three months before becoming pregnant and was just learning about diabetes and how it affected my body when I found out I was pregnant. I was ecstatic! I was overjoyed! Until I went to the fertility doctor who told me, 'You need to be in control of your diabetes. Your numbers need to be better or your child will have birth defects.' I was in shock." A mom with diabetes*

*"Has a doctor, nurse, or other health professional EVER told you that you had . . . diabetes?"  
If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"*

## Public Health Importance

- Uncontrolled diabetes during pregnancy can lead to increased risk of miscarriage, stillbirth, birth defects, difficult deliveries, and health problems for the newborn such as respiratory problems and hypoglycemia.<sup>1</sup>
- Less than one percent (0.6%) of births in Utah are to mothers with diabetes diagnosed prior to pregnancy, but they represent a disproportionate share of poor birth outcomes.<sup>2</sup>
- Women with uncontrolled diabetes during pregnancy are more likely to experience:<sup>1</sup>
  - Preeclampsia
  - Preterm labor
  - A cesarean delivery
  - Gum disease
  - Bladder and other infections
  - Worsening of existing eye, kidney, heart, and nerve problems
- Babies born to women with uncontrolled diabetes have an increased risk of<sup>1</sup>:
  - Birth defects (including heart, other major birth defects of brain or spinal cord)
  - Stillbirth/miscarriage
  - Large birthweight (>9lbs)
  - Low blood sugar after birth
  - Jaundice
  - Obesity later in life
- With careful pre-pregnancy planning and diligent care to control blood sugar levels, women with diabetes can have the same chance of having a healthy baby as a woman without diabetes.<sup>1</sup>

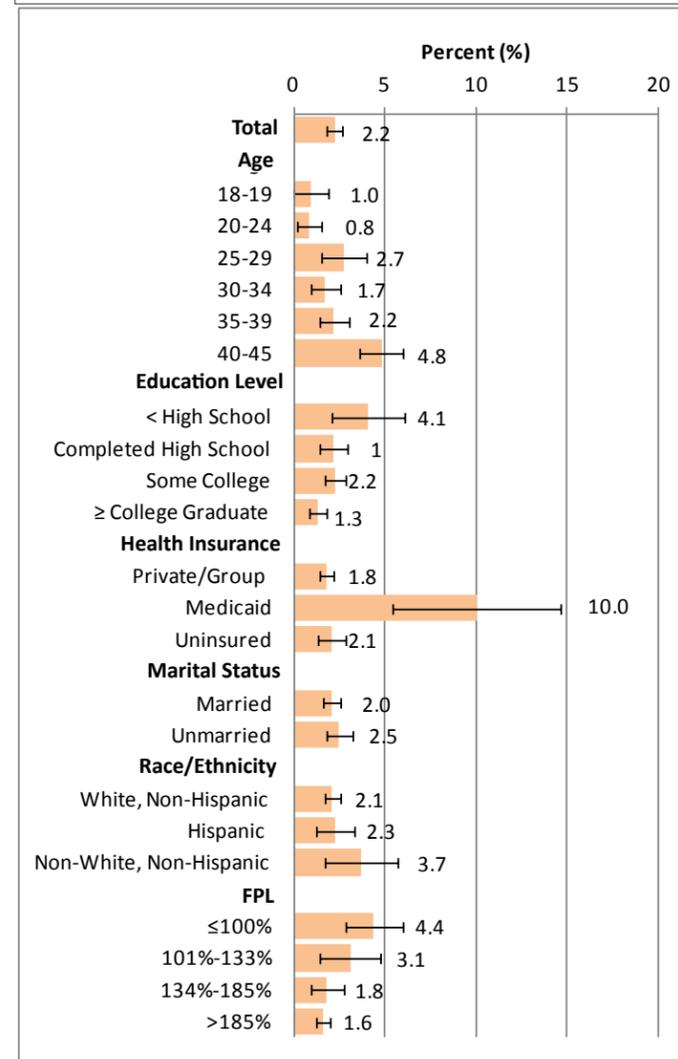
**Women who have ever been told by a health care provider that they had diabetes, not including gestational diabetes, by select characteristics.**

Characteristics	%	95% CI	P-Value
Total	2.2	1.9	2.7
Age			
18-19	1.0	0.3	3.3
20-24	0.8	0.4	1.8
25-29	2.7	1.8	4.2
30-34	1.7	1.1	2.8
35-39	2.2	1.6	3.1
40-45	4.8	3.7	6.2
Education Level			
< High School	4.1	2.5	6.6
Completed High School	2.2	1.5	3.1
Some College	2.2	1.7	2.9
≥ College Graduate	1.3	0.9	1.9
Health Insurance			
Private/Group	1.8	1.5	2.3
Medicaid	10.0	6.3	15.6
Uninsured	2.1	1.4	3.0
Marital Status			
Married	2.0	1.6	2.6
Unmarried	2.5	1.9	3.3
Race/Ethnicity			
White, Non-Hispanic	2.1	1.7	2.6
Hispanic	2.3	1.4	3.7
Non-White, Non-Hispanic	3.7	2.1	6.3
FPL			
≤100%	4.4	3.1	6.3
101%-133%	3.1	1.8	5.3
134%-185%	1.8	1.1	3.0
>185%	1.6	1.3	2.1

Source: Utah BRFSS, 2009-2011  
NS=Not Significant

# Diabetes

**Women ever told by a provider they have diabetes, not including gestational diabetes, by select characteristics BRFSS 2009-2011.**



## Healthy People 2020 Objectives

There are a number of objectives that relate to diabetes, but none that specifically address women of reproductive age.

## Utah Prevalence

During 2009-2011, 2.2% of women of reproductive age had been diagnosed with diabetes. Among new mothers 1.6% were diagnosed with diabetes prior to pregnancy.

## Sociodemographic Risk

Women who are older, have lower education levels and have incomes that are below the FPL experience more non-pregnancy related diabetes. Women who received Medicaid reported more diabetes as well.

## Recommendation

Women with diabetes should talk with their health care provider about plans to have a baby. The American College of Obstetricians and Gynecologists recommends that diabetic women be counseled about the importance of taking folic acid as they are at increased risk for neural tube defects.<sup>3</sup> Diabetic women should use a reliable method of birth control until their blood sugar is in good control. Most doctors recommend postponing pregnancy until a woman's A1C is under 6.9% for at least 3-6 months. Women with diabetes should consider a consultation with a Maternal-Fetal Medicine specialist both before pregnancy and mid-pregnancy.<sup>3</sup>

## Online Resources

- What I need to know about Preparing for Pregnancy if I Have Diabetes <http://diabetes.niddk.nih.gov/dm/pubs/pregnancy>
- A Labor of Love. Women Diabetes and Pregnancy (brochure) Available at [health.utah.gov/diabetes](http://health.utah.gov/diabetes)
- Type 1 or Type 2 Diabetes and Pregnancy. Available at <http://www.cdc.gov/pregnancy/diabetes-types.html>

## References

- Centers for Disease Control and Prevention .Type 1 or Type 2 Diabetes and Pregnancy. Problems of Diabetes in Pregnancy. <http://www.cdc.gov/pregnancy/diabetes-types.html>
- National Diabetes Information Clearinghouse (NDIC) .Complications of Diabetes Available online at : <http://diabetes.niddk.nih.gov/dm/pubs/statistics/> Utah Office of Vital Records and Statistics, Utah Department of Health (2011). Birth Records.
- ACOG Practice Bulletin. Clinical Management Guidelines for Obstetrician-Gynecologists. Number 60, March 2005. Pregestational diabetes mellitus.

# Hypertension



"During the 3-months before you got pregnant with your new baby, did you have high blood pressure (hypertension)?"

"During reproductive years, lifestyle modification is often the first line of treatment for hypertension." **Jennifer M. Bombard, MPH<sup>2</sup>**

## Public Health Importance

- Hypertension, commonly known as high blood pressure, affects more than 39 million adult women in the United States.<sup>1</sup>
- Chronic hypertension increases an individual's risk of developing stroke, heart failure, kidney disease, and cardiovascular disease. Cardiovascular disease is the leading cause of death in women.<sup>1</sup>
- Chronic hypertension also increases the risk of pregnancy complications and poor infant outcomes, including: preeclampsia, placental abruption, gestational diabetes, prematurity, fetal growth restriction, and infant death.<sup>2</sup>
- High blood pressure during pregnancy can damage the mother's kidneys and other organs and result in low birth weight and early delivery.
- Preeclampsia (e.g., "toxemia of pregnancy") can be life threatening for both mother and baby.
  - Preeclampsia can lead to eclampsia, which is characterized by seizures. Eclampsia is the second leading cause of maternal death in the U.S.
  - Preeclampsia is the leading cause of fetal complications, including low birth weight, premature birth, and stillbirth.<sup>3</sup>
- Women who have chronic hypertension, previous pregnancies affected by high blood pressure, women who are obese, women who are pregnant with multiples, and women with diabetes, kidney disease, rheumatoid arthritis, lupus or scleroderma are at an increased risk of preeclampsia.<sup>3</sup>
- In the US, hypertension affects 8% of women of reproductive age.<sup>4</sup>

