The Task Force adopted a modified version of the Center on the Social and Emotional Foundation for Early Learning (CSEFEL) Pyramid Model[1] as a conceptual framework for strengthening early childhood mental health and social-emotional development to direct their examination of North Carolina's current efforts, gaps in the system, and recommendations. The pyramid illustrates how different investments build on one another to provide a comprehensive system that supports the social-emotional health of young children and their families. (See Figure 3.1.) The promotion level of the pyramid includes the conditions necessary for promoting positive social-emotional development for all young children, including healthy pregnancies, nurturing responsive relationships, and high quality environments.

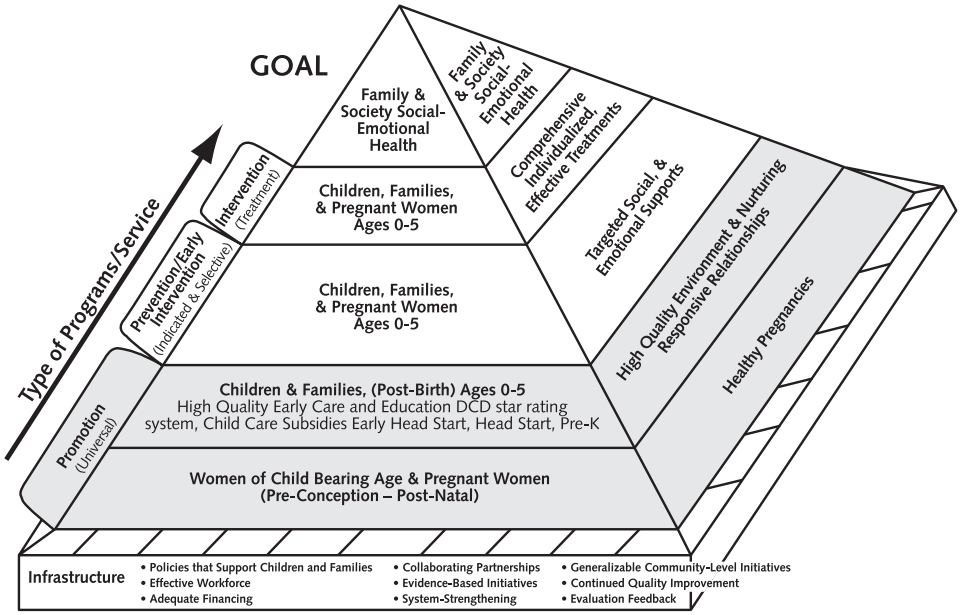
Healthy Pregnancies

Preconception Health

The health of future mothers is essential to improving the health of our state and future generations. The health of women before conception is inextricably linked to the health and well-being of their babies and family.[2] In fact, the most important negative pregnancy outcomes including early loss, fetal death,

The health of women before conception is inextricably linked to the health and well-being of their babies and family.

Figure 3.1
Pyramid for Strengthening Early Childhood Mental Health and Social Emotional Competence in Young Children



Note. This pyramid model conceptualizes the critical building blocks for achieving healthy mothers and healthy children. The front face of the pyramid explains the individuals and families who receive programs and services, which are divided up by the following categories: promotion, prevention, and intervention. The pyramid's side face lists the goals associated with the program/service recipients(s). these are further divided according to the socioecological model of health behavior. The foundation of the pyramid represents the necessary system-building blocks.

congenital abnormalities, low birth weight, and maternal morbidity, are largely determined by a woman's health prior to and during the first weeks of pregnancy.[3] High quality preconception health care provides the most effective means of preventing poor pregnancy outcomes.[3] Attending to and improving preconception health (women's health prior to pregnancy) is critical to improving birth outcomes and young children's development.

Attending to and improving preconception health is critical to improving birth outcomes and young children's development.

