Early Care, Parenting Supports, and Education

Chapter 4

Early childhood neuroscience has demonstrated that children make new neuronal connects from ages 0-6. Although rapid learning continues beyond age 6, neuronal connections are lost. The more stimulating and less stressful the early childhood environment is, the more rapidly a child will learn and be prepared for elementary school. That preparation sets the critical stage for lifelong academic and career success. Education research has repeatedly shown that high quality, center-based care can improve school readiness and academic success, findings that persist into early workforce entry.[1-3] These findings are especially robust among children at risk for poor educational achievement, a risk largely determined by poverty. Because of the importance of early childhood development on a child's later educational and professional success, the Task Force on Rural Health established, as one of its priorities, to focus on early care, education, and parenting supports to help ensure school readiness.

The Young Brain

Infants, toddlers, and preschoolers have an amazing ability to form new connections and acquire new knowledge and skills. We know from research on language acquisition that young children (those between ages 3-7) can acquire a new language much more rapidly and with superior ultimate competency than older children or adults.[4] Studies have shown that infants develop new neuronal connections very rapidly, and in fact develop an excess of neuronal connections that will be pared down later in childhood.[5,6] Stimulating and stable environments with rich social interactions are critical to early brain development and language acquisition. An unfortunate corollary is that toxic stress, poverty, and neglect have all been shown to be associated with limited early brain development.[7,8]

School success can be predicted at entry into school. A child's academic skills at age 5 predict how he or she will fare academically in adolescence and beyond.[9,10] Certainly cognitive and academic skills are still resilient at entry into school and intervention can help ameliorate deficits. However, other skills, such as vocabulary and attention capacity are less resilient by the time of school entry and are highly subject to early environmental influences such as stimulating environments.

There has been an explosion of research and interest into early learning over the past four decades. We now know that infants acquire a range of abilities related to language, human interaction, counting, spatial reasoning, causality, and problem solving. There is some data to support specific stimulating contexts on infant development in some areas. For example, preschool language skills and vocabulary size have been related to the sheer amount that mothers talk to their infants.[11] Such qualities as explaining, giving choices, and listening are much more predictive of language development than sheer volume of talking.[11] In a large study of 5 year olds followed over time, vocabulary comprehension

I have been an active participant in the Child Care WAGE$ Project for the past four years. I remember as if it were yesterday when I received my first supplement from WAGE$. I felt appreciated. Participation in this program has helped to relieve the burden that comes with managing a household, continuing education, and maintaining an effective classroom. WAGE$ allowed me to maintain my employment in early childhood education as a teacher, and now I can proudly say I serve as director of our school and will soon receive my bachelor's degree in Educational Studies.

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at age 5 ranged from that of a typical 2 year old to that of a typical 10 year old, and these differences persisted over time.[12] One study demonstrated that 5 year old children of low socioeconomic status (SES) had lower language test scores and lower development of a brain region highly involved in language known as Broca's area.[13] The authors postulated that it was not SES per se that 'caused' Broca's area to be less developed, but that this was due to decreased opportunities to learn. Children of low SES backgrounds may have fewer such opportunities in early childhood.

Stimulating early childhood environments that promote school readiness can include home, center-based care, informal and formal child care, and the larger community. There is no 'right' kind of care or environment for all children. High quality, center-based care can augment the social and developmental nurturing provided in the home. This is particularly important for low-income families that may not have the same resources or skills to provide an enriching academic home environment. For example, families with low socioeconomic status have been shown to have fewer children's books in the home.[14] In addition, high quality child care is in short supply in many communities, especially in rural areas. Lastly, the cost of high quality, center-based care may be prohibitive to many families. Though many poor and near-poor families may be eligible for child care subsidies, wait lists for those subsidies preclude many needy families from the opportunity for high quality, center-based care. It is for these reasons that the Task Force on Rural Health focused on recommendations to support high quality nurturing environments in the home and the early care and education settings.