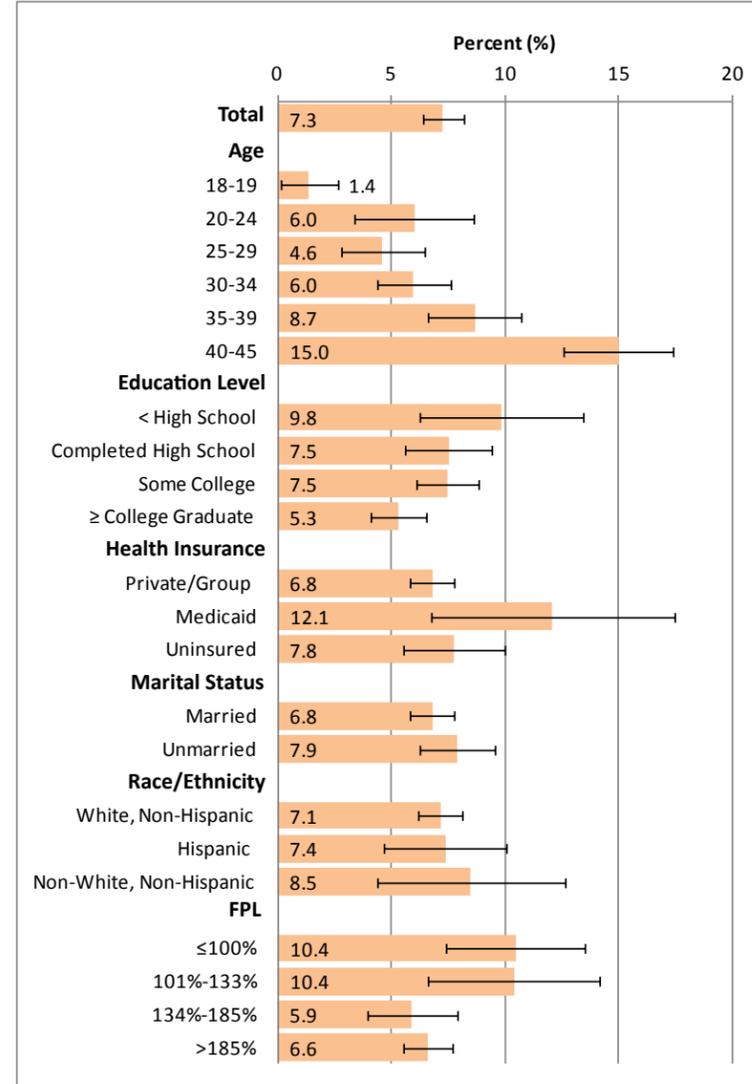
Women who have ever been told by a health care provider that they had hypertension, not including hypertension during pregnancy, by select characteristics.

Characteristics	%	95% CI	P-Value
<b>Total</b>	7.3	6.4	8.2
<b>Age</b>			
18-19	1.4	0.5	3.9
20-24	6.0	3.9	9.2
25-29	4.6	3.1	6.8
30-34	6.0	4.6	7.8
35-39	8.7	6.8	11.0
40-45	15.0	12.7	17.6
<b>Education Level</b>			
< High School	9.8	6.8	14.1
Completed High School	7.5	5.8	9.7
Some College	7.5	6.2	9.0
≥ College Graduate	5.3	4.2	6.7
<b>Health Insurance</b>			
Private/Group	6.8	5.9	7.8
Medicaid	12.1	7.7	18.5
Uninsured	7.8	5.8	10.3
<b>Marital Status</b>			
Married	6.8	5.9	7.8
Unmarried	7.9	6.4	9.7
<b>Race/Ethnicity</b>			
White, Non-Hispanic	7.1	6.2	8.2
Hispanic	7.4	5.1	10.6
Non-White, Non-Hispanic	8.5	5.2	13.6
<b>FPL</b>			
≤100%	10.4	7.8	13.9
101%-133%	10.4	7.1	14.8
134%-185%	5.9	4.2	8.3
>185%	6.6	5.6	7.8

Source: Utah BRFSS, 2009 and 2011  
NS=Not Significant

# Hypertension

Women who have ever been told by a health care provider that they had hypertension, not including hypertension during pregnancy, by select characteristics, BRFSS 2009, 2011.



## Healthy People 2020 Objectives

**HDS -5** Reduce the proportion of persons in the population with hypertension.

National Target: 26.9% of adults

## Utah Prevalence

Using combined data from 2009 and 2011, 7.3% of Utah women reported being told that they had hypertension, not including hypertension during pregnancy.

Of new mothers in Utah, 1.2% report having had high blood pressure during the 3 months before conceiving their new babies.

## Sociodemographic Risk Factors

Women are more likely to have hypertension not related to pregnancy as they get older. Individuals with lower education are also more likely to have hypertension.

## Recommendations and Resources

Women of reproductive age with chronic hypertension need counseling on the potential risks of hypertension during pregnancy for both mother and baby. Some antihypertensive medications are contraindicated during pregnancy; therefore, women should discuss their health history and medications with their health care provider if they are planning to become pregnant. Additionally, women with a history of high blood pressure should be screened for comorbidities such as ventricular hypertrophy, retinopathy, and renal disease prior to becoming pregnant.<sup>5</sup>

## References

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5. CDC. High Blood Pressure Facts. <http://www.cdc.gov/bloodpressure/facts.ht>

# Asthma



Have you ever been told by a doctor or other health professional that you had asthma? Do you still have asthma?

“Controlling your asthma prior to pregnancy is the best way to avoid worsening of asthma symptoms during pregnancy.” **MotherToBaby**<sup>2</sup>

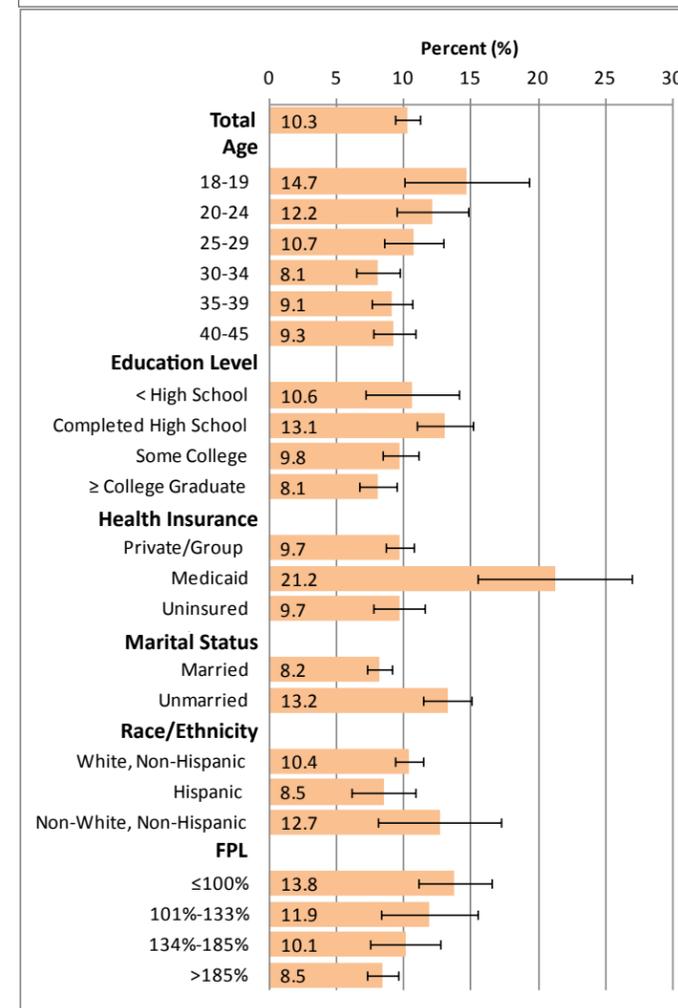
## Public Health Importance

- Uncontrolled asthma complicates 4-8% of pregnancies, and can contribute to poor health outcomes for the mother and baby.<sup>1</sup>
- During an asthma attack, breathing becomes difficult. Trouble breathing can pose a risk to pregnant women because it may lead to a lack of oxygen for the baby. Lack of oxygen may lead to problems ranging from impaired organ development to poor fetal growth for the baby.<sup>2</sup>
- Poorly controlled asthma has been associated with placental problems, premature delivery, higher rates of cesarean delivery, and low birth weight. For the mother, poorly controlled asthma is associated with high maternal blood pressure, longer hospital stays, and higher rates of cesarean delivery.<sup>2</sup>
- Women with asthma may also experience depression and overweight/obesity at increased levels.<sup>3,4</sup>
- In Utah, 6.5% of women reported having asthma 3 months prior to getting pregnant according to PRAMS data.

