

Research Basis

Partners for a Healthy Baby is a research-based, practice-informed curriculum used in evidence-based programs that achieved positive outcomes as documented in numerous studies. Findings include: decreased incidence of low birth weight deliveries;^{1 2} fewer small-for-gestational-age babies;¹ fewer repeat pregnancies;³ reduced rates of abuse and neglect, increased rates of up-to-date immunizations and enrollment in a medical home;^{2 4} significantly greater likelihood mothers will read to their children;³ improved child development outcomes;⁵ and increased maternal responsiveness of teen mothers.⁶ Included in the Partners curriculum are recommendations for using the well-researched LearningGames activities, which were used in the Carolina Abecedarian Project to achieve long-term positive developmental outcomes.⁷

A convergence of multidisciplinary research confirms that the earliest years of life provide the critical foundation for long-term health and development,⁸ and yet, it is one of the most vulnerable times for young children.⁹ Child maltreatment and poverty are more prevalent in the first five years of life than during any other period.^{10 11} In the United States, babies under one year of age constitute the largest population entering foster care and more than half of the entire foster care population is under age five.¹¹ Twenty percent of children under five are estimated to be poor (nearly twice the rate for adults).¹² The dire consequences of poverty are often most detrimental when experienced during early childhood, compared with poverty experienced later in life.¹³ The negative effects of poverty and child abuse begin before birth, and continue to de-rail optimal development throughout childhood and into adulthood. These startling data have inspired an expanded national focus on home visiting and other early childhood programs shown to strengthen families and minimize the risks associated with poverty and abuse.

The *Partners for a Healthy Baby* curricular series has been informed by the robust body of research that underscores the importance of the early childhood period in building a solid foundation for a baby's future development. Five key areas of research have been pivotal in the development of the *PHB* curricular series. *Developmental Theory* provides the fundamental basis for the curriculum's section on Baby's Development. Because "there is no such thing as just a baby," the *Family Systems* literature has been used to address the interconnectedness and influence of family members on each other.¹⁴ Likewise, this interconnection fuels a baby's desire for attachment, communication and movement. Thus, the curriculum uses an *Infant Mental Health* framework to acknowledge that it is "all about relationship." A primary goal of home visiting programs is to empower families and increase their resiliency. Toward that end, the *Strengthening Families* literature, especially the five protective factors, has been used to guide the development of the curriculum content. Parenting has many challenges but all are exacerbated by poverty. We've pulled from the extensive literature about the pervasive and deleterious effects of *Poverty* to develop content that home visitors can use to inspire and equip families to seek a better life. An overview of each of the key areas of research used in developing the *PHB* curriculum follows.

Developmental Theory. Decades of research have finally closed the debate regarding nature versus nurture as now the complex interaction between *both* heredity *and* environment in influencing development⁸ has been well documented. As explained by classic developmental theorists, the first year of life is characterized by dramatic transformations in every area of development. From a Piagetian perspective, the first year of life focuses on the sensori-motor stage in which children experience the world through movement and senses.¹⁵ From an Eriksonian perspective, the first year is focused on building trust and security. From Bowlby's¹⁶ and Ainsworth's¹⁷ attachment theories, we have learned that relationships are the basis of all development.

Classic developmental theory has been further substantiated and enhanced by neuroscience documenting the first year of life as an unparalleled time of rapid growth and development. Recent neurobiological research has confirmed that the human brain is not fully developed at birth so during infancy it is more receptive to both positive and negative influences. Development that occurs in the first year of life is much more vulnerable to environmental influences than ever suspected.¹⁸ New research in epigenetics has revealed how



adverse experiences may chemically alter the DNA, which may result in permanent adversity throughout this child's lifetime, *and* be inherited by future generations.¹⁹ We know with increasing certainty that a child's first years of life are filled with incredible opportunities and vulnerabilities.

Family Systems. The *Partners* curriculum is unique in its focus on strengthening the family by addressing the overall well-being of both the child and the family. Widespread consensus in the field is that the emotional health and social competence of young children are most influenced by the quality of their environment. A key component of that environment is the child's primary caregiver—the center of the baby's emotional universe and mediator of all the influences in the child's world.¹⁶ As Winnicott reminds us, “There is no such thing as a baby; there is a baby and someone.”²⁰ It is also the network of family, friends, and community that serves to nurture and support the child's healthy development. This ecological model of child development recognizes the various demographic and environmental factors that influence the child's growth and development. The functioning of the child is understood in the context of the parent and child interactions.²¹ Family Systems theory has been essential in comprehending this interconnectedness of family members.¹⁴ Research has increasingly substantiated how biological, social, and environmental influences interact during the first three years of life to impact health and development.¹⁸ Families facing challenging issues such as depression, poverty, and substance abuse require more than parenting education; they may also need specific interventions that address these problems.²⁴ In order to improve the lives of young children, we must support the complex needs of their first and most important teachers—parents—by “providing interventions that specifically address parental risk factors” and by “addressing the concrete needs of the family.”²²

Children ultimately benefit when their parents are able to achieve their goals. The content in the *PHB* curriculum is intended to support parents' efforts to succeed by addressing their concerns about relationships, careers, finances, health, nutrition, and self-esteem. We know firsthand the joys and challenges of parenting—how difficult it can be when a parent can't console their crying baby, when they worry their baby isn't developing at the right rate, or when their baby seems sick and they don't know what to do. Having unrealistic expectations about young children is a major cause of child abuse and helping parents understand development is critical, not only to preventing abuse,²³ but in knowing how to support their children's development and help them thrive.^{8, 24}

Infant Mental Health. The first year of life forms the foundation for a child's social and emotional development. Bowlby originated the concept of attachment theory, which he defined as the seeking of proximity to an attachment figure.¹⁶ He explained how early attachments influence emotional well-being throughout adulthood. Ainsworth furthered the understanding of attachment theory by defining secure and insecure attachments and how early attachments affect future relationships.¹⁷ Secure attachments are developed over time through nurturing, responsive caregiving. Insecure attachments may occur when the baby's physical and/or emotional needs are not met as a result of erratic or inconsistent caregiving, separations, abuse or neglect, addictions, or other reasons for emotional unavailability.²⁵ It is the quality of the baby's first relationships that creates the foundation for all future relationships. The content in the *Partners* curriculum serves to support home visitors' efforts to enrich relationships between the baby and his caregivers, between parents, and among the family's entire support system.

Strengthening Families. Parenting can be challenging even in the best of times, but it is especially difficult for new families experiencing sleep deprivation, fatigue, and inconsolable crying. In an effort to develop a strength-based approach toward child abuse and neglect prevention, the Center for the Study of Social Policy's *Strengthening Families Program* identified five protective factors that are linked to a reduction in maltreatment. The factors shown to promote stable and nurturing families include: nurturing and attachment; knowledge of parenting and of child and youth development; parental resilience; social connections; and concrete support for parents.²³ These factors provide an organizational framework for the curriculum content.



Poverty. Most home visiting programs seek to help vulnerable families, many of which are impacted by generational or situational poverty. By almost every measure of health and development, children born in poverty are at greater risk for poorer outcomes than their higher income peers.²⁶ One in five children in poverty has a diagnosable mental health disorder.²⁷ Children in poverty are more likely to be low birth weight and exposed to substance abuse and second-hand smoke.²⁸ The co-occurrence of these problems is especially prevalent in low-income families compared to the general population.²⁹ Substance abuse, maternal depression,³⁰ and family violence negatively influence early brain development and often result in poor developmental and emotional outcomes.⁸ Poverty influences brain development by affecting the quality of nutrition in both mother and child, decreasing access to medical care, altering the safety and predictability of the physical environment, increasing maternal stress and the risk for depression,³¹ and decreasing the amount of appropriate stimulation available to children.¹³ Children who are poor during early childhood have more developmental and academic problems, display lower levels of achievement in cognitive and language development, have more social and emotional problems, and lower levels of educational attainment.³²

Children in poverty are less likely than their non-poor peers to have access to books, age appropriate toys, computers, or playgrounds.³³ Parents living in poverty spend less time in learning-related activities with their young children, including reading, teaching, and talking. These findings are strongly related to children's vocabulary and IQ scores at 3 years of age³⁴ and other indicators of school readiness.^{35 36}

Poor health is often an outcome of poverty but it is also a pathway to other adverse outcomes. Poverty has been linked to increased rates of low birth weight, elevated lead levels, anemia, recurrent ear infections, and hearing loss. Research indicates that these preventable health issues are largely responsible for the differential in IQ scores between poor and non-poor children.¹³ Families in poverty experience a disproportionate number of health problems stemming from higher rates of smoking, alcoholism, addictions,³⁷ obesity,³⁸ unplanned pregnancies, STDs,³⁹ smoking, alcoholism, poor diet and nutrition, chronic illness, disease, mental health problems, and disabilities. They also die younger than those who have higher incomes.⁴⁰ Adverse health outcomes in the poor have also been attributed to the lack of preventive health care as well as exposure to environmental hazards such as pollution or substandard housing.⁴¹

Decades of research have informed us about interventions that can minimize the disparities associated with poverty. Recent neuroscience inspires hope that the malleability of the brain allows it to respond to nurturing and positive environmental influences and by ensuring a good start in life, we have more opportunity to promote learning and prevent damage than ever imagined. The *Partners* curriculum incorporates research-based strategies to support the home visitor's efforts to work more effectively with families living in poverty.

In summary, home visiting and other support programs have demonstrated significant improvements for families.⁴² The use of a written curriculum or protocol supports the home visitor by providing a planned sequence of critical topics that are essential in achieving desired changes in behavior and, eventually, program goals. Our own research on home visiting has shown that what a home visitor talks about during visits is critical because the content of the home visit directly correlates with program outcomes. For example, the more our home visitors talked about smoking cessation with pregnant smokers using this structured curriculum, the more their babies weighed at birth. The more times the home visitor talked about breastfeeding, the longer the mother breastfed. The more often emotional and family support issues were discussed with a mother, the more likely she was to have higher self-esteem.⁴³ But even more importantly, programs using the *Partners* curriculum have achieved positive outcomes including fewer repeat pregnancies; reduced rates of physical abuse and neglect, increased rates of up-to-date immunizations and enrollment in a medical home; significantly greater likelihood that mothers will read to their children;³ improved child development,⁵ and increased maternal responsiveness of adolescent mothers.⁶ When home visiting programs use a curriculum that is grounded in the latest scientific research, they can significantly improve the baby's trajectory throughout the lifecycle.⁴²



The *Partners for a Healthy Baby* curriculum is organized into four major categories each with a set of key topics derived from the research on improving developmental outcomes, strengthening families, and overcoming the effects of poverty, in addition to practical topics generated by focus groups with families and home visitors.

Family Development includes the topics: *Empowerment; Relationships & Support; Fatherhood; and Career Development & Finances.*

Family Health includes the topics: *Diet & Nutrition; Exercise & Physical Activity; Alcohol, Drugs, & Tobacco; Sex, STDs, & Family Planning; Family Health Care & Safety; Physical Changes & Discomforts; and Emotional Health.*

Caring for Baby includes the topics: *Nutrition & Feeding; Daily Care Routines; and Health & Safety.*

Baby's Development includes the topics: *Developmental Skills; Emerging Language & Literacy; Infant Mental Health; Guidance; and Play & Learning.*

A brief summary of the literature supporting each of the four major Categories and the topics in each is provided below.



Family Development

The *Partners* curriculum is unique in its focus on strengthening the overall well-being of the family. Family systems theory shapes our belief that children ultimately benefit when their families have healthy self-esteem, a network of support, a good education, and adequate finances. The content in the *Family Development* category is based on the literature about strengthening families during this stressful transitional period and compelling research documenting how supportive relationships can shape social and emotional well-being. The protective factors shown to promote stable and nurturing families are: parental resilience; social connections; knowledge of parenting and child and youth development; concrete support for parents; and nurturing and attachment.²³

The content in this category is intended to help home visitors empower families to rise out of poverty; facilitate the parents' ability to become more resilient and develop effective coping strategies in an effort to prevent abuse; ensure that families build healthy relationships and expand their network of support; encourage Dad's involvement; and support the family's efforts to finish school and become more financially stable. Topics in this category are *Empowerment; Relationships & Support; Fatherhood; and Career Development & Finances.* A brief summary of the literature for each of these topics is provided below.

