



CLINICAL REPORT

Care of Adolescent Parents and Their Children

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KEY WORDS

teen pregnancy, adolescent parent, teen parents

ABBREVIATIONS

CI—confidence interval

IPV—intimate partner violence

OR—odds ratio

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abstract

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Teen pregnancy and parenting remain an important public health issue in the United States and the world, and many children live with their adolescent parents alone or as part of an extended family. A significant proportion of teen parents reside with their family of origin, significantly affecting the multigenerational family structure. Repeated births to teen parents are also common. This clinical report updates a previous policy statement on care of the adolescent parent and their children and addresses medical and psychosocial risks specific to this population. Challenges unique to teen parents and their children are reviewed, along with suggestions for the pediatrician on models for intervention and care. *Pediatrics* 2012;130:e1743–e1756

INTRODUCTION

Adolescent parents and their children represent populations at increased risk for medical, psychological, developmental, and social problems. This clinical report updates an American Academy of Pediatrics policy statement published in 2001.¹ Although the most recent birth rate data from 2009 indicate historic low birth rates for infants of 15- to 19-year-old females in the United States, the rate remains higher than a number of other developed countries.² Further, between 2005 and 2007, there was an interruption in a 15-year decline that occurred from 1991 through 2005, emphasizing the need to continue to address prevention of unplanned pregnancy in this age group.^{2–5} Additionally, factors that improve outcomes for parenting adolescents and their offspring must be identified as the numbers of younger adolescents at risk for becoming teen parents is increasing.⁶

ADOLESCENT PREGNANCY AND THE CHANGING LANDSCAPE DURING THE PAST DECADE

After a 15-year decline between 1991 and 2005, there was a 5% increase in rates of births to 15- to 19-year-olds in the United States from 2005 to 2007. However, the rate has consistently declined since 2007, such that in 2009, the teen birth rates in the United States reached a low of 37.9 births per 1000 females 15 through 19 years of age accounting for 409 802 births. It decreased further in 2010 to 34.3 births per 1000 females, or 367 752 births.⁷ Birth rates fell for other age groups as well.⁷ The rate for 10- to 14-year-olds declined from 0.5 per 1000 (5029 births) in 2009 to 0.4 per 1000 (4500 births) in 2010. The birth rate for teenagers 15 to 17 years old was 17.3 per 1000 in 2010 (109 193 births), down from 19.6 in 2009

(124 247 births), which represents a 12% decline from 2009. A similar decrease in birth rates was seen for older teenagers, aged 18 to 19 years. In 2010, birth rates were 58.3 per 1000 (258 559 births) in 2010 compared with 64.0 (285 555 births) in 2009.

With regard to ethnic background, American Indian/Alaska Native teenagers' birth rates increased 7% during 2006–2007, to 59.0 per 1000 in females 15 through 19 years of age but declined to 43.8 per 1000 in 2009, with a continued downward trend in preliminary 2010 data reaching a low of 38.7.^{3–7} Birth rates in the same age group for non-Hispanic white and black teenagers and Asian or Pacific Islander teenagers have steadily decreased to a low of 23.5 and 51.5 per 1000, respectively, in 2010.^{3,7} Birth rates for Hispanic teenagers decreased to 75.3 per 1000 in 2007, with an additional decrease to 63.6 per 1000 in 2009 and preliminary rates of 55.7 per 1000 in 2010 in the same age group.^{3,7}

Although it is encouraging to see a downward trend in teen birth rates, there continues to be important issues to consider. Health care providers should not assume that the teenager has made an autonomous decision whether to engage in sexual activity.⁸ Older age of the teenager's partner is a risk factor for initiation of sexual behavior.^{8–10} Young adolescent girls, particularly those aged 13 or younger with a partner at least 4 years older, are much more likely than their peers to have sex with their partner, which exposes them to the risks of pregnancy and other health problems. The power dynamic between the adolescent and her partner may be coercive in nature and needs to be addressed. Also, it is especially important to ensure that the pregnant adolescent is not a victim of nonconsensual sex, particularly in younger children. The pediatrician needs to explore these

issues and should be familiar with the legal nuances of their specific state. If needed, teenagers should be connected to the appropriate source for additional services.

MEDICAL AND PSYCHOSOCIAL RISKS TO THE ADOLESCENT MOTHER

Medical complications associated with adolescent pregnancy include poor maternal weight gain, anemia, and pregnancy-induced hypertension. These complications seem to be the greatest for the youngest adolescents. Poverty, lower educational level, and inadequate family support seem to contribute to a lack of adequate prenatal care, which may account for the majority of negative health outcomes for both the adolescent mother and her child.¹¹ The long-term socioeconomic consequences of adolescent childbearing were evaluated longitudinally in Sweden from 1941 to 1970, but no such data are available for the United States. On the basis of this homogeneous sample of 140 000 teen mothers, the Swedish study is one of the largest to date and showed increased likelihood of low educational attainment (odds ratio [OR], 1.7–1.9), single living arrangements (OR, 1.5–2.3), and welfare dependency (OR, 1.9–2.6), supporting the view that childbearing during adolescence is a risk factor for poverty in later life.¹²