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Early Care and Education

Second to the home, the early care and education environment is the place where children ages 0-5 spend the most time. In 2011, approximately 24% of children ages 0-5 were enrolled in licensed care in North Carolina in any given month. We know that many more children spend some portion of the year moving in and out of care as parents' work schedules change.[a] Nationally, 83% of children spend some time in non-parental care or education arrangements and 64% of children spend some time in formal early care or education the year before kindergarten.[15] Because so many young children spend time in formal child care or preschool arrangements, these settings are important opportunities for learning, nurturing, and early brain development.

In addition to the sheer volume of time children spend in early care and education, these environments are easier than the home environment to influence in ways that improve nurturing and stimulation. For example, the state can set caregiver ratios, teacher education requirements, a behavioral support system, and a curriculum in center-based care. It goes without saying that the state cannot establish such requirements in the home environment.

a Pat Hansen, MPH. Project Manager, Shape NC, The North Carolina Partnership for Children, Inc. Email communication. January 18, 2013.

The recommendations from this chapter focus on early childhood, ages 0-8. Most children start formal school at or by age 6. However, both research and policy on early childhood education and cognitive neuroscience tends to include early grade school. There are a number of reasons for this. The child care and education functions of substitute caregiving, which include safety and enrichment, extend into elementary school. Also, a child's approach to learning fundamentally shifts when she makes the developmental transition from learning to read to reading to learn. Literacy skills must be well supported by age 8 for ongoing educational success. By including the transition to elementary school as we considered school readiness, the Task Force acknowledged that all children won't be at the same level of readiness to learn by kindergarten entry, but the ongoing work in early care, education, and parenting support, which is a focus of many Smart Start Partnerships, could continue to support this transition.

Research Surrounding High Quality Early Childhood Education

There has been substantial research into the impact of high quality center-based care on early childhood development and academic success. The sentinel studies, the Perry Preschool Project, the Abecedarian Project, and the Head Start Impact Study merit special attention.[1-3]

Children who participated in the preschool program had higher incomes, were more likely to have jobs and have completed high school, and have committed fewer crimes.

The Perry Preschool Project randomized 123 low-income African-American children in Ypsilanti, Michigan in high quality center-based care or control conditions (usually home or relative care). Children have been followed through age 40. Children who were in center-based care were enrolled in full-time child care for two years, from approximately age 3-5. Most teachers had a master's degree and all had completed training in child development. There were no more than 16 children in a class and two lead teachers as well as a teacher's assistant. The preschool classes followed one of three specific theory-based curricula. Children were matched on gender, IQ, and socioeconomic status. When the study started, the average IQ for children in both groups was 79. The IQ for children in the treatment group rose to 102 (control: 83) after one year in the preschool and was 92 at age 10 (control: 85). As adults, children who participated in the preschool program had higher incomes, were more likely to have jobs and have completed high school, and have committed fewer crimes than those in the control group.[1]

The Abecedarian Project followed four cohorts of children enrolled in full-time early care and education from infancy through age 5 in Chapel Hill, North Carolina. Children had individualized educational programs and low teacher ratios. The curriculum focused on education as play in the curricular areas of social, emotional, and cognitive development, with a special emphasis on language skills. Children were followed through age 21. Children in the intervention group had higher IQs starting as toddlers through age 21, higher academic achievement in reading and math through young adulthood, were

more likely to attend college, and were more likely to have their first child at a later age. Not only are the results of this program impressive for the young children, but mothers of intervention preschoolers were more likely to go further in school and have better employment than those in the control group.[2]

