The future of North Carolina's growth and prosperity depends on our ability to foster the health and well-being of our children. Research shows that wise investments in children and families can lead to future savings, better health, and increased productivity.[1] North Carolina has a long history of developing and supporting school readiness programs for children, including Smart Start and NC Pre-K. These programs have helped ensure that thousands of our children are better prepared to enter school ready to learn and have contributed to long-term improvements for many of our children. However, to realize the full benefit of these and other investments, we must expand our focus beyond just fostering physical health and cognitive skills and beyond reaching just those children in early care and education settings. We need to expand our understanding of developmental milestones to include the development of social-emotional skills which are equally as critical to ensuring future success in school and life for all young children. Children with good health and a strong sense of well-being are more likely to grow into adaptable, functioning adults equipped with the kinds of tools needed to contribute positively to their communities.[2] However, children do not develop optimal health and well-being in a vacuum. For young children, the quality and reliability of a child's relationships with his or her caregivers, the quality and safety of their environment, and the quality of their nutrition are all extremely influential factors. These three inputs establish the basic foundation upon which child health—physical, mental, and social-emotional well-being—are built. Specifically, programs, policies, and services to strengthen the relationships young children have with their caregivers, improve the environments of young children, teach young children social and emotional skills, and provide treatment for young children and their families help promote young children's social-emotional development. Such strategies positively shape and strengthen young children's environments as well as provide services and supports to address the social-emotional and mental health needs of young children and their families.

**As a state, we must pay attention to children's social-emotional and mental health, for they are the foundation upon which lifelong health and well-being are built.**

## Social-Emotional Well-Being and Mental Health Provide the Foundation for All Development

While much attention has been paid to the gross and fine motor, language, and cognitive domains of development—particularly as they relate to school readiness—relatively little attention has been paid to young children's social-emotional development and mental health. Young children's mental health is as critical to the child's development as a level foundation is to a house. How level a house's foundation is determines how well it will function and, ultimately, the durability of the house constructed upon it. When a house's foundation is not strong or level, it will crack and crumble over time causing parts of the house to warp, change shape, and become unsafe. Similarly, the mental health of a child is what enables him or her to function and provides the basis for all future development. Foundations that are not level can be fixed, however, it is considerably easier and less costly to build a level foundation at the start

than to have to go back and repair an unlevel foundation after the house is built. Likewise, promoting positive social-emotional development among young children—when there is extensive evidence that effective prevention programs can change the trajectory of children's lives—is far easier than trying to solve the problems that can result from lack of attention to mental health during the formative years.[1,3]

Young children's brains are rapidly developing the architecture that will undergird all future development. Some children's brains develop on foundations that are strong and level; they have a safe, supportive neighborhood and community, strong, loving relationships with their caregivers, and access to health care and good nutrition. Other children's brains develop on slanted or incomplete foundations. These children may be exposed to violence or abuse, have unstable relationships, lack of health care or nutrition, or do not have access to supportive programs and resources. We, as a state, must pay attention to these issues of children's social emotional development and mental health, for they are the foundation of the whole person, upon which lifelong health and well-being are built.

**A comprehensive approach to young children's health and development is critical in order to ensure our children fulfill their potential.**

## Early Childhood Development

The first five years of children's lives are characterized by rapid growth and development. Children undergo tremendous transformations as they develop from the intrauterine environment into infants and then into toddlers and children with the ability to interact with and navigate our highly complex societies. Young children must master many complex processes and behaviors during their earliest years including movement, communication, self-regulation, and relating to others and making friends.[4] While physical, cognitive, social and emotional capacities are inextricably linked throughout the life course, they are particularly hard to tease apart during the early years of life. Physical skills, such as crawling, rely heavily upon both mental and social-emotional skills. For example, for an infant to learn to crawl she must learn how the parts of her body relate to one another, have the physical strength to hold up her head and chest, and the cognitive capacity to coordinate the movement of her limbs. However, without a sense of security, confidence, and a safe space to explore, an infant will not learn to crawl. Similarly, language acquisition is not just a cognitive skill, but also relies upon the physical ability to hear, the cognitive ability to differentiate sounds, and the social-emotional ability to pay attention and engage in social interaction. However, again, without a sense of confidence gained through social interaction, a child will stay quiet. Taking a comprehensive approach to young children's health and development is critical in order to ensure our children fulfill their potential to become healthy, productive adults.