Violence during pregnancy is recognized as a serious public health concern, particularly for those of younger age (12–24 years). Intimate partner violence (IPV), which can include verbal abuse, assault by a partner or family member, being in a fight or being hurt, or witnessing violence, may be increased during pregnancy, with 3% to 19% of women identified as victims of IPV.¹³ It is more common among pregnant adolescents than among nonpregnant adolescents. Reported

rates of domestic violence to pregnant teenagers have ranged from 20% to 31.6%.¹⁴ One study reported a rate of abuse during pregnancy of 20.6% in a diverse population of women in Texas and Maryland of lower socioeconomic status. Of the 1203 pregnant women enrolled in the study, 29.6% (356) were teenagers between 13 and 19 years of age. Abused teenagers were at greater risk of poor weight gain, first- or second-trimester bleeding, and substance use. Other studies have indicated that 1 in 5 teenagers experience abuse during pregnancy, which was also associated with late entry into prenatal care (third trimester) and low birth weight.^{15,16} Harrykisson et al¹⁷ examined the prevalence of IPV prospectively during a 24-month period in adolescent mothers and found that 41% of young mothers reported being victims of abuse. Similarly, Mylant and Mann¹⁸ reported in 2008 that 61% of the subjects in their study cohort experienced IPV, with 37.5% reporting having experienced it during pregnancy and 22.5% reporting current sexual trauma at the time of the study.

An extremely concerning statistic relates to the cause of death for all women of childbearing age and 1 year postpartum. Consistent with other maternal mortality studies conducted in urban areas, homicide was shown to be the leading cause of death for women of reproductive age. Risk of death by homicide was 2.63 times greater for teenagers 15 to 19 years of age who had recently given birth compared with teenagers who were not pregnant or had not recently given birth in the same age group, stratified by age, race, and urban/rural residence (95% confidence interval [CI], 1.17–5.95), but the reason for this increased risk is not known.^{19–21} In 1987, the Division of Reproductive Health of the National Center for Chronic Disease

Prevention and Health Promotion at the Centers for Disease Control and Prevention, the American College of Obstetricians and Gynecologists, and state health departments established the Pregnancy Mortality Surveillance System to collect data on all reported deaths during pregnancy and within 1 year of pregnancy. The pregnancy-associated homicide rate reported was 1.7 per 100 000 live births; risk factors included being younger than 20 years, being black, and having later or no prenatal care.^{22–24} To date, younger age during pregnancy remains a risk factor of dying by homicide, particularly for the 15- to 19-year-old group.^{25,26}

In terms of psychosocial risk factors for early motherhood, a number of studies have suggested that being a teen mother may be related to poorer mental health outcomes, such as mood disorders. Birkeland et al in 2005²⁷ studied 149 adolescent mothers with a mean age of 17 years (range, 15–19 years) in 2 school systems (Tampa Bay, FL, and Twin Cities, MN). The participants took part in a school-based teen parent program and completed mental health assessments, which included symptoms of depression. Overall, the results suggested that the first year postpartum is difficult for adolescent mothers, regardless of ethnic background, with 29% of the sample reporting symptoms consistent with clinical depression. More recently and on the basis of longitudinal primary care data from 87 000 dyads of parents in the United Kingdom, a higher incidence of depression of mothers compared with fathers was shown. Younger parental age (15–24 years) at the time of the birth of the child was associated with a higher risk of maternal depression; similarly, depression affected fathers with no history of mood disorders.²⁸ These 2 studies support efforts to detect depression in parents, particularly

younger ones, because parental depression is associated with adverse outcomes for children.

Other studies have suggested that early motherhood may also be related to poorer educational outcomes and future economic difficulties. Boden and colleagues²⁹ studied a birth cohort of New Zealand children over a 25-year span and found that 16.8% of the children were born to mothers who were younger than 21 years, with 86% reporting that their pregnancy was unplanned. The authors concluded that younger mothers are less likely to finish high school and have poorer future economic circumstances. In the United States, on the basis of longitudinal data from almost 2000 adolescents who took part in the National Longitudinal Study of Adolescent Health (1995–2001), the study showed that, for black and American Indian adolescents, pregnancy carried a significant risk (4.2 and 19 times, respectively) of the teenager being more likely to have received public assistance. In addition, American Indian and non-Hispanic black young women, respectively, were 2.6 and 2.7 times more likely if ever pregnant than white young women to have received public assistance.³⁰

Although pregnant adolescents have been shown to decrease or limit their use of alcohol, cigarettes, marijuana, and other substances during gestation, the use of cigarettes and alcohol, in particular, has been shown to increase steadily during the first 6 months postpartum.^{31–33} Daily smoking of cigarettes and alcohol and drug problems are known to be associated with adolescent parenthood. The tendency of the adolescent mother to reduce substance use during pregnancy provides a window of opportunity in the immediate postpartum period for the pediatrician to emphasize and encourage healthy choices by the mother.³⁴

