PRAMSGRAM
OKLAHOMA PREGNANCY RISK ASSESSMENT MONITORING SYSTEM VOL 13 NO 1 WINTER 2009

Prenatal Care Counseling Disparities in Oklahoma

Adequacy of prenatal care (PNC) as defined by traditional indices of PNC, the Kotelchuck and Kessner models, is measured using the number of prenatal health care visits a woman has and the timing of those visits, although differences do exist between both methods.[1] However, the quality of the care or the guidance provided during these visits is not factored into either index. Without knowledge about the quality and content of PNC the true effectiveness of the provided care may not be captured for all women, and subsequent impact on birth outcomes may be difficult to measure. Research has shown a reduction in low birth weight, preterm births and fetal deaths that can be linked to early and adequate prenatal care. However adequate prenatal care, as traditionally measured, does not reduce the disparities in these areas between African American and white women.[1-4]

The American College of Obstetrics and Gynecology (ACOG) recommends the following topics be addressed by PNC providers during the course of a woman's pregnancy (only those that can be measured by Oklahoma PRAMS are listed): Smoking During Pregnancy, Breastfeeding, Using Seat Belts, Alcohol Use During Pregnancy, Postpartum Family Planning, Nutrition and Weight Gain Counseling, Exercise, Use of Medications, Illegal/Illicit Drug Use, Risk Factors for Birth Defects and Diseases that Run in Families, Signs and Symptoms of Preterm Labor, HIV Testing, Domestic Violence, and Postpartum Depression. There are 18 additional topics on the ACOG Antepartum Record Form E that are not measured by Oklahoma PRAMS.[5]

Although many studies indicate the need for additional and in-depth research into quality and content of prenatal care, little research has been done in this area over the past fifteen years. In the few studies that have been done at a national level, racial and ethnic disparities have been documented when examining the content of prenatal care visits.[6] In one study, white women were more likely to have received advice or counseling about breastfeeding, alcohol cessation, and pregnancy weight gain than women of other races and receipt of guidance on all selected topics was less prevalent for African American mothers than for women of all other races.[6] Comparable data for Oklahoma's African American populations on this topic have not been readily available.

This PRAMSGRAM will explore patient education and PNC guidance, as reported by new mothers in Oklahoma, and determine if differences exist in the discussions African American and white women have with their prenatal care providers.

In Oklahoma:

- Only 15% of all Oklahoma women received counseling on all of the sixteen measured prenatal care topics.
- African American mothers were more likely to receive guidance on illegal drug use and physical abuse and less likely to receive information on the appropriate amount of weight to gain when compared to white women.
- Topics women were least likely to receive counseling on, independent of race, were seat belt use during pregnancy, physical abuse during pregnancy, and pregnancy spacing.

Methods:

This study used data from the Pregnancy Risk Assessment Monitoring System (PRAMS) for the survey years 2004, 2005, and 2006. For this period, 7,757 Oklahoma mothers were sent the PRAMS survey shortly after the birth of their child. Of these mothers, 5,760 completed the questionnaire, yielding an unweighted overall response rate of 74.3%. A detailed explanation of PRAMS methodology has

been well-documented elsewhere.[7]

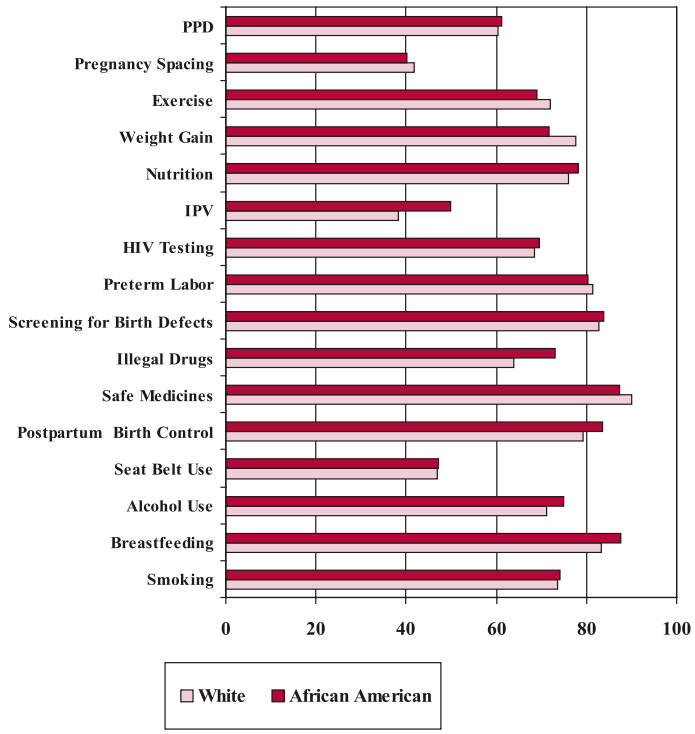
To determine the level of prenatal care counseling received by mothers, PRAMS respondents were asked to respond by checking "No" or "Yes" to sixteen questions describing topics which their doctor, nurse, or health care worker may have discussed with the mother during prenatal care visits: How smoking during pregnancy could affect my baby; breastfeeding my baby; how drinking alcohol during my pregnancy could affect my baby; using a seat belt during my pregnancy; birth control methods to use after my pregnancy; medicines that are safe to take during my pregnancy; how using illegal drugs could affect my baby; doing tests to screen for birth defects or diseases that run in my family; what to do if my labor starts early; getting tested for HIV (the virus that causes AIDS); physical abuse to women by their husbands or partners (intimate partner violence or IPV); the types of food to eat during pregnancy; appropriate amount of weight to gain; exercise during pregnancy; how long to wait before having another baby; and postpartum depression (PPD).

