

**Factors Associated with Offer Rates for Florida's Healthy Start Prenatal Screen
An Analysis of the 2001 Delivery Cohort**

Cheryl L. Clark, MPH and Dan Thompson, MPH

March 1, 2004

Introduction

The Florida Department of Health developed the Healthy Start Prenatal Risk Screen in 1992 to assess pregnant women for the risk of delivering a low birth weight (<2000 grams at birth) or preterm infant (<34 weeks gestation). The purpose of prenatal risk assessment is the identification of factors known to be associated with risks of the adverse birth outcome of low birth weight or preterm birth. When a pregnant woman is screened, risks are identified, scored and totaled to provide an overall assessment score for risk of low birth weight or preterm delivery. Annual evaluation of this screening instrument has consistently demonstrated that higher scores on this risk assessment are associated with higher rates of pre-term or low birth weight delivery ⁽¹⁾. With a proven tool of prenatal risk assessment, health care providers and Healthy Start care coordinators can provide risk-appropriate prenatal care tailored to the individual needs of pregnant women.

In 1992, the Florida legislature enacted legislation requiring that all pregnant women be offered the Florida Healthy Start Prenatal Screen. This provides the opportunity for all pregnant women who seek prenatal care to be screened for the risk of delivering a preterm or low birth weight infant. Despite this legislative requirement, the percentage of Florida pregnant women who receive prenatal screening has historically remained at approximately fifty percent (50%). Various efforts and projects have been directed towards understanding the reasons behind the lower than expected screening rates and increasing the prenatal screening rate to a value near 100%. Previous analyses have not provided comparisons of pregnant women who are more likely to be offered a prenatal screen to pregnant women who are less likely to be offered a

prenatal screen. Additionally, previous analyses have not compared the levels of risks of pregnant women who are or are not offered prenatal screening. The purpose of this analysis is to categorize women by (1) risk of an adverse birth outcome and (2) the probability of being offered a Healthy Start prenatal screen. Ideally, those women who are at the greatest risk for adverse outcome would be most likely to be screened. In this analysis, this ideal is compared to the current situation.

Methods

The data used for this analysis is a delivery cohort of recorded births and fetal deaths occurring in Florida in 2001. This cohort was linked to infant deaths and Florida Healthy Start prenatal screens. For the purpose of this analysis, a subset of this linked file was used to create a Florida resident fetal deaths and infant birth cohort excluding all non-Florida residents (n=204,087 records). Since women should have been offered the screen during their prenatal visit, this subset file was further filtered to include only women who reported receiving prenatal care. 97.9% of the 2001 delivery cohort (199,803 of 204,087) reported having prenatal care. Cohort cases were categorized by maternal variables that have been associated with a higher risk of low birth weight and preterm delivery in previous analyses: ^(1,2) birth mothers under the age of 18, birth mothers over the age of 39, birth mothers who are not married, birth mothers who have no high school diploma or GED, and birth mothers of Black race. Birth mothers of Hispanic ethnicity were also identified in this cohort analysis due to the increasing interest in this ethnicity variable, although historically, Hispanic ethnicity has not been found to be associated with a higher risk of preterm or low birth weight delivery.

Cohort cases were further categorized by the following variables, which form the basis of this analysis: birth mothers who experienced an adverse birth outcome of preterm (< 34 weeks gestation) or low birth weight (< 2000 grams) delivery and birth mothers who were offered

Healthy Start Prenatal Screen. Table 1 displays the numbers and percentages for these independent and dependent maternal variables.

Table 1 Analysis Variable Categories

<i>N</i> = 199,803		
Variable Categories	Count	Percentage (%)
Age > 39	5,363	2.68
Age < 18	8,103	4.06
Maternal Marital Status - Unmarried	76,473	38.30
No High School Diploma or GED	40,729	20.38
Maternal Race - Black	45,017	22.53
Maternal Ethnicity - Hispanic	48,746	24.40
Adverse Outcome of LBW or Preterm Birth	7,314	3.66
Prenatal Screen Offer	125,960	63.04

Using logistic regression, adjusted odds ratios were calculated for the following independent maternal variables: age less than 18, age greater than 39, not married marital status, no high school diploma/GED, Black race and Hispanic ethnicity in relation to each of the two dependent variables -- adverse birth outcome and prenatal screen offer. In addition, adverse birth outcome was included as an independent variable when prenatal screen offer was the dependent variable in the analysis and similarly, prenatal screen offer was an independent variable when adverse outcome was the dependent variable in the analysis.