Women who currently have asthma, by select characteristics.				
Characteristics	%	95% CI		P-Value
<b>Total</b>	10.3	9.5	11.3	
<b>Age</b>				
18-19	14.7	10.6	19.9	<0.05
20-24	12.2	9.8	15.0	
25-29	10.7	8.7	13.1	
30-34	8.1	6.7	9.9	
35-39	9.1	7.7	10.8	
40-45	9.3	7.8	10.9	
<b>Education Level</b>				
< High School	10.6	7.6	14.6	<0.01
Completed High School	13.1	11.1	15.3	
Some College	9.8	8.5	11.2	
≥ College Graduate	8.1	6.8	9.5	
<b>Health Insurance</b>				
Private/Group	9.7	8.7	10.8	<0.001
Medicaid	21.2	16.1	27.5	
Uninsured	9.7	7.9	11.7	
<b>Marital Status</b>				
Married	8.2	7.3	9.1	<.0001
Unmarried	13.2	11.6	15.1	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	10.4	9.4	11.5	NS
Hispanic	8.5	6.4	11.2	
Non-White, Non-Hispanic	12.7	8.8	17.9	
<b>FPL</b>				
≤100%	13.8	11.3	16.7	<0.01
101%-133%	11.9	8.8	15.9	
134%-185%	10.1	7.8	13.0	
>185%	8.5	7.4	9.7	
Source: Utah BRFSS, 2009-2011				
NS=Not Significant				

# Asthma

Women who currently have asthma, by select characteristics, BRFSS 2009-2011.



## Healthy People 2020 Objectives

**RD-6** Increase the proportion of adults with current asthma who receive formal patient education.

National Target: 14.4%

## Utah Prevalence

During 2009-2011, 10.3% of women of reproductive age reported having asthma.

## Sociodemographic Risk Factors

Women with asthma prior to pregnancy are more likely to have additional chronic health conditions prior to pregnancy as well as poorer pregnancy outcomes.

PRAMS data show that certain populations were more likely to report having asthma prior to pregnancy. These groups include women 17 years and younger, women who were covered by Medicaid prior to pregnancy, non-Hispanic women, and women who were not married.

## Recommendations and Resources

Women who are planning to become pregnant should discuss their asthma management and the need for any medication with their health care provider before becoming pregnant to ensure they are taking only medications that are necessary and safe during pregnancy (CDC).

For more information on monitoring and managing asthma during pregnancy please go to:  
[http://www.nhlbi.nih.gov/health/prof/lung/asthma/astpreg/astpreg\\_full.pdf](http://www.nhlbi.nih.gov/health/prof/lung/asthma/astpreg/astpreg_full.pdf)  
<http://www.nih.gov/news/pr/jan2005/nhlbi-11.htm>

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5. Kwon HL, Belanger K, Bracken MB. 2003. "Asthma prevalence among pregnant and childbearing aged women in the United States: Estimates from National Health Surveys". *Annals of Epidemiology*. 13:317-324.

## Influenza Vaccination

## Influenza Vaccination



During the past 12 months, have you had a flu shot in your arm or a flu vaccine that was sprayed in your nose?

“Staying up to date with vaccines is part of a healthy pregnancy.” Centers for Disease Control and Prevention<sup>2</sup>

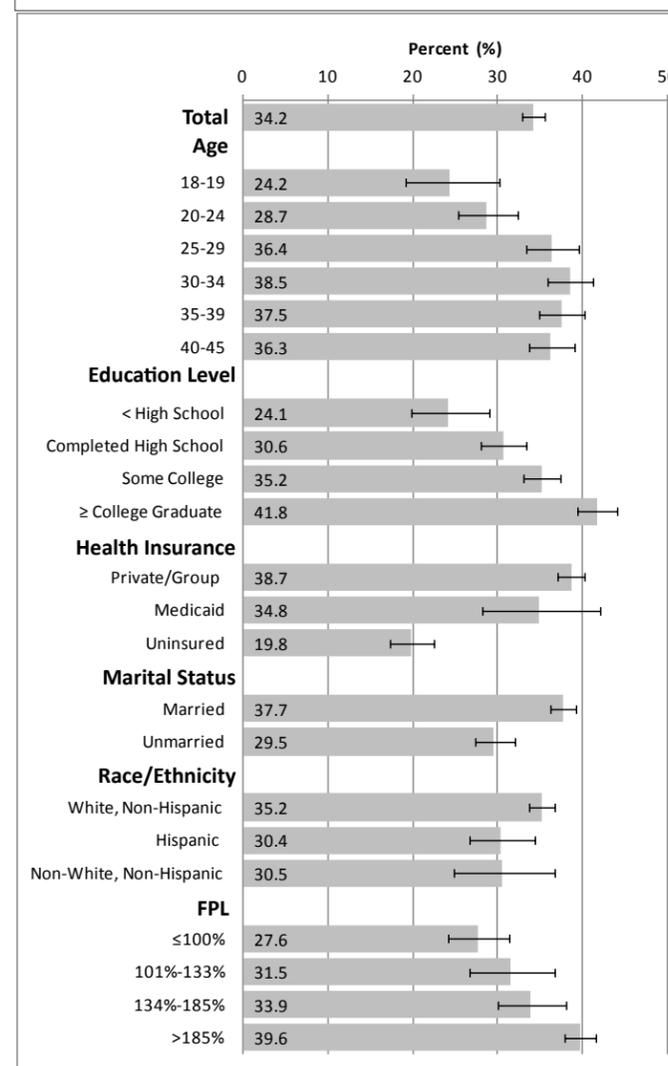
### Public Health Importance

- Vaccines play an important role in keeping a pregnant woman and her baby healthy before, during, and after pregnancy.
- The flu vaccine can protect women from the three most common types of seasonal influenza.<sup>1</sup>
- Getting vaccinated is the single best way to protect against influenza illness.
- Although most people who contract the flu will experience mild to moderate symptoms and will make a full recovery without needing medical attention, the flu is more likely to cause severe illness in pregnant women than in non-pregnant women. Changes in the immune system, heart, and lungs during pregnancy make pregnant women more prone to severe illness from flu as well as hospitalization and even death.<sup>2</sup>
- Complications from the flu during pregnancy can include:
  - Premature labor
  - Babies that are small for gestational age
  - Hospitalization and, rarely, death<sup>2</sup>
- In the US, 47% of pregnant women reported that they had received the influenza vaccination for the 2011-2012 flu season<sup>3</sup> compared to only 34% in Utah.
- Health care providers should be encouraged to provide necessary vaccinations to all women during routine wellness check-ups rather than referring them to outside clinics.

Women aged 18-45 who received a flu shot within the past year, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	34.2	32.9	35.6	
<b>Age</b>				<0.001
18-19	24.2	19.1	30.2	
20-24	28.7	25.3	32.3	
25-29	36.4	33.3	39.6	
30-34	38.5	35.9	41.2	
35-39	37.5	34.9	40.2	
40-45	36.3	33.6	39.0	
<b>Education Level</b>				<0.001
<High School	24.1	19.8	29.1	
Completed High School	30.6	28.1	33.3	
Some College	35.2	33.1	37.3	
≥College Graduate	41.8	39.4	44.1	
<b>Health Insurance</b>				<0.001
Group/Private	38.7	37.1	40.3	
Medicaid	34.8	28.2	42.0	
Uninsured	19.8	17.3	22.5	
<b>Race/Ethnicity</b>				<0.05
White, Non-Hispanic	35.2	33.7	36.6	
Hispanic	30.4	26.7	34.4	
Non-White, Non-Hispanic	30.5	24.9	36.7	
<b>Marital Status</b>				<0.001
Married	37.7	36.2	39.2	
Unmarried	29.5	27.3	31.9	
<b>FPL</b>				<0.001
≤100%	27.6	24.2	31.3	
101%-133%	31.5	26.7	36.7	
134%-185%	33.9	30.0	38.0	
>185%	39.6	37.8	41.5	

Source: Utah BRFSS, 2009-2011  
NS=Not Significant

Women who received an influenza vaccination within the past year, by select demographics, BRFSS 2009-2011.



### Healthy People 2020 Objectives

**IID-12.5** Increase the percentage of non-institutionalized adults aged 18 to 64 years who are vaccinated annually against seasonal influenza.

**IID-12.10** Increase the percentage of pregnant women who are vaccinated against seasonal influenza.

National Target: 80% for both objectives.

### Utah Prevalence

During 2009-2011, approximately 34% of women reported that they received an influenza vaccination within the past year. The highest percentage of influenza vaccinations were reported among women aged 30-34 years. PRAMS data show that about 58% of new mothers reported receiving the seasonal flu shot during their pregnancy.

### Recommendations and Resources

Utah’s public health departments created the *Flu Fighter* website to be a one-stop-shop for important information related to the flu, including prevention, vaccination, and treatment. The *Flu Fighter* webpage can be accessed at <http://health.utah.gov/flufighters/>.

The Advisory Committee on Immunization Practices (ACIP), the CDC, and the American College of Obstetricians and Gynecologists (ACOG) have recommended influenza vaccination for all women who are or will be pregnant during the influenza season, regardless of trimester.<sup>2</sup>

### References

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## HIV Testing



“At any time during your most recent pregnancy or delivery, did you have a test for HIV (the virus that causes AIDS)?”