RISK OF REPEAT ADOLESCENT PREGNANCY

Repeat births in adolescents have been linked to decreased educational achievement, increased dependence on governmental support by the adolescent mother, increased infant mortality, and low birth weight.³⁵ These negative outcomes result in increased societal expense and contribute to the continuation of the adolescent pregnancy cycle. In contrast to adult women experiencing a second pregnancy, adolescents with a repeat pregnancy tend to delay prenatal care.³⁶ A second adolescent birth may be more deleterious to the teen mother and her offspring by compounding negative socioeconomic impact and the influence of a short interpregnancy interval. A study by Partington et al³⁷ conducted with Milwaukee teen mothers examined rates of pregnancy and childbearing from 1993 to 2002. The authors found that the second births tended to be preterm in 15% of the cases, particularly if the mother smoked during pregnancy, had inadequate prenatal weight gain, or had an interpregnancy interval of less than 18 months; also, teenagers younger than 16 years had increased odds of having an infant with low birth weight with their second pregnancy. Data from the National Youth Risk Behavior Survey from 1999 to 2003 revealed that multiple pregnancies during adolescence were associated with risk behaviors. A dose-response relationship was evident between multiple adolescent pregnancies and earlier sexual initiation and more lifetime sexual partners. Even though causation cannot be determined because of the cross-sectional nature of the survey, multiple adolescent pregnancies may be part of a broad profile of risk behaviors.³⁸

An extensive review of the literature in 2005 revealed that a repeat or second

pregnancy occurs in 19% of adolescent mothers within 1 year after delivery and in 38% within 2 years of the first birth, with the highest rates documented for non-Hispanic black teenagers with reported lower socioeconomic status.³⁹ Raneri and Wiemann⁴⁰ conducted a 48-month follow-up study in a diverse population of adolescent mothers in Texas and found that 42% of mothers were pregnant within 2 years after delivery, with 73% of those going on to deliver a second child.

Several factors are associated with repeat adolescent pregnancy occurring in less than 2 years: not returning to school within 6 months after delivery, being married or living with a male partner, receiving major child care assistance from the adolescent's mother, not using a long-acting contraceptive within 3 months of delivery, experiencing IPV,⁴¹ and having peers who were adolescent parents.⁴⁰

Another significant factor that influences rapid subsequent pregnancies in adolescent mothers is mood disorders. In a study of 269 non-Hispanic black teenagers attending 5 prenatal clinics in Maryland, Barnett and colleagues⁴² determined that depressive symptoms may be an independent risk factor for subsequent pregnancy. The authors found that of the 49% of the teenagers experiencing a second pregnancy within 2 years postpartum within their study, 46% had reported symptoms of depression at baseline.

An adolescent who drops out of school may choose to remain at home in a parenting role, reflecting a conscious decision not to return to school in the near future, if at all.⁴³ A study by Brosh et al⁴⁴ with 54 female students who were either pregnant or had 1 child showed that the majority of students wanted to obtain a high school diploma or a general equivalency diploma. Teenagers found relatives to be the most helpful source of support; in

contrast, government assistance programs were rated the least helpful.

Because adolescents themselves often report that their second pregnancies are intentional, repeat pregnancy-prevention programs need to focus on defining and supporting an adolescent's educational goals and on providing motivations for delaying a second pregnancy. Knowledge and access to contraceptive services alone will not decrease repeat pregnancy rates. The use of long-acting contraceptive methods, such as subdermal progestin implants or injectable progestins or intrauterine devices, is associated with significantly lower rates of pregnancy than is the use of oral contraceptives.¹⁴ Programs that help adolescent mothers return to school combined with intensive psychosocial postpartum care tend to successfully prevent early repeat pregnancies.⁴⁵ Cultural norms for extended family roles in child-rearing or for early parenting may vary. Not all ethnic or cultural subpopulations in the United States share the dominant cultural assumptions about adolescent childbearing, thus increasing the need for cultural sensitivity when dealing with diverse populations.

FACTORS ASSOCIATED WITH IMPROVED OUTCOMES FOR ADOLESCENT MOTHERS

Several studies in the literature address outcomes of adolescent parenting. A 20-year follow-up study of pregnant adolescents from the late 1960s defined "long-term success" as high school completion and employment or support by a spouse at the time of follow-up. The study population ranged from 32 to 38 years of age, with 68% of the women being unmarried. Factors positively associated with this definition of long-term success included having completed school before becoming pregnant, actively participating in a program for pregnant adolescents, remaining in

school with no subsequent pregnancy at 26 months postpartum, having a sense of control over one's life, experiencing little social isolation, and having only 1 or 2 subsequent lifetime children after the first adolescent pregnancy.⁴⁶

Another study involving a 17-year follow-up of black adolescent mothers documented that the universally negative outcomes described for teen parents previously suggested in the literature were not substantiated.⁴⁷ More than two-thirds of the women in that study had completed high school, had regular employment, and were not dependent on the government for income. In contrast, however, their offspring displayed greater rates of difficulties at school and behavioral problems at home than did the offspring of adult mothers.⁴⁷