### *Brain Development*

Research has shown that the architecture of the brain is constructed in an ongoing process that begins before birth and continues until adulthood. Early experiences literally shape how the brain is built.[5] Like constructing a house, this

building process begins with laying the foundation. A strong, level foundation increases the probability of positive outcomes, while a weak foundation that is not level increases the odds of later difficulties. Fortunately, we know what children need in order to build a strong foundation for future learning and development: strong and supportive relationships with caregivers, stimulating and safe environments, and adequate nutrition. When children do not have these things, it is more difficult for the brain to develop the foundation needed to support healthy development.

Understandably, early experiences have an exceptionally strong influence on the architecture of the child's developing brain, which makes the early years of life a time of both great opportunity and a time of great vulnerability.[5] A child's genes supply the basic construction plan for brain development, much like the blueprints for a house. However, through continuous dynamic interactions, each child's personal experiences and environment have a significant impact on how genetic predispositions are expressed and how the brain's architecture develops.[5] For example, physiological responses to stress in the infant's environment affect the infant's social-emotional development. The activation of the physiologic stress response system results in increased levels of stress hormones. Persistent elevation of cortisol, one of the hormones released during stress, can disrupt the developing brain's architecture, and can ultimately impact learning and memory, as well as behavioral and emotional adaptation. Moreover, the prenatal period and early infancy are critical and sensitive periods for these effects. Toxic stress 1) impairs the connection of brain circuits and changes overall brain architecture, 2) sustains high levels of stress hormones that damage areas of the brain and affect learning and memory and increase anxiety and poor mood regulation, 3) causes an individual to develop a low threshold for stress and be overly reactive to adverse experiences through life, and 4) suppresses the immune response, affects other organ systems, and makes an infant, child or adult more vulnerable to infections and chronic health problems. The presence or absence of growth-promoting relationships and environments, as well as nutritious food, determine whether a child's brain architecture operates at its full genetic potential or with impaired capabilities.[5,6]

**Children need strong and supportive relationships with caregivers, stimulating and safe environments, and adequate nutrition to build a strong foundation.**

## Young Children's Social-Emotional Development and Mental Health

Young children's mental health, or social-emotional health, affects how they relate to and interact with others, how they learn, and how well they are able to manage their emotions. The mental health of a young child is the achievement of expected developmental cognitive, social, and emotional milestones.[7] The primary social-emotional milestones during the first five years of life include developing: trusting relationships with caregivers, the ability to signal needs, the full range of feelings and emotions, self-regulation of biological needs, strategies for dealing with separation, and the capacity for social interaction with peers and exploring the environment.[8] Young child mental health influences every single critical developmental task of the first five years whether physical,

cognitive, or social-emotional. It would be difficult for any child to grow and develop into a well-functioning school-age child or adult without these social-emotional skills.

**Young child mental health influences every single critical developmental task of the first five years whether physical, cognitive, or social-emotional.**

*Positive Mental Health*

Positive mental health is the achievement of the main mental health milestones—forming trusting relationships, capacity for social interaction, and self-regulation—as well as the development of a positive sense of self-esteem and well-being, mastery of social inclusion, and the strength to cope with adversity.[9] Accomplishing these tasks provides a strong foundation for life-long mental health. Positive mental health is the degree to which individuals feel good and function well.[2] Positive mental health can be nurtured and enhanced for all children, even those with mental health problems. Mentally healthy children and adolescents are happy and generally function well at home, in school, and in their communities.[7] It is critical that we look not only into minimizing mental health problems, but also into optimizing positive mental health development in order to ensure all children have the skills they need to grow, develop, and thrive. These psychological, emotional, and social skills help individuals maintain and regain health when faced with challenging situations.[2]

*Mental Health Problems*

In contrast to positive mental health, mental health problems impair social and educational development. Mental health problems among infants and young children can be difficult to recognize and identify because these problems do not present in young children in the same way that they do in adults. Examples of poor mental health among young children are babies whose growth is stunted due to a lack of nurturing care, toddlers who exhibit uncontrollable tantrums, preschoolers expelled from child care, children who witness or are victims of violence, and children arriving at kindergarten unable to manage their emotions and get along with other children and their teacher.[10] Young child mental health problems include a spectrum of mental issues ranging from poor adaptive behaviors/lack of interactive skills to early signs or symptoms of more serious mental disorders. Most do not rise to the level of DSM IV diagnoses and therefore are not addressed by the specialty mental health system. Mental health problems can develop early and can endure throughout an individual's lifetime.[5,11] Young children with untreated mental health problems are more likely to have adolescent and adult mental health disorders and need ongoing, costly services later in life.[2] However, research shows that intervening early can have a profound and positive effect on social-emotional problems as well as improve outcomes for children with serious disorders.[11] Mental health problems can have genetic origins and/or arise within the context of a child's relationships with caregivers and their environments.