Preconception care is an essential first building block for a healthy mother and child. During the preconception period, the main goals of care are to: 1) screen for risks, 2) offer health promotion and education, and 3) provide interventions or referrals to address identified risks.[4] The first 11 weeks after conception are also critical to the mental and physical development of a fetus because during this period a fetus begins developing the central nervous system, heart, eyes, legs, arms, ears, teeth, palate, and external genitalia. The fetus is most susceptible to developing problems such as congenital anomalies, low birth weight, prematurity, and growth restriction in weeks 4-10, which is often before prenatal care is initiated.[3] In North Carolina, 43% of pregnancies are unintended. Many women do not realize they are pregnant at this stage, so they may still be engaging in risky health behaviors that can negatively impact fetal development. Therefore, unless intervention begins before conception, pregnant women may be unable to reduce these risks to their own health and to their baby's health. Providing preconception education and interventions that improve women's health and prevent poor pregnancy outcomes is critical.

The time before a woman becomes pregnant presents an opportunity to identify health risks that could affect and predict future health risks for women and their children. Some health risks include: unhealthy weight, inadequate nutrition, diabetes, depression, hypertension and heart disease, genetic conditions, sexually transmitted diseases (STDs), and tobacco use and alcohol abuse.[5] Many of these health risks, if not treated, can translate into poor pregnancy and birth outcomes. All women of reproductive age, especially those with risk factors for poor birth outcomes, should receive appropriate intervention(s) before conception to avoid serious maternal and child health problems. Women who are actively contemplating pregnancy can also be educated to take folic acid supplements to prevent neural tube defects, to stop smoking to reduce the risk of low birth weight, and to eliminate alcohol consumption to prevent Fetal Alcohol Syndrome and other complications. Women who are not actively seeking to become pregnant can receive family planning counseling and services to avoid unplanned pregnancies.

North Carolina Efforts to Improve Preconception Health

The North Carolina Preconception Health Coalition has been working to improve the preconception health of women since 2007. The Coalition is led by the Division of Public Health (DPH) within the North Carolina Department of Health and Human Services (DHHS) and includes members from the Department of Public Instruction (DPI), DHHS, local health departments,

universities, community-based organizations, non-profit organizations, and consumers. The Coalition developed a Preconception Health Strategic Plan to improve the health of women of childbearing age in North Carolina. The main goals of the Coalition are to increase consumer and community awareness about preconception health, to ensure quality preconception care and practice among health care providers and community health workers, to expand access to and affordability of preconception care, and to advocate for environmental and policy changes that support preconception health. The Task Force supports the work the Coalition is doing to achieve these goals.

DPH also works in partnership with the March of Dimes on the North Carolina Preconception Health Campaign. The statewide multivitamin program supports the health promotion and education of women of reproductive age to take enough folic acid before and during pregnancy. Folic acid can help prevent major brain and spine birth defects. The program also provides training materials for health departments and other safety net providers distributing multivitamins. The Task Force supports the work the March of Dimes is doing to prevent birth defects.

Prenatal health care provides important opportunities to monitor the health and well-being of the mother and child. Additionally, maternal mental health concerns and substance use can be assessed during prenatal health visits.

Prenatal and Postpartum Health

Health care during the prenatal and postpartum periods begins with the first prenatal visit, typically during the first trimester, and ends with the postpartum visit, which usually occurs six weeks after delivery. Although the preconception period provides the best opportunity for preventing poor pregnancy outcomes, prenatal health care provides important opportunities to monitor the health and well-being of the mother and child. Typically a mother's OB-GYN or primary care physician monitors a pregnant woman's blood pressure, weight gain, and uterine size. Regular prenatal checkups can help keep mothers and babies healthy, detect and treat problems if they occur, and prevent problems during delivery.[6] Additionally, maternal mental health concerns and substance use can be assessed during prenatal health visits. (See Chapters 4 and 5 for further discussion of maternal mental health and substance use screening and treatment.)

North Carolina Efforts to Improve Prenatal Health

In North Carolina, pregnant women with family incomes up to 185% of the federal poverty guideline (FPG) may be eligible for Medicaid for Pregnant Women (MPW). Medicaid currently covers approximately half of the births in the state, including many women who are at risk of poor birth outcomes such as preterm birth or low birth weight. MPW is a collaborative effort between Community Care of North Carolina (CCNC) networks, DMA, DPH, and local health departments. MPW covers only those services related to pregnancy, including prenatal care, delivery, and postpartum care, as well as services to treat medical conditions that may complicate pregnancy.

