

331 Pregnancy at a Young Age

Definition/Cut-off Value

Pregnancy at a young age is defined as conception at ≤ 20 years of age for the following (1):

Category	Pregnancy
Pregnant Women	Current pregnancy
Breastfeeding/Non-Breastfeeding	Most recent pregnancy

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Pregnancy in women under the age of 20 is associated with adverse maternal and neonatal outcomes such as anemia, eclampsia, postpartum depression, maternal death, low birth weight, preterm delivery and stillbirth (1, 2). Pregnancy before the age of 20 years, which may also be referred to as adolescent/teen pregnancy, can have long-term impacts and is associated with lower socioeconomic and education status and increased health care costs (3). As the adolescent mother has not yet completed her own growth, there may be suboptimal nutrient levels available to support both her growth and that of the fetus (4). Studies indicate that there is competition for nutrients between the still growing adolescent mother and her rapidly developing fetus which is also known as 'nutrient partitioning'. This may result in compromised growth and development of the mother and/or fetus (5).

The mother and infant are at greater risk of the adverse outcomes listed below due to adolescent pregnancy.

Increased Risk of Adverse Outcomes to Mother and Infant due to Adolescent Pregnancy (6, 7, 8)

Mother at Increased Risk of:	Infant at Increased Risk of:
<ul style="list-style-type: none"> Repeat teen pregnancy Sexually transmitted disease Anemia Cesarean delivery Lack of early prenatal care 	<ul style="list-style-type: none"> Very low birth weight & low birth weight Congenital malformations Sudden Unexplained Infant Death (SUID) Low Apgar Score

Mother at Increased Risk of:	Infant at Increased Risk of:
<ul style="list-style-type: none"> • Preeclampsia • Substance misuse • Not completing high school • Socioeconomic disadvantage • Depression (in comparison with adults) 	<ul style="list-style-type: none"> • Prematurity • Developmental delays • Behavior disorders

Nutritional Impact

Adolescence is a period of rapid growth and development and, thus, increased nutritional needs. Pregnancy further increases energy and nutrient demands in adolescents. Some studies indicate that adolescents enter pregnancy with poor nutritional status due to unhealthy eating behaviors such as skipping meals, inappropriate weight control practices, and frequent consumption of fast food (9). Nutritional surveys across the lifespan indicate that the highest prevalence of nutritional deficiencies occurs during adolescence. A systematic review reported that the nutrient intakes of pregnant adolescents appeared to be low in several nutrients (as discussed below) which are vital for fetal growth and development during pregnancy (10).

Iron

Iron is a component of hemoglobin important in the transfer of oxygen from the lungs to organs. Iron deficiency anemia is one of the most common nutrient deficiencies during pregnancy, and its impact is amplified for pregnant adolescents. According to the Centers for Disease Control and Prevention (CDC) 2003-2010 National Health and Nutritional Examination Survey data, among non-pregnant females 12 to 19 years of age, 9-11% had iron deficiency, and 2-3% had iron deficiency anemia (11). Compared to pregnant adult women, pregnant adolescents have higher iron requirements as adolescents experience rapid expansion of blood volume due to normal adolescent growth. The CDC recommends supplements of 15-30 mg per day of iron for most women during pregnancy. However, pregnant adolescents who are diagnosed with iron deficiency are often prescribed doses of iron as high as 60-120 mg/day (12). The risk of iron deficiency increases further with each additional pregnancy due to the demand of normal growth, pregnancy, and the inability to replace blood loss experienced in childbirth (13). For more information about iron needs during pregnancy please see risk #201 *Low Hematocrit or Hemoglobin*.

Calcium

Calcium is required during pregnancy for the development of the fetal skeleton. In a pregnant adolescent, the maternal diet needs to contain enough calcium to mineralize two skeletons, as an adolescent is still in the process of attaining peak bone mass and continued skeletal growth. Low calcium intake in adolescents is associated with low bone density and increased later risk of osteoporosis for the mother (14). The Recommended Daily Allowance (RDA) for calcium for adolescents is 1300 mg per day; however, studies indicate that the average calcium intakes among 12- 19 year-old females in the U.S. is about 800 mg per day (15). This may be due to the consumption of low-calcium beverages, such as soft drinks and fruit drinks that are frequently chosen instead of milk (16). Although the RDA for calcium does not increase during pregnancy, if an adolescent has inadequate calcium intake during pregnancy it can lead to negative consequences for both the mother and infant, including increased risk of maternal hypertension and preeclampsia (14).

Folate

During pregnancy, folic acid is needed for cell division; during lactation it is required for the synthesis and secretion of milk. If the dietary supply of folate is low, circulating levels begin to decline during the fifth month of pregnancy and continue to decline until several weeks after delivery (17). Folate deficiency during pregnancy may result in intrauterine growth restriction, congenital anomalies, or spontaneous abortion. Although prenatal vitamins contain folic acid, vitamin adherence has been reported to be low among adolescents (18). Smoking and alcohol use can negatively influence the folate levels in pregnant adolescents, as they both lower red blood cell folate concentrations (17).