■ **Empowerment.** A key to promoting stable families is ensuring that their basic needs are met. The rationale for this goes back to Maslow's Hierarchy of Needs.⁴⁴ Maslow believed that all needs become secondary until the most basic and instinctive biological and physiological needs are met. Home visitors often struggle with helping families get their basic needs met so they can move up the hierarchy toward fulfilling their dreams and achieving self-actualization. For families in poverty, this can be particularly challenging because they often feel disempowered and have no hope that the future can be different. Having a vision of a better life can be a key motivation for climbing out of poverty.⁴⁵ Information in the *Empowerment* topic is aimed at inspiring families to have goals and dreams for a better life for themselves and their new baby. A mentor or other supportive person who fosters trust can provide the encouragement a family needs to make progress toward achieving their goals.⁴⁶ This mentor role is often a primary function of the home visitor. In order to help a family make progress toward their goals, the home visitor needs to understand the family's readiness for change and then tailor interventions across the continuum of readiness.⁴⁷ This helps families bridge where they are now to where they want to be. Information in this topic serves to further support the family's process of making positive life changes by addressing how to overcome obstacles, make good decisions, build support networks, and feel empowered by their progress.



Many families lack a sense of empowerment when life seems overwhelming. Even the most seasoned parents struggle to cope when they can't console their crying baby, or when the baby seems sick and they don't know what to do. When a parent feels helpless their ability to parent is negatively impacted.⁴⁸ A factor in building stable families is enhancing the parent's resilience and ability to cope.²³ The keys to resilience (such as optimism, altruism, social supports, a sense of humor, facing fears, and spirituality), which can mitigate the negative effects of stress and other risk factors,⁴⁹ are addressed in this topic.

■ ***Relationships & Support.*** New parenthood can be a stressful time physically and emotionally. Child maltreatment reports are highest for babies before their first birthday.¹⁰ Even the most experienced parents are stressed by the combination of a crying baby and sleepless nights. A support network of friends, family and neighbors is a key factor in reducing maternal stress⁵⁰ and in promoting stable families.²³ Strong social support networks are especially important for single parents and first time mothers⁵¹ and have been associated with increased parental responsiveness and more stimulating home environments.⁵² The strength and support provided through multigenerational bonds is especially helpful for younger generations of mothers. Having a grandmother residing in the home has been associated with improved child cognitive and health outcomes.⁵³ The number of parents in the household and the level of social support can have an impact on parenting practices,⁵⁴ children's academic success, and other child outcomes.^{55 56} Having a network of support that includes respected elders and faith leaders is particularly important to African American women.^{57 58} Social support promotes resilience and the ability to cope while preventing isolation—a common factor in domestic violence.

A nurturing family environment lays the foundation for the infant's social, emotional, and intellectual development. Helping families learn how to co-parent in a positive way creates a healthy emotional climate for the infant.⁵⁹ One of the key factors in promoting stable and nurturing families is the quality of the parents' relationship,²³ which affects their ability to focus on their relationship with their child.^{60 61} Healthy adult relationships have been associated with increased parenting competence as well as more sensitive parenting and positive child outcomes.⁶² Support from the father of the baby is associated with more positive maternal childrearing attitudes, less postpartum depression, and overall supporting the new mother in the process of maternal role attainment.^{63 64} Additionally, when the father of the baby participates in their care, the children of adolescent mothers are less apt to be hospitalized and die during the first year of life.⁶⁵ If the biological father is not present, suggestions for finding a reliable father figure are provided as well as strategies for supporting his efforts to be a nurturing figure in the baby's life.

A new baby in the home has an impact on siblings. While in some cases, the adjustment is smooth, it's not uncommon for siblings to regress or engage in jealous, acting-out behaviors in response to the new baby. According to some experts, children under 18 months seem to have the easiest adjustment to a new baby because they don't realize how life is about to change for them. Toddlers between 18 months and three years seem to have the hardest time adjusting to a new baby. Toddlerhood is often a frustrating time because they are struggling with regulating their behavior and emotions and they don't yet have the language to express their needs. Four and five year olds have more language and reasoning skills so they are able to handle frustrations better than younger children.⁶⁶ Regression is a common reaction to a new baby for any age sibling, but it's usually short-lived, especially if the child gets the love and attention he is seeking. If any changes are about to occur—like new sleeping arrangements or a different child care provider—they should happen before the baby arrives so the older child doesn't feel “de-throned” by the new baby.⁶⁷

Information in the topic *Relationships & Support* is intended to help the home visitor address the need for adequate support during the postpartum period; the unique issues faced by single parents; and how to help siblings adjust to the new baby. This topic also covers the importance of the family expanding their circle of support; the challenges of co-parenting; and the value of nurturing relationships and repairing them after conflict.



■ **Fatherhood.** Compelling research documents the importance of dad's involvement with his baby. Researchers found that babies whose fathers were absent during pregnancy were four times more likely to die in their first year of life, regardless of the mother's race, ethnicity, or socioeconomic status. African American children whose fathers were not involved had a seven-fold risk of death in contrast to infants born to Hispanic and white women in similar situations.⁶⁸ New research is showing that interventions aimed at engaging fathers are more successful when done with couples groups than with fathers-only groups. One study reported that after a 16-week father/mother group intervention the quality of the couple's relationship was improved, fathers were more engaged with their children, and the children exhibited fewer problem behaviors.⁶⁹

Fathers experience many life changes with a new baby. They have a hormonal response to their babies' cries, which increases their prolactin and testosterone levels and makes them more responsive to baby's cues than non-fathers.⁷⁰ This increased responsiveness enhances the attachment relationship between father and baby as he helps with normal baby care routines such as diapering, feeding, burping, and bathing. Fathers need this individual time with the baby to create bonding, because the baby may initially show a preference for the mother, especially when breastfeeding.

Surprising new research shows that fathers experience many of the same hormonal changes previously found only in mothers, triggering a father's responsiveness to baby as well as his increased likelihood of experiencing depression.⁷¹ A new meta-analysis of 43 depression studies found that on average 10.4% of men experience depression sometime between their partner's first trimester and their baby's first birthday. Rates of paternal depression were highest three to six months after birth when studies found that as many as 25% of new dads were depressed.⁷¹ This is far greater than the average rate of adult male depression (4.8%) but similar to the rate of maternal postpartum depression (20%).

Women's hormonal changes have been attributed to the physical and emotional changes they experience during and after pregnancy and childbirth. Interestingly, men's hormones also change both during pregnancy and early in the postpartum period. As with women, men's testosterone levels go down and their estrogen levels go up. The symptoms of depression experienced by men are similar too—sadness, anxiety, and loss of pleasure; fatigue and either sleeping too much or not enough; changes in appetite either in weight loss or gain; impaired concentration and difficulty making decisions. However, depression in men looks different. They are more likely to experience depression in the form of anger, irritability, drinking too much, or detachment and withdrawal rather than through the sadness that women typically experience.⁷¹ Men are more likely to hide their depression and avoid discussing it with health care providers.

The most accurate predictor for male depression is if his partner is depressed. In fact, 50% of all fathers whose partners have postpartum depression are depressed themselves. This has major implications for treatment—suggesting a need to focus on the whole family. When dad is depressed he is less likely to be in a position to provide support to mom, which can add to her stress. He is also less likely to be an effective support for the baby in the event that mom is also depressed. When dad is depressed, mom has the added stress of caring for the baby, herself, and her partner.⁷¹

The impact of having both parents depressed can be devastating for the baby. Rates of paternal depression were highest three to six months after birth, which is a formative period for shaping the infant's emotional development. Babies acquire social and emotional skills by repeatedly imitating their parents' emotional cues. Studies like the classic *Still Face Experiment*⁷² show babies' distress when their moms are emotionally unavailable just for two minutes. The babies try everything in their repertoire to engage their moms and, when there is no response, they give up. Fortunately, most parents re-engage and babies rapidly get back to normal. However, if the parent remains depressed, the baby mirrors that parent's flat, unresponsive emotional and may also become depressed. Depression is a diagnosable mental condition in the Diagnostic Classification for Children 0-3 known as the *DC:0-3R*.⁷³



Depression can impair a dad's capacity for interaction and caregiving. Depressed dads interact less with their babies, which leads to less bonding and attachment.⁷¹ Dads who are depressed are less likely to read to their children, which may result in poor language skills.⁷⁴ Severe parental depression may result in reports for child neglect but even mild to moderate untreated depression can have lasting adverse affects on the emotional and behavioral development of children. Maternal depression affects both boys and girls while dad's depression seems to affect only boys.⁷⁵

A history of depression puts both mothers and fathers at risk, as do relationship problems, financial strain, or a sick baby. The sleep deprivation that accompanies parenthood can alter the neurochemical balances in the brain triggering underlying risk factors to manifest depression. The potential negative impact on the entire family suggests the need for early identification with prenatal depression screening for expectant moms and dads, as well as postpartum screening for both and, if necessary, appropriate treatment for all. The best treatment is always prevention. Health care providers should address a checklist of risk factors for depression even before the baby arrives (e.g., if there are relationship problems, seek counseling during pregnancy; if there is a history of depression, be prepared for a relapse and have plans in place for getting help rapidly; if dad is anxious about his new responsibilities, enroll him in a parenting class). Regardless, a lot more attention needs to be paid to the needs of expectant and new fathers.

It is important to engage fathers as soon as possible as early attachments between father and child are predictive of later positive relationships.⁷⁶ Substantial evidence supports long-term benefits of the father's engagement with his young children on a wide range of both child development and social outcomes.⁷⁷ Children with involved, loving fathers are significantly more likely to do well in school, have healthy self-esteem, exhibit empathy and pro-social behavior, and avoid high-risk behaviors such as drug use and truancy.⁷⁸ Children who felt a closeness to their father were twice as likely as those who did not to enter college or find stable employment after high school, 75% less likely to have a teen birth, 80% less likely to be in jail, and half as likely to have multiple depression symptoms.⁷⁹

Conversely, lack of the father's involvement is associated with higher rates of behavior problems.⁸⁰ About a third of children (24 million or 34%) live in a home without their biological father. On average, children who live absent their biological fathers are at least two to three times more likely than their peers who live with their married biological or adoptive parents to be poor, use drugs, experience educational, health, emotional and behavioral problems, be victims of child abuse, and engage in criminal behavior.⁸¹

Approximately one million children each year experience the divorce of their parents, which often negatively impacts fathers' involvement with their children.⁸² When parents have a positive relationship, the likelihood the father will be actively involved in co-parenting is significantly increased.^{59 83}

Because of the powerful influence of a father's involvement, the *Partners* curriculum emphasizes the importance of "male involvement"—whether it is the father of the baby or a reliable father figure. The key is to ensure the baby has a nurturing relationship with a reliable and responsible male figure. Information in the *Fatherhood* topic focuses on how home visitors can engage males to psychologically prepare for fatherhood, including addressing how he was parented and defining what it means to be a nurturing father. This topic addresses the importance of fathers staying connected with their baby and maintaining frequent contact—even if they are deployed in the military or away in prison. Research about nurturing families demonstrates the importance of the father's relationship with the child, not merely the father's presence in the home.⁸⁴ Therefore, this topic provides much information on the importance of early bonding and attachment between dad and his baby and strategies for how to do it. Fathers are encouraged to support Mom as she deals with the myriad of physical and emotional postpartum changes and the early screening and identification of both maternal and paternal depression is recommended. Additional information in this topic helps fathers and other involved males learn how to care for a newborn, encourages them to be attuned to the baby's cues, and emphasizes the importance of their role in supporting the child's healthy development.