## Prevalence of Young Children with Mental Health Problems

One-in-five children and adolescents in the U.S. meet diagnostic criteria for a mental health disorder with impaired functioning.[12] For early childhood, national research shows that between 10-14% of children ages 0-5 have mental health problems severe enough that they have trouble functioning.[13] In North Carolina that equates to approximately 91,000 children.[a] For preschoolers the rates are doubled when the factors of poverty, maternal depression, substance abuse, domestic violence or foster care are added.[14] Mental health problems among young children create an enormous burden for children themselves, their families, their schools, and the state. However, the costs are often difficult to measure because many of the costs are borne by the educational, justice and corrections, and physical health systems.[9] Mental health problems impair educational and social development and impact later competence and productivity. The health status of young children has a significant impact on the trajectory of their health during adolescence and into adulthood.[9] When left untreated, the presence of mental health problems in young children foretells an ongoing need for costly services later in life.

**Intervening early can have a profound and positive effect on social-emotional problems as well as improve outcomes for children with serious disorders.**

## Factors Influencing Young Children's Social-Emotional Well-Being and Mental Health

There are many factors that influence young children's mental health including genetics, the choices that parents and other caregivers make, their environments, and nutrition—all of which are influenced by the broader social, cultural, political and economic environments. Just as the foundation of a house is made level by the right craftsmen using the right materials and tools, young children need developmentally appropriate relationships, environments, and experiences at the right stages of development to develop a base that is strong and level enough to support more advanced physical, cognitive, and social-emotional skills.

### *Maternal Health and Well-Being*

Young children's physical, cognitive, and social-emotional development is influenced by the health, nutrition, and behaviors of mothers pre-conception as well as during pregnancy and early childhood.[15] The developmental trajectory of every child begins in the womb where genetics, the fetal environment, and maternal health all impact fetal development and birth outcomes. Women's pre-conception and prenatal physical and emotional health set the stage for what happens during pregnancy. Higher levels of preconception and prenatal physical and emotional health increase the likelihood of healthier pregnancy and birth outcomes, while lower levels increase the likelihood of poor pregnancy and birth outcomes.[16] During infancy and the early childhood years, maternal mental health plays a critical role in the social-emotional development of infants and

a Based on 757,664 children ages 0-5 in 2010, 12%=90,920 children (0.12*757,664 = 90,920) (Office of State Budget and Management. July 1, 2010 County Total - Single Year Ages. http://www.osbm.state.nc.us/demog/countytotals_singleage_2010.html. Accessed June 20, 2012)

children. In particular, maternal substance use and depression have significant and negative impacts on fetal and young child development.[17-19] Working to improve the health of women before, during, and between pregnancies is critical to improving the health of our state and future generations.

*Genetic Influences*

While a child's genes supply the blueprint for development, the environment, and the experiences a child has within that environment, have a profound impact on genetic expression. This is because the experiences children have with people and their environments adjust their genetic plans. Through continuous dynamic interactions, each child's personal experiences and environment have a significant impact on how genetic predispositions are expressed and how the brain's architecture is ultimately built.[5] Positive experiences, such as rich learning opportunities, and negative influences, such as exposure to toxic chemicals or highly stressful environments, cause chemical modifications to genes. Chemical modifications can cause short- or long-term changes and influence which genes are turned on and which are turned off.[2021] In young children's developing brains, experiences can change the chemistry that gets encoded in brain cells, influencing future brain development and health.[3] Thus, the prenatal and early years of life present a unique and important opportunity to intervene.

