



Preterm Birth

Preterm birth (PTB) is defined as delivery between 20 0/7 and 36 6/7 weeks of gestation. Many advocate that births between 16 0/7 and 19 6/7 weeks of gestation should also be included in the definition of PTB, given similar risk factors, and a high rate of recurrence. Very early PTBs (those before 32 weeks of gestation, are associated with the highest risk of neonatal morbidity and mortality. There are numerous etiologies to PTB, but they are broadly grouped as either spontaneous (e.g. follow preterm labor and/or premature rupture of membranes), or indicated (e.g. delivery after induction of labor or pre-labor cesarean due to concerns regarding maternal or fetal health with pregnancy continuation)

Every 30 seconds worldwide, an infant dies due to consequences of PTB. There are about 1.1 million PTBs annually worldwide, for an incidence of about 10%. In the US, the incidence of PTB increased in the late 1990's through 2006 (12.8%), but has decreased about 11% since (11.4% in 2013). It has been hypothesized that this decrease may be due to lower rates of multiple gestations with improved ART techniques, progesterone therapy, decreases in teen births, better use of cerclage, improved screening (including with cervical length) and counseling, as well as other causes.

Methods to identify women at highest risk for PTB are imperfect. However, given that there are almost three dozen risk factors for PTB, obtaining a careful obstetric history and physical examination will allow the physician to

risk-stratify women. Two major risk factors for PTB that can be identified through an obstetric history are a prior PTB and the presence of a multiple gestation.

Additionally, the presence of an ultrasonographic short cervical length (CL) is another major risk factor for PTB; screening via transvaginal ultrasound can be performed at the time of the routine anatomic survey in the 2nd trimester. The majority of PTB prevention and treatment research in recent years has focused on women in one of these three high-risk groups.

Among women with a prior PTB, the number and severity of previous PTB, as well as the indications for the prior preterm delivery may be used to guide future pregnancy counseling and management. For example, women with a history of preeclampsia may benefit from daily low-dose aspirin use during subsequent pregnancies. Those with a history of spontaneous preterm labor should be offered prophylaxis with intramuscular 17-alpha hydroxyprogesterone caproate. Unfortunately, although women with multiple gestations are known to be at very high risk for both spontaneous and indicated PTB, no effective preventative or treatment strategies have been identified in this group. Transvaginal CL screening results are useful in guiding pregnancy management, but recommendations differ by pregnancy history. Among singletons without a prior spontaneous PTB, if TVU CL reveals a measurement ≤ 20 mm before 24 weeks of gestation, daily vaginal progesterone may reduce the risk of SPTB. Those

women with singleton pregnancies, a short CL, and a prior PTB are also candidates for cervical cerclage placement.

The Society for Maternal-Fetal Medicine (SMFM) has several roles regarding PTB. First, maternal-fetal medicine subspecialists are those most involved with managing women at high risk for PTB, such as those with prior sPTB, multiple gestations, or short CL. Applying evidence-based clinical strategies to predict and prevent PTB is of utmost importance for members of SMFM.

Second, SMFM is at the forefront of developing new research data on prevention of PTB. In particular, collaboration with NICHD has in the last 10-20 years introduced CL screening, progesterone and cerclage as effective strategies in the appropriate populations.

Third, SMFM has an important role in implementing the research, and educating ob-gyn colleagues and other obstetric care providers about best clinical management to prevent PTB. Several SMFM guidelines have been published on prevention of PTB (www.smfm.org/publications)

Lastly, health policy efforts have been lead by SMFM, in collaboration with several other societies, to decrease PTB. All together, SMFM is proud to possibly have significantly contributed to the 10% decrease in PTB rates in the US seen in the last 5 years!

Key points:

Recommended selected primary prevention strategies to avoid PTB in all gravidas:

- Preconception (and later prenatal care as appropriate)
 - Avoiding extremes of age
 - Aim for desirable inter-pregnancy interval (ideally, about 18-24 months; highest risk of PTB with interval <6 months)
 - Avoid multiple gestations with an emphasis on responsible ART
 - Folate supplementation
 - Balanced diet
 - Exercise
 - Avoid extremes of maternal weight (underweight prepregnancy BMI <19 kg/m² or >30 kg/m²)
 - Avoid tobacco, illicit drug use and alcohol use
 - Optimize any medical disease (eg diabetes)
 - Stop or substitute with safer medications any teratogenic drug
- Prenatal care
 - Screen for and treat asymptomatic bacteriuria
 - Treat maternal iron-deficiency anemia
 - Balanced diet
 - Proper weight gain (at least 15 kg over 40 weeks for non-obese women)
 - Avoid smoking, illicit drug use and alcohol
 - Screen for domestic violence and provide resources
 - Consider transvaginal cervical length screening

The practice of medicine continues to evolve and individual circumstances will vary. This document reflects information available at the time of publication and is not intended to establish an exclusive standard of perinatal care. This publication is not expected to reflect the opinions of all members of the Society for Maternal-Fetal Medicine. For further information: www.smfm.org