“[E]very perinatal HIV transmission is a sentinel health event, signaling either a missed opportunity for prevention or, more rarely, a failure of interventions to prevent perinatal transmission.” **Centers for Disease Control and Prevention**<sup>2</sup>

### Public Health Importance

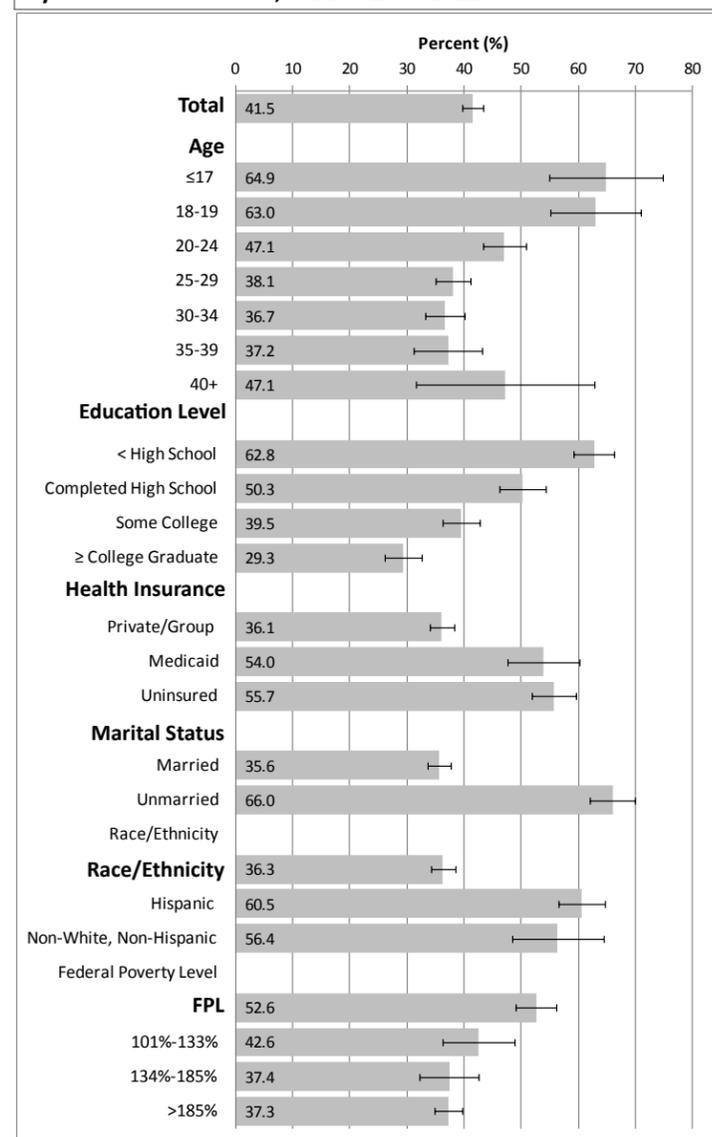
- Human immunodeficiency virus (HIV) is the virus that causes acquired immune deficiency syndrome or AIDS.
- HIV infection can be transmitted from mother to baby during pregnancy, labor and delivery, and while breastfeeding.
- In the United States, women make up 25% of adolescents and adults diagnosed with HIV.<sup>2</sup>
  - Of the HIV-positive individuals living in Utah, 14.5% are female.<sup>1</sup>
- HIV is a blood-borne virus that can be passed through sexual contact with an infected person, sharing needles, as well as before, during, or after birth from an infected mother to her child.<sup>1</sup>
- If diagnosed before or during pregnancy and then managed properly, the risk of mother-to-child transmission can be reduced to less than 2%.<sup>3</sup>
- Among women in Utah, heterosexual contact is the most common means of HIV exposure at 48%, followed by injection drug use (IDU) at 27%.<sup>1</sup>
- It is important that providers do not assume a woman is not at risk for HIV and to conduct a screening at the beginning of prenatal care for all women.

Women who had an HIV test during their most recent pregnancy, by select characteristics.				
Characteristics	%	95% CI	P-Value	
<b>Total</b>	41.5	39.7	43.3	
<b>Age</b>				
≤17	64.9	55.0	74.8	<.0001
18-19	63.0	55.2	70.9	
20-24	47.1	43.3	50.8	
25-29	38.1	35.1	41.2	
30-34	36.7	33.1	40.2	
35-39	37.2	31.3	43.2	
40+	47.1	31.5	62.8	
<b>Education Level</b>				
< High School	62.8	59.3	66.3	<.0001
Completed High School	50.3	46.2	54.4	
Some College	39.5	36.3	42.7	
≥ College Graduate	29.3	26.1	32.5	
<b>Health Insurance</b>				<.0001
Private/Group	36.1	33.9	38.2	
Medicaid	54.0	47.7	60.3	
Uninsured	55.7	51.9	59.5	
<b>Marital Status</b>				
Married	35.6	33.7	37.6	<.0001
Unmarried	66.0	62.1	70.0	
<b>Race/Ethnicity</b>				
White, Non-Hispanic	36.3	34.3	38.4	<.0001
Hispanic	60.5	56.4	64.6	
Non-White, Non-Hispanic	56.4	48.4	64.4	
<b>FPL</b>				
≤100%	52.6	49.1	56.2	<.0001
101%-133%	42.6	36.3	48.9	
134%-185%	37.4	32.3	42.6	
>185%	37.3	34.8	39.8	

Source: Utah PRAMS, 2009-2011

## HIV Testing

Women who had an HIV test during their most recent pregnancy, by select characteristics, PRAMS 2009-2011.



### Healthy People 2020 Objectives

**HIV14.3** Increase the proportion of pregnant women who have been tested for HIV in the past 12 months.

National Target: 79.2%

### Utah Prevalence

During 2009-2011, 41.5% of new mothers reported having an HIV test during their most recent pregnancy.

However, 18.6% of PRAMS respondents did not know if they had been tested during their pregnancy.

### Sociodemographic Risk

Older women were less likely to report prenatal screening. Lower rates of testing were also found among women who were more educated, married, White non-Hispanic, had private insurance, and had higher incomes.

### Recommendation

All women should be screened for HIV at their first prenatal visit. High-risk women should be rescreened during their third trimester.<sup>3</sup> If HIV infection is identified before conception, antiretroviral treatment can be given, as well as additional information to help prevent mother-to-child transmission.

The National Perinatal HIV Hotline (1-888-448-8765) provides free clinical consultation on all aspects of perinatal HIV Care.

### References

1. UDOH. Complete Indicator Report of HIV and AIDS. Updated 07/08/2013.
2. Centers for Disease Control and Prevention. HIV Surveillance Report, 2011; vol. 23.
3. Panel on Treatment of HIV-Infected Pregnant Women and Prevention of Perinatal Transmission. Recommendations for use of antiretroviral drugs in pregnant HIV-infected women for maternal health and interventions to reduce perinatal HIV transmission in the United States; 2012 Jul 31:1-235.

## Sexually Transmitted Diseases



“Screening and treating pregnant women for STDs is a vital way to prevent serious health complications to both mother and baby that may otherwise happen with infection.”  
Centers for Disease and Control and Prevention<sup>1</sup>

### Public Health Importance

- Sexually transmitted diseases (STDs) refer to more than 25 organisms transmitted primarily through sexual activity.
- Prevention of STDs is an important approach for improving reproductive health.
- STDs are a significant health concern for women of reproductive age as they can cause reproductive health problems, fetal and perinatal health problems, cancer, and increase the risk of transmission of HIV infection.
- The consequences of STDs can be very serious for a woman and her unborn baby if the woman becomes infected with an STD while pregnant; therefore, it is important to know STD status prior to becoming pregnant.<sup>1</sup>
- STDs that are caused by viruses, like genital herpes, hepatitis B, hepatitis C, or HIV, cannot be cured. However, in some cases these infections can be treated with antiviral medications or other preventive measures to reduce the risk of passing the infection to the baby.<sup>1</sup>
- Some STDs, such as chlamydia, gonorrhea, and syphilis can be treated and cured with antibiotics that are safe to take during pregnancy.<sup>1</sup>
- If a woman is pregnant or considering pregnancy, she and her partner should be tested so that she can take steps to protect herself, her partner, and future children.<sup>1</sup>

### Healthy People 2020 Objectives

Promote healthy sexual behaviors, strengthen community capacity, and increase access to quality services to prevent sexually transmitted diseases (STDs) and their complications.