**Healthy development of infants and young children depends upon the quality and reliability of the child's relationships.**

*Relationships with Caregivers*

The healthy development of infants and young children depends upon the quality and reliability of the child's relationship with important people in his or her life including parents, grandparents, early care and education providers, and others who regularly care for the child.[6] These relationships affect virtually all aspects of a young child's development including physical, social-emotional, and cognitive growth.[4] The quality and strength of these relationships is established through continuous give-and-take interactions. Much like the process of serve and return in a tennis game, young children reach out to their caregivers and caregivers respond. When caregivers respond in a developmentally appropriate manner—such as cooing back at babies, comforting a toddler who has fallen, or answering the questions of a curious preschooler—the child's serve has been returned and their brain architecture is strengthened. By providing consistent, nurturing, and protective interactions, caregivers contribute to the growth of a broad range of competencies including positive social skills, a love of learning, an affirmative sense of oneself, and a sophisticated understanding of other's emotions, needs, and thoughts which will form the child's basis for social interactions.[3] Stable, strong relationships also confer the physical health benefits of having someone who ensures the young child has food, is protected from harm, and gets regular health care and surveillance when needed.[6]

*Children's Environments*

A safe, supportive, and stimulating environment is also critical for optimal development. Safe, supportive, and stimulating environments facilitate and

enhance the physical, cognitive, and social-emotional development of young children by providing spaces where children are free from harm, receive positive support and encouragement, and are provided with opportunities to learn and grow. Unsafe environments threaten the immediate physical health of young children as well as their future development and well-being. Young children need age-appropriate, physically safe environments free from toxic chemicals in which to explore and develop. Environments that provide the right conditions can enhance children's ability to grow, learn, and develop.[2] Enriching environments provide safe opportunities for children to engage in developmentally appropriate play, make choices, and interact positively with adults and other children. In contrast, environments that are not physically safe, lack consistent caregivers and supervision, and expose children to violence or abuse limit children's abilities to excel and thrive and place them at higher risk for developing mental health and behavioral problems.[2]

**Young children need age-appropriate, physically safe environments in which to explore and develop.**

Significant adversity early in life, such as persistent poverty, exposure to violence, a parent with mental health and/or substance abuse disorders, and poor child care conditions, leads to high levels of stress and negative short- and long-term outcomes. Research shows that adverse experiences during childhood, such as psychological, physical, or sexual abuse and living with household members who have substance abuse or mental health disorders, are strongly associated with long-term health risk behaviors, health status, and even adult diseases.[22] The Adverse Childhood Experiences (ACE) Study has found that adverse childhood events transform psychosocial experience into organic disease, social malfunction, and mental illness. Adverse childhood experiences are linked to heart disease, obesity, lung disease, diabetes, depression, anxiety, and substance addiction in adulthood. These findings are consistent with what has been learned about toxic stress and early brain development. High levels of stress cause the body to release high levels of stress hormones.[11] Extended exposure to high levels of stress, without the presence of protective factors such as loving, stable relationships or direct intervention, is called toxic stress. As described above, toxic stress interferes with developing brain circuits, negatively affects the child's stress response system, and increases the likelihood of significant stress-related mental and physical disorders over the child's lifetime (e.g. depression, anxiety, drug abuse, diabetes, and cardiovascular disease).[21] Additionally, damage to the developing brain caused by toxic stress can lead to impairments in learning and memory.[21] How a young child responds to stress has to do with their genetic predisposition as well as their environment and the relationships they have with caregivers. For example, a young child with a genetic predisposition to fearfulness is more likely to develop anxiety or depression than a child without that predisposition, particularly if they are severely neglected (perhaps due to a parent with substance abuse issues, mother with depression, or the stresses of deep poverty). However, research shows that warm, stable, loving relationships with caregivers and exposure to high-quality, safe environments can help regulate stress hormone production and help mitigate the risks associated with adverse childhood experiences and genetic predispositions.[21]