■ **Career Development & Finances.** Having a baby has a tremendous impact on a family's finances, efforts to complete school, and ability to work. Having a baby is all too often associated with high school dropout rates. Nearly 13.3 million American children are growing up in homes where the head of the household is not a high school graduate. This affects multiple generations as the mother's education level is one of the strongest predictors of her children's IQ and academic success.^{85 86} Children born to moms who have less than a high school diploma are twice as likely to drop out of school as children whose mothers are high school graduates.⁸⁷ Research shows that families' socioeconomic status and education level have an impact on children's academic success and other child outcomes.^{13 88 89} Toward that end, the information in this topic provides practical advice for dealing with the issues related to returning to work or school including how to continue breastfeeding, choosing good child care, and balancing caring for the baby with the demands of work and/or school. Also included are strategies for helping families learn how to track their bills and expenditures, and manage the extra expenses a new baby brings. Parents, including teen mothers, are encouraged to return to school so they are better able to find a good job.



Family Health

The health of family members can be compromised by alcoholism and addiction,⁹⁰ obesity,^{38 91} mental health problems, poor diet and nutrition, STDs,⁹² unintended pregnancies,³⁹ maternal depression,³⁰ and family violence.⁸ These health vulnerabilities are often further exacerbated by poverty, compounding the negative effects. The co-occurrence of substance abuse, smoking, and alcohol is especially prevalent in low-income families compared to the general population.²⁹ Families in poverty are at greater risk for poorer outcomes by almost every measure of health than those with their higher incomes.^{13 26 93}

A recent study of paraprofessional home visitors found that although they received extensive training in mental health, substance abuse, and domestic violence, they needed more guidance in addressing the issues, particularly in how to initiate conversations about these topics.⁹⁴ The *Partners* curriculum provides extensive guidance for the home visitor on how to do this. Included are the actual words the home visitor might use to discuss sensitive topics with the family and additional background information to further their own understanding of the issue. Also included are frequent reminders to the home visitor that unless they are a mental health professional it's best to seek help from their program's mental health consultant and/or their supervisor when dealing with these sensitive issues.

Studies show that while home visitors were able to assess the need for mental health, domestic violence, and substance abuse services they were not as effective in ensuring the mothers received the needed services.⁹⁵ The *Partners* curriculum provides repeated opportunities for the home visitor to follow up with the family to find out if they actually received necessary services.

Topics in the **Family Health** category are *Diet & Nutrition; Exercise & Physical Activity; Alcohol Drugs, & Tobacco; Sex, STDs, & Family Planning; Family Health Care & Safety; Physical Changes & Discomforts*, and *Emotional Health*. A brief summary of the literature for each of these topics is provided below.

■ **Diet & Nutrition.** Maintaining a healthy diet is important for the whole family—and is especially important for postpartum and breastfeeding women.⁹⁶ Nutrition experts recommend that lactating women consume 2,700 calories per day, about 500 additional calories above normal pre-pregnancy food intake. Studies of healthy breastfeeding women showed their actual intake of food to be approximately 2,200 calories per day, about 15% less than recommended. Fortunately, extra fat is stored up during pregnancy so that even if lactating women don't get enough calories, they can still produce milk for their babies.⁹⁷

The overall lack of healthy eating habits is an increasing problem in the U.S. and has led to a dramatic increase in obesity rates during the past 20 years (1988-2008). Obesity is defined as a body mass index (BMI) of 30 or greater. Obesity is a key risk factor for many health problems including heart disease, diabetes, and certain types of cancer.⁹⁸ Although the combination of eating too many calories and not getting enough physical activity causes obesity, other issues including genetics, metabolism, behavior,



environment, culture, and socioeconomic status also play a role. Obesity is also more prevalent among the poor.⁹⁹ Poorer neighborhoods tend to have fewer supermarkets and more expensive convenience stores. Poorer neighborhoods generally have fewer parks, playgrounds, and other opportunities for physical activities.³⁸ Poverty is often associated with stress, and eating unhealthy “comfort food” is a way that some people cope with stress.⁵¹ Some researchers have suggested that stress may alter metabolic pathways and lead to obesity, increasing obesity-related health problems.¹⁰⁰

There is a correlation between poverty, culture, and obesity as evidenced by recently released data on obesity trends in the United States. Blacks had 51% higher prevalence of obesity, and Hispanics had 21% higher rates compared with whites. The highest rates of obesity are in areas experiencing high rates of poverty including the Southeast, Appalachia, and some tribal lands in the West. In the poverty-stricken Appalachian region that includes Kentucky, Tennessee, and West Virginia, 81% of the counties have high rates of diabetes and obesity, as do 75% of the counties in the southern region that includes Alabama, Georgia, Louisiana, Mississippi, and South Carolina. In many counties in those regions, rates of diagnosed diabetes exceed 10% and obesity prevalence is more than 30%.¹⁰¹

In addition to exorbitant rates of obesity, families in poverty are also beleaguered by high rates of malnutrition. More than 12.4 million children in the U.S. lived in households without enough food in 2007 and another 8.8 million were in marginally food secure households.¹⁰² Malnutrition can stunt early brain growth¹⁰³ and can have long-term negative consequences on behavior and intelligence.^{104 105} Anemia, or iron deficiency, is the most common form of malnutrition in the United States and can cause cognitive and motor delays, anxiety, depression, and attention problems.⁸

Because of the impact of adequate nutrition during pregnancy, lactation, and early childhood, the federal program known as Women, Infants & Children (WIC) was created to provide supplemental nutritious foods and education. In 2008, there were 9.5 million women, infants, and children enrolled in the WIC Program with half of all participants consisting of children under age five. Eligibility is based on low income and varies by state. Foods are based on the 2005 Dietary Guidelines for Americans including milk, dairy, fruits and vegetables, whole grains and align with the infant feeding practice guidelines of the American Academy of Pediatrics. Home visitors are encouraged to enroll families in WIC to develop healthier diets and to obtain more nutritious foods. The American Academy of Pediatrics’ recommendations¹⁰⁶ for preventing obesity include breastfeeding,¹⁰⁷ which has a protective effect on later obesity.¹⁰⁸

Prolactin, the hormone that causes milk production, also causes the mother’s appetite to increase. Women who are overweight and obese may experience more discomfort in pregnancy and childbirth. The problem of obesity has grown so rapidly that hospitals in poorer neighborhoods have had to purchase larger hospital beds and surgical instruments to accommodate the trend. Low-income ethnic minority women are most vulnerable to postpartum weight gains and depression.¹⁰⁹ Currently, one out of every five pregnant women is obese and at high risk for a cesarean section, death, or death of the baby.¹¹⁰ For better outcomes and good nutrition, overweight mothers should be encouraged to eat plenty of fruits, vegetables, low-fat dairy, whole grains, legumes, and healthy types of fat and to decrease their intake of refined grains, regular soda, sweetened beverages, and desserts.¹¹¹ Encouraging healthier eating patterns is an important intervention among teen parents who often skip breakfast and eat unhealthy snacks that lead to obesity.¹¹² Although breastfeeding enhances the physical recovery from childbirth and should promote weight loss during the postpartum period, it is not guaranteed. For mothers who were overweight during pregnancy, retaining or gaining even more weight during the postpartum period is a real risk. Moderate dieting for the breastfeeding mother during the postpartum period will not harm the infant’s growth,¹¹³ but postponing dieting until the baby is weaned is wise since extra calories are needed for milk production.

Information in the topic *Diet & Nutrition* is intended to help new mothers see the importance of continuing to eat nutritious foods in order to give their bodies the chance to recover from childbirth; learn what and how much to eat if breastfeeding; and understand the importance of waiting to diet if breastfeeding. In addition, this topic provides information to families on how to intentionally reduce the amount of fat, sugar,



and salt they consume while increasing their intake of fresh fruits and vegetables; to read food labels; to plan and prepare nutritious meals; and to use the USDA Choose MyPlate website to make healthy food choices. Helping families learn how to make healthy nutritional choices will benefit the child when solid foods are introduced.

■ **Exercise & Physical Activity.** More than 52% of adults in the U.S. do not get enough exercise, which experts define as at least 150 minutes of moderate physical activity or 75 minutes of vigorous activity per week for adults age 18-64.¹¹⁴ This national trend toward lack of exercise, combined with eating too many calories, has resulted in increased rates of obesity.⁹⁸

In addition to weight reduction, exercise has many benefits to postpartum women including reducing the symptoms of depression.¹¹⁵ Women who get regular physical activity and more exposure to natural daylight, and who have a healthy diet have fewer problems with fatigue, stress, and mood swings.¹¹⁶ Studies show that light activates our mood enhancing hormones and makes our brains more alert. One study found that the more time people spent inside, the more tired, depressed, and anxious they felt and the more they craved carbohydrates.¹¹⁷ Studies have shown that bright light stimulates serotonin activity in the brain, just as many antidepressants do. Within a few days of increased light, people were in a better mood, ate fewer carbohydrates, felt more energetic, and became more outgoing.¹¹⁸ Another study showed that brightening the environment also increased physical energy and mood.¹¹⁹ Being exposed to more bright light during the day can lead to a better night's sleep because the more light exposure during the day results in more melatonin production, which can result in deeper sleep.¹²⁰ In one study, women who had more bright light exposure during the day slept an extra hour each night.¹²¹ These studies offer compelling data for the benefits of exercise and sunlight, which may be especially beneficial during the postpartum period when fatigue and stress are common.

Information in this topic is intended to help families understand the benefits of exercise (e.g., increased energy; improved mood; better sleep at night; better health; weight loss) and to provide suggestions for pleasurable and safe ways for the whole family to exercise.

■ **Alcohol, Drugs, & Tobacco.** Research has shown the harmful effects of prenatal and postpartum maternal consumption (pre and postnatal) of alcohol, drugs, and tobacco on babies (e.g., low birth weight, birth defects, fetal alcohol syndrome, SIDS, abuse and neglect, motor delays, health problems and even fatalities). Many myths persist about how alcohol can benefit breast milk production or can help babies sleep. However, studies have shown only adverse effects.¹²² Maternal alcohol consumption actually decreases milk production. Alcohol is readily passed from the breastfeeding mother into human milk. Peak alcohol levels both in the mother's blood and in the milk occur approximately one-half hour to an hour after drinking. Pumping the breasts and then discarding the milk immediately after drinking fails to remove alcohol from the milk, as the newly produced milk still contains alcohol as long as the mother has measurable blood alcohol levels. Studies showed that breastfed babies actually consumed about 20% *less* breast milk during the 3-4 hours following their mothers' alcohol consumption, not because the infants nursed for shorter periods of time but because of the reduced amount of milk produced.¹²³

Another myth of maternal alcohol consumption is that it helps babies sleep better. However, studies found that babies whose mothers had consumed alcohol slept significantly shorter periods of time during the 3.5 hours after nursing than when mothers had consumed a nonalcoholic beverage.¹²⁴ More serious adverse effects were found in a study of 400 breastfed infants and their mothers, which assessed the relationship between the mothers' alcohol use during lactation and their infants' development at 1 year of age. The study found that gross motor development was significantly altered in breastfed infants whose mothers consumed one or two alcoholic drinks daily. The harmful effects may be attributed to the sensitivity of the infant's developing brain and to the infant's limited capacity to metabolize even small quantities of alcohol, which also makes the alcohol dose more potent.¹²²



In the United States, an estimated 24.8 million men (23.1%) and 21.1 million women (18.3%) are smokers¹²⁵ despite extensive research documenting the negative effects of smoking.¹²⁶ Smoking rates are highest among adults with blue collar jobs, low educational levels, and low incomes.¹²⁷ Nicotine and other drugs slow down neuron growth and alter the biochemistry of the developing brain. When a pregnant woman smokes tobacco it narrows the blood vessels and cuts off oxygen carrying blood to the developing baby's organs including the brain. This helps explain why babies of mothers who smoked during pregnancy have lower IQs than those who did not.¹²⁸