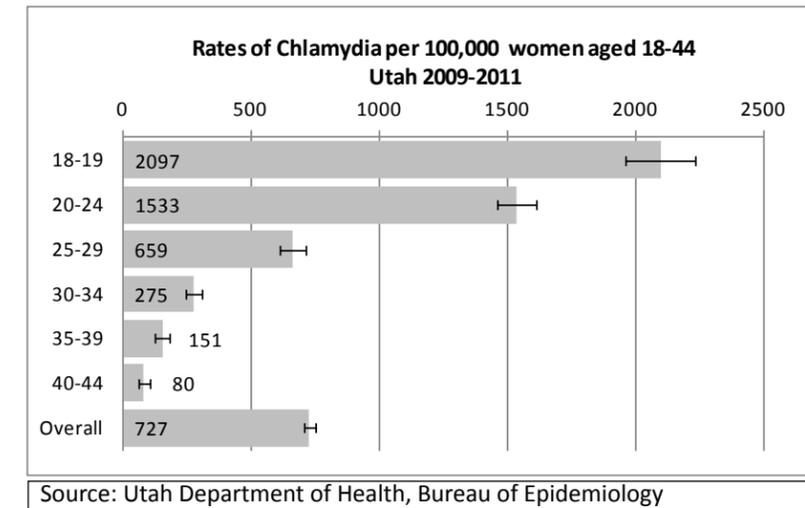
There are specific Healthy People objectives for reducing rates of chlamydia, gonorrhea, syphilis, pelvic inflammatory disease (PID), human papillomavirus (HPV), and genital herpes. Additional objectives are aimed at increasing screening for chlamydia for sexually active women.

### Sociodemographic Risk

Younger populations have the highest risk for acquiring and transmitting STDs. Females have a disproportionate burden of chlamydia infections. Across all three STDs included in this report (chlamydia, gonorrhea, and syphilis), women aged 18-19 years experience the majority of infections, followed by 20-to-24-year-olds.

Screening for STDs should be encouraged for all sexually active individuals. Screenings should be offered yearly, as well as when a woman has a new sex partner, at preconception visits, and after she becomes pregnant.

## Sexually Transmitted Diseases



### Chlamydia

- Chlamydia infections are the most frequently reported disease in Utah and the United States.
- The infection is caused by the bacterium *Chlamydia Trachomatis* and is easily spread through unprotected sexual contact.
- Most chlamydia infections are asymptomatic, therefore testing for the infection is important.
- A total of 7,080 cases were reported in Utah during 2011.
  - Of these cases, 68% were in women.
  - Women age 15 to 24 years accounted for 72% of all cases.
- Untreated chlamydia infections can damage the reproductive systems of both males and females, resulting in infertility.
- Females with chlamydia infections are at risk for developing pelvic inflammatory disease (PID).
- Chlamydia also increases an individual's susceptibility to more serious infections, such as HIV.
- Pregnant women with chlamydia are at an increased risk of preterm labor, premature rupture of membranes, and low birth weight babies.<sup>1</sup>
- Pregnant women can pass the infection to their infant during delivery, potentially resulting in serious lung and eye infections.<sup>1-2</sup>

### Healthy People 2020 Objectives

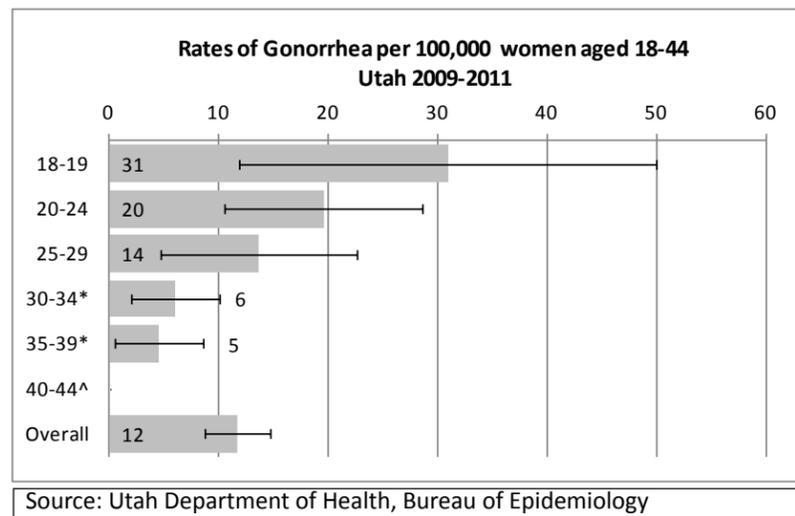
**STD-2** Reduce chlamydia rates among females aged 15 to 44 years

National Target: Not yet set

### Utah Prevalence

During 2009-2011, the overall rate of chlamydia was 727 cases per 100,000 women aged 18-44. Younger women had significantly higher rates of chlamydia, with 2097 cases per 100,000 women aged 18-19, followed by 1533 cases per 100,000 women aged 20-24.

## Sexually Transmitted Diseases, Continued



### Gonorrhea

- Gonorrhea is caused by the bacteria, *Neisseria gonorrhoeae*.
- In Utah, in 2011, gonorrhea was the eighth most frequently reported disease, with a total of 277 cases.
- Gonorrhea is less common in women than chlamydia, but can have similar complications if left untreated, including:
  - Pelvic inflammatory disease (PID).
  - Damage to the reproductive system increasing the risk of infertility.
  - Increased susceptibility to other infections such as HIV.
- Gonorrhea can also spread to joints and become systemic (disseminated gonorrhea).
- Pregnant women with gonorrhea can pass the infection to their infant during delivery, which can cause blindness.
- Untreated gonorrhea in pregnancy has been linked to miscarriages, premature birth, low birth weight, premature rupture of membranes, and infection of the amniotic fluid.<sup>1</sup>
- Gonorrhea can be difficult to manage as individuals can get re-infected after treatment as the bacteria is growing resistant to some commonly used drugs.

### Healthy People 2020 Objectives

STD-6.1 Reduce gonorrhea rates among females aged 15 to 44 years.

National Target: 251.9 cases per 100,000 population.

### Utah prevalence

During 2009-2011, the overall rate of gonorrhea was 12 cases per 100,000 women ages 18 to 44.

## Sexually Transmitted Diseases, Continued

### Syphilis

- Syphilis is a disease caused by the *Treponema pallidum* (subspecies *pallidum*) bacteria.
- Although less common than chlamydia and gonorrhea, syphilis can have serious consequences if left untreated.
- There were 17 cases of latent syphilis diagnosed among women of reproductive age in Utah during 2009-2011.
- There were no new cases of primary or secondary syphilis during 2009-2011.
- During 2010, there was one case of congenital syphilis transmitted to an infant.
- Women ages 20 to 24 years had the most new cases of syphilis than all other age groups.
- The various stages and symptoms of syphilis make diagnosis difficult, especially when it reaches later stages.
- Syphilis can be effectively treated using common antibiotics.
- Women with syphilis may be asymptomatic, making screening and treatment prior to pregnancy very important.

### Healthy People 2020 Objectives

STD-7.1 Reduce domestic transmission of primary and secondary syphilis among females.

National Target: 1.3 new cases per 100,000 population.

STD-8 Reduce congenital syphilis.

National Target: 9.6 new cases per 100,000 live births.

### Utah prevalence

During 2009-2011, the overall rate of syphilis (including primary, secondary, early latent, and late latent) among women ages 18 to 44 was 1.6 cases per 100,000. The rate of congenital syphilis was 0.6 cases per 100,000 live births.

### Recommendations

If a woman is pregnant or considering pregnancy, she should be offered testing for STIs so that she can take steps to protect herself and her baby. Sexual partners of infected women should also be tested and treated.<sup>1</sup>

Testing and treatment locations and other resources are available at the UDOH Communicable Disease Prevention Program website ([health.utah.gov/cdc/std.htm](http://health.utah.gov/cdc/std.htm)).

### References

1. Centers for Disease Control and Prevention. Sexually Transmitted Diseases Treatment Guidelines, 2010. MMWR 2010; 59 (no.RR-12). Accessed <http://www.cdc.gov/std/pregnancy/stdfact-pregnancy.htm>.
2. Utah Department of Health. Complete Indicator Report of Chlamydia Cases. 2013. Accessed at [http://ibis.health.utah.gov/indicator/complete\\_profile/ChlamCas.html](http://ibis.health.utah.gov/indicator/complete_profile/ChlamCas.html).
3. Utah Department of Health. Complete Indicator Report of Gonorrhea Cases. 2013. Accessed at [http://ibis.health.utah.gov/indicator/complete\\_profile/GonCas.html](http://ibis.health.utah.gov/indicator/complete_profile/GonCas.html).
4. Utah Department of Health. Complete Indicator Report of Syphilis Cases. 2013. Accessed at [http://ibis.health.utah.gov/indicator/complete\\_profile/SyphCas.html](http://ibis.health.utah.gov/indicator/complete_profile/SyphCas.html).

# CLINICAL RECOMMENDATIONS

## Clinical Recommendations

### Recommendations for preconception and interconception clinical care include:

The below recommendations were adapted from Jack, B. W., H. Atrash, et al. (2008). "The clinical content of preconception care: an overview and preparation of this supplement." *American journal of obstetrics and gynecology* **199**(6): S266-S279.

For more information, read the full article in ACOG or visit the CDC website at <http://www.cdc.gov/preconception/careforwomen/index.html>.