*Nutrition*

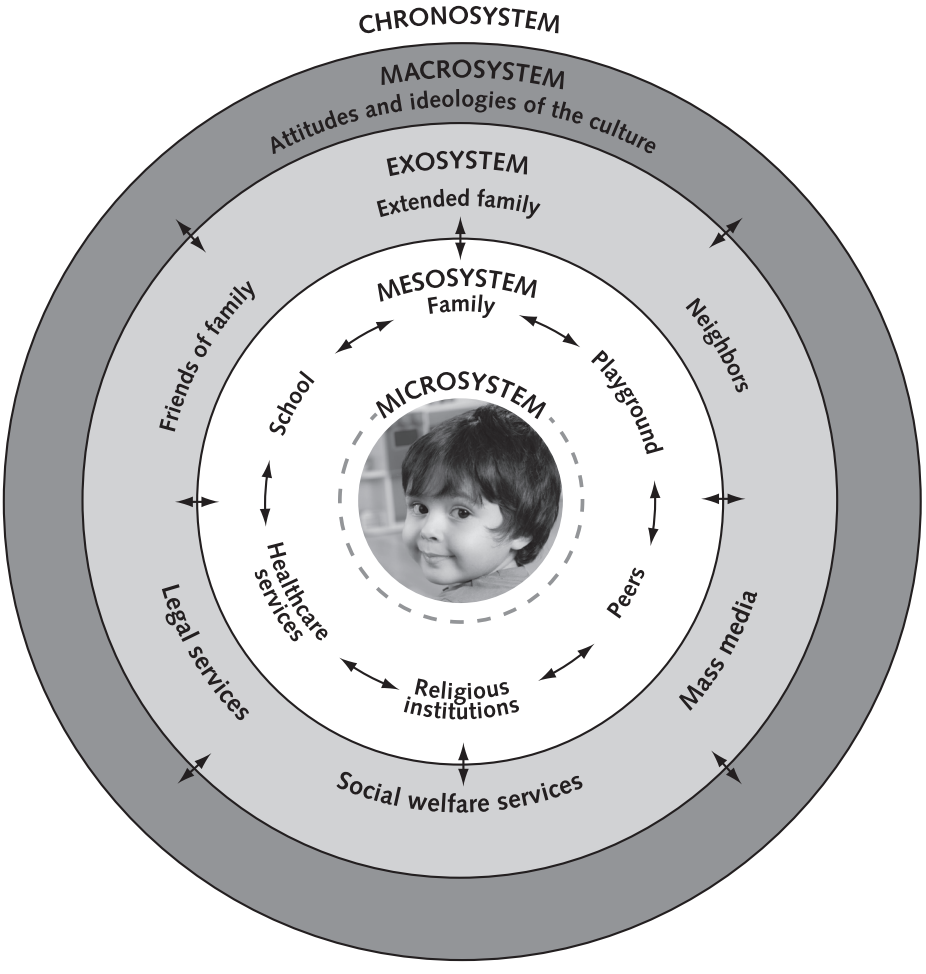
Throughout life, health is influenced by nutrition.[3] Research has shown that maternal health, even before conception, impacts the health and well-being of the expectant mother and infant. Maternal nutrition during pregnancy affects fetal immune system development as well as the long-term health of her children.[3] Adequate nutrition is especially important during the early years when body growth and brain development are more rapid than during any other period. A nutritionally adequate diet is one of the most important requirements for healthy growth and development. Nutrient deficiencies can result in cognitive delays, listlessness, and diminished resistance to disease.[23]

## Supporting Young Children's Mental Health

**Investments in early childhood have the potential to generate savings and benefits to society that more than repay their costs.**

The Task Force on the Mental Health, Social, and Emotional Needs of Young Children and Their Families used an ecological systems model to study the various impacts on young children's mental health. Ecological models are

**Figure 1.1**
**Ecological Model of Child Development**



conceptual models that show how the health of an individual is influenced not only by the individual, but also by their relationships with others and the broader community and environment in which they live. As discussed, many of the factors related to young children's mental health are determined most immediately by the child's family, early care and education programs or school, and neighborhood. However, young children and their families are also influenced by the community in which they live, attend school, and work, the public policies that govern them, and the broader social, cultural, political, and economic environments.

Research has shown that there are a number of strategies that promote optimal social and emotional development in young children. A growing body of research shows that investments in early childhood have the potential to generate savings and benefits to society that more than repay their costs.[1,24] Such investments include programs, policies, and services that strengthen the relationships young children have with their caregivers, improve the environments of young children, teach young children social and emotional skills, ensure early childhood and clinical professionals are adequately trained, and provide treatment for young children and their families. North Carolina has seen the benefits of making significant investments in the health and well-being of young children, particularly around physical and cognitive development. North Carolina has a long history of supporting physical health by providing health care coverage for low-income children and pregnant women through the Medicaid program and cognitive development through school readiness programs such as Smart Start, Early Head Start, Head Start and the NC-PreK program. The benefits of these investments would grow further if investments in the social-emotional development of young children were strengthened.