In North Carolina, individuals receiving MPW services receive comprehensive, coordinated maternity care through the CCNC network of providers and through

local health departments. CCNC's Pregnancy Medical Home (PMH), launched in March 2011, serves Medicaid recipients with primary case management through their pregnancy until 60 days postpartum. The PMH consists of an obstetrician or primary care provider who works with a care manager (nurse or social worker) to coordinate the patient's care. The model provides financial incentives to obstetrical professionals to improve care and improve birth and health outcomes, thereby reducing Medicaid costs.[7] Participating Medicaid providers are evaluated on four performance measures: no elective deliveries before 39 weeks, providing progesterone shots (known as 17P) to women at risk of preterm births, reducing the primary C-section rate, and performing a standardized initial risk screening of all obstetrical patients. In addition, the PMH provider must coordinate with local public health pregnancy case management to ensure that high-risk patients receive case management. The initial goals of the PMH model are to reduce the rate of low birth weight by 5% in each of the first two years and to achieve a primary C-section rate at or below 20%.

The goal of interconception care is to help women of childbearing age take the right steps to stay healthy and improve the likelihood of positive outcomes for subsequent pregnancies.

North Carolina's Perinatal Health Committee, a sub-committee of the Child Fatality Task Force (CFTF) legislative study commission, works to improve birth outcomes, protect and rebuild the prenatal health infrastructure, and reduce disparities in birth outcomes. The Perinatal Health Committee and the CFTF in general have worked to reduce maternal smoking and preterm births and promote breastfeeding and best practices for infant sleeping.

Interconception Care

The interconception period is the time between the end of a woman's pregnancy to the beginning of her next pregnancy. This period is a crticial time for a mother and father/partner to make sure they are in good health before becoming pregnant again. The goal of interconception care is to help women of childbearing age take the right steps to stay healthy and improve the likelihood of positive outcomes for subsequent pregnancies. In order to promote healthy pregnancies, interconception care focuses on the importance of a woman giving her body time to recover after a birth and time to adjust to being a mother of a newborn before becoming pregnant again.[8] Studies have shown that getting pregnant again too quickly may increase the risk of low birthweight or preterm birth.[9,10] Infants born to women who conceived less than six months after giving birth had a 40% increased risk for being born prematurely and a 61% increased risk of low birthweight, compared with infants born to mothers who waited 18 months to two years between pregnancies.[11]

Interconception care also offers an opportunity for providers and care managers to assess mothers' health-related behaviors and to encourage women of childbearing age to take action before conception to improve their health status. This window of opportunity can also be used to address risk factors such as substance use or depression. Interventions during interconception are typically provided by health professional staff and include (but are not limited to): grief

counseling support for women who have lost a fetus or infant, assessment of risks for pre-term or low birth weight pregnancy outcome, and facilitated family planning for future pregnancies. Additionally, health promotion interventions may include nutrition counseling, assessment of environmental risk factors, help with smoking cessation and avoidance of drugs and alcohol, genetic counseling, and prescriptions to avoid becoming pregnant again too soon.[12]

Access to Preconception, Prentatal, Postpartum, and Interconception Care

Working to improve the health of women before, during, and after pregnancy can lead to improvements in health and well-being for both women and their children. However, more than one in five women of childbearing age in North Carolina do not have health insurance and, therefore, may not have access to affordable routine preventive health care.[13] Under the current health insurance system, women of childbearing years age 21 and older who do not have access to health insurance through their job, spouse, or parents[a] only qualify for full Medicaid coverage if they have children or are disabled. Working women with children whose income does not exceed 50% FPG ($11,500 for a family of four in 2012) and non-working women with children whose income does not exceed 37% FPG ($8,500 for a family of four in 2012) may be eligible for Medicaid. Pregnant women with family incomes up to 185% FPG may be eligible for Medicaid for Pregnant Women (described previously).

Working to improve the health of women before, during, and after pregnancy can lead to improvements in health and well-being for both women and their children.

Women and men with incomes up to 185% FPG may qualify for family planning services through North Carolina Medicaid's Be Smart Family Planning Waiver (FPW). The FPW provides family planning services to women and men of childbearing age whose income is at or below 185% FPG ($46,600 for a family of four in 2012). The goals of the FPW are to reduce the number of unintended pregnancies and to increase utilization of and continuation rates for contraceptive use among the target population. Eligible men and women receive comprehensive family planning services including family planning visits and counseling, birth control, screening, early pregnancy detection, and education for sexually transmitted infections.