Vitamin B12

Vitamin B12 is essential for normal neurological function and red blood cell formation during pregnancy. Low levels of vitamin B12, especially in pregnant adolescents, may lead to spontaneous abortion, pregnancy loss, intrauterine growth restriction, low birthweight (<2500 g), and neural tube defects. Folate supplementation may mask the adverse effects of low vitamin B12. Therefore, along with adequate supplementation of folate, it is also recommended that pregnant adolescents have their vitamin B12 status monitored. Vitamin B12 is mainly found in animal sources (meat and dairy products), therefore pregnant teens who follow strict vegetarian/vegan diets or have other diet restrictions are at risk of deficiency. Some studies have indicated that daily maternal supplementation with 50 µg of daily oral vitamin B12 during pregnancy and early lactation significantly improved maternal plasma and breast milk measures of vitamin B12 status, as well as multiple measures of infant vitamin B12 status. (19, 20)

Zinc

Zinc is important in the preconception period for optimal reproductive health and immune function. It also plays a vital role during embryo development, fetal growth, and lactation, causing the requirement for zinc to increase during pregnancy and lactation. Pregnant adolescents are vulnerable to developing zinc deficiency, which can affect both fetal and maternal growth (15). Additionally, low iron intake is linked with inhibition of zinc absorption. Therefore, health care providers may advise pregnant adolescents to take both a zinc and iron supplement. Studies indicate that zinc supplementation may have a modest effect on reducing the risk of preterm birth (21).

Weight Gain during Teen Pregnancy

The National Academies of Sciences, Engineering and Medicine guidelines recommend maternal weight gain of between 11-40 lbs. during pregnancy based on pre-pregnancy body mass index (BMI) (22). There are no specific/separate weight gain recommendations for teen pregnancy. The risk of preterm delivery and low birthweight delivery decreases with adequate weight gain in pregnancy. Studies indicate that pregnant adolescents who have similar pregnancy weight gains as adult counterparts and deliver low birthweight infants may have experienced weight gains attributed to normal adolescent growth and development rather than appropriate pregnancy weight gains (23).

Breastfeeding Promotion and Support

In a review of studies examining breastfeeding among adolescent mothers, the findings showed that most adolescent mothers intended to breastfeed. Yet, breastfeeding initiation ranged from 39% to 69%. Almost half of adolescent mothers stopped within 1 month. During the prenatal period, the promotion of positive maternal perceptions about breastfeeding was found to be important to support the intention to breastfeed. In the early postpartum period, positive support from partners and health-care professionals was essential to sustaining positive maternal attitudes toward the initiation and continuation of

breastfeeding. In addition, the perceived benefits of breastmilk motivated the mother to continue feeding for a longer duration because of the value of her infant's health. (24)

Psychosocial Impact

Pregnancy may lead to increased psychological stress for the adolescent, especially in the case of unplanned pregnancies, and thus may increase the risk of postpartum depression and long term depression (25). Research indicates that the combination of poverty and existing distress is a predictor of teen pregnancy (26). The related psychological and emotional stress may be related to factors that include the additional perinatal and economic responsibilities, adjustment in lifestyle, and changes in the family dynamic. The impact of any stress may continue into adulthood or be lifelong. Studies suggest that adolescents who stay in school to age 18 are less likely to give birth than those who leave school with less than 12 years of education (26, 27). A 2016 Cochrane review suggests that primary prevention interventions (e.g., school, community, home, clinic or faith-based) have been shown to lower the rate of unintended pregnancies among adolescents (27). Interventions that may help adolescent mothers stay in school are more likely to complete high school during pregnancy and postpartum. Strong school connections, family assistance, or commitment in completing educational goals may also reduce multiparity in adolescents (26, 28).

Implications for WIC Nutrition Services

WIC staff can provide the following nutrition services to women under 20 years of age:

- Educate on how the WIC food package helps to provide important nutrients needed during pregnancy and how to incorporate WIC foods into their total diet to get a balanced diet.
- Promote the mom-focused WIC Breastfeeding Support website to learn more about breastfeeding
- Offer individualized referrals based on assessed needs and interests, including referrals to prenatal care, home visiting programs, WIC Peer Counselors, parenting and childbirth programs, and other health and social services.
- Monitor weight gain as needed and educate about appropriate maternal weight gain based on BMI.
- Encourage:
 - Adequate prenatal care.
 - Consumption of prenatal vitamins, as recommended by their health care provider.
 - Consumption of adequate amounts of iron, zinc and calcium-rich foods in order to meet the recommended intake.
- Advise that the pregnant adolescents speak with their healthcare providers to ensure that their folate and vitamin B12 levels are within recommended range.
- Discuss infant feeding plans and provide information to support breastfeeding goals, as appropriate.

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