Nicotine is also harmful to infants from both secondhand smoke inhalation and from ingestion through breast milk. Nearly 54% of U.S. children are exposed to secondhand tobacco smoke. Babies in households where smoking occurs have an increased risk of serious health problems including: middle ear infections, colic, compromised lung function, respiratory and gastro-intestinal illness, and more frequent hospitalizations. The most significant effect of cigarette smoking in the household is the greatly increased risk of Sudden Infant Death Syndrome (SIDS).¹²⁹ Studies found that infants of mothers who smoked during pregnancy were three times more likely to die of SIDS than those whose mothers were smoke-free;¹³⁰ and exposure to secondhand smoke doubled a baby's risk of SIDS.¹³¹ New studies of smoke-free households have found reductions in SIDS.¹³²

Breastfeeding can reduce the baby's risk of SIDS and respiratory illness by providing protective antibodies. Because of the overwhelming evidence of the benefits of breastfeeding, the American Academy of Pediatrics changed its position in 2001 to encourage breastfeeding among smokers. Mothers who smoke are encouraged to breastfeed but should avoid smoking in the home and make every effort to wean themselves from tobacco as rapidly as possible.¹³³

Nicotine can also negatively affect babies' growth and sleep/wake cycles. Nicotine is a known appetite suppressant, which may explain why babies of mothers who smoke have an average birth weight of 200g less than those whose mothers don't smoke.¹³⁴ Weight gain in the first few months is also reported to be less, although by 12 months no differences are evident. If the mother has recently had a cigarette and tries to breastfeed the baby may be fussy while trying to nurse or may refuse the breast all together. Infants whose mothers smoke more than five cigarettes a day have higher rates of colic. Babies whose mothers smoke spend significantly less time sleeping (53.4 minutes) compared to when their mothers abstained from smoking (84.5 minutes). The greater the doses of nicotine the mother smoked, the less time the baby slept.¹³⁵

Parental substance abuse has devastating effects on children and families. Substance abuse is indicated in the majority (up to two-thirds) of child maltreatment cases.¹³⁶ The incidence rate of child maltreatment is increasing, particularly child neglect, which may be attributed to an increase in parental substance abuse and dependence.¹³⁷ It is estimated that 6 million children in this country (9%) live with at least one parent who abuses alcohol, drugs, or both.¹³⁸ Drug-using parents spend their energy and resources toward using drugs, which prevents them from being physically and emotionally available to take care of their children.¹³⁹ Mary Dozier and her colleagues have encouraging results of attachment-based interventions targeted for substance-using mothers of infants.^{140 141}

Infants are more vulnerable to maltreatment and to subsequent death than older children. Nationally, in 2009 the victimization rate was highest among children younger than 3 years of age with the largest group consisting of babies before their first birthday and then decreasing by age. Victimization rates were 20.6 per 1,000 children in the population younger than 1 year; 11.9 per 1,000 children for age 1; 11.3 per 1,000 children for age 2; and 10.6 per 1,000 children for victims age 3. The youngest children are also more vulnerable to death as the result of child abuse and neglect. Four-fifths (80.8%) of all child fatalities were younger than 4 years old. Babies under a year old were most likely to die at 46.2%; 17.8 percent were 1 year old, 10.3 percent were 2 years old, and 6.5 percent were 3 years old. One-third (35.8%) of child fatalities were attributed to neglect exclusively; and one-third (36.7%) of child fatalities were caused by multiple maltreatment types.¹⁴²



Child maltreatment is often a result of maternal substance abuse. Maltreatment is often a legacy of intergenerational trauma, abuse and substance abuse. A recent study of almost 3,700 women found a strong association between a history of child abuse and problems with alcohol abuse. In fact, the researchers state that child abuse is consistently associated with alcohol abuse.¹⁴³ Concurrent complications for drug dependent women include: high rates of sexually transmitted diseases,¹⁴⁴ mental health problems and histories of violence and trauma,¹⁴⁵ heavy smoking and mood disorders,¹⁴⁶ poverty,³⁷ housing instability, and high rates of suicide attempts and psychological impairments.¹⁴⁷ Breastfeeding is not recommended for women using “street drugs” because the drugs can be passed along to the baby through the breast milk.^{148 149}

However, having a baby can be a primary motivation for drug dependent women to enter treatment.¹⁵⁰ Treatment needs to be highly specialized to address all the concurrent complications, ideally within a residential treatment center where mother and baby are co-located so a healthy attachment can be nurtured within a safe environment for the baby. Research suggests that treatment should address the women’s relationships with their partners, especially when substance abuse and violence issues are present.^{151 152} Dealing with the housing needs, as well as the psychiatric and medical needs, of drug using women is critical to successful treatment.¹⁵³ A reinforcement-based therapy model offering an array of incentives including rent payment for recovery housing, options for recreational activities, and employment skills training resulted in 12 months of abstinence for a group of heroin abusers, which is remarkable given that the relapse rate is typically 65-80% within a month of treatment.¹⁵⁴

Alcohol, substance abuse, and intimate partner violence (IPV) are highly interrelated. Alcohol and drug abuse among women and their partners increases the risk for abuse.¹⁵⁵ Likewise, living in an abusive relationship increases mental health problems such as depression, posttraumatic stress disorder, anxiety, and substance abuse.¹⁵⁶ These potential negative consequences can interfere with parenting and child development. Depression and PTSD can have persistent impact long after the abuse has stopped. One study found that abused women continued to have PTSD symptoms for an average of 9 years after the abusive relationship.¹⁵⁷

Extensive research has been conducted to understand intimate partner violence (IPV) and to implement effective home interventions.¹⁵⁸ Home visitors can have a significant positive impact in helping to keep women and their children safe by ensuring moms are screened for depression and other mental health issues and seek appropriate help in these complex situations. Whether or not a woman will reveal that she is a victim of IPV depends on how she is asked, the setting in which she is asked, and when she is asked.¹⁵⁹ Understanding the cultural context may be helpful to treatment.^{160 155} African American women experience significantly more abuse than White or Hispanic women, even when controlling for SES according to a national survey.¹⁶¹ However, African American women are less likely to report abuse or seek treatment, although they often have the resiliency to restore their own self-esteem, often without professional intervention.¹⁵⁵ Having a network of support that includes respected elders and faith leaders is particularly important to African American women.^{57 58}

The information provided in the topic, *Alcohol, Drugs, & Tobacco* helps home visitors deal with the array of issues women in any type of treatment (alcohol, drugs, or smoking cessation) face by addressing the related and underlying needs stemming from sexually transmitted disease, nutritional deficits, trauma, depression and other mental health issues, and/or violence and relationship issues. The *Partners* curriculum provides guidance to home visitors on how to initiate conversations about these sensitive, personal topics utilizing the research about effective motivational interviewing.

Also, this topic addresses smoking cessation; reviews the negative effects of secondhand smoke; offers suggestions for how to quit or at least cut back on smoking; and outlines effective strategies for encouraging family members to smoke outside. Breastfeeding is encouraged, even for mothers who smoke, because of the potential for negating the harmful effects of nicotine.



■ **Sex, STDs, & Family Planning.** Family planning is critical before and during the postpartum period in order to allow mom enough time to properly heal and adequately prepare for a subsequent pregnancy. Short inter-pregnancy intervals, ranging from less than 3-18 months, are associated with a higher risk of poor birth outcomes, including low birth weight,¹⁶² preterm births, small for gestational age,¹⁶³ as well as neonatal death and infant mortality.¹⁶⁴ Reasons for the poor birth outcomes include postpartum stress and maternal nutrient depletion.⁹⁶¹⁶⁵ Despite these risks, almost one-third of all women aged 15-44 report having had at least one unintended birth.¹⁶⁶ Women ages 16-24 experience the highest rates of unintended pregnancy, as well as the highest rates of intimate partner violence.¹⁶⁷ One of the causes of unintended pregnancy is reproductive coercion in which the partner sabotages birth control in an effort to control the relationship. One study found that 25% of women ages 16-29 treated in public health clinics had experienced reproductive coercion.¹⁶⁸ Coercion may include behaviors that prevent women from using birth control (threatening to leave if she doesn't get pregnant) or birth control sabotage (preventing a woman from taking birth control pills or intentionally breaking condoms).

Compared with higher-income women, poor women are three times as likely to have an abortion, four times as likely to have an unplanned pregnancy, and five times as likely to have an unplanned birth. The National Center for Health Statistics found that from 1994 through 2001, the rate of unplanned pregnancies increased by almost 30% for women below the federal poverty line while for women above poverty (\$16,000 annually for a family of three), the rate of unplanned pregnancies fell by 20% during the same time. The proportion of unintended pregnancies that resulted in live births increased by almost 50% during this time for poor women, while it declined for more affluent women. Researchers attribute the disparity to the higher levels of contraceptive use by the educated and affluent. Data on this linkage between contraceptive use and unplanned pregnancies has led to a growing recognition of the need to expand access to contraceptive services for all women—especially for low-income women—with the potential to considerably reduce the rates of unplanned pregnancy and abortion.³⁹ Sexually transmitted diseases are also higher for those living in poverty, for racial and ethnic minorities, and for those who have limited access to health care.⁹⁰

To lengthen the inter-pregnancy interval, mothers need guidance on choosing a method of family planning and accurate information about the use of breastfeeding as a birth control method—ideally prior to delivery. Women also need to be provided with enough information that they can choose a contraceptive method that is tailored to their individual needs. They need easy and affordable access to their chosen method as well as the necessary services to support their choice over time.¹⁶⁶

For ambivalent populations such as teens,¹⁶⁹ the key to successful contraceptive use is to bridge where they are now to where they want to be. Researchers used an adaptation of the Stages of Change theory called *Stage of Readiness* to determine women's willingness for contraceptive use and then tailored counseling on contraceptive methods to reach women across a developmental continuum of readiness. Teens are a high-risk population for unintended repeat pregnancies.¹⁷⁰ Researchers found that the best way to reach adolescent clients was by using teen-friendly technology (e.g., text messaging, cell phone, Facebook, email) and making information appropriate to their developmental stage and ability to process complex information.⁴⁷ Research has also examined ways to successfully engage young men in reproductive health interventions.¹⁷¹ Strategies include having women take a more active role in encouraging their partners and sons to make joint appointments with health clinics and to see the importance of using birth control.¹⁷²

A new study in the American Journal of Medicine demonstrates the importance of making sure women understand that birth control pills are reliable only when taken consistently. The study, conducted by Medco Health Solutions Inc. found that many women do not take consistently take their birth control pills—even when taking drugs that can cause birth defects.¹⁷³ The study involved 26,136 women between the ages of 18 and 44 who were prescribed both an oral contraceptive and a medication that poses a risk to a fetus such as statins, sedatives, cancer drugs, and anti-acne medications. Around 40% of the women did not take their birth control pills on a regular basis, as measured by filling prescriptions often enough to have the pills on hand. The researchers found that the groups of women who were less compliant were those taking a large



number of different prescription drugs, members of ethnic minorities, and those who reported lower levels of education. The researchers suggested that some patients aren't counseled by their health care provider or pharmacists or they don't understand the warnings about possible birth-defect risks that are on the medicine bottles. Home visitors can address these pitfalls by helping families review medications labels, understand protocols for effective birth control use, and by helping women establish a system for remembering to take their chosen method of birth control.

Issues for women and their partner to consider when choosing a method of birth control include whether or not it is compatible with breastfeeding, how much it costs, how messy it is to use, how much it impacts spontaneity, whether or not it aligns with their religious and ethical beliefs, and, perhaps most importantly, how effective it is.⁶⁷

Information in the *Sex, STDs, & Family Planning* topic addresses the importance of waiting to have intercourse until after the 6-week postpartum checkup and the value of engaging both mom and her partner in choosing a method of family planning that is tailored to both of their needs. Also covered are the benefits of spacing pregnancies, how to most effectively use different family planning methods, and the reasons to practice safe sex.