### Health Promotion

*Reproductive Life Plan and Family Planning:* Both men and women should think about their personal reproductive goals. Decisions about having (or not having) children should be based on individuals values and resources. Couples should discuss with their providers and have a plan to achieve these goals. Providers should ask patients whether they plan to have children and how long they intend to wait before getting pregnant. Health care providers can help individuals achieve their reproductive goals by making sure they are using effective contraception if they do not want children or plan to wait; if couples indicate that they plan to become pregnant within the next year health care providers should conduct a full preconception workup.

### Personal History

Couples considering pregnancy should visit their provider specifically for a prepregnancy visit. Health care providers need to ask about potential risk factors including maternal age, maternal and paternal medical conditions, and obstetric history, and take a three-generation family medical history. If risks are identified, providers can offer them effective contraception and encourage couples to change unhealthy behaviors and offer medical interventions to improve any health issues prior to attempting to become pregnant. If genetic risk factors are identified, providers can conduct additional workup or offer appropriate referrals.

### Obstetric History

*Previous Live Birth:* Women should be counseled on waiting 18-24 months before becoming pregnant after the delivery of a child. A woman's body needs time to recover and to restore the micronutrients critical to healthy fetal development. Waiting to become pregnant again reduces the risk of having a premature or low birthweight baby.

*Prior Cesarean Delivery:* Women with a cesarean delivery should be counseled on the added importance of waiting at least 18 months before becoming pregnant again. Women also need to be counseled on options for delivery with any future pregnancy.

*Prior Miscarriage or Stillbirth:* Providers should discuss prior miscarriages and stillbirths with women before they become pregnant again. In many cases, women with a previous miscarriage can be reassured of a low likelihood of recurrence. Women who have experienced multiple early pregnancy losses should consider a more in-depth workup. Women with a stillbirth (or loss after 20 weeks gestation) should receive counseling about increased risk of adverse pregnancy outcomes in the future and how to modify other risk factors (e.g., tobacco use). Women who have had previous miscarriages or stillbirths should receive additional support as needed.

### Obstetric History (continued)

*Prior Preterm Birth:* Women with previous preterm births or low birth weight babies should be evaluated in order to identify modifiable risk factors prior to subsequent pregnancies. Women with a history of preterm birth should be advised of the benefits of treatments with progesterone (17-P) early in her future pregnancies.

*Uterine Anomalies:* Uterine anomalies such as uterine septum or poor previous reproductive performance may require surgical interventions prior to subsequent pregnancy. Increased awareness and surveillance during future pregnancies and labor will help optimize outcomes.

### Nutrition and Weight

*Healthy Weight:* Being at a healthy weight prior to pregnancy decreases the risk of neural tube defects, preterm delivery, diabetes, cesarean deliveries, and some hypertensive and thromboembolic diseases. Weight loss and good nutrition prior to pregnancy can reduce these risks as well. Providers should calculate a woman's body mass index (BMI) and should counsel those who have a BMI over 25 about the risk to their own health, risk of infertility, and risk to future pregnancies. Providers may want to encourage women to attempt to lose weight prior to becoming pregnant and offer couples effective contraception to delay pregnancy. Additionally, recommendations for weight gain during pregnancy vary by BMI.

*Nutrition:* Women of reproductive age should be asked about their use of dietary supplements including vitamins, minerals, traditional or home remedies, herbal products, and weight loss products. Providers should take the opportunity to educate patients about safety, effects, and efficacy of any products the woman reports using. Women of reproductive age should be counseled to choose foods that supply heme iron, and enhancers of iron absorption such as vitamin C-rich foods. Additionally, women capable of becoming pregnant should take 400 micrograms [ $\mu\text{g}$ ] of folic acid from supplements in addition to eating fortified foods and foods naturally rich in folate. Folic acid supplementation should begin at least 3 months prior to pregnancy for the greatest effect of reducing the risk of neural tube defects.<sup>1</sup> Women should be screened for anemia and treated as needed. Women should be counseled on eating a diet rich in omega-3 and omega-6 fatty acids by incorporating 8-12oz of variety of seafood but no more than 6 oz of canned tuna. Iodine deficiency should also be addressed; women should consume 150  $\mu\text{g}$  iodine during the preconception period, 220  $\mu\text{g}$  while pregnant, and 290  $\mu\text{g}$  during lactation. Proper nutrition and supplementation can improve pregnancy outcomes and reduce risk of certain birth defects. The USDA advises women who are planning a pregnancy to limit their intake of sodium, solid fats, added sugars, and refined grains and increase consumption of nutrient dense foods such as vegetables, fruits, whole grain, fat-free/low-fat milk products, seafood, lean meats and poultry, eggs, beans, peas, and nuts and seeds.

*Physical Activity:* Providers should ask patients about muscle strength and aerobic physical activity and offer recommendations appropriate to patient's physical abilities. Optimal health benefits can be seen with 2 hours and 30 minutes of moderate intensity or 1 hour and 15 minutes of vigorous intensity, as well as strength training each week.

# CLINICAL RECOMMENDATIONS

## Infectious Disease and Immunization

*Immunization:* Women of reproductive age should have immunizations for tetanus-diphtheria toxoid/diphtheria-tetanus-pertussis (TDap); measles, mumps, and rubella (MMR); varicella (chickenpox); human papillomavirus (HPV); hepatitis B (HBV); and influenza reviewed and updated as needed.

*Infectious Disease:* Women of reproductive age should be counseled on reducing their risk of infectious diseases that can have adverse effects on infants. Women who are planning a pregnancy should be screened and counseled on the following diseases; chlamydia, cytomegalovirus (CMV), gonorrhea, hepatitis C, herpes simplex virus (HSV), human immunodeficiency virus (HIV), listeriosis, malaria, syphilis, other sexually transmitted infections (STI), toxoplasmosis, and tuberculosis (TB). Treatment for many of these diseases are safe and effective prior and during pregnancy. Some of these diseases cannot be cured, but proper management can reduce the risks or complications.

## Chronic Medical Conditions

*Asthma:* Women with asthma need to discuss treatment options with their providers prior to getting pregnant. Many women experience changes in asthma symptoms during pregnancy. Severe asthma prior to pregnancy often results in worsening symptoms during pregnancy. Controlling asthma prior to pregnancy is the best way to avoid worsening of asthma symptoms during pregnancy. (OTIS, 2010) Women with poor control of their asthma should be encouraged to use effective birth control until symptom control is achieved.

*Cardiovascular Disease:* Women who are considering or planning a pregnancy should be counseled on how to achieve the best possible control of their heart condition before conception. Women whose treatment regimen involves Warfarin should be counseled about its teratogenic nature; whenever possible, the treatment should be changed to a safer anticoagulant before conception. Women with a congenital cardiac condition should be offered preconception genetic counseling. Women who do not desire a pregnancy or who would like to wait until their cardiovascular disease is better under control should use an effective form of contraception.

*Diabetes:* All women with diabetes should be counseled about the importance of glycemic control before considering pregnancy. Important counseling topics include maintaining optimal weight, maximizing diabetes control, self-glucose monitoring, a regular exercise program, and tobacco, alcohol, and drug cessation, along with social support to assist during the pregnancy. In the months before pregnancy, these women should demonstrate as near-normal glycosylated hemoglobin level as possible for the purpose of decreasing the rate of congenital anomalies. Women with poor control of their diabetes should be encouraged to use effective birth control. Testing to detect prediabetes and type 2 diabetes in asymptomatic women should be considered in adults who are overweight or obese (BMI  $\geq 25$  kg/m<sup>2</sup>) and who have one or more additional risk factors for diabetes, including a history of gestational diabetes.

*Hypertension:* Women of reproductive age with chronic hypertension should be counseled about the risks associated with hypertension during pregnancy for both the woman and her offspring, and the possible need to change her antihypertensive regimen when she is planning a pregnancy.

## Chronic Medical Conditions (continued)

*Psychiatric Conditions:* Providers should screen and be vigilant for depression and anxiety disorders among women of reproductive age because treating or controlling these conditions before pregnancy may help prevent negative pregnancy and family outcomes. Women of reproductive age with depressive and anxiety disorders who are planning a pregnancy or who could become pregnant should be informed about the potential risks of an untreated illness during pregnancy and about the risks and benefits of various treatments during pregnancy.

## Psychosocial Risk

*Access to Care:* All women should be asked about their health insurance coverage and their usual source of care. The implementation of the Affordable Care Act will give additional options for uninsured individuals: [www.healthcare.gov](http://www.healthcare.gov) has resources for finding coverage. Additionally, local health navigators can be reached at Take Care Utah at 801-433-2299. If the woman is low-income she may be eligible for public insurance and can be referred to a welfare office or a private social service agency for help procuring insurance. A primary care provider should be established who will accept her insurance or will work with her individual financial situation.

*Inadequate Financial Resources:* All women should be asked about their economic status, and women who appear to be struggling financially should be referred to an agency that can check their eligibility for various types of financial assistance. Various aid and assistance programs are available across Utah. Support services include food, financial, medical, and child care benefits. United Way 2-1-1 can assist in finding the right resources.