Family factors associated with improved outcomes for the adolescent mothers and their children include early child care for the infant of the young adolescent mother provided by the infant's family of origin, support that also allows the adolescent to finish school, playful interaction between infant and father, and stability of marital status for the teen mothers.⁴⁸ Unfortunately, common problems encountered in this type of research include small sample size, lack of control groups, attrition, and outcome measurement heterogeneity; furthermore, no research studies have addressed how best to enhance the typical sources of support to adolescent parents (family, parents, peer support) that positively affect the adolescent's own psychosocial growth as both a teenager and a parent while meeting the developmental needs of the infant.⁴⁹

FATHERS OF INFANTS BORN TO ADOLESCENT MOTHERS

The literature defines paternal involvement in terms of a father's engagement, accessibility to the child,

and responsibility to the child—in other words, the amount of support from the father to his partner and offspring. A number of factors play a role in this dynamic, including the type of romantic involvement the couple had during the pregnancy and after birth; paternal ability to provide and support their family; father's level of education and socioeconomic status; father's relationship with his family of origin; and father's ethnic background, cultural values, and beliefs, including moral values and spirituality. Evidence supports the concept that fathers who are romantically involved with their partner and cohabit are more involved with their children.⁵⁰ Most of the literature on adolescent pregnancy and parenting includes only mothers; furthermore, adolescent pregnancy-prevention programs are targeted at young females, and the positive contributions of adolescent fathers have not been well studied. A long-standing gender bias as it relates to adolescent males' perspectives on and attitudes toward pregnancy and pregnancy outcomes exists.⁵¹ Of all pregnancies to adolescent mothers, estimates include that 18% to 35% of the pregnancies involve fathers younger than 20 years at the time of the children's births.⁵² Adult men who father a child with an adolescent girl tend to be more socioeconomically and psychologically similar to adolescent fathers than to other adult fathers.⁵³ In evaluating the cost and consequences for young fathers, Brien et al⁵⁴ used data from the National Longitudinal Survey of Youth in which participants were 14 to 21 years of age in 1979. The authors reported that 8 of 10 young fathers do not marry the mother of their first child; furthermore, these fathers pay less than \$800 annually for child support—probably related to being poor themselves. Adolescent fathers are more likely to live in poverty, with adolescent fa-

therhood, like adolescent motherhood, often repeated from 1 generation to the next.⁵⁵ Young adult men who father children with adolescent mothers are also more likely to be impoverished. One study found that 64% of unwed fathers 19 to 26 years of age lived with a parent or close relative, most likely reflecting low socioeconomic status.^{1,56} Although more than 80% of unwed fathers in their late teens and early 20s live away from their children, one-third to one-half of these fathers visit their children weekly.⁵⁶ Some fathers may be incarcerated and, therefore, unavailable or unable to be involved. One study found that at least 30% of fathers of children born to adolescent mothers were in prison.²⁰ Although social support, in general, correlates positively with improved outcomes for adolescent mothers, support by the father has been linked with increased maternal risk of not completing school.⁵⁷ However, partner support has been related to decreased distress and depression in the adolescent mother, along with improved self-esteem.⁵⁸ Marital status may transiently improve socioeconomic status for adolescent mothers, but a paucity of long-term marriages exists in this population, because most marriages precipitated by pregnancy in the adolescent age group end in divorce. Single status for the mother at 5 years postpartum has been associated with a threefold increased risk of receiving governmental assistance, at least in the short-term.⁵⁷ The father's role in family functioning may also play an important role in the initiation, continuation, and ultimate success of breastfeeding. Although the positive benefits of breastfeeding have been well documented, few teenage mothers even initiate breastfeeding, and of those, few sustain the practice for at least 6 months.

Harner and McCarter-Spauling⁵⁹ studied the impact of paternal age on infant feeding method initiated by teen mothers during their hospital stay after giving birth by interviewing 86 teen mothers younger than 18 years in Philadelphia. The authors found that 30% of the teen mothers had an adult partner (defined as being 4 years older than the mother), and 24% (21) reported breastfeeding while in the hospital. Of the total sample, 40% of teen mothers reported that the father of the baby had an influence on their decision to breastfeed or not, regardless of the age of the father.

As the child matures, fathers are important for teaching life-survival skills, in general, and in the school setting for helping with homework, coaching, and social skills and encouraging a healthy lifestyle. Moore et al⁶⁰ studied a convenience sample of 104 English-speaking, urban fathers looking at the support to their families in attending well-child visits, and concluded that all health care providers should encourage early involvement of fathers, particularly for those younger than 25 years. Strengthening the father-child bond will benefit family functioning and ultimately may improve the child's health and well-being.^{61,62} In a study to evaluate the interaction between adolescent fathers and health care professionals, Dallas⁶³ interviewed 111 participants. The sample included 25 sets of unmarried, low-income, black adolescent fathers and mothers and 50 grandmothers and 11 grandfathers; the interviews were conducted in their place of residence at 1, 6, 12, 18, and 24 months after birth. The authors concluded that treating adolescent fathers as if peripheral in their parenting role risks "marginalizing" an already alienated group and negatively affects the ability of the

father to seek future advice and education.