■ **Family Health Care & Safety.** This topic addresses family health issues such as the importance for everyone in the home to have health insurance and a medical home. According to the 2009 US Census Bureau report, the number of people without health insurance in 2008 was estimated at 46.3 million and this number is expected to increase.¹⁷⁴ Health care is particularly important for children and families in poverty as they are at greater risk for poor outcomes by almost every measure of health and development.²⁶ This topic also includes information and strategies to help families learn how to communicate effectively with health care providers, and addresses the new research on the dangers of cell phone use while driving, the connection between parent-child co-sleeping and SIDS, and the importance of hand washing to prevent illness.

Increasingly, young children are witnesses to violence. In 1992, a survey of parents in a pediatric primary care clinic at Boston City Hospital determined that 10% of their children ages 1 to 5 years had witnessed a knifing or shooting; and half of all those surveyed reported violence occurring in the home.¹⁷⁵ At least 40% of American households with children living in the home have guns.¹⁷⁶ In preliminary data for 2007, the National Center for Health Statistics lists homicide as the third leading cause of death for children ages 1-4.¹⁷⁷ Every year, 3 to 10 million children witness domestic violence.¹⁷⁸ The results for some children are shattering to their sense of relationship security, and young boys who witness their fathers' violence are 10 times more prone to violence in their lifetime than boys from non-violent homes.¹⁷⁹

■ **Physical Changes & Discomforts.** The postpartum period is a time of healing and replenishment for mom—emotionally and physically. Having a baby depletes maternal nutrients and physically transforms a woman's body.⁹⁶ Some of these physical changes are temporary (e.g., enlargement of belly and breasts) and some may be permanent (e.g., stretch marks, hemorrhoids). Problems associated with vaginal births may include hemorrhoids, an episiotomy, and constipation. There are multiple risks associated with C-section deliveries including, infection, excessive bleeding, reactions to medications, urinary tract infections, injury to the baby,^{180 181} and a risk of death nearly three times that of vaginal deliveries.¹⁸²

Many mothers who have a caesarean section or an assisted vaginal delivery have lengthy periods of pain and discomfort. Immediate postpartum problems from C-section births may include side effects from the anesthesia such as severe headache, nausea, and vomiting. The anesthesia may also cause the baby to be sluggish or inactive when born. Infection at the site of the incision is the leading complication for caesarian deliveries. Of those women who undergo a C-section, whether planned or unplanned, 79% complain most commonly of pain at the incision in the first two months after birth, with 33% claiming it to be a major problem and 18% reporting that the pain persists for sixth months.¹⁸³ Usually, an abdominal incision will heal in four weeks, but some women have pain in the area for up to a year after the surgery. In one study



almost half (48%) of mothers who had vaginal births (of whom 68% had an instrument assisted delivery; 63% had an episiotomy, and 43% had a spontaneous vaginal births without an episiotomy), reported having perineum pain, with 2% saying the pain lasts at least six months.¹⁸³

Home visitors can be an important resource and support for new mothers dealing with the array of physical changes and discomforts typical of the postpartum period.¹⁸⁴ Information in the *Physical Changes & Discomforts* topic includes taking care of your body after childbirth; common discomforts and specific problems after a C-section; and strategies for dealing with sleep deprivation.

■ **Emotional Health.** There is growing scientific evidence that emotional development begins early in life and that it has enormous consequences over one's lifetime.¹⁸⁵ Children's emotional health is shaped primarily by the social and emotional characteristics of their families.¹⁸⁶ The first six months of life provide the foundation for trust and emotional security, which is fostered when babies' needs are met and they develop attachments to the people who care for them.¹⁸⁷ Recent research has given us a new understanding of how a baby's development is deeply influenced by the emotional health of the mother¹⁸⁸ and that the baby is much more vulnerable to environmental influence than ever suspected.¹⁹ Many factors can adversely impact the family's emotional health such as postpartum depression, pervasive stress, trauma, substance abuse, loss of a loved one, and domestic violence.¹⁸⁹

Postpartum Blues & Depression. Between 50-80% of new moms experience the baby blues.¹⁹⁰ Women who have the baby blues report having mood swings and trouble sleeping, eating, or making decisions; feeling irritable; and crying for no apparent reason. These symptoms usually begin 3-4 days after delivery and are gone 12-14 days after delivery. When symptoms last longer than 2 weeks or they worsen, a woman may be suffering from postpartum depression. Postpartum depression affects 10-20% of women who give birth.¹⁹¹ Approximately one in 11 babies will have a mother who has postpartum depression sometime during the first year of life and even more if mom has a history of depression or other stressors. Women with previous pregnancy-related depression are at a 50-62% increased risk of recurrent episodes with subsequent pregnancies.¹⁹² Up to 30% of women who have experienced a major episode of depression prior to conception will develop postpartum depression.¹⁹³ Other risk factors for depression include precipitating events or sources of stress (e.g., unplanned pregnancy, complicated or difficult labor, a fetal anomaly, lack of support, and stressful life events such as a recent loss, illness, relationship difficulties, financial problems, or domestic violence). One in four mothers living below the federal poverty rate experiences depression.¹⁹⁴

Major depression is manifested by a combination of symptoms, which interfere with a person's ability to work, study, sleep, eat, and enjoy once pleasurable activities. The diagnosis of major depression requires five of the nine DSM IV criteria during the same two-week period causing significant impairment in functioning. These symptoms include: depressed mood most of the day, nearly every day; markedly diminished interest or pleasure in almost all activities; weight change; insomnia or hypersomnia nearly every day; psychomotor agitation or retardation nearly every day; fatigue or loss of energy nearly every day; feelings of worthlessness or excessive guilt nearly every day; a diminished ability to think or concentrate nearly every day; and recurrent thoughts of death or suicide. In addition to these symptoms of major depression, a woman may also experience feelings of inadequacy or failure as a mother; show no enjoyment in feeding, holding, or caring for her baby; show no interest in the baby; express excessive anxiety about the baby; or have a fear of harming her baby. In rare instances (1-2 per 1,000), a woman may develop postpartum psychosis. Symptoms include violent thoughts; visions of the baby being hurt or dying; obsessive concerns about the baby's health; auditory hallucinations and delusions such as the belief that the baby is evil, possessed by the devil or that she (the mother) is evil and the child would be better off without her.¹⁹⁵

Postpartum depression varies in timing, severity, and duration.¹⁹⁶ The greatest concern is when depression is severe, starts early, and lasts long. However, even low levels of maternal depression have been associated¹⁹⁷ with detrimental consequences for the mother and her child, as well as the quality of their relationship.^{198 199} The negative outcomes can be attributed to the basic symptoms of depression—the lack of energy to perform



even the basic parenting functions; the lack of enjoyment required to create and nurture relationships; and the lack of emotional responsiveness necessary to support the baby's emotional development.

Depressed moms are less likely to breastfeed,²⁰⁰ respond to their baby's cues,²⁰¹ play and talk with their newborns, and comply with immunization and well-child visit schedules.^{202 203 204} Although these behaviors are sometimes reported as child neglect it should be considered a call for help that includes depression screening for both parents because they can contribute to poor developmental outcomes for children well into school age.^{205 206 207}

Untreated maternal depression can impair critical early relationships, and adversely affect both the mother's and the child's mental health.^{208 30} Depressed moms are less likely to engage in positive interactions with their babies^{209 201} and are typically either disengaged and withdrawn, or irritable and hostile²¹⁰—neither of which is conducive to healthy attachments. Hostile and irritable caregivers create fear and anxiety in young children. This may increase their stress and cortisol levels,²¹¹ which if reoccurring, can increase attachment insecurity²¹² and the risk of emotional disorders.²¹³

Having parents who are disengaged and withdrawn is detrimental to a baby's emotional development. Babies look to trusted caregivers for guidance in how to express their emotions and they acquire skills by imitating their parents' emotional cues. The classic *Still Face Experiment*⁷² shows the baby's distress when mom is non-responsive for two minutes. The baby unsuccessfully tries everything in her repertoire to engage the mom and then gives up. Fortunately, most parents re-engage and the baby rapidly returns to normal. However, when the parent continues to be non-responsive, the baby mirrors the flat, unresponsive emotional tone of her caregiver. As a result, she may have emotional regulation problems, social interaction difficulties,²¹⁴ attachment insecurity,²¹² and even be diagnosed with depression before her first birthday.⁷³ Children who are raised by a chronically depressed parent may have cognitive,²⁰⁶ language,²⁰⁵ behavioral,²⁰⁷ and academic problems well into school age.^{215 216}

The impact of depression is even greater when combined with other risks such as poverty, substance abuse, domestic violence, or prior trauma, which can further impair mom's capacity for developing secure attachments.²¹⁷ Unfortunately, maternal depression often coincides with a constellation of other risk factors that impede children's development.¹⁹⁴ Depression disproportionately affects young, socially isolated moms who are economically or educationally disadvantaged and have other stressful life events.²¹⁸ Chronically depressed mothers are more likely to be in poor health, to have substance abuse problems,²¹⁹ and be victims of intimate partner violence.²²⁰ Evidence suggests that 75% of adults with diagnosed depression also have at least one other mental health diagnosis.²²¹ When children are raised by a depressed parent who also has other serious problems, the children are even more in need of a nurturing environment to foster healthy development.²¹⁹

Research has also found a connection between colicky babies and depression. The medical definition of colic is a healthy baby with intense, unexplained fussing/crying lasting more than 3 hours a day, more than 3 days a week for more than 3 weeks.²²² A study of 2,927 new mothers found that one in three women with fussy infants acknowledged that they were depressed. The moms who reported being depressed were more than twice as likely to also report their infants were inconsolable and women with inconsolable babies were more than two times as likely to report depression, even when age, race and income variables were controlled. The implication for health care providers is that depression and inconsolability are strong predictors of one another and if there is a colicky baby, it's a good idea to check on the mom's symptoms, too.²²³

The best treatment is always prevention. Health care providers should address a checklist of risk factors for depression even before the baby arrives (e.g., if there are relationship problems, seek counseling during pregnancy; if there is a history of depression, be prepared for a relapse and have plans in place for getting help rapidly; if parents are anxious about their new responsibilities, enroll them in a parenting class). The sleep deprivation so typical during the first few months of parenthood can alter the neurochemical balances



in the brain and trigger underlying risk factors to manifest depression. The high correlation between parents' depression suggests that depression in one parent should trigger clinical attention to the other parent as well. A history of depression puts both mothers and fathers at risk, as do relationship problems, financial strain, or a sick baby. Low-income women have twice the rate of depressive symptoms compared to women of higher SES.²²⁴ These types of risk factors suggest the need for prenatal and postpartum depression screening for both moms and dads.

Research shows that lack of social support and absent fathers increase postpartum depression so it is not surprising that military moms have high rates of depression when their husbands are deployed. A 2006 study screened 410 women on the Edinburgh Postnatal Depression Scale and found 10.94% screened positive for depression while their husbands were not deployed and 25.27% screened positive for postpartum depression while their husbands were deployed. This indicates that pregnant women with deployed spouses may be 2.31 times more likely to be depressed than pregnant women with spouses who are not deployed. The length of deployment had no impact on the rate of depression nor did it matter whether or not the spouse returned for the birth or postpartum visit.²²⁵ The military has a New Parent Support Program that provides home visiting and other assistance for families.