## Lifestyle Exposures

*Alcohol:* All women of childbearing age should be screened for alcohol use. Brief interventions should be provided in primary care settings, which should include advice regarding the potential for adverse health outcomes. These interventions should include accurate information about the consequences of alcohol consumption, including the effects of drinking during pregnancy, information about effects beginning early during the first trimester, and warnings that no safe level of consumption has been established.

*Tobacco:* All women of childbearing age should be screened for tobacco use. Brief interventions should be provided to all tobacco users and should include counseling that describes the benefits of not smoking before, during, and after pregnancy, discussion of current medications and potential interactions with smoking (e.g., hormonal birth control and risk of stroke), discussion regarding quitting medications should also be discussed, and referrals for more intensive services (individual, group, or telephone counseling) should be offered. For pregnant women, augmented counseling interventions should be used.

*Illicit Substances:* Women should be counseled about the risks of using illicit drugs before and during pregnancy and offered information on programs that support abstinence and rehabilitation. Contraception services should be offered, and women should be advised that pregnancy should be delayed until they are drug free.

# CLINICAL RECOMMENDATIONS

## Lifestyle Exposures (continued)

*Household/Workplace Exposures:* During a preconception visit, women should be asked about their home and work environments. If potential exposures are identified, an occupational medicine specialist may be asked to assist with a more detailed investigation regarding recommendations for modification of exposures.

*Medications:* As part of preconception care, all women should be screened for the use of prescription medications, over-the-counter medications, and any supplements. Women should receive counseling about the potential impact of chronic health conditions and medications on pregnancy outcomes for mother and child. Whenever possible, potentially teratogenic medications should be switched to safer medications before conception. For women with chronic conditions, the fewest number and lowest dosages of essential medications that control maternal disease should be used. For women who do not desire pregnancy, a plan for contraception should be addressed and initiated. Common over-the-counter medications should be addressed as well. Women should be advised not to use aspirin if they are planning a pregnancy or become pregnant. Additional discussion regarding the use of dietary supplements before pregnancy (which include herbs, weight loss products, and sports supplements) is necessary. Providers should caution women about the unknown safety profile of many supplements. High-quality and prescription-quality dietary supplements should be encouraged.

## Special Populations to Consider

### Immigrant and Refugee Populations

Preconception care of immigrant and refugee women typically occurs in a more opportunistic fashion. Therefore, it is even more important to consider preconception concerns as part of all health care encounters. Referring immigrant and refugee women to a source of ongoing primary care that is culturally and linguistically competent, and that will accept their insurance coverage or provide care free of charge or on a sliding-scale basis, is important. It is also important that health care providers identify and understand the needs of immigrant women and their families; understand immigrants' potential for increased medical and social risks and previously undetected medical problems; deliver services and written materials in the preferred language of the population served; ensure that interpretation and translation services comply with all relevant federal, state, and local mandates governing language access; integrate preconception care into refugee screening; work with ethnic community-based organizations to provide preconception care messages in non-health care settings (such as English as a Second Language classes); screen immigrants at high risk for tuberculosis and refer them for treatment as indicated; screen immigrants born in Asia, the Pacific Islands, Africa, and other countries where hepatitis B is highly endemic with the hepatitis B surface antigen test; assess the immunization history, including rubella status, of immigrant women and administer any needed vaccines, or refer the women for these services; and assess the mental health of immigrant women and refer them for services as needed.

## Survivors of Cancer

Women and their partners who are newly diagnosed with cancer should be educated about fertility preservation options as soon as possible and referred to a reproductive specialist. Survivors of cancer should be counseled about the potential reproductive effects of cancer treatments on fertility and on pregnancy. Women who have received alkylating chemotherapeutic agents or pelvic or abdominal radiation, or both, should be counseled that they have an increased risk for premature ovarian failure. Women who have had pelvic or abdominal irradiation should be counseled that they are at risk for having a low birthweight infant. When considering pregnancy, survivors of breast cancer who are candidates for selective estrogen receptor modulators should be counseled that these agents generally are avoided during pregnancy because of case reports of animal and human birth defects. A reliable nonhormonal contraceptive method should be used during treatment with a selective estrogen receptor modulator. Genetic counseling and testing should be offered to survivors of cancers that are linked to genetic mutations to inform their decisions about future reproduction. Female survivors of cancer who received anthracycline chemotherapy or radiation to the heart or surrounding tissues, or both, should be evaluated by a cardiologist before conception. Annual breast screening for female survivors of childhood cancer who received chest radiation is recommended beginning at age 25 years.

## Women With a Disability

Any woman with a disability should receive counseling about the risks of any medications that she uses and about her options to alter dosage or switch to safer medications before conception. The medical, social, and psychologic issues that are related to pregnancy and the disability should be assessed, and the woman and her family should be counseled about them. Health care providers should offer any woman with a disability contraceptive choices that are practical and appropriate for her medical and personal needs. Issues that involve informed consent and guardianship must be addressed when caring for women with a developmental disability in relation to contraception and pregnancy. Referral for genetic counseling, if appropriate, is indicated for all women before conception; however, it might raise difficult psychosocial issues for women with a disability; therefore, counseling referrals should be handled **sensitively**.

## Male Partners

Despite the challenges and barriers, we recommend that each man who is planning with their partner to conceive a pregnancy should undergo a comprehensive medical evaluation for the purposes of disease prevention and detection and preconception education. Management should be optimized for any high-risk behaviors or poorly controlled disease states before conception is attempted.

# APPENDIX

## Appendix A

### Data Sources

Data for the Preconception Report come from the Utah Pregnancy Risk Assessment Monitoring System (PRAMS), the Utah Behavioral Risk Factor Surveillance System (BRFSS), and the National Sexually Transmitted Disease Database (NSTD).

#### PRAMS Questionnaire

The Utah Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing, population-based, risk factor surveillance system designed to identify and monitor selected maternal experiences and behaviors that occur before, during, and after pregnancy, as well as the child's early infancy experience. PRAMS is part of the Centers for Disease Control and Prevention (CDC) initiative to reduce infant mortality and low birth weight. The CDC established PRAMS in 1987, and data collection began in 1988 in selected states. Utah PRAMS began collecting data in 1999.

The PRAMS questionnaire consists of a series of core questions, which all PRAMS states must include. Each state then has the option of expanding the survey with pre-developed questions from the CDC or state-developed questions.

The sample for PRAMS is all mothers who are Utah residents who delivered a live-born infant within the state, including infants who die after delivery. PRAMS excludes stillbirths, fetal deaths, and induced abortions from its sample. Participants are identified through birth certificate records.

Each month the PRAMS questionnaires are sent out to approximately five percent of Utah women who are 2–6 months postpartum. Up to three paper surveys are mailed, with a telephone follow-up for women who have not responded to the mail survey.

PRAMS uses a stratified random sampling approach to select women to participate and to allow separate estimates of population subgroups and comparisons across these subgroups. Once a full year of data is collected, it is then weighted by the CDC to represent the birth population for that year and adjusted for sampling probabilities, nonresponse, and noncoverage.

Each stratum must achieve a weighted response rate of 70% or it is not considered representative of that population. See the PRAMS website for more detailed information on PRAMS and its methodology:

[http://www.cdc.gov/reproductivehealth/srv\\_prams.htm](http://www.cdc.gov/reproductivehealth/srv_prams.htm)

For 2009-2011, Utah PRAMS utilized an education/birthweight stratification methodology. Education level was separated into three categories: less than high school, high school graduate, and more than high school. Birthweight was defined as less than 2500 grams, or 2500 grams or greater.

This report presents data from 2009-2011 Utah PRAMS. During this time period, 157,157 Utah women delivered an infant. Of those, 6,211 women were sent a survey, of whom 4,672 completed it, giving an unweighted response rate of 75.2% (weighted response rate of 79.2%).

This report contains data on 28 maternal and child health indicators from the PRAMS questionnaire. When available, the Healthy People 2020 objective for the indicator is given as a benchmark to compare Utah's rate to the national goal.

#### BRFSS Questionnaire

The BRFSS questionnaire is modified each year by the Centers for Disease Control and Prevention (CDC) in collaboration with participating states and territories. The questionnaire has three parts. The first part is a core set of questions that is asked by all states and territories. The second part consists of a series of topical modules developed by the CDC. States have the option of adding CDC topical modules as they wish, and Utah has used several of them. The final part of the questionnaire consists of questions designed and administered by individual states to address issues of local concern.

For the years 2009-2011, the Utah BRFSS telephone sample was stratified by Utah's 12 health districts. Rural health districts with a comparatively lower population were sampled at a higher rate than urban health districts with larger populations. This over-sampling of lower population districts allowed for the collection of enough observations to produce reliable estimates within each district. Within each health district, a disproportionate stratified sampling (DSS) design was used.

BRFSS is stratified by geographic region and phone type (cell phone, listed landline, and unlisted landline). Once a residence was successfully contacted, individual respondents were randomly selected from all adults ages 18 and older living in the household. The selected adult, if willing, was then interviewed in accordance with the BRFSS protocol.