Results

Table 2 presents the adjusted odds ratios for the adverse outcome of low birth weight or preterm delivery in relation to the independent maternal variables. As with previous Healthy Start Prenatal Screen analyses ^(1,2), birth mothers who are Black (OR=1.886), older than 39 years of age (OR=1.651), less than 18 years of age (OR=1.128) or unmarried (OR=1.162) were found to be significantly associated with a higher chance of a preterm or low birth weight delivery. Birth mothers without a high school diploma or GED also have an increased chance of an adverse

birth outcome, but the increased risk is not statistically significant (OR=1.044; CI=0.980-1.112). For this cohort, Hispanic ethnicity was significantly associated with a protective odds ratio for an adverse birth outcome of low birth weight or preterm delivery (OR= 0.906). Cohort birth mothers offered a prenatal screen had a significant odds ratio of 0.777 for a low birthweight or preterm delivery. This finding suggests that cohort women who experienced an adverse birth outcome of low birth weight or preterm delivery were less likely to have been offered Healthy Start prenatal screening.

Table 2. Adverse Birth Outcome of Low Birth Weight or Preterm Delivery

Dependent Variable = Adverse Outcome (Low Birth Weight or Preterm Delivery)		
Independent Variables	Adjusted Odds Ratio	Confidence Interval (95%)
Maternal Age < 18	1.128	1.006 - 1.264
Maternal Age > 39	1.651	1.464 - 1.862
Maternal Marital Status - Unmarried	1.162	1.101 - 1.226
Maternal Education - No High School Diploma or GED	1.044	0.980 - 1.112
Maternal Race – Black	1.886	1.783 - 1.994
Maternal Ethnicity - Hispanic	0.906	0.851 - 0.965
Prenatal Screen Offer	0.777	0.740 - 0.815

Table 3 displays adjusted odds ratios for prenatal screen offer that were calculated for independent maternal variables. Maternal variables significantly associated with an increased chance of being offered the Healthy Start Prenatal Screen are not married (OR=1.456), no high school diploma/GED (OR=1.376) and age less than 18 years of age (OR=1.162). Variables significantly associated with a decreased chance of being offered a prenatal screen are Black maternal race (OR=0.968), an adverse birth outcome of low birth weight or preterm delivery (OR=0.777), Hispanic maternal ethnicity (OR=0.678) or an age greater than 39 years of age (OR=0.672).

Table 3 Prenatal Screen Offer

Dependent Variable = Healthy Start Prenatal Screen Offer		
Independent Variables	Adjusted Odds Ratio	Confidence Interval (95%)
Maternal Age < 18	1.162	1.100 - 1.228
Maternal Age > 39	0.672	0.636 - 0.710
Maternal Marital Status - Unmarried	1.456	1.426 - 1.488
Maternal Education - No High School Diploma or GED	1.376	1.340 - 1.413
Maternal Race - Black	0.968	0.945 - 0.993
Maternal Ethnicity - Hispanic	0.678	0.663 - 0.693
Adverse Birth Outcome (Low Birth Weight or Preterm Delivery)	0.777	0.740 - 0.815

In summary, cohort birth mothers who were of Black race, or greater than 39 years old were less likely to be offered a prenatal screen, but more likely to experience an adverse outcome. Cohort women of Hispanic ethnicity were also less likely to be offered a prenatal screen and less likely to have a preterm or low birth weight delivery. Additionally, cohort birth mothers who were either less than 18 years of age or not married were more likely to be offered a prenatal screen and also more likely to experience an adverse outcome.

Discussion

The goal of any health screening process is to identify persons at risk for an adverse outcome in order to implement interventions that may reduce the risk of the adverse event. The Healthy Start Prenatal Screen was developed to identify pregnant women at risk for preterm or low birth weight delivery. Based on the risk assessment results, interventions can be planned to assure that access to optimal care is offered and to assure that such care is tailored to the assessed level of risk. For this analysis cohort, some of the birth mothers identified as most at risk for an adverse outcome were less likely to be offered the Healthy Start prenatal screen that would have identified the risk.

Florida State Statute 383.14 (1) (b) and Florida Administrative Code 64C-7.009 mandate that the Healthy Start Prenatal Screen be universally offered to all pregnant women upon their first prenatal visit. Prenatal care providers may make what they believe to be determinations regarding which pregnant women should be offered the screen based on reliable decision processes; however, this analysis suggests that any pre-selection of pregnant women for the screen offer are ineffective. Many of the cohort women who may have benefited most from a prenatal risk assessment are less likely to be offered the prenatal risk screen that would accomplish the needed risk assessment. This is an especially important finding because the Healthy Start Prenatal Screening process serves as the gateway to the Healthy Start prenatal care coordination and service provision. Future analyses will include expansion of these findings to examine trends at the county level.

References

- 1) 2002 Healthy Start Annual Report. Florida Department of Health. Available Online: <http://www.doh.state.fl.us/family/mch/hs/hsreport2002.pdf> .
- 2) Simmons, Melanie; Thompson, Dan and Graham, Carol. An Evaluation of the Healthy Start Prenatal Screen: 1998 birth cohort. Available Online: http://www.doh.state.fl.us/family/mch/docs/prenatal_screen.pdf