Children of adolescent mothers who continue to have close ties with the child's biological father have better outcomes in employment and education, are less depressed, and are at less risk of adolescent parenting themselves. However, children of adolescent parents in general, with or without paternal involvement, remain a group at risk, with a 33% rate of school dropout, 31% incidence of depression, 16% incidence of incarceration, and 25% risk of adolescent parenthood.⁴⁷ Fathers' engagement positively affects the psychosocial, cognitive, and behavioral outcomes of children, with evidence that cohabitation of the mother and father is associated with less externalizing behavioral problems in their children.⁶⁴

Adolescent or adult fathers who maintain active participation in the prenatal, neonatal, and immediate postpartum processes with an adolescent mother have a greater likelihood of ongoing involvement with their children.⁶⁵ Such interactions include playing with their children, giving them gifts, or feeding them but are less likely to involve diapering, bathing, and caring for the child alone. Parenting interventions can help teach such skills to adolescent fathers as well as to adolescent mothers. Several successful father programs exist, and all adolescent parenting programs should make a more concerted effort to engage the fathers.^{66–68}

MEDICAL AND PSYCHOSOCIAL RISKS TO THE INFANT

Infants of adolescent mothers have an increased risk of adverse health outcomes, including higher incidences of perinatal mortality, low birth weight, preterm birth, developmental disabilities, and poorer developmental

outcomes compared with offspring of older mothers.⁶⁹ Markovitz and associates investigated the relationships between infant mortality, socioeconomic status, and maternal age in a large, retrospective study.⁷⁰ The researchers compared the risk of neonatal and infant mortality in a cohort of adolescent mothers 12 to 19 years of age in Missouri compared with those 20 to 35 years of age. After adjusting for socioeconomic factors, they concluded that the risk of postnatal mortality (OR, 1.73; 95% CI, 1.14–2.64) but not neonatal mortality (OR, 1.43; 95% CI, 0.98–2.08) was significantly higher in infants born to adolescent mothers 17 years or younger, compared with infants born to mothers between 18 and 25 years of age. This study corroborated the findings of Phipps et al, who evaluated the risk of infant mortality (defined as death within the first year after live birth) in a US birth cohort from the National Center for Health Statistics from 1995 to 1996.⁷¹ The analysis included more than 700 000 single births. Of these births to women 12 through 19 years of age, there were 4631 infant deaths. The risk of infant mortality was 1.6 (95% CI, 1.4–1.7) times greater for those with teen mothers younger than 15 years than for those with mothers 18 through 19 years old—a 56% greater risk.⁷¹

Another study by Gilbert and associates⁷⁴ reported an increased risk of negative health outcomes for infants and adolescent parents. They examined birth and death certificates by using maternal and neonatal hospital discharge records of primiparous women (11–29 years of age) in California who delivered between January 1, 1992, and December 31, 1997. Pregnancy outcomes of early (11- to 15-year-old) and late (16- to 19-year-old) adolescents were compared with those of a control group of

women 20 to 29 years of age. When compared with older women, all teen pregnancies were associated with higher rates of poor obstetric outcomes, including infant and neonatal deaths, preterm birth, and low birth weight. Even more striking, non-Hispanic black mothers and infants of all ages had worse outcomes than did white mothers and infants.⁷²

Not all adverse health outcomes of children are directly associated with maternal age. Maternal age alone has not been shown to be a risk factor in sudden infant death syndrome, injuries, child abuse, or infections; factors such as substance abuse and socioeconomic status do appear to have a role. However, 1 study found that the rare occurrence of infant homicide, which tends to occur during the first 4 months of life, was associated with having an adolescent parent, especially one who had given birth previously.⁷³

NEURODEVELOPMENTAL PERSPECTIVE

Longitudinal neuroimaging studies on subjects from 3 through 30 years of age conducted by the child psychiatry branch of the National Institute of Mental Health have shown significant changes in brain development throughout the adolescent developmental period. The dorsolateral frontal cortex is one of the latest regions to mature and is the one associated with “executive brain functions,” such as planning, foresight, evaluating risk and reward ratios, and the capacity to balance decision-making with emotional demands. Substantial neurobiological, behavioral, and emotional changes take place in the adolescent and young adult brain, making it a time of risk but also a time of significant opportunity.⁷⁴ Therefore, any interventions put into place need to take into account the adolescent's

developing brain function to enhance these executive brain functions.