The American Psychiatric Association has published recommendations on the treatment of depression, including an overview of the effectiveness of various treatments for postpartum women and patients with hard-to-treat depression. Included are guidelines for the use of medications, psychotherapy, and exercise to treat depression.²²⁶

There are several promising depression prevention efforts being implemented. The results of one in which poor women participated in four prenatal sessions of group psychotherapy suggests that preventing postpartum depression may be possible.²²⁷ A promising program that has been integrated into perinatal home visiting sessions, *The Mothers and Babies Course*, is a cognitive-behavioral therapy based intervention developed by Muñoz and colleagues.²²⁸ *The Mothers and Babies Course* promotes healthy mood management by teaching participants how to increase the frequency of thoughts and behaviors that lead to positive mood states. The intervention consists of six two-hour intervention sessions delivered weekly in a group format by either a licensed clinical social worker or clinical psychologist. The six sessions are divided into three two-session modules that map onto core cognitive-behavioral concepts: pleasant activities, thoughts, and contact with others.²³³ Results of a pilot randomized controlled trial with 41 low-income, pregnant Latinas at high risk for perinatal depression indicated that only 14% of women participating in the *Mothers and Babies Course* developed a new onset of major depression by the end of the first postpartum year compared to 25% receiving usual prenatal care.²²⁹ In a more recent randomized controlled trial implemented with 217 low-income Latinas from two prenatal care clinics, women participating in the *Mothers and Babies Course* had lower depressive symptoms one week after the last intervention session than women receiving usual prenatal care services.²³⁰ This program extends previous work demonstrating the effectiveness in cognitive-behavioral approaches in preventing the onset of new cases of perinatal depression and worsening of depressive symptoms.^{229 231 232}

Although a large percentage of home visiting programs serve perinatal women with depressive symptoms²³³ few depressed women receiving home visiting services are referred for mental health treatment services and/or receive needed treatment.^{235 236} Barriers to the identification and treatment of depression in the postpartum period include concerns about the stigma of being diagnosed with depression; possible repercussions with child protective services; a general mistrust of mental health providers;²³⁷ a reluctance to use anti-depressant medications; the lack of routine screening; and inadequate referral systems from obstetrical and pediatric providers.²³⁸

Home visiting programs using the *Partners* curriculum have the potential to overcome many of these barriers and to offer mental health services for families who wouldn't tend to seek out services. Home-based cognitive-behavioral therapy (CBT) interventions have shown effectiveness in reducing symptoms of postpartum depression^{239 240 241} and even a relatively short six-session course of treatment may be sufficient



to reduce depressive symptoms. Other effective home visiting interventions for depression include non-directive counseling and psychodynamic interventions. Based on the success of these interventions and the potential negative outcomes from untreated depression for parents and their children, more home visiting programs should target postpartum depression as a primary outcome.²⁴² To be most effective, interventions must address the mother's depression and other mental health needs while simultaneously addressing their parenting roles and their children's healthy development.¹⁹⁴

Pervasive Stress and Domestic Violence. Recent research has given new understanding of how a baby's development is influenced by the mother's emotional health¹⁸⁸ and that the baby is much more vulnerable to environmental influence than ever suspected.¹⁹ Many factors can adversely impact the baby through the emotional problems of the family such as pervasive stress, untreated depression, trauma, substance abuse, pregnancy loss, and domestic violence.¹⁸⁹ One of the most profound influences is stress as well as other psychological variables such as fear, anxiety, lack of support, and poor maternal self-identity.^{243 244} These stresses can manifest themselves in health problems such as high blood pressure, excessive weight gain, or more serious problems.²⁴⁵

Prolonged stress during early childhood can be particularly toxic, and in the absence of protective relationships, may result in permanent epigenetic changes in brain cells altering response to adversity throughout the lifespan.¹⁸ The prolonged elevation of stress hormones can result in abnormal development of the brain resulting in extreme anxiety, depression, or the inability to form healthy attachments.²⁴⁶ Chronic activation of certain parts of the brain involved in stress and fear response can "wear out" other parts of the brain such as the hippocampus, which is involved in cognition and memory.²⁴⁷ Increasing evidence suggests that the brain's reaction to prolonged abuse and stressful experiences may be the root origin of aggression. If the stress continues or the newborn is exposed to abuse or neglect it can lead to a lack of critical nurturing, which may alter the developing central nervous system, predisposing to a more impulsive, reactive and violent individual.²⁴⁸ The emotional legacy of adverse experiences such as stress, trauma, and maltreatment early in life, particularly for vulnerable children, is a cascade of later physical²⁴⁹ and mental health problems including psychological disorders like depression.²⁵⁰

The results of early adversity and trauma constitute a major public health problem because children exposed to violence and other chronic stressors are more likely to suffer from anxiety, behavior challenges, depression, toxic stress, learning problems, and substance abuse.²⁵¹ Unfortunately, there is the pervasive but mistaken impression that young children are inherently resilient or immune to the effects of early adversity.²⁵² If children are not provided appropriate help, emotional difficulties that emerge early in life can become more serious disorders over time.^{253 254} However, some children are amazingly resilient and recover psychologically from adversity, usually as the beneficiaries of extraordinary, long-term efforts on the part of loving, nurturing adults.²⁵⁵ For most adversity, however, there is a lifelong emotional legacy that ranges from mild to profound. Even when children have been "rescued" from orphanages or abusive circumstances and placed in loving homes, academic and developmental improvements are accompanied by continuing problems in self-regulation, behavior, and relating to others. Longitudinal studies also show that the early adversities negatively impact physical health with increased physical problems like heart disease and high blood pressure.²⁴⁹ Findings suggest that early adversities are long imprinted upon the body and the brain and underscore the importance of prevention and early intervention. Treatment of emergent mental health problems is most effective before they become ingrained and more resistant to change and before they manifest into more serious psychological and physical disorders.²⁵⁵ Despite this understanding of urgency, there is significant lag time between identification of most mental health issues and the beginning of appropriate treatment. Missed opportunities for addressing early dysfunction may trigger a domino effect of maladaptive behaviors that become increasingly more entrenched, resistant to intervention, and costly.²⁵⁶

The emotional well-being of young children is determined by their caregivers and families.²⁵⁷ When they are neglectful, abusive, hostile or otherwise harmful, children can suffer lifelong problems. Young children are most at-risk for maltreatment and child fatalities.²⁵⁸ The main type of maltreatment suffered by infants and toddlers is neglect with 33% lacking supervision and another 28% having parents who fail to provide basic



needs. Neglect is followed by the physical abuse (21%) of children. Caseworkers report the substantiated harm to the child as moderate (35.3%) and severe (28.9%). Children under the age of 1 represent 44% of all child fatalities occurring from abuse and neglect. Infants are susceptible to retina hemorrhages, blindness and traumatic brain injury from violent shaking. Young children with skull or multiple bone fractures at various stages of healing (especially spiral fractures of long bones) are all indicative of inflicted trauma. In 2000, nearly 88,000 children in the United States experienced sexual abuse, and approximately 10% of the substantiated sexual abuse cases were perpetrated against infant and toddler victims.²⁵⁹

Nurturing secure relationships can buffer children from adverse effects of other stressors.^{260 261 262 263} Because children are so directly affected by the emotional well-being of their caregivers, the most promising programs for preventing and treating mental health problems in young children are multigenerational approaches providing therapeutic intervention to address the child's needs while simultaneously addressing the primary needs of those who care for them.²⁵⁵

Other significant emotional issues for new families revolve around any kind of devastating loss—including having a stillbirth, giving up a baby for adoption, or having a premature baby or infant with special needs. Having a premature baby or infant with other special needs can also be emotionally overwhelming, especially if the baby hovers between life and death. Families also go through a process of grieving the loss of a “normal” baby and leaving the hospital “empty-handed.” Research has shown that premature babies that are breastfed and are held gain weight faster and go home earlier from the hospital.^{264 265} Elisabeth Kübler-Ross's classic stages of death and dying²⁶⁶ are commonly used as the basis for helping families deal with any kind of devastating loss. Several things have helped families heal—time, being emotionally available, and therapeutic caring from others.²⁶⁷ Another study found common experiences among women who experienced a loss of a baby.²⁶⁸ *Getting to know* was the process of dealing with the loss. *Losing and gaining* was the woman's search for making meaning out of what was lost or gained due to the loss. *Sharing the loss* was the support of other important people in her life to realize the loss was significant. *Going public* was the process of re-entry into everyday life and sharing the grief with others. *Getting through* was the process of working through the grief and loss until eventually there were more happy moments than sad ones. *Trying again* was acknowledging fears and whether to attempt another child.

There are many reasons women have emotional problems. The National Violence Against Women Survey documents that one in four women is raped and or physically assaulted by a current or former spouse or partner at some point in her lifetime.¹⁶¹ The rate of intimate partner abuse is highest during the childbearing years.^{269 270} Rates vary depending on how women are asked and the setting in which they are asked.¹⁵⁹ African American women experience significantly more abuse than White or Hispanic women, even when controlling for SES.²⁷¹

Data indicate that 60% of children in the U.S. have been exposed to violence.²⁷² Much of that violence occurs in homes. According to the National Crime Victimization Survey, one in every 200 households reported some form of domestic violence in 2000. Shaken baby syndrome is a serious brain injury that occurs when a baby is forcefully shaken. It usually occurs in children under the age of two but may occur in those up to age five. Babies are particularly vulnerable because of their weak neck muscles. The trauma from shaking can cause bruising, swelling and bleeding which destroys a child's brain cells and prevents the brain from getting enough oxygen, which may result in permanent brain damage or death. The largest percentage of child abuse removals and child fatalities occurring from maltreatment occur within the first year of life, which means that new parents need a lot more support during this difficult time. Recent national statistics show that the first year of life is the single most dangerous period in a child's life, with an overall victimization rate of 21.6% per 1,000 children.²⁷³

Children under age five are more likely to be in households where domestic violence occurs.^{274 275} Young children who grow up exposed to these experiences face significant threats to their emotional development²⁷⁶ and negative changes in the architecture of their developing brain.²⁷⁷ Within the *Emotional Health* topic, information is provided to help home visitors recognize signs of trauma²⁷⁸ and exposure to



violence; strategies for how to best support family members who may be victims of domestic violence; and recommendations of when to refer a family for professional help.²⁷⁶ A goal of the *Emotional Health* topic is to provide families with ways to safeguard children in these situations,²⁷⁹ to increase protective factors, and to promote healthy relationships.^{280 281}

Included in the *Emotional Health* section is information to help families understand postpartum baby blues and recognize signs of depression. Strategies are provided for how to address sensitive topics such as intimate partner violence, depression, and other mental health issues.¹⁵⁹ Additional information is provided to help the home visitor recognize when to seek the advice of her supervisor or mental health consultant. The content in the Emotional Health topic is intended to help families understand the adverse impact of stress, addiction, violence, and depression on the emotional well-being of the entire family.²⁸²



Caring for Baby

Providing a safe environment is critical as accidents are the leading cause of emergency room visits and death of young children.⁸⁷ Most first-time parents don't feel adequately prepared nor do they feel like they have enough knowledge about how to parent.²⁸³ Topics in this category are *Nutrition & Feeding*; *Daily Care Routines*; and *Health & Safety*. A brief summary of the literature for each of these topics is provided below.