Interviews were conducted from the Utah Department of Health (UDOH) Survey Center by professional interviewers employed by the UDOH. The Survey Center uses a computer-assisted telephone interviewing (CATI) system to record respondent answers to the survey directly to a computerized database. The system is programmed to help ensure accurate data entry. The interviews were conducted during daytime and evening hours on weekdays and during daytime hours on Saturday to ensure that selected respondents had ample opportunity to complete the survey. Fifteen attempts were made to reach a phone number at different times of the day and on the weekend. Selected respondents were given the opportunity to schedule a time to be called in order to complete the interview. Interviews are routinely monitored to ensure adherence to strict BRFSS protocol. Monitoring is done electronically so that both the interviewer and respondent can be heard, and the computer screen can be observed to make sure responses are entered correctly without the interviewer being aware that he or she is being monitored. The overall response rate during the period was between 55.2% and 66.6%.

*Sampling error:* The BRFSS data were gathered from a sample of the Utah adult population. Sampling error refers to random variation that occurs because only a subset of the entire population is sampled and used to estimate the finding for the entire population. It is often called "margin of error" in popular use.

## BRFSS Questionnaire (continued)

*Non-sampling error:* Sources of non-sampling error include idiosyncratic interpretation of survey questions by respondents, variations in interviewer technique, household and item non-response to questions, and coding errors. Respondents may have the tendency to underreport behaviors that are undesirable, unhealthy, or illegal (e.g., drinking and driving). They may over-report desirable behaviors. The accuracy of self-reported information is also affected by the ability of respondents to fully recall past behaviors or health screening results. Unit non-response is when the person chosen for the sample refuses to complete the survey. Non-response rates in the BRFSS have increased in recent years. Conversely, a commonly used measure of the response rate known as the CASRO (Council of American Survey Research Organizations) rate has decreased over time.

*Weighting:* Data were weighted to account for differences in the probability of selection (e.g., the number of adults in a household). Iterative proportional fitting, or raking, for the years 2009-2011 was used to ensure that the results more closely reflected the adult population of Utah.

*Rate estimates:* Respondents who answered “Don’t know/Not sure” or refused to answer were excluded from the calculation of rate estimates. The SAS® statistical package with SAS-Callable SUDAAN® computer software was used to compute rate estimates (both crude and age-adjusted) and associated 95% confidence intervals using sample weights provided by the CDC. SUDAAN software takes into account the complex BRFSS sample design in calculating unbiased standard errors for the confidence interval calculations.

The purpose of this section is to provide the reader with a general methodological overview of the project. Persons interested in obtaining additional or more detailed information may contact:

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Center for Health Data  
Utah Department of Utah  
288 North 1460 West  
Salt Lake City, UT 84116  
(801) 538-6108  
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# APPENDIX

## Appendix B

### Sample Distribution

Each of the 35 preconception health indicators are examined by age, education, health insurance status, race and ethnicity, and federal poverty level/guidelines (FPL). These select maternal characteristics may alter a woman's risk of experiencing certain health conditions and can affect her health experiences.

	n <sup>1</sup>	% <sup>2</sup>	95% CI <sup>2</sup>	
<b>Total</b>	8199	100		
<b>Age</b>				
18-19	329	9.4	8.3	10.6
20-24	895	20.8	19.4	22.2
25-29	1335	16.0	15.1	17.1
30-34	1912	21.0	20.0	22.1
35-39	1834	15.7	14.9	16.6
40-45	1902	17.0	16.1	17.9
<b>Education Level</b>				
< High School	501	11.1	10.0	12.3
Completed High School	2043	25.3	24.1	26.6
Some College	3078	42.5	41.1	43.9
≥ College Graduate	2575	21.1	20.2	22.1
<b>Health Insurance</b>				
Private/Group	6358	73.7	72.4	75.0
Medicaid	301	4.6	4.0	5.3
Uninsured	1510	21.6	20.4	22.9
<b>Marital Status</b>				
Married	5770	57.1	55.6	58.6
Unmarried	2419	42.9	41.4	44.4
<b>Race/Ethnicity</b>				
White, Non-Hispanic	6936	81.1	79.9	82.3
Hispanic	864	12.8	11.9	13.9
Non-White, Non-Hispanic	368	6.0	5.3	6.8
<b>FPL</b>				
<100%	1017	19.6	18.2	20.9
101%-133%	595	9.8	8.9	10.8
134%-185%	884	12.9	12.0	14.0
>185%	4441	57.7	56.2	59.2

Source: Behavioral Risk Factor Surveillance System (BRFSS), 2009-2011

<sup>1</sup> Unweighted sample size

<sup>2</sup> Weighted crude prevalence and 95% confidence interval

	n <sup>1</sup>	% <sup>2</sup>	95% CI <sup>2</sup>	
<b>Total</b>	4671	100		
<b>Age</b>				
≤ 17	132	1.7	1.4	2.0
18-19	245	4.5	3.9	5.1
20-24	1142	24.3	22.9	25.7
25-29	1543	35.2	33.6	36.8
30-34	1132	24.8	23.4	26.3
35-39	399	8.1	7.3	9.0
40+	78	1.3	0.9	1.7
<b>Education Level</b>				
< High School	1000	13.0	12.1	13.8
Completed High School	855	19.5	18.2	20.7
Some College	1501	38.8	37.1	40.4
≥ College Graduate	1137	28.8	27.3	30.4
<b>Health Insurance</b>				
Private/Group	3067	71.6	70.1	73.0
Medicaid	414	7.8	6.9	8.6
Uninsured	1133	20.7	19.4	21.9
<b>Marital Status</b>				
Married	3651	81.3	80.0	82.5
Unmarried	990	18.7	17.5	20.0
<b>Race/Ethnicity</b>				
White, Non-Hispanic	3286	78.0	76.7	79.3
Hispanic	1004	17.1	15.9	18.2
Non-White, Non-Hispanic	245	4.9	4.2	5.6
<b>FPL</b>				
≤100%	1280	23.9	22.5	25.3
101%-133%	403	9.1	8.2	10.1
134%-185%	544	13.1	11.9	14.2
>185%	2284	53.9	52.2	55.6

Source: Utah Pregnancy Risk Assessment Monitoring System (PRAMS), 2009-2011

<sup>1</sup> Unweighted sample size

<sup>2</sup> Weighted crude prevalence and 95% confidence interval

## Appendix C

### User Guide

In order to facilitate understanding of the data contained in this report, the authors have provided a brief explanation on reading the tables. Each table consists of three columns: a description of population characteristics, the percentage of women with a 95% confidence interval, and the p-value.

**Prevalence estimates** measure the proportion of women (aged 18-45) or new mothers (for PRAMS data) who met the criteria for each indicator. The prevalence of each indicator is also broken down by select sociodemographic factors including age, education, race/ethnicity, insurance status, marital status, and federal poverty level. If applicable, the indicator prevalence is compared to the Healthy People objective.

**Confidence intervals** are provided for each of the prevalence data points to show precision of that estimate. The 95% confidence interval is the amount added or subtracted to the proportion to get a range that represents the margin of error. A 95% confidence interval means that the probability of observing a value outside of the range is less than 5%. In general, a narrow interval is more precise than a wide interval. Wider intervals may be indicative of a smaller sample size, although samples with raw numbers less than 5 are not reported.

#### Sociodemographic characteristics

**Total** on each table gives the proportion of women reporting the event. Each subsequent category breaks down these women by various characteristics, including age, education, race/ethnicity, marital status, and FPL. Indicated categories also show the proportions within these groups.

Age: Age subgroups differ for PRAMS and BRFSS, as BRFSS is limited to women ages 18-45, whereas PRAMS includes all new mothers ages 15 or older.

PRAMS: (7 subgroups) 17 Yrs or Under, 18-19, 20-24, 25-29, 30-34, 35-39, and 40+

BRFSS: (6 subgroups) 18-19, 20-24, 25-29, 30-34, 35-39, 40-45

Education: (4 subgroups) Less than high school (<High school), High school graduate or GED (High school graduate/GED), Some college (Some college), College graduate or higher education (≥College graduate).

Race/Ethnicity: (3 subgroups) White Non-Hispanic, Hispanic, and Non-White Non-Hispanic

Insurance Status: (3 subgroups) Private/Group/Other Insurance, Medicaid, and Uninsured

Marital Status: (2 Subgroups) Married and Unmarried. Unmarried includes divorced, separated, widowed, and never married.

Federal Poverty vLevel (FPL): (4 Subgroups) ≤100% FPL, 101-133%, 134-185%, >185%. These groups reflect annual poverty guidelines based on upper threshold of respondents' self-reported income bracket and their self-reported household size.

**Quotes** may be from leaders in the field or from survey participants themselves. Qualitative data collected from PRAMS respondents have been included within the text as direct quotes. Where noted, the quotes have been translated from Spanish to English.

**P-values** indicate whether the difference in proportions between the subgroups is statistically significant, and the level of significance. Differences are considered statistically significant when the p-value <0.05. Differences that do not meet this criteria are denoted by NS.