

APPENDIX L

Preterm Labor and Birth

Premature Births

Premature birth is a serious, costly and growing public health problem. It is the leading cause of neonatal death accounting for 24 percent of the infant deaths in the first month of life. In 2002, more than 480,000 babies were born prematurely in the United States. (Martin, J, Hamilton, B., Sutton, P., Ventura, S., Menacker, F., Munson, M., 2002)

A preterm or premature birth is one that occurs prior to 37 completed weeks of gestation. (Cunningham, 2001) Premature/preterm labor has its onset prior to 37 completed weeks of gestation. (Cunningham, 2001)

Criteria for defining preterm labor:

- Gestational age of 20 to 37 weeks
- Documented regular contractions on fetal monitor; at least four in 20 minutes or eight in 60 minutes
- Cervix at least 3 cm dilated or 80 percent effaced compared to initial cervical length (fewer than 30 mms) (ACOG, 2001)

The onset of labor, which is poorly understood no matter when it occurs, involves complex interaction among fetal, hormonal/endocrine, structural, and maternal changes. Many times true preterm labor is diagnosed in retrospect. With the use of new tests, the goal is to improve the reliability and specificity of diagnosing preterm labor. Significant number of women experience painful regular contractions during pregnancy without having a preterm birth.

In many discussions of preterm birth, low birth weight is used interchangeably. Infant weight has traditionally been used as the indicator for gestational age. Evaluation of programs, drug therapy, research and policies have been developed using birth-weight as the defining variable for prematurity. With the advent of sensitive pregnancy tests in correlation with accurate menstrual history and improved technology with sonograph, gestational age can be accurately determined and differentiated from premature birth. Low birth-weight infants can be the result of prematurely, in some instances a result of poor intrauterine environment, or a combination of those factors.

There is no one explanation for the incidence of low birth weight or prematurity. Until preterm labor is better understood, prevention and treatment will be inadequate. Many of the factors are known, but how these factors interact and in what order are yet unclear. A premature, or preterm birth can occur spontaneously or by medical intervention. The spontaneous delivery includes delivery that spontaneously occurs after preterm labor, premature rupture of membranes, or premature dilation of the cervix. When a medical or obstetrical disorder is present such as diabetes, gestational hypertension, placenta previa, abruptio placenta, or intrauterine growth retardation, medical intervention may be necessary for the sake of improving the outcome for either mother or fetus. Therefore, preterm birth may occur by choice and it is not differentiated in the data released by vital statistics.

The causes of preterm labor are unknown, although several complications and conditions of pregnancy are associated with preterm birth. Demographic risks factors are probably not causative but do contribute to preterm labor because of their association with inadequate prenatal care, poor nutrition, or lifestyle. Medical risks, such as hypertension and genetic disorders, which were present before a pregnancy occurred, are associated with preterm birth. Medical conditions such as renal disease or infection occurring during the pregnancy may predispose the woman to premature labor. It has been proposed that infection promotes the release of prostaglandin, which stimulates uterine activity and cervical change. Data are not conclusive as to whether treating maternal infection such as bacterial vaginosis will prevent preterm labor, but many clinics and practices will treat prophylactically. Behavioral and environmental risks including drug usage and work environment may also contribute to the development of premature labor. The most predictive risk factor for preterm delivery is history of previous preterm delivery. (See Table 1 for a list of the Principal Risk Factors for Preterm Labor and Birth.)

Table 1. Principal Risk Factors for Preterm Labor and Birth

Demographic Risks	Medical Risks Predating Pregnancy	Medical Risks in Current Pregnancy	Behavioral and Environmental Risks
Age: < 17 years or > 34 years	Parity: 0 or > 4	Multiple gestation	Smoking
Low socioeconomic status	Nonimmune status for selected infections (e.g., rubella)	Hypotension	Alcohol and other substance abuse
Unmarried	Genitourinary anomalies/surgery	Hypertension/preeclampsia	High altitude
Race: African American	Low birthweight, preterm birth	First or second trimester bleeding	Poor nutritional status
Low educational level	Multiple spontaneous abortions	Spontaneous premature rupture of membranes	Exposure to diethylstilbestrol and other toxic components
	Low weight for height	Anemia or hemoglobinopathy	
	Selected diseases (e.g., hypertension)	Fetal anomalies	
	Poor obstetric history	Hyperemesis gravidarum	
	Maternal genetic factors	Poor weight gain	
	Short interpregnancy interval	Short interpregnancy interval: < 1 year	
		Infections	
		Placental problems	

Demographic Risks	Medical Risks Predating Pregnancy	Medical Risks in Current Pregnancy	Behavioral and Environmental Risks
		Oligohydramnios or polyhydramnios	
		Isoimmunization	
		Incompetent cervix	
		Assisted Reproductive Technology (Schieve)	

Sources: ACOG (2001a), CDC (2000), Lu & Goldenberg (2000), Norwitz & Robinson (2001), Robinson, Regan & Norwitz (2001), Schieve et al. (2002).

Although not proven reliable or sensitive in predicting preterm labor, risk screening is used by most providers to try to identify at risk women and intervene to prevent preterm birth. Risk screening should be done at every prenatal visit. A uniform tool for risk screening is not currently available. Cervical fetal fibronectin has limited value as a predictor of preterm delivery in a low risk population. A negative fibronectin is highly correlated with those women at low risk for delivering within a fourteen days. A positive test has been shown in some studies to predict imminent delivery, but the full clinical implication is controversial and thus, ACOG recommends that the provider does not rely on this test for the management of possible preterm labor. Fibronectin assessment is not a recommended screening test and should only be used when a woman presents with possible preterm labor.

Client education includes instruction about a variety of preventive measures. (Weiss, et.al., 2002) Information should be provided about the signs and symptoms of labor.

All pregnant women should be instructed to notify the health care provider:

- if leaking of fluid begins
- vaginal spotting or bleeding develops
- uterine contractions occur every 10 minutes or more frequently
- change or increase in vaginal discharge
- intestinal cramping, with or without diarrhea.

The client may need instruction to time contractions from the beginning of one contraction to the beginning of the next contraction. A client may need to learn self-care strategies to differentiate true uterine contraction from the common cramps or abdominal discomfort associated with pregnancy.

When uterine activity occurs, the client should be instructed to:

- lie down, preferably on her left side
- drink at least 8 oz of fluids
- palpate the uterus and time contractions.
- if contractions do not subside in 30-60 minutes, contact her health care provider.

Bed rest has traditionally been used as a frontline treatment for preterm labor. The reliance on bed rest and hydration to manage preterm labor is misguided and may be dangerous because there is no statistical evidence that bed rest is effective. (Urbanski, 1997)

In 2003, the March of Dimes has launched a national five-year \$75 million Prematurity Campaign utilizing research, awareness, and education to achieve two goals: (1) to increase public awareness of the problems of prematurity and (2) to decrease the overall rate of preterm birth in the United States. To foster the Prematurity Campaign at the state level, the two March of Dimes Virginia Chapters convened a task force of public and private stakeholders including representatives from physician and nurses groups, Virginia Department of Health, The Virginia Medical Assistance Program, the Virginia Dental Association and major insurance carriers. The task force was charged with defining the problem of prematurity in Virginia as it pertains to low-income women and providing recommendations for improvements to be made by state elected and appointed officials, health care providers, insurers, and consumers. For further information see the March of Dimes web site: VA374@marchofdimes.com.

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