These topics are included in the ACOG guidelines for prenatal care counseling, and hence serve as a useful measure of the content and quality of prenatal care. For this study the quality of prenatal care received by African American and white mothers was compared by measuring the percentage of PRAMS respondents receiving prenatal care counseling in each of the sixteen topics.

Due to the PRAMS stratified weighted sample, SUDAAN 9.0.1 was used to perform the statistical analysis. For the descriptive analysis, variables were examined using percentages and confidence intervals.

The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing, population-based study designed to collect information about maternal behaviors and experiences before, during and after pregnancy. On a monthly basis, PRAMS samples between 200 and 250 recent mothers from the Oklahoma live birth registry. Mothers are sent as many as three mail questionnaires seeking their participation, with follow-up phone interviews for non-respondents. A systematic stratified sampling design is used to yield sample sizes sufficient to generate population estimates for groups considered at risk for adverse pregnancy outcomes. Information included in the birth registry is used to develop analysis weights that adjust for probability of selection and non-response.

Figure 1: Prenatal Care Discussions For African American and White Women in Oklahoma, PRAMS 2004-2006



Variables were considered statistically significant at $p<0.05$.

Results:

The content of prenatal care received by African American and white mothers was measured by the percentage of women who received prenatal counseling discussions on the sixteen topics listed in Figure 1. Compared with white women, African American women were significantly more likely to receive PNC counseling on illegal drug use (73.1% vs. 64.0%; p<.0.05) and physical abuse by partner or spouse (49.8% vs. 38.2%; p<.0.05) and less likely to receive counseling on the appropriate amount of weight to gain while pregnant (71.8% vs. 77.6%; p< 0.05). Similar results were found between African American and white women who received adequate or more than adequate prenatal care as defined by the Kotelchuck Index (data not shown).

To determine if a difference existed between groups of women receiving information on all of the educational PNC topics inquired about in the PRAMS survey, the sixteen topics were grouped together. Only 15.3% of African American mothers and 14.0% of white mothers reported receiving prenatal

Table 1: Prenatal Care Counseling Among African American Women in Oklahoma With Prenatal Care Covered by SoonerCare vs. Health Insurance; PRAMS 2004-2006

	SOONERCARE MEDICAID*		HEALTH INSURANCE**		
PRENATAL CARE COUNSELING	%	95% CI	%	95% CI	CHI-SQUARE TEST P-VALUE
SMOKING DURING PREGNANCY	76.3	67.8, 83.1	64.2	47.9, 77.9	.1744
BREASTFEEDING	90.5	84.0, 94.6	75.7	58.8, 87.2	.0683
DRINKING ALCOHOL DURING PREGNANCY	75.2	66.7, 82.1	68.1	51.7, 80.9	.4105
USING SEAT BELTS	43.7	35.3, 52.5	51.4	35.6, 66.9	.4169
BIRTH CONTROL METHODS	85.3	78.0, 90.5	79.4	63.8, 89.4	.4158
USING MEDICATION DURING PREGNANCY	85.5	78.2, 90.6	88.7	73.5, 95.7	.6013
ILLEGAL DRUG USE	73.2	64.7, 80.2	66.6	50.4, 79.6	.4439
BIRTH DEFECT SCREENING	**80.2**	**72.4, 86.2**	**95.6**	**82.8, 99.0**	**.0032**
PRETERM LABOR	81.1	73.4, 87.0	76.1	60.1, 87.1	.5205
HIV TESTING	68.8	60.1, 76.5	72.4	56.1, 84.3	.6764
PHYSICAL ABUSE	50.3	41.6, 59.1	39.4	25.0, 55.8	.2413
NUTRITION AND DIET	79.1	71.0, 85.4	69.3	52.3, 82.3	.2653
WEIGHT GAIN	70.0	61.3, 77.4	79.8	63.7, 89.9	.2165
EXERCISE DURING PREGNANCY	67.6	59.0, 75.2	71.4	54.6, 83.8	.6633
PREGNANCY SPACING	40.2	32.0, 48.9	38.9	24.5, 55.4	.8873
POSTPARTUM DEPRESSION	59.7	50.8, 68.0	62.6	46.0, 76.7	.7511