The Patient Protection and Affordable Care Act (ACA) expands health care coverage options forwomen with low-income and makes them more affordable. Effective January 1, 2014, Medicaid eligibility will expand to all nonelderly adults with family incomes under 138% FPG ($31,800 for a family of four in 2012).[b] Currently, most women of childbearing age are not eligible for Medicaid so the ACA would greatly expand Medicaid coverage of this population. Additionally, under the ACA, families with incomes between 138-400% FPG who do not have access to employer-based health insurance would be eligible for subsidies. These subsidies would help families with incomes between 138-400% FPG purchase health care coverage through the newly created health benefit exchange, which

a Children up to age 26 can be covered under their parents health insurance coverage.
b Under the June 2012 Supreme Court ruling, states do not have to expand Medicaid eligibility up to 138% FPG. North Carolina has not made a decision about Medicaid expansion.

There is a need for greater coordination of care across health professionals and providers.

will provide a marketplace for private health insurance. The ACA requires everyone to purchase health insurance or pay a penalty starting January 1, 2014. Under the ACA, health insurance plans, including Medicaid and coverage purchased through the health benefit exchange, will be required to provide preventive care, as is typically provided as part of preconception and interconception, as well as prenatal care.

Improving Care Transitions for Women and their Young Children

In addition to the need for continuous access to health care to improve pregnancy and birth outcomes, there is a need for greater coordination of care across health professionals and providers. Problems with quality of care often occur at the transitions between sites of care: between hospital providers and primary care providers or between primary care providers and specialty providers. Patient health and safety are often compromised during transitions of care due to inappropriate or inadequate patient information transfer, medication errors, and lack of follow-up care. Appropriate care transitions result in lower rates of complications and readmissions and, therefore, lower health care costs.[14].

Appropriate care transitions result in lower rates of complications and readmissions.

For pregnant women and their children, poor coordination of care often occurs during care transitions between obstetrical, hospital, primary care, pediatric, inpatient, and other health care providers. For example, information exchange between the obstetrical provider and the pediatrician is extremely important for pregnant women with substance abuse disorders. The exchange of this information during care transitions may impact the newborn's social-emotional and mental health. CCNC is currently working on improving care transitions for patients considered high-risk. Sharing patient information between providers, while keeping within the confines of HIPAA and other privacy laws, can improve the quality of care for patients as well as reduce unnecessary costs. Therefore, the Task Force recommends:

Recommendation 3.1 Improve Care Transitions for Women and Young Children

To enhance patient health and safety and ensure appropriate continuity of care and care coordination, Community Care of North Carolina, the North Carolina Obstetrical and Gynecological Society, North Carolina Academy of Family Physicians, North Carolina Pediatric Society, Division of Public Health, Divison of Mental Health, Developmental Disabilities, and Substance Abuse Services, and other partners should identify or develop best practices to ensure appropriate transitions of care for women and young children between obstetrical, primary care, pediatric, and other health care providers.

Nurturing, Responsive Relationships and High Quality Environments

Young children's social-emotional development is influenced positively and negatively by a variety of factors, as discussed in Chapter 1. Protective factors improve health and contribute to healthy development.[15] Common protective factors for young children's social-emotional development include nurturing families, safe neighborhoods, access to health care, and access to high quality early care and education.[16,17] Risk factors impair health and make it more difficult for young children to reach their developmental potential.[15] Common risk factors for impaired social-emotional development include poverty, a parent with depression and/or substance abuse problems, unsafe physical environments, being a victim of abuse, and exposure to toxic stress.[16] The impact of protective and risk factors is cumulative. This means more protective factors are associated with developmental resilience while more risk factors are associated with greater developmental vulnerability.[18] Research has shown that warm, stable, loving relationships with caregivers and exposure to high-quality, safe environments can help mitigate the negative impact of risk factors.[19] Additionally, both are essential for positive social-emotional development for all children.

Expanding parents' and other caregivers' knowledge and understanding of the important role they play in their child's development, and how to interact with their children to support social-emotional development can enhance young children's development.