Studies have shown that children born to adolescent mothers are at risk for deficits in cognitive and social development. These deficits may persist into adolescence.^{69,75} During the first 3 to 4 years of life, the anatomic brain structures and physiologic response patterns that determine a child's learning processes, coping skills, and personality traits become established, encoded, and strengthened.^{76,77} These neuronal structures have the potential to atrophy if unused.⁷⁸ Negative environmental conditions, including lack of stimulation or close and affectionate interaction with primary caregivers, child abuse, violence within the family, or even repeated threats of physical and verbal abuse during these critical years can have a profound influence on these nerve connections and neurotransmitter networks, potentially resulting in impaired brain development.⁷⁹ Childhood negative life experiences may have long-term consequences in the developing brain of children; toxic stress has been defined as "an excessive or prolonged activation of the physiological stress response system in the absence of the buffering protection afforded by stable, responsive relationships." The American Academy of Pediatrics is committed to mitigate the negative effects of toxic stress in children; therefore, identifying children at risk for toxic stress must be a priority for pediatricians.⁸⁰ Maternal substance use before and after delivery may further affect infant development as a result of physiologic or anatomic changes in the infant's brain or the parents' ability to nurture appropriately.⁷²

A study by the National Institute of Child Health and Human Development found that one of the most important predictors of child development was the quality of the parent-child in-

teraction.⁸¹ An adolescent mother's attitude toward parenting influences her parenting style; mothers who place inappropriate expectations on the child are likely to use harsh and rejecting discipline strategies.⁸² Such strategies are linked with child anger, low self-esteem, and social withdrawal. Furthermore, mothers with intense feelings of inadequacy and failure in the parenting role tend to withdraw emotionally and physically from the infant. This withdrawal has been linked to angry and resistant infant behaviors and troubled mother-child relationships.¹⁹

Compared with older mothers of similar parity and socioeconomic status, adolescent mothers may vocalize, touch, and smile at their infants less and may be less sensitive to and accepting of their infants' behavior.⁸³ Teen mothers tend to hold less realistic developmental expectations of their children. They may underestimate or not be knowledgeable about the importance of simple interactions within the home. Parent-child relationship focused interventions have been shown to moderate maternal behaviors and child developmental outcomes. Educating mothers on interaction styles may improve maternal responsiveness and lead to less directive parenting styles and more engaging interactions, which promote child development.⁸³ Also, adolescent mothers who have more social support exhibit less anger and use less punitive methods of parenting than do adolescent mothers with fewer social supports.⁸⁴

Another factor that contributes to child development is the home literacy environment. Research has shown that teen mothers provide fewer literacy experiences than do older mothers.⁸⁵ The consequences of an impoverished literacy environment on early brain

development and later child development may manifest as a delay in oral language skills and later have a negative effect on early reading skills.⁸⁵ Teen mothers need instruction on how to incorporate literacy activities in the home and why it is important for their child's development. Because adolescent mothers may not be trained in appropriate stimulation techniques and may be coping with stress in their own lives, ongoing education and support by the pediatrician and other nurturing adults are imperative to help prevent negative sequelae in them and in their offspring.

MODELS OF INTERVENTION FOR ADOLESCENT PARENTS

A number of models of intervention and support for adolescent parents exist. These programs, which may be individual and/or group based, predominantly have focused on adolescent mothers and their children. Not all programs have been evaluated rigorously. These types of interventions are aimed to improve parenting knowledge, practices, attitudes, and skills for the adolescents and may be part of prenatal or postpartum care. Coren and Barlow reviewed 23 studies of parenting programs for teen parenting. Positive outcomes were shown in maternal-child interaction, communication at mealtimes, and offspring cognition; methodological limitations included the small number of studies reviewed, with a small number of outcome measures. Despite these limitations, the findings suggested that parenting programs may be effective in improved outcomes for teen parents and their children.⁸⁶ Similar conclusions were reached in a recent Cochrane update of parenting programs.⁸⁷ Successful teen programs were highlighted in a study from New Mexico, a state with

one of the highest teen birth rates in the United States. These parenting programs of predominantly Latino-Hispanic youth resulted in lower rates of late entry into prenatal care and decreased birth rates. Participants in the program were more likely to have higher rates of education attainment and employment postpartum. One of the specific program recommendations was the inclusion of teen fathers within the program.⁸⁸ Another important model has been the nurse-family partnership—in particular, the home-visit model focusing on high-risk, first-time single mothers.⁸⁹ Programs like Health Access Nurturing Development Services in Kentucky have been successful in achieving goals related to infant health and well-being, subsequent child health and development, risk reduction and home safety, and maternal well-being.⁹⁰ The Nurse–Family Partnership, a program of prenatal and postpartum home visitation by nurses for low-income mothers and their first child across the United States, currently serves more than 20 000 families. A focus on family planning for the mother has decreased the rapid-succession second pregnancy effectively within the 2-year postpartum period, with encouraging results in rural locations and younger mothers.⁹¹

School-Based Programs

Specialized school-based programs can provide a means of providing multidisciplinary services to pregnant and parenting adolescents while keeping them in school. A student's prepregnancy academic achievement affects the outcome of such interventions; low-achieving students require longer and more intensive interventions than do students who are doing well academically before pregnancy.⁹ For the marginally achiev-

ing student, specialized educational programs with a small student-to-teacher ratio can foster a sense of achievement and help the adolescent feel capable of completing school. The concept of a “school-within-a-school,” or consistent peer group placement within a larger school, has been useful for academically challenged pregnant and nonpregnant adolescents.⁹² Quality school-based child care programs facilitate the participation of the adolescent in school, provide support and parenting education to the parent, and can assist in improved health and development in their children.