## Task Force on the Mental Health, Social, and Emotional Needs of Young Children and Their Families

The North Carolina General Assembly (NCGA) recognized the need to examine the mental health needs of North Carolina's youngest children and systematically evaluate the needs, gaps, strengths, and resources of the public and private systems providing prevention, promotion, and treatment for young children's mental health and social-emotional well-being. The NCGA asked the North Carolina Institute of Medicine (NCIOM) to convene a task force to study the adequacy of the current systems serving the mental health, social, and emotional needs of young children and their families.[b] Funding support for the Task Force was provided by the North Carolina Department of Health and Human Services Division of Mental Health, Developmental Disabilities, and Substance Abuse Services through the North Carolina Substance Abuse Prevention and Treatment Block Grant from the Substance Abuse and Mental Health Services Administration.

b NCGS §90-470

The Task Force was co-chaired by Marian Earls, MD, FAAP, Medical Director, Guilford Child Health, Inc.; Beth Melcher, PhD, Assistant Secretary for Mental Health, Developmental Disabilities, and Substance Abuse Services Development, North Carolina Department of Health and Human Services; and John Thorp, MD, Division Director and Distinguished Professor, Department of Obstetrics and Gynecology, University of North Carolina Health Care. They were joined by 40 other Task Force and Steering Committee members including legislators, state and local agency representatives, service providers, and community representatives. The Task Force met 15 times between March 2011 and June 2012. The Task Force made 12 recommendations, 3 of which were priority recommendations. The recommendations are summarized in the executive summary. A full listing of the recommendations is included in Appendix A of this report.

**References**


1. Kilburn M, Karoly L. RAND Corporation. The Economics of Early Childhood Policy. Santa Monica, CA. http://www.rand.org/pubs/occasional_papers/OP227.html. Published 2008. Accessed April 26, 2012.

2. Miles J, Espiritu RC, Horen NM, Sebian J, Waetzig E. Georgetown University Center for Child and Human Development, National Technical Assistance Center for Children's Mental Health. A Public Health Approach to Children's Mental Health A Conceptual Framework. Washington, DC. http://gucchdtacenter.georgetown.edu/publications/PublicHealthApproach.pdf?CFID=4150182&CFTOKEN=89131034. Published 2010. Accessed April 27, 2012.

3. Center on Developing Child at Harvard University. The Foundations of Lifelong Health Are Built in Early Childhood. http://www.developingchild.harvard.edu. Published 2010. Accessed April 27, 2012.

4. Shonkoff JP, Phillips DA. National Academy Press. From Neurons to Neighborhoods: The Science of Early Childhood Development. Washington, DC. http://www.nap.edu/openbook.php?record_id=9824. Published 2000. Accessed April 27, 2012.

5. National Scientific Council on the Developing Child. The Timing and Quality of Early Experiences Combine to Shape Brain Architecture. Working Paper No.5. http://www.developingchild.net. Published 2004. Accessed April 27, 2012.

6. National Scientific Council on the Developing Child. Young children develop in an environment of relationship. Working Paper No.1. http://www.developingchild.net. Published 2004.

7. US Department of Health and Human Services. US Department of Health and Human Services, Substance Abuse and Mental Health Administration, National Institutes of Health, National Institute of Mental Health. Mental Health: A Report of the Surgeon General. Rockville, MD. http://profiles.nlm.nih.gov/ps/access/NNBBHS.pdf. Published 1999. Accessed May 14, 2012.

8. Johnson MR, Appleyard K. Chapter 11. infant psychosocial disorders. In: Bremner JG, Wachs TD, eds. *Wiley-Blackwell Handbook of Infant Development*. Vol 2. 2nd ed. Oxford, UK.: Wiley-Blackwell; July 21, 2010:280-307.

9. National Research Council. The National Academies Press. Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities. Washington, DC. http://www.iom.edu/Reports/2009/Preventing-Mental-Emotional-and-Behavioral-Disorders-Among-Young-People-Progress-and-Possibilities.aspx. Published March 12, 2009.