All aspects of young children's development, including brain development, depend on the quality and reliability of young children's relationships with their caregivers, both within and outside the family.[20] In their earliest years, children exist within a web of relationships which include parents, caregivers, teachers, and, eventually, peers. When babies are born, they must find a way to connect with the adults around them who provide their care. Infants' brains develop through their interactions with the world, and parents and other caregivers are, in a sense, the entirety of an infant's world. Through repeated interactions with caring adults, infants learn how to form and foster relationships.[21] In these relationships, infants watch adults in order to learn how to experience, respond to, and express emotions. When adults provide loving, caring, and consistent care, infants learn they are valued and that the world is predictable. Infants earliest relationships give them the basis of feelings, behaviors, and expectations that they will bring to future relationships with adults and peers. Nurturing responsive relationships provide the individualized responses, mutual interactions, and emotional connections that stimulate the growth of the infant's heart and mind.[22]

High quality, safe environments promote positive social-emotional development by providing both safe physical spaces that promote active learning and predictable and supportive interactions that help young children learn appropriate behaviors.[23] Young children need predictable routines to help foster a sense of security and control and support the development of confidence and competence. A high quality environment that promotes learning for young children has a safe space for infants to play and engage with toys; children to

sit, crawl, and learn to walk; things to climb on; toys that are accessible and age-appropriate; and pictures and mirrors at child-height. In high quality environments, caregivers help children learn appropriate behaviors and how to regulate their emotions. For example, caregivers can acknowledge and label children's emotions by choosing books and songs that discuss feelings. In high quality group care settings, the space is designed so children can engage in play together and caregivers encourage and help children learn to interact with one another through social games and play.[23]

To help promote and encourage nurturing, responsive relationships, parent and other primary caregivers need information about young children's social-emotional development and about how to engage in the kinds of interactions that promote social-emotional development. Parents can be supported in providing high quality environments through education on how to establish predictable routines and how to teach social, emotional, and other skills through play and other activities. Expanding parents' and other caregivers' knowledge and understanding of the important role they play in their child's development, and how to interact with their children to support social-emotional development can enhance young children's development.

Reasearch over the past 20 years has greatly increased our knowledge of how young children develop, the foundational role of social-emotional development, and strategies for supporting healthy social-emotional development. However, this knowledge has not been fully translated and disseminated to policymakers and the public.[24] There is a need to increase awareness and understanding of the importance of young children's social-emotional development, the factors that impact young children's social-emotional development, and what can be done to promote young children's social emotional development. Therefore, the Task Force recommends:

Recommendation 3.2: Raise Awareness of the Mental Health, Social, and Emotional Needs of Young Children (PRIORITY RECOMMENDATION)

The North Carolina Early Childhood Advisory Council (ECAC), in collaboration with the North Carolina Department of Health and Human Services, the North Carolina Infant and Young Child Mental Health Association, Prevent Child Abuse North Carolina, National Alliance on Mental Illness North Carolina, North Carolina March of Dimes, North Carolina Families United, North Carolina Healthy Start Foundation, The North Carolina Partnership for Children, Inc., and North Carolina Pediatric Society should develop and implement a communications strategy to raise awareness of the importance of infants' and young children's social-emotional and mental health. The campaign should provide specific messages about what adults and others can do to promote young children's social-emotional development and reduce developmental risk factors.

a) As part of the communications strategy, potential partners (e.g., March of Dimes, local North Carolina Partnerships for Children, domestic violence advocates) should be identified. Campaign messages should describe the importance of social-emotional development during pregnancy and the early years as the foundation for all other development, as well as the inextricable link between young children's mental health, physical health, and cognitive development. In addition, the campaign should include messages that explain:

1) Experiences during pregnancy and the early years shape the architecture of the brain, setting the stage for future learning and development. Positive, safe, stable interactions with loving, responsive adults are critical for brain development. Exposure to adversity (toxic stress), in the absence of strong relationships with caregivers, negatively impacts brain development.

2) The value of investing during pregnancy and the early years and the role of evidence-based strategies to improve early social-emotional development.

3) The impact of women's physical and mental health throughout her childbearing years on future generations, including the impact of tobacco, alcohol, and depression on healthy births.

b) The campaign should include strategies to provide families and caregivers information on:

1) How to support young children's social-emotional development.