** The "SoonerCare" category includes mothers whose prenatal care was partially covered from other sources (personal income, health insurance, IHS, or a health clinic) in addition to Medicaid.*
*** The "health insurance" category includes mothers whose prenatal care was partially covered from other sources (personal income, IHS, or a health clinic) in addition to health insurance, but excluding Medicaid SoonerCare in all cases.*

counseling on all sixteen topics asked in the PRAMS survey (data not shown), a difference that was not statistically significant.

By insurance status, African American women with SoonerCare (Medicaid) were somewhat more likely to receive discussions about smoking during pregnancy and advice about breastfeeding than African American women with private health insurance (Table 1). African American women whose prenatal care was covered by health insurance were more likely to receive a prenatal talk about screening for birth defects than African American women whose prenatal care was covered by SoonerCare (95.6% vs. 80.2%, See Table 1). Comparing African American women living in urban vs. rural areas revealed no statistically significant differences in the percentage of women receiving prenatal care talks (data not shown). There were no significant differences in prenatal care quality (receiving all 16 topics) between well-educated and less educated African American women (data not shown).

Age also appeared to influence the content of prenatal care for African American mothers. Compared with women 30 years of age or older, African American women under 20 were significantly less likely to receive prenatal counseling on medication use during pregnancy from their health care worker (83.4% vs. 98.2%), and significantly more likely to receive advice on nutrition and diet (91.5% vs. 66.9%) and weight gain (87.2% vs. 78.0%, See Table 2).

When controlling for demographic variables such as marital status, age, race, education, Medicaid status, rural/urban status, African American mothers were more likely to receive a discussion on physical abuse when compared with white women and less likely to receive a discussion on weight gain. Discussions about illegal drug use did not vary between different racial categories; however, those women who were under 20 years of age, less educated, living in rural areas and/or had SoonerCare were more likely to report this topic (data not shown).

The following tables report selected topics in risk-appropriate care as reported by Oklahoma's white and African American mothers. Topics were selected based on their potential impact on selected maternal risk factors. Among women who smoked prior to pregnancy, over 80% received counseling about the impact smoking has on pregnancy. Although African American women appeared to have a slightly lower incidence of advice or counseling on smoking effects, it was not significant (data not shown). However, African American smokers were less likely to have a nicotine patch, spray, pill or inhaler prescribed for cessation efforts when compared to white women (3.7% vs. 9.2%, $p<0.05$; data not shown). The majority of women in both groups reported spending time with their providers about smoking and receiving handouts about smoking cessation. Less than 15% in both groups were referred to a quitline or hotline for cessation assistance, data not shown.

Table 2: Prenatal Care Counseling Among African American Women in Oklahoma by Maternal Age at Birth of Child; PRAMS 2004-2006