Positive results for a school-based “children of teen parents” program were shown in a study by Crean et al⁹³ in Rochester, New York. Eighty-one teen mothers and their children received free on-site child care, the service most frequently requested by adolescent mothers; 89 wait-listed teen mothers served as a control group. The study included those mothers born between 1969 and 1976 and included those whose children were born in the 1986–1987 academic year. Participant mothers were found to have better school attendance, with 70% graduating from high school. Letourneau et al⁴⁹ conducted a review of studies published between 1982 and 2003 that evaluated resources and support or education interventions for teen mothers and found that small sample size, significant attrition, lack of suitable comparison groups, and inconsistency among measures used were significant limitations in validity and reliability for the data.

Multidisciplinary and Non–School-Based Programs

Multidisciplinary programs provide medical care, psychological support, and a comprehensive life-skills approach to adolescent parents. These

programs have shown that participating female adolescents are more likely to be employed, work more hours, earn more money, and report a better home environment 5 years after the intervention began than are socioeconomically matched adolescents in cities without this comprehensive approach.⁹⁴ Adolescents receiving these interventions were also less likely to be receiving Aid to Families With Dependent Children (now relabeled as Temporary Assistance to Needy Families).

Teen Tot programs (in which adolescent parents and their children receive care simultaneously) have been developed in many medical centers and ambulatory clinic settings to provide structured medical visits and support. Such use of time and space creates access to multidisciplinary services. When all visits are scheduled in a clinic on a consistent day each week, teaching sessions specifically addressing adolescent parenting issues can be timed with clinic visits. This model for care often provides the adolescent with a peer support group; however, these social support and parenting interventions appear to improve maternal-child interactions but do not seem to reduce low birth weight or neonatal deaths.⁹⁵ One such model program at Children's Hospital in Boston evaluated 142 young mothers (average age, 17.3 ± 1.2 years) and their offspring (average age, 8.3 ± 5 months); the sample was racially diverse and had 91 young mothers in the intervention group and 54 controls. The program included 12 sessions of a once-a-week parenting group with a comprehensive curriculum geared toward improving teen parenting skills and reducing life stress, with pregroup and postgroup measures. The authors reported positive effects with this type of intervention, but no longer-term follow-

up data were available to evaluate sustainability of the changes.⁹⁶ Although the arrangement of a joint visit has its advantages, the pediatrician needs to focus the visits on each of the individuals separately to ensure that the adolescent's concerns of her own health and her infant's health are not overlooked.

Peer Group and Role Model Programs

Using adolescent parents as role models may enhance self-efficacy in the adolescents serving as instructors as well as in the adolescents being instructed about parenting. Innovative approaches using technology and the media have shown promise in enhancing parenting skills of adolescent mothers.⁹⁷ From a developmental perspective, use of peer groups makes sense in getting a message across. Unfortunately, there is no evidence that peer group and role model programs effectively reduce adolescent pregnancy or improve adolescent parenting skills. Many programs still use this technique. In the future, positive outcome data may become available.

When possible, all caregivers involved in the care of the infant should be given practical, evidenced based information that support early brain development for the infant. The pediatrician should provide encouragement and support to the adolescent parent to make decisions for her infant even when other adults are involved in the child's care. When the adolescent needs more support, the pediatrician can facilitate a co-decision model that ensures the optimal welfare of the infant.

Programs such as Head Start and Early Head Start are designed to address the needs of both parents and children. Prenatal and early childhood home visitation has been associated

with reduction in the number of subsequent pregnancies, use of governmental assistance, child abuse and neglect, and criminal behavior in adolescent mothers. These visitations also have been associated with reduced risk of serious antisocial behavior and substance abuse by adolescent offspring followed up during the first 15 years of life.^{98–101} Multidimensional family and peer support with positive role models and concrete examples of how to overcome challenges has also been shown to help teenagers initiate and continue breastfeeding.¹⁰²

Special Education Initiatives

Female adolescents in some special education programs become pregnant in disproportionate numbers and drop out of school at earlier ages than do adolescents in regular education.¹⁰³ School-based care for these adolescents should include sexuality education⁸ and discussions on safety for the adolescent mother and her child. These discussions should focus on self-efficacy and should help the mother acquire decision-making and concrete, task-oriented skills. This task-centered approach also can be used to strengthen the adolescent's ability to access external support systems and to develop supportive family relationships, which directly and indirectly can improve the adolescent's self-esteem.

GUIDANCE FOR THE PEDIATRICIAN

1. Continuity of care and a "medical home" for adolescent parents, as well as for their children, is important in caring for this population. Specific attention needs to be directed toward anticipatory guidance, the critical importance of nurturing relationships and positive parenting on their young child's development, and

the teaching of basic caregiving skills involving the adolescent mother and the infant's father, when possible. Pediatricians and other health care providers can build on their established relationship with adolescent parents and their children to provide developmentally appropriate care to both.