2) How to be educated consumers of health care and behavioral health services for children.

3) How to advocate for children with social-emotional and mental health needs and their families.

In addition to the need to increase awareness and provide general education about what can be done to improve young children's mental health, there is a need for more comprehensive education and training for parents, caregivers, providers, and others who interact with young children. Although there are a number of evidence-based programs aimed at parents or early care and education providers or public health workers, there is only one evidence-based program currently being implemented in North Carolina that provides a comprehensive population-level system of parenting and family support to promote young children's social-emotional development. The Triple P Positive Parenting Program is a "multi-level, evidence-based parenting and family support system

designed to prevent behavioral, emotional, and developmental problems in children, or halt their progression and reduce their severity."[25] Triple P aims to increase protective factors, including parental confidence, the use of positive parenting practices, the capacity and confidence of service providers, community capacity, and interagency collaboration. Triple P aims to reduce risk factors including parents' use of harmful or ineffective parenting practices, parental stress, depression, and conflict, and reduces the prevalence of early onset behavioral and emotional problems among young children.

Triple P provides evidence-based public health approach to improving parenting skills and child outcomes.

Triple P provides an evidence-based public health approach to improving parenting skills and child outcomes through a multi-level system of interventions.[26] Level one is a broad-based parenting information campaign, similar to the Task Force Recommendation 2.2. Levels 2 and 3 involve training public health and other social service providers, primary care providers, and others who interact with young children and their families to provide brief interventions for parents and caregivers with specific concerns about mild behavior difficulties. Level 2 provides consultations while Level 3 includes some skills training for parents and caregivers. Level 4 provides intensive parenting skills training. Level 5 provides intense behavioral family intervention for parents of children with behavior problems and family adjustment difficulties and parents who are at risk of child abuse and neglect. Psychologists, social workers, allied health professionals, school counselors, and nurses can be trained to provide levels 4 and 5 of Triple P.[27] Community-wide implementation of Triple P involves training providers at multiple levels so that evidence-based intervention and treatment are available and easily accessed by families. The cost of Triple P implementation varies, ranging from approximately $250,000 for a smaller county like Gaston to $1,000,000 for a larger county like Wake.[25] Wide-scale implementation in nine South Carolina counties found the cost of Triple P to be less $1 per child ages 0-8 for level 1 and less than $12 per child for provider training.[28] Studies have shown Triple P significantly reduces child maltreatment, child out-of-home placements, and hospitalizations or emergency-room visits for child maltreatment injuries.[26] Triple P has also been shown to reduce conduct disorder cases by up to 26%.[29] It is estimated that every $1 invested in Triple P results in $6 in benefits due to decreased child abuse and neglect incidence, health care costs, and crime as well as increases in high school graduation rates.[30]

Pitt County has fully implemented all levels of Triple P through funding from the Centers for Disease Control and Prevention. Implementation is underway in Alamance County through funding from DPH using federal funds provided by the federal Substance Abuse and Mental Health Services Administration. DPH is also funding Triple P in Alleghany, Ashe, Cabarrus, Madison, and Watauga counties. Additionally, implementation of Triple P is planned for select communities in northeastern North Carolina as part of the Race to the Top–Early Learning Challenge Grant. (See Chapter 2 for more information on the Early Learning

Challenge Grant.) The Task Force supports the implementation of Triple P in pilot communities and supports its expansion if shown to be effective in North Carolina. Therefore, the Task Force recommends:

Recommendation 3.3: Educate Families, Caregivers, and Providers on Young Children's Mental Health

The Division of Public Health (DPH) should continue to support the implementation of the Triple P Positive Parenting Program to educate parents, caregivers, and providers on how to promote young children's social-emotional development in pilot communities. If shown to be effective in North Carolina through program evaluations, DPH, in partnership with the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, the Division of Social Services, Smart Start, and other partnering agencies should support expansion of Triple P across the state. DPH should provide a plan for expansion to other communities across the state, including the costs of implementation along with projected longer-term cost savings (if any), to the Joint Legislative Oversight Committee on Health and Human Services of the North Carolina General Assembly by May 15, 2015.

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