	<20 YEARS		20-29 YEARS		30+ YEARS		
PRENATAL CARE COUNSELING	%	95% CI	%	95% CI	%	95%	CHI-SQUARE TEST P-VALUE
SMOKING DURING PREGNANCY	81.1	64.8, 90.9	73.6	63.9, 81.4	69.1	51.4, 82.5	.4867
BREASTFEEDING	95.7	82.5, 99.1	85.0	76.5, 90.9	86.9	70.4, 94.9	.0951
DRINKING ALCOHOL DURING PREGNANCY	80.7	64.6, 90.6	73.6	64.0, 81.3	70.0	52.2, 83.3	.5472
USING SEAT BELTS	37.4	23.2, 54.2	49.2	39.6, 58.8	50.1	33.5, 66.7	.4474
BIRTH CONTROL METHODS	90.8	76.6, 96.7	82.1	73.4, 88.4	81.0	64.4, 91.0	.3100
USING MEDICATION DURING PREGNANCY	83.4	67.6, 92.3	84.2	75.7, 90.2	98.2	96.2, 99.1	.0017
ILLEGAL DRUG USE	77.1	60.5, 88.1	71.6	62.0, 79.6	70.0	52.9, 82.9	.7573
BIRTH DEFECT SCREENING	71.3	54.2, 84.0	86.5	78.6, 91.7	89.5	74.0, 96.2	.1527
PRETERM LABOR	78.8	62.6, 89.2	80.7	72.0, 87.2	81.4	64.7, 91.3	.9593
HIV TESTING	68.9	51.4, 82.3	71.5	61.8, 79.5	65.7	47.8, 80.0	.8260
PHYSICAL ABUSE	56.2	39.3, 71.8	51.3	41.6, 60.8	36.1	21.6, 53.8	.2192
NUTRITION AND DIET	91.5	78.4, 97.0	74.3	64.9, 81.9	66.9	49.1, 80.9	.0100
WEIGHT GAIN	87.2	73.4, 94.4	61.4	51.6, 70.3	78.0	60.7, 89.0	.0030
EXERCISE DURING PREGNANCY	76.0	60.1, 86.9	60.4	50.7, 69.4	76.3	59.4, 87.7	.0863
PREGNANCY SPACING	45.8	30.6, 61.7	37.3	28.6, 46.9	36.3	21.8, 53.8	.6354
POSTPARTUM DEPRESSION	64.1	47.4, 78.0	60.1	50.4, 69.1	55.9	38.8, 71.6	.7859

Table 3: Prenatal Care Counseling on Nutrition, Weight Gain, and Exercise Among Underweight (BMI<19) or Overweight (BMI>29) White and African American Women in Oklahoma by Maternal Geographic Area of Residence; PRAMS 2004-2006

	WHITE		AFRICAN-AMERICAN		
RECEIVED PRENATAL CARE COUNSELING ON NUTRITION, WEIGHT GAIN, AND EXERCISE	%	95% CI	%	95% CI	CHI-SQUARE TEST P-VALUE
YES	57.7	53.8, 61.5	54.9	43.2, 66.2	.6636
NO	42.3	38.5, 46.3	45.1	33.8, 56.8	

Pre-pregnancy body mass index (BMI) was used to classify women as either underweight or obese to determine their need for certain weight-related topics. Counseling on how much weight to gain during pregnancy as well as nutrition and exercise appropriate for pregnancy was given to slightly more than half of women in both demographic groups (Table 3). Fewer than half of the women who indicated abuse before or during their pregnancies received counseling or advice about physical abuse, with white women more likely to receive advice on this topic than African American women (Table 4). However, the sample size is small for this variable so confidence intervals were large and differences were hard to detect.

Table 4: Prenatal Care Counseling on Physical Abuse Among White and African American Women in Oklahoma Who Were Physically Abused During 12 Months Before Conception; PRAMS 2004-2006

	WHITE		AFRICAN-AMERICAN		
RECEIVED PRENATAL CARE COUNSELING ON PHYSICAL ABUSE	%	95% CI	%	95% CI	CHI-SQUARE TEST P-VALUE
YES	44.6	36.0, 53.6	27.9	12.6, 51.0	.1594
NO	55.4	46.5, 64.0	72.1	49.0, 87.4	

Table 5: Prenatal Care Counseling on Labor Pains and Weight Gain Among White and African American Women in Oklahoma Who Had Previous LBW Infant; PRAMS 2004-2006

	WHITE		AFRICAN-AMERICAN		
RECEIVED PRENATAL CARE COUNSELING ON LABOR PAINS AND WEIGHT GAIN	%	95% CI	%	95% CI	CHI-SQUARE TEST P-VALUE
YES	**50.8**	**40.1, 61.5**	**84.9**	**68.4, 93.6**	**.0023**
NO	**49.2**	**38.5, 59.9**	**15.1**	**6.4, 31.6**	

Women with a history of low birth weight infants were significantly more likely to report counseling on preterm labor signs and how much weight to gain during pregnancy if they were African American. It is the only selected risk-appropriate care topic that reported a significant difference between white and African American women (Table 5).

Discussion:

The prenatal care received by African American women and white women in Oklahoma varied on a few key topics, but overall the conversations between both maternal groups and their prenatal health care providers were similar. Only fifteen percent of new mothers in Oklahoma received all sixteen of the topics discussed in this study, irrespective of race. Although the ACOG standards are not followed by every obstetric practice or by every prenatal health care provider in Oklahoma, the sixteen measured topics are important and necessary for good pregnancy and postpartum health.

