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# Children and Family Health Services

## Maternal and Child Health Report

*Focus on Hamilton County Women and Children*

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### ***PREDICTORS OF LOW BIRTHWEIGHT, VERY LOW BIRTHWEIGHT AND PREMATUREITY IN A UNIVERSITY HOSPITAL SAMPLE***

This issue of the Maternal and Child Health Report describes the relationship between several social and biological factors and the risk of delivering a low birthweight (LBW), very low birthweight (VLBW), and/or premature infant. The factors include race, age of mother, multiple gestation pregnancy, prior pregnancy fetal losses, sex of infant, and prenatal care.

All women who delivered at University Hospital between 1/1/91 and 10/1/95 and who were residents of Hamilton County (n=10,704) are included in the analyses. Data come from two combined sources—the Alycon database, which is collected at University Hospital, and from the Women's and Children's Health Outcomes Program database.

The following is a summary of how we defined the variables in our analyses.

<u>Variable</u>	<u>Definition</u>
Poor prenatal care	0 or 1 visit
Race	black or other vs. white
Age	19 and younger vs. 20 and older
Multiple gestation	twin, triplet, or quad vs. singleton
Prior pregnancy fetal losses	none vs. 1 vs. 2 or more
Gender of infant	female vs. male
Low birthweight	less than 2500 grams
Very low birthweight	less than 1500 grams
Prematurity	less than 37 weeks gestation

Using a statistical technique called logistic regression, we used the previously stated social and biological factors to evaluate the risk of delivering a LBW, VLBW, and/or premature infant. Table 1 includes results of the three multivariate analyses for each outcome. The effect of each predictor on each outcome is statistically adjusted for the relationships between the other predictors and outcomes. For instance, Table 1 shows the

independent effect of multiple gestation on LBW, VLBW, and PRE, holding constant the effects of the other risk factors on these outcomes.

The numeric values in Table 1 are odds ratios. Each odds ratio approximates how much more likely it was for the women in our study population to have delivered a LBW, VLBW, and/or premature infant when they had any of the following risks: poor prenatal care, prior pregnancy fetal losses, a multiple gestation, being black or other race, being a teenager, or delivering a female infant.

As shown in Table 1, poor prenatal care, black or other race, multiple gestation, and prior pregnancy fetal losses significantly increased the risk of delivering a LBW infant. Poor prenatal care, black or other race, multiple gestation, and prior pregnancy fetal losses significantly increased the risk for having a VLBW or premature infant. The strongest relationships were observed between LBW, VLBW, and prematurity and multiple gestation and poor prenatal care. Multiple gestation increased the risk of delivering a LBW infant by 18 (odds ratio=18), controlling for all the other predictors. Stated differently, having a LBW infant occurred approximately 18 times as often among women who delivered twins, triplets, or quadruplets, compared to singleton births. Having a LBW infant occurred 2 times as often among women who had poor prenatal care (odds ratio=2), compared to women who had more prenatal visits.

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*Edward F. Donovan, M.D., Director*

*Pamela A. Dooley, Project Analyst*

*P.O. Box 670541, Cincinnati, OH 45267-0541*

*Phone: 513-558-0005 Fax: 513-558-7770*

*E-Mail: edward.donovan@uc.edu*

Table 1. Adjusted odds ratios for the risks of delivering a low birthweight infant<sup>a</sup> (LBW), very low birthweight infant<sup>b</sup> (VLBW) and/or premature infant<sup>c</sup>.

Predictor	Low birthweight	Very low birthweight Prematurity	
	Odds ratio	Odds ratio	Odds ratio
Poor prenatal care (0 or 1 prenatal visit)	2.2	3.0	3.0
Race (black or other race)	1.7	1.4	1.4
Age of mother (19 year~ and younger)	1.1 (ns <sup>d</sup> )	1.2 (ns)	1.1 (ns)
Multiple gestation (twin, triplet, or quadruplet)	18.0	13.1	16.8
Prior pregnancy fetal loss (1 prior pregnancy fetal loss)	1.2	1.2 (na)	1.1 (ns)
Prior pregnancy fetal losses (2 or more prior pregnancy fetal losses)	1.7	2.1	1.6
Gender of infant (female)	1.1 (ns)	1.1 (ns)	0.9 (ns)

<sup>a</sup>Low birthweight is defined as less than 2,500 grams.

<sup>b</sup>Very low birthweight is defined as less than 1,500 grams.

<sup>c</sup>Premature infant is defined as a gestational age less than 37 weeks.

<sup>d</sup>NS=not a statistically significant effect.