2. A multidisciplinary and comprehensive approach to caring for parenting adolescents is encouraged, by using community resources with the needed funding for programs, such as social services, nurse visitations programs, and the Special Supplemental Nutrition Program for Women, Infants, and Children. Early and Periodic Screening, Diagnosis, and Treatment and Title XXI should be used to include medical and developmental services to low-income adolescent parents and their children. Pediatricians and their staff are ideal for facilitating coordination of these services.
3. The pediatrician can help promote breastfeeding to all adolescent mothers, realizing the importance of educating the teen father when available. Opportunities to discuss the benefits and management of breastfeeding may be available for the pediatrician and staff in the school setting where pregnant teenagers attend. Continued support is necessary for adolescents who choose to breastfeed so that they may overcome barriers typically encountered in their environment. Pediatricians can help by working with schools to dedicate an area for breastfeeding and/or milk expression that provides privacy and access to a hand-washing sink and a refrigerator.

4. A good time to initiate contraceptive counseling is during pregnancy; such discussion should include an emphasis on long-acting methods, such as DMPA, Nexplanon, and the IUD, coupled with condom use during every visit for the teenager and may be part of the anticipatory guidance offered at visits for the teen parent's infant. Pediatricians should not assume that all adolescent parents are open to discussing their needs while having their infant visit; when appropriate, the pediatrician can negotiate the use of this time for the adolescent's needs. The 2- or 4-week infant visit follow-up visit is a good time to remind the adolescent to have a visit with her gynecologist or adolescent specialist and initiate contraception.
5. Pediatricians can be important advocates for youth development programs that have proven, evidence-based strategies to prevent unwanted, or to delay, teen pregnancies.
6. Pediatricians can play an important role to the adolescent parent in emphasizing the importance of completing high school, pursuing higher education or vocational training, and being knowledgeable about community resources and programs that may better support adolescents and their infants.
7. Pediatricians can encourage the continuation of healthy lifestyles that may have been initiated during pregnancy. Information on the effect of maternal substance use and cigarette smoking on infant and child health and development is important to provide at mother and infant visits.
8. Assessment by the pediatrician for risk of domestic violence and mental health issues, particularly depression, is encouraged both during and after pregnancy. IPV is a significant problem among young mothers and is not restricted to a particular sociocultural group. Screening to assess IPV can include asking the adolescent if she has been hit, kicked, or punched by a partner or ex-partner. Pediatricians and health care providers caring for pregnant adolescents are in a unique position to identify and help prevent violence in adolescents' lives.
9. In the preadolescent and young adolescent age group, it is of particular importance to ensure that the pregnant adolescent is not a victim of sexual abuse and/or exploitation. Pediatricians and other health care providers should not assume that sexual activity during adolescence, particularly for younger adolescents, is voluntary. Pediatricians should advocate and help develop protocols that elicit information from adolescents about whether their sexual activity was voluntary; this can be accomplished with the help of social workers or psychologists.
10. Pediatricians are encouraged to stress the importance of the adolescent parent caring for the child even if other adults are involved in the caregiving (eg, grandparents and great-grandparents). These other caregivers need support and education to allow optimal infant development while helping the adolescent to achieve her own developmental milestones. From the ethical point of view, pediatricians should question whether the adolescent parent is capable of making decisions on behalf of her offspring; when in doubt, consideration should be given to a co-decision maker in support of the adolescent parent and the best interest of the child. Pediatricians can provide positive reinforcement for success by praising adolescents who are successful (eg, graduating from high school or college; abstaining from use of drugs, alcohol, and nicotine; continuing breastfeeding; keeping the child's immunizations current; and attending all well-child visits).
11. Counseling by pediatricians includes adapting their counseling approach to the developmental level of the adolescent, by using office-based and school-based interventions that incorporate intensive instruction on infant care and development, positive parenting techniques, and coping with the stress associated with parenting. Use of support groups in the office, clinic, or school setting; home visits; and creative use of videos and media can improve parenting skills.
12. A heightened sense of awareness by pediatricians to attend to the developmental needs of both the infant and the adolescent parent is important. The pediatrician can advocate for quality community resources, such as competent, culturally sensitive, effective pre-term and infant classes, postpartum home visits, nurse home visits, quality child care programs, and well-managed programs supported by Head Start and Individuals with Disabilities Education Act—Part C (for children ages 0–3 years with disabilities or at risk), and encourage adolescent parents to use these resources when available and appropriate.
13. In the nursery and early on, efforts should be made that

target young fathers, supporting their involvement in their children's care. Pediatricians and other professionals working with children and their families can actively encourage fathers' involvement with their offspring from an early age.

14. Further studies are needed on outcomes of teen parents and their infants when interventions specifically involve fathers of infants born to adolescents and on the involvement of grandparents assisting in child-rearing or as primary caregivers. Short- and long-term outcome evaluations on adolescent parenting programs are vitally needed to better understand the effects that teen pregnancy has within heteroge-

neous groups within the United States.

15. Although rates of teen pregnancy are declining, the pediatrician can continue to advocate for longitudinal, comprehensive solutions, including advocacy, which focuses on primary prevention strategies to continue this downward trend.

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Care of Adolescent Parents and Their Children

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Care of Adolescent Parents and Their Children

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