10. Johnson MR. The origin of the NCIOM task force on the mental health, social, and emotional needs of young children and their families. Presented to: North Carolina Institute of Medicine Task Force on the Mental Health, Social, and Emotional Needs of Young Children and Their Families; March 10, 2011; Morrisville, NC. http://www.nciom.org/wp-content/uploads/2011/02/Johnson_2011-3-10.pdf. Accessed May 14, 2012.

11. National Scientific Council on the Developing Child. Mental Health Problems in Early Childhood Can Impair Learning and Behavior for Life. Working Paper No.6. http://www.developingchild.net. Published 2004. Accessed April 27, 2012.

12. McMorrow S, Howell E. Urban Institute. State Mental Health Systems for Childre: A Review of the Literature and Available Data Sources. http://www.nami.org/Template.cfm?Section=child_and_teen_support&template=/ContentManagement/ContentDisplay.cfm&ContentID=106948. Published July 2010. Accessed June 19, 2012.

13. Cooper JL, Aratani Y, Knitzer J, Douglas-Hall A, Masi R, Banghart P, Dababnah S. National Center for Children in Poverty. Mailman School of Public Health. Columbia University. Unclaimed Children Revisited: The Status of Children's Mental Health Policy in the United States. http://www.nccp.org/publications/pub_853.html. Published November 2008. Accessed April 27, 2012.

14. Stagman S, Cooper JL. Children's Mental Health: What Every Policymaker Should Know. National Center for Children in Poverty website. http://www.nccp.org/publications/pub_929.html. Published April 2010. Accessed June 19, 2012.

15. Healthy People 2020. Maternal, Infant, and Child Health. US Department of Health and Human Services website. http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=26. Published May 01, 2012. Accessed April 30, 2012.

16. Moos M. Connecting the dots: Health status before pregnancy and pregnancy outcomes. Presented to: Task Force on the Mental Health, Social, and Emotional Needs of Young Children and their Families Meeting 4-29-2011; April 2011; Morrisville, NC. http://www.nciom.org/wp-content/uploads/2011/02/Moos_4-29-11.pdf. Accessed May 10, 2012.

17. Meltzer-Brody S. Understanding postpartum depression. Presented to: North Carolina Institute of Medicine Task Force on the Mental Health, Social, and Emotional Needs of Young Children and Their Families; May 20, 2011; Morrisville, NC. http://www.nciom.org/wp-content/uploads/2011/02/Meltzer-Brody_5-20-11.pdf. Accessed May 14, 2012.

18. Strange M. Perinatal substance use: Characteristics of the population, effects on the child. Presented to: North Carolina Institute of Medicine Task Force on the Mental Health, Social, and Emotional Needs of Young Children and their Families; May 20, 2011; Morrisville, NC. http://www.nciom.org/wp-content/uploads/2011/02/Strange_5-20-11.pdf. Accessed May 14, 2012.

19. Sulik KK. The impact of maternal alcohol use on pre- and postnatal development. Presented to: North Carolina Institute of Medicine Task Force on the Mental Health, Social, and Emotional Needs of Young Children and Their Families; May 20, 2011; Morrisville, NC. http://www.nciom.org/wp-content/uploads/2011/02/Sulik_5-20-11.pdf. Accessed May 14, 2012.

20. National Scientific Council on the Developing Child. Early Experiences Can Alter Gene Expression and Affect Long-Term Development. Working Paper No.10. http://www.developingchild.net. Published 2004. Accessed April 27, 2012.

21. National Scientific Council on the Developing Child. Excessive Stress Disrupts the Architecture of the Developing Brain. Working Paper No. 3. http://www.developingchild.net. Published 2004. Accessed April 27, 2012.

22. National Center for Chronic Disease Prevention and Health Promotion. Adverse Childhood Experiences (ACE) Study. Division of Population Health, US Centers for Disease Control and Prevention website. http://www.cdc.gov/ace/prevalence.htm. Published September 20, 2010. Accessed May 21, 2012.

23. Thompson RA. Development in the first years of life. *Caring for Infants and Toddlers Volume 11 Number 1 Spring/Summer*. 2001;11(1):21-33.

24. Washington State Institute for Public Policy. Return on Investment: Evidence-Based Options to Improve Statewide Outcomes: April 2012 Update. Olympia, WA. http://www.wsipp.wa.gov/rptfiles/12-04-1201.pdf. Published April 2012. Accessed May 10, 2012.