Four topics, seat belt use, physical abuse, pregnancy spacing and postpartum depression, were individually reported by fewer than 65% of the total maternal population. Due to their importance on the health of the current pregnancy, the impact on the bonding between a mother and her baby, and the health of the mother and her future pregnancies, these are necessary topics for all women.

Of the individual topics that were disparate between African American and white women, illegal drug use and physical abuse during pregnancy raise questions about risk appropriate care versus stereotypes. These same disparities were present between SoonerCare and non-SoonerCare white women, although not among SoonerCare and non-SoonerCare African American women. While this study cannot delve into deeper areas, such as true risk for these issues as presented to a provider versus the provider's own practices and biases, the issue should be part of our State's conversation on health equity and the standardization of care for all pregnant women.

Maternal report of risk appropriate care shows that few women receive information on topics that were pertinent to their reported health behaviors or risks. While maternal smokers were very likely (over 80%) to receive discussions about the effects of smoking during pregnancy, less than 15% were then referred to the state quit line and fewer than 10% were prescribed an inhaler, pill, spray or patch to aid in quitting, both evidence-based methods to deter smoking in pregnant and parenting women.

Women who needed counseling about physical abuse (those who reported abuse before or during pregnancy) were marginally more likely to receive it if they were white. However, fewer than 45% of women in both groups recalled discussing this issue with their providers. Violence before and during a pregnancy can have harmful impacts on the

pregnancy, including increasing a woman's risk for delivering a low birth weight infant and increasing the likelihood of stillbirth or infant death.[8]

For those women classified as either overweight or underweight, slightly more than half, irrespective of race, received the necessary counseling on weight gain, nutrition and exercise. However, for women who reported a previous low birth weight infant, African American women were significantly more likely to receive the necessary counseling on weight gain and what to do if labor begins early. This is important because appropriate weight gain during pregnancy has the potential to increase the birth weight of the baby, and recognizing early labor and knowing what to do may enable a woman to get to the hospital to stall labor for as long as possible.

Oklahoma needs a standard of care for prenatal care that is followed by all prenatal care providers to ensure that all women receive the same high quality care necessary to reduce stress during pregnancy and ensure healthier outcomes for mothers and infants. Many public providers in this state use the ACOG tool, although it is not the only obstetric record available. Some states, such as Vermont, have developed their own tools for enhancing and standardizing prenatal care for all women.[9]

Limitations for this study exist. All responses for this study are self-reported, and are subject to recall bias and social desirability bias. Women are asked to recall discussions with their providers only, and to not count any pamphlets or videos they may have been given or seen. Procedures, tests and screenings were not measured nor was a woman's perception of her provider or her perceived need for the information.

It is understood that having the appropriate information from a PNC provider will only impact birth outcomes to a certain degree. Social determinants of health, such as housing conditions, transportation, neighborhood safety, access to health insurance and low levels of literacy, all impact pregnancy health and infant outcomes in ways a provider cannot. However, having a system of care with evidence-based standards, good customer service for all women who walk into the clinic or practice, and care that is culturally competent may empower women to mitigate other risks they face in life in order to have a healthier pregnancy.

Recommendations:

1. Provide consistent prenatal care to all women based on recommended standards of care (like the ACOG standard) to ensure that all necessary topics are discussed.
2. Create incentives for providers for standard of care practices (like using a prenatal care standardized tool) from state insurance providers.
3. Improve customer service skills for front office staff, nurses, and physicians to create welcoming environments for all patients.
4. Review promising practices in this state and others that reduce disparities in health outcomes between white and African American women and provide evidence-based pregnancy related care (such as Centering Pregnancy groups).
5. Fully fund and support programs like Children First and Healthy Start in Oklahoma, evidence-based programs that provide in-depth education on pregnancy-related issues and create personal relationships between health providers and pregnant and parenting women.
6. Refer all pregnant women who smoke tobacco to the free Tobacco Helpline 1-800-Quit-Now.
7. Conduct research of women with optimal pregnancy and birth outcomes to see how they differ from women with poor outcomes to determine what they do differently and which factors assist in positive outcomes for African American women, rather than always focusing on the negative.
8. Institute standard guidelines or tools for preconception and interconception care for all women. The Preconception Checklist currently under development by the Oklahoma State Department of Health is one such recommended tool.
9. Begin to consolidate and incorporate all work done by various groups in Oklahoma that study the issue of health disparities using a central body to ensure that the work is continuous and not duplicative.

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