■ **Nutrition & Feeding.** One of the major decisions a new parent has to make is whether to breastfeed or use formula. Extensive research shows the epidemiologic, physiological, and social-emotional, and psychological benefits of breastfeeding.²⁸⁴ Breastfeeding has extensive health benefits for the baby including less diarrhea,²⁸⁵ colds, and vomiting than babies fed formula,²⁸⁶ better immune systems,²⁸⁷ reduced risk for respiratory infections and otitis media,²⁸⁸ reduced overweight and obesity,²⁸⁹ and reduction of SIDS.^{290 291} The effectiveness of breastfeeding as a protective factor in preventing later obesity¹⁰⁸ has resulted in the American Academy of Pediatrics' new recommendations¹⁰⁶ for starting obesity prevention early in life with breastfeeding.¹⁰⁷

In addition to impressive health benefits, breastfeeding may enhance intelligence and child development.²⁹² Children who had consumed mothers' milk in the early weeks of life had a significantly higher IQ at 7.5 to 8 years than those who received no maternal milk, even after adjustment for differences between groups and mothers' educational and social class.^{293 294} In 771 low birth-weight infants, babies whose mothers chose to provide breast milk had an 8-point advantage in IQ measured on Bayley's over infants of mothers choosing not to do so.²⁹⁵ Breastfeeding has also been linked to long-term educational benefits. One study found that an additional month of breast-feeding was associated with an increase in high school grade point averages and probability of college attendance.²⁹⁶

Not only does breastfeeding benefit babies, it also has significant benefits for mothers including more rapid healing from childbirth attributable to increased concentrations of oxytocin, increased child spacing, earlier return to pre-pregnancy weight, decreased risk of breast cancer, and decreased postmenopausal osteoporosis.¹⁴⁹ In addition, breastfeeding is economical for the breastfeeding family, it results in significantly decreased public health costs, and it creates less of an environmental burden than formula cans and bottles.²⁹⁷

There is substantial support for the benefits of breastfeeding. However, the American Academy of Pediatrics specifies several conditions under which breastfeeding is not in the best interest of the baby including mothers who have active untreated tuberculosis disease, mothers with exposure to radiation or chemotherapy, mothers who are using "street drugs"; and mothers with HIV or other infectious diseases.¹³³ Mothers who smoke are encouraged to breastfeed but should avoid smoking within the home and make every effort to wean themselves from tobacco as rapidly as possible.¹⁴⁹

Research has given the field a new understanding of how baby's development is influenced by diet. Good nutrition is necessary for optimal development, particularly in the first three years of life when development



is so rapid and extensive, yet many parents do not have a good understanding of what constitutes proper nutrition for young children.²⁹⁸ Improving parental knowledge of their child's nutritional needs is associated with a reduced risk for childhood obesity.²⁹⁹

Information covered in the *Nutrition & Feeding* topic includes the health and economic benefits of breastfeeding, tips for expressing and storing breast milk, and ways to manage problems and discomforts associated with breastfeeding. Also provided are suggestions for how to successfully breastfeed when returning to work or school and when and how to wean. Strategies for how to enhance bonding and attachment during feeding are provided throughout this section of the curriculum. If families choose bottle feeding, suggestions are provided for how to choose formula and supplies, and how to properly prepare, warm, and store bottles of formula. Finally, information about when and how to introduce solid foods and whole milk is included in this topic.

■ **Daily Care Routines.** Child development specialists agree that babies thrive on a routine.³⁰⁰ The predictability of a consistent routine—knowing what will happen next— helps babies feel more secure. When families consistently provide predictable routines, they lay the foundation for trust, security, and healthy attachment. Some families lack even the basic routines for sleeping and eating. Purposes in this topic explain how to manage many of the basic care routines including diapering, bathing, feeding, and sleeping, and how to choose child care.

■ **Health & Safety.** One of the most important decisions new parents make is where the baby will sleep. The American Academy of Pediatrics warns parents *not* to place their infants to sleep in adult beds because of the risk of suffocation and strangulation. From January 1999 to December 2001, a total of 180 deaths were linked to the placement in adult beds of infants and toddlers under 2 years of age. Fifty-eight of the deaths were attributed to a parent, caregiver, or sibling rolling on top of or against a baby while sleeping and 59% of the deaths involved infants younger than 3 months.³⁰¹

Extensive research has been conducted regarding Sudden Infant Death Syndrome (SIDS). Babies are more likely to die from SIDS when they are placed on or covered by soft bedding and when they are placed to sleep on their stomach.^{302 303} We've known for many years that maternal cigarette smoking contributes to an infant's risk of dying from SIDS.³⁰⁴ Infants of mothers who smoked during pregnancy were three times more likely to die of SIDS than those whose mothers were smoke-free. Exposure to secondhand smoke doubles a baby's risk of SIDS.

Unexplained cultural disparities persist, as African American babies are twice as likely to die from SIDS and American Indian babies are nearly three times more likely to die of SIDS than white babies.³⁰⁵ In 1994 the American Academy of Pediatrics started the Back to Sleep campaign, an effort to educate the public about reducing the risk of SIDS by placing babies to sleep on their backs. Since that time, the number of SIDS deaths has dropped by 50%. Research suggests that many SIDS babies are born with an abnormality in the part of the brainstem that controls blood pressure and breathing, temperature regulation, and sleep and waking. When an infant is sleeping on his stomach on soft bedding, there is an increased risk of the baby re-breathing his own exhaled air. This causes the oxygen level in the baby's body to drop and the carbon dioxide level to rise. Usually when this happens the brain triggers the baby to wake up and cry, changing the baby's breathing and heart rate to compensate for the lack of oxygen. Babies with brainstem abnormalities lack this "over-ride protection" and seem to be at greater risk for SIDS. Another theory is that stomach sleeping and/or soft bedding increases the risk of overheating.^{306 305}

Accidents also remain a major cause of emergency room visits and deaths. Curriculum topics encourage accident prevention through helping families properly install infant car seats, safe driving and traveling with baby, ensuring safe places to sleep for the whole family, and child proofing the home.

Information in the *Health & Safety* topic covers the importance of setting up a safe sleep environment, strategies for reducing the risk of SIDS, how to properly install an infant car seat. Also addressed are many issues related to caring for a newborn including thrush, rashes (diaper, heat and other rashes from washing



baby's clothes); teething symptoms and remedies; how to know if baby is sick and when to take to the doctor; correcting myths about vaccines; and the importance of hand washing to keep everyone healthy.



Baby's Development

The first year of life is an unparalleled time of growth and development. Babies undergo dramatic transformations in every area of development. They go from being totally dependent to walking, talking and actively exploring their world. Development occurs through a complex interaction of genetic factors and environmental experiences. The newborn infant is endowed with well-developed senses and a wide array of reflexive abilities to begin the important tasks of meeting their basic physical needs, forming relationships, and exploring the world. Classic developmental theories provide an understanding for how children develop. From a Piagetian perspective, the first year of life is the sensorimotor stage in which children experience the world through movement and senses.¹⁵ From an Eriksonian perspective, the first year is focused on building trust and security. The work of Bowlby¹⁶ and Ainsworth¹⁷ emphasizes an attachment theory perspective, which highlights relationships as the basis of all development. We know from the synthesis of the literature that optimal growth is achieved when good health and nutrition are combined with nurturing caregiving in a safe and appropriately stimulating environment.³⁰⁷

The recent “decade of the brain” increased our understanding of neuroscience and the tremendous opportunities for development and vulnerability. Recent neurobiological research has confirmed that the human brain is not fully developed at birth so it is more receptive to both the positive and negative influences in infancy. From late pregnancy through the second year the brain is in a critical period of accelerated growth, requiring a combination of sufficient nutrients and nurturing for optimal development.³⁰⁸

Development that occurs in the first year of life is much more vulnerable to environmental influence than ever suspected.¹⁸ Children under age one are the age group most likely to be maltreated.¹⁰ Maltreatment at early age is related to poor developmental outcomes including cognitive problems (23-65%); speech delays (14-64%)³⁰⁹; 22-80% acute or chronic health problems;³¹⁰ 4-47% motor delays;³¹¹ 10-61% mental health problems.³¹² Up to 82% of maltreated infants will have attachment problems.³¹³

Further evidence shows that adverse early childhood experiences can cause physical and chemical changes that become embedded in the circuitry of the developing brain, which can have lifelong consequences. Prolonged stress, maltreatment, nutritional deficits, and environmental toxins may chemically alter the baby's DNA, which may result in permanent adversity throughout the child's lifetime. On the other hand, supportive relationships can improve developmental outcomes—as demonstrated by the fact that nurturing interactions support healthy brain development. Substantial research shows the importance of nurturing experiences during infancy—when brain development is most rapid.¹⁹

Topics in the **Baby's Development** category are *Developmental Skills*; *Emerging Language & Literacy*; *Infant Mental Health*; *Guidance*; and *Play & Learning*. A brief summary of the literature for each of these topics is provided below.

■ **Developmental Skills.** A key factor in promoting stable and nurturing families is knowledge of child development.²³ The first months of six months life are defined by a tremendous developmental growth spurt evidenced by emerging communication skills, increasing attachments, increasing mobility fueled by an insatiable curiosity and need to explore, and attempts at self-regulation.¹⁵ Development occurs across several domains, including physical health, language, social-emotional development, cognitive development, and motor development. Growth in one domain impacts growth in other domains. Development proceeds sequentially from inward to outward extremities with increasing dexterity in the use of large muscles followed by the refinement of fine motor skills. Development proceeds through a predictable sequence, but there may be wide variations in the pace of milestone achievement. Information in this topic is intended to help parents understand and support this crucial time of growth and development.



■ **Emerging Language & Literacy.** There is widespread belief that the early years provide a “sensitive” or “optimal” period to acquire language after which time it takes more effort and becomes more difficult. Noam Chomsky asserts that babies possess innate abilities for learning language, a “language acquisition device” in the brain, which is shaped by the language in the child’s environment.³¹⁴ Piaget, who developed a global theory of cognitive developmental stages, suggests more of an interactive developmental model of language acquisition. He theorizes that there is an optimal period for language acquisition within the context of complex cognitive development, which is triggered by social interactions and environmental influences.³⁵²

Dr. T. Berry Brazelton, one of America’s favorite pediatricians, loves to show new parents how their newborn can turn their head toward the familiar voice of their parent. This powerful demonstration helps parents feel a special connection with their baby. Hearing begins in the womb at about four months so most babies are familiar with their mothers’ and fathers’ voices at birth. Babies’ hearing is fully formed at birth as evidenced by their startle response to loud noises and ability to be comforted by soothing voices. In the first three months of life babies make cooing and crying sounds. One of the most important roles of a new parent is learning to differentiate their baby’s cries for hunger, exhaustion, and comfort. At about four months, babies are able to make many sounds including babbling and gurgling sounds, chuckles and laughs. They notice toys that make sound and pay attention to music.³¹⁵ Babies learn through imitation and repetition. They hear sounds and repeat them over and over again.

A baby’s “receptive language” or the ability to understand sounds and words develops long before they are able to express or articulate the words. This is why it is important to sing, talk, and read to babies even before they can talk. Parents’ voices are soothing and reassuring for babies—they understand the tone even before they can comprehend the actual words. They understand the difference between a harsh and abrasive tone, and a respectful, nurturing tone. Talking with the baby throughout the day and describing what’s coming next provides a sense of predictability and helps the baby develop a sense of trust and security.

The value of talking throughout the day was documented in Hart & Risley’s two-year observation of language in the homes of professional, working class, and low-income families.³⁴ By age three, they found that parents of advanced children talked significantly more to their children than parents of children who were not as advanced. The study found a 30-million word gap between the vocabularies of low-income and professional families. That is, children from low-income homes heard, on average, 616 words per hour, while children from professional families (essentially children with college educated parents) heard 2153 words per hour. Follow-up of the children found that their academic success at age ten was attributable to the amount of language they heard from birth to three. The implication is that parents can have a substantial impact on their children’s language development and IQ scores by talking with their children from birth. Some parents mistakenly believe that television can accelerate young children’s language. However, studies show that each hour of television viewing was associated with a 2.68% decrease in the language score.³¹⁶ Healthy language development is facilitated by adult-child conversations, reading, and storytelling.^{317 318}

Our increasingly multicultural world has many parents wondering about bilingual language development. Learning more than one language can be accomplished in one of two ways—sequentially or simultaneously. Children can learn a new language after the primary language is established (sequentially), or they can learn two languages at the same time (simultaneously). Contrary to the belief that exposing an infant to two languages is confusing, infants have an innate capacity for dual language learning. Research indicates that infants have a “highly tuned auditory discrimination capacity” and can discriminate between the sounds of two languages long before they can articulate them.³¹⁹ The babblings of bilingual babies are language specific when interacting with each parent in a one-parent, one-language environment. Therefore, a baby will babble using Spanish sounds when communicating with his Spanish-speaking mother and will switch to making English sounds with his English-speaking father.³²⁰ As far as major developmental stages of language, there are no differences between the simultaneous dual language learner and the monolingual child with the exception of normal grammatical errors.³²¹ By school age, the vocabulary measures of dual



language learners are comparable to monolingual learners when the vocabularies of both languages are combined (rather than single language testing).³²²

The content in this topic emphasizes the importance of talking during daily care routines as well as the value of singing and reading to baby. Also included is practical advice about what books are best for young infants, how to engage babies in shared reading, and typical book handling behaviors for babies. Information about the myth of classical music, the importance of using “parentese,” and issues related to dual language learning is also found in this section of the curriculum.

■ ***Infant Mental Health.*** Research has substantiated that early childhood development is much more vulnerable to environmental influence than ever suspected.¹⁹ New scientific research shows the value of positive experiences such as exposure to healthy, nurturing relationships as well as the impact of negative influences such as prolonged stress, environmental toxins, or nutritional deficits. Prolonged stress during early childhood can be particularly toxic. In the absence of protective relationships, prolonged stress may result in permanent epigenetic changes in brain cells altering responses to adversity throughout the lifespan.¹⁸

The first year of life forms the foundation for social/emotional development, which consists of trust and emotional security, self-regulation, and self concept. As Dr. Jack Shonkoff reminds us, “there is no development without relationships.”²³²³ From the work of Bowlby¹⁶ and Ainsworth,¹⁷ an attachment theory perspective highlights “falling in love” with one’s baby and the importance of a secure relationship. Some parents feel connected when they first hold their baby; for others, it is a slow process culminating after birth; and for some, it never happens. Lack of bonding may be an emotional protective factor related to fear of separation from the baby.¹⁸⁹ Because of the strong impact on development, the emotional quality of the parent-child relationship is a natural focus for efforts to promote mental health in infancy and early childhood. Multigenerational interventions that seek to emphasize the interconnectedness of the child and the family members are most effective in enriching the parent/child relationship by increasing feelings of intimacy, safety, security, and reciprocity.³²⁴ Information in the *Infant Mental Health* topic focuses on ways to support this developing relationship.

The foundations of many life-long mental health problems are established early in life.²⁵⁵ Bowlby first originated “attachment theory” which he defined as “the seeking of proximity to an attachment figure.”¹⁶ He explained how early attachments influence emotional well-being throughout adulthood. Ainsworth furthered attachment theory by defining secure and insecure attachments and how early attachments affected future relationships. Secure attachments are developed through nurturing responsive caregiving over time. Insecure attachments may occur when baby’s physical and/or emotional needs are not met as a result of erratic or inconsistent caregiving, separations, abuse or neglect, addictions, or other reasons for emotional unavailability.

Extensive research about touch has shown that babies thrive when receiving nurturing touch, which is why the curriculum encourages both mothers and fathers to engage in “kangaroo mother care.” Kangaroo mother care, defined as continuous skin-to-skin contact as well as support for exclusive breastfeeding has significant benefits for preterm babies including increased weight gain and lower rates of respiratory disease,³²⁵ and a reduction in neonatal mortality.³²⁶ Gentle stroking or massage can also promote healthy digestion, help alleviate gas pains and constipation, relieve some of baby’s colic pain and discomfort, and help sleep problems in infants.^{327 328} Preterm babies gain weight faster and go home earlier when stroked and touched.³²⁹ Weight gain was associated with shorter hospital stays and significant hospital cost savings.³³⁰ Interesting research on stress has shown that babies do indeed feel pain, which can be reduced if caregivers hold them, especially during painful medical procedures like heel sticks in the hospital or routine immunizations.³³¹ Studies have shown that holding the baby reduces the stress hormone, cortisol.^{332 333}

Conversely, lack of touch can cause failure to thrive. Harry Harlow’s early studies³³⁴ demonstrated the effects of touch deprivation on monkeys which changed the scientific community’s view of the importance of bonding and attachment. Rene Spitz’ studies of young children in institutions who had little physical



contact showed failure to thrive physically.³³⁵ Current research being conducted in orphanages and other deprived environments confirms the physical symptoms of failure to thrive as well as life-long emotional scarring.³³⁶ The recent “decade of the brain” increased our understanding of neuroscience and the tremendous impact of early deprivation, trauma, and stress on the developing child.

Touch and proximity are also critical for bonding and attachment. The developmental sequence of attachment is explained by Dr. Charles Zeanah.²⁵ At first the baby recognizes the caregiver and becomes familiar. Familiarity leads to comfort, which leads to pleasure. Pleasure leads to reliance, which leads to the baby having a preference for the caregiver who is familiar, comforting, and reliable.³³⁷ From birth to two months, a baby’s preferences are limited to familiar voices and smells. At about two months, babies begin to smile and are social with everyone. Babies may seem more comfortable with their primary caregivers but preferences are not strongly expressed. This all changes at about eight months of age as cognitive advances and memory expands to enable babies to differentiate between familiar and unfamiliar caregivers. This stage is commonly referred to as “stranger anxiety” or “separation anxiety” and may last until about 18 months. Being close by to a trusted caregiver promotes feelings of security. This is especially important as motor skills increase and baby begins to crawl. The baby uses his attachment figure as a secure base from which to explore.

Information in the *Infant Mental Health* topic is grounded in attachment theory and designed to foster healthy social emotional development by helping parents understand how being responsive, comforting, and reassuring supports their baby’s development of trust and emotional security.³³⁸ Also addressed in this topic are the special emotional health needs of premature babies and babies who were adopted. Most importantly, the content in this topic is intended to help families build the attachment relationship during everyday care routines.

■ **Guidance.** Most parents wish babies came with instruction manuals. This section covers the common challenges of new parenting such as dealing with colicky, fussy babies and the myth about spoiling a baby. Nothing is more frustrating than not being able to calm a crying baby. The content in this topic provides much information for home visitors to use when helping new parents learn how to read their baby’s cues, differentiate between various cries, and respond appropriately. There is information to help parents understand that crying is the way infants communicate what they need—whether it’s a diaper change, to nurse or have a bottle, or to be comforted. The myth of spoiling is countered with research about the benefits of holding and nurturing which actually changes the chemistry in the brain.³³⁹ Research has found that babies whose cries are ignored have long term social, emotional, and intellectual problems.^{340 341} Prolonged crying causes increased blood pressure in the brain, a decreased oxygen supply to the brain, and elevated levels of stress hormones like cortisol.^{342 343 344} Caregivers should respond to babies’ cries quickly and consistently. Information on how to dispel the myth of spoiling and strategies for preventing prolonged spells of crying is provided in this section of the curriculum.

Caregivers often interpret inconsolable crying, noncompliance, or the inability to self-regulate as temperamental, obstinate, or “spoiled” behavior rather than seeking to identify the underlying emotional needs of the child.³²⁴ Inconsolable crying is frequently a trigger for abuse like shaken baby syndrome, a serious brain injury that occurs when a baby is forcefully shaken. Parents of very young children need much support and guidance in dealing with fussy babies—the largest percentage of child abuse removals and child fatalities from maltreatment occur within the first year of life, with an overall victimization rate of 21.6% per 1,000 children.²⁷³

Colic is the most common clinical complaint from mothers of babies who are under three months of age. The medical definition of colic is a healthy baby with intense, unexplained fussing/crying lasting more than 3 hours a day, more than 3 days a week for more than 3 weeks.²²² It tends to begin around baby’s 2nd or 3rd week and usually goes away by the time the baby is 3 or 4 months old. Colic is reported in up to 4 out of 10 infants with equal frequency whether male or female, breast- or bottle-fed, and full-term or preterm. The cause is unknown but has been associated with gastro-intestinal problems, allergies, and



sensory processing problems. Studies have found a connection between colicky babies and depression. A study of 2,927 new mothers found that one in three women with fussy infants acknowledged that they were depressed. The moms reporting depression were more than twice as likely to report infant inconsolability and women with inconsolable babies were more than two times as likely to report depression, even when age, race and income variables were controlled. The implications for health care providers is that depression and inconsolability are strong predictors of one another and if there is a colicky baby, the mother should be assessed for depression.²²³

Although pacifiers can be an effective tool for soothing babies, parents often ask for advice about using them. A meta-analysis found a significantly reduced risk of SIDS with pacifier use, particularly when babies were placed on their backs to sleep.³⁴⁵ Based on the likelihood that the benefits outweigh any potential negative effects, the American Academy of Pediatrics recommends pacifier use for infants up to 1 year of age, which includes the peak ages for SIDS and the period in which the baby's need for sucking is highest. For breastfed infants, the AAP recommends that pacifiers should be introduced only after breastfeeding has been well established.³⁰² Studies have shown that pacifiers may interfere with breastfeeding, are associated with decreased breastfeeding duration,^{346 347} and increased ear infections if used extensively after the baby is six months old.^{348 349} According to the American Dental Association, normal pacifier use doesn't increase dental problems but use after age two may.³⁵⁰

■ **Play & Learning.** Play is the primary way in which children learn. The National Association for the Education of Young Children describes the many skills that are advanced through play, including self-regulation and the development of social emotional competence, cognitive, and language development.³⁵¹ Leading theorists such as Piaget³⁵² and Vygotsky³⁵³ describe the hands-on play of the early childhood period as the best method for advancing cognitive and social-emotional learning. Piaget defined infancy as the sensorimotor period—characterized by the babies' exploration with their senses (e.g., seeing, touching, hearing, smelling, tasting).³⁵² Babies put everything in their mouth in order to feel, taste, and explore the things in their world. They are fascinated with their body parts and love sucking on their fingers and toes. They are amazed by their hands and try to swipe, grab, touch, or reach anything of interest. They are curious about things that make noise like rattles or keys and naturally bring everything to their mouths during this stage of sensory exploration.

Infant play is characterized by exploration, experimentation, imitation and repetition. Babies are avid observers, looking around, tracking voices and faces, and responding to smiling faces. Babies learn by imitation and even young babies can copy adult facial expressions like sticking out their tongue. They also engage in repetitive play, such as trying to reach for an interesting mobile by swiping at it over and over again. Repetition creates pathways in the brain—the process for learning new skills. Once the skill is accomplished and the firm neurological pathway is created, the skill becomes automatic so the infant can perform the task without concentrating on it.³⁵⁴ The best time to engage the baby in play is when he's alert and relaxed.

Play allows babies to follow their inborn learning agenda.³⁵⁵ Theorists like Piaget and Montessori believe that children will naturally choose activities they need to learn at their own pace. The role of the adult in baby play is to provide an interesting environment (e.g., colors, shapes, toys, songs, books, novel things) and then follow the baby's lead. Dr. Stanley Greenspan developed the concept of "Floortime," a widely used technique where adults get down on the floor and work with their baby to support their development. This technique is used with typically developing children as well as with children who have emotional and/or developmental disorders. A key component of the technique is to follow the baby's lead and challenge him to exchange gestures and emotional signals with the adult about his interests. This is based on the theory that babies are born with an innate curiosity and capacity to learn, and learn best by pursuing their interests.³⁵⁶

Parents have been bombarded by claims that "Baby Einstein" toys, classical music, and other toys promote intelligence. However, there is no evidence that these products make a baby any smarter.³⁵⁷ In response to



the commercialization of “superbabies,” infant specialists like Dr. William Sears have strongly reiterated that “relationships, not things, make brighter babies.”³⁵⁸ Dr. Greenspan illustrates this when discussing language acquisition and theorizes it is the babies’ emotional interactions with caregivers that create the desire to communicate.³⁵⁹ Dr. Jack Shonkoff, Director of Harvard’s Center on the Developing Child, further postulates that “there is no development without relationships.”³²³ In a presentation to the annual meeting of the American Academy of Pediatrics, Dr. Michael Lewis, professor of pediatrics and psychiatry,³⁶⁰ reviewed studies of factors that enhance infant development and concluded that the single most important influence on a child’s intellectual development was the responsiveness of the mother to the cues of her baby.

The content in the *Play & Learning* topic serves to help parents learn that they are the “best toy on the market” and that they can foster their baby’s development by playing, talking, singing, cuddling, nurturing, and delighting in their baby while engaging in everyday care routines.³⁶¹ The *Partners* curriculum encourages the use of the well-researched, evidenced-based *LearningGames*, utilized in the successful Carolina Abecedarian Project,⁷ one of the most studied early intervention projects in the world. The findings from this project have been replicated in two other longitudinal early intervention studies. One conducted by the Frank Porter Graham Child Development Institute: Project CARE³⁶² and the other by the Infant Health and Development Program.³⁶³

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