While the two previous examples represent exclusively urban based centers, 30% of centers in the Head Start Impact Study were from rural counties, comprising 23% of the total children in the study. The Head Start Impact Study was a large scale attempt to evaluate the Head Start national program that serves many low-income children. In the 2012-2013 academic year, 1,130,000 children were served by Head Start for at least some time during the year. Head Start serves mostly 3 and 4 year olds from low-income families.[3] The Head Start Impact study included 4,667 newly entering 3 and 4 year olds. There were modest gains over the course of the year in cognitive and socio-emotional development; however, findings generally did not persist beyond the Head Start year. This study highlights real world challenges of large scale implementation of early care and education. Compared to the smaller Abecedarian and Perry Preschool projects, the quality was less consistently high. In the Head Start Impact Study, 70% of children were in high quality programs; 60% with curriculum that emphasized language and math, and 60% of children had teachers with an associate's degree or bachelor's degree.[16]

Full-time child care, longer-term child care, low teacher ratios, high quality and specific curriculum emphasizing math and literacy, and higher teacher education all support school readiness and long-term academic success.

The sum of evidence from these and other studies on formal early care education indicate that earlier child care (ages 0-2) has more short- and long-term impacts on cognitive development and school performance. Furthermore, full-time child care, longer-term child care, low teacher ratios, high quality and specific curriculum emphasizing math and literacy, and higher teacher education all support school readiness and long-term academic success.[1-3]

Quality of Care in North Carolina

Child care quality has been rated using a star system in North Carolina since 1999. All licensed child care centers receive a star rating from 1-5, based on program standards and education standards. The program standards are rated using an observation scale [either the Early Childhood Environment Rating Scale (ECERS), the Infant/Toddler Environment Rating Scale (ITERS), or the Family Child Care Environment Rating Scale (FCCERS)]. These rating scales include observations of sufficient space, variety of play materials, clean and comfortable play area, interactions between adults and children, interactions between children, and interactions of children with activities and material. The education standards component of the star rating includes education and experience of lead administrators and the level of education and experience of classroom teachers.[17]

Since moving to a more rigorous system in 2005, most licensed facilities have improved in quality and are now licensed as 4 or 5 star centers or family child care homes (see Table 4.1). However children living in urban or economically advantaged (Tier 3) counties are more commonly enrolled in 4 or 5 star child

care programs than if they live in rural or economically distressed (Tier 1) counties (see Table 4.2).

Table 4.1
North Carolina Child Care Program Star Ratings[18]

	Center-Based (Number, %)	Home-Based (Number, %)
1 Star	85 (2%)	390 (16%)
2 Stars	37 (1%)	282 (11%)
3 Stars	946 (20%)	748 (30%)
4 Stars	1,153 (24%)	716 (29%)
5 Stars	1,929 (41%)	326 (13%)
Other[b]	570 (12%)	12 (< 1%)
Total	4,720	2,474

Table 4.2
North Carolina 4 or 5 Star Child Care Programs* Enrollment by Rural and Tier Classifications

	Rural	Urban	
Percent of children in child care who are enrolled in 4 or 5 star child care programs	59.6%	66.5%	
	Tier 1	**Tier 2**	**Tier 3**
Percent of children in child care who are enrolled in 4 or 5 star child care programs	59.1%	58.5%	70.0%

*Child care programs includes licensed child care centers and family child care homes.[c]

Children living in urban or economically advantaged counties are more commonly enrolled in 4 or 5 star child care programs than if they live in rural or economically distressed counties.

Subsidies

Child care subsidies are administered through a local agency, often a department of social services. The subsidies are from a combination of state and federal funds and are administered based on a legislatively determined allocation formula. If a local agency has more eligible applicants than funds allow, the local agency can establish priorities for allocation of funding. Parents are allowed to use the child care subsidies to support their needs for child care in any arrangement that is most appropriate for their family, so long as the child care service provider accepts subsidies. Regulated care must be of 3, 4, or 5 star quality to receive child care subsidies. Child care subsidies are only available to families that meet situational and income criteria. Families must meet one or more of the following: parents working, looking for work, or in a job training program; children receiving child protective services or child welfare services; or children having an identified developmental need.[19]

b Other ratings include those which have probationary, provisional, religious, special, and temporary permits.

c Pat Hansen, MPH. Project Manager, Shape NC, The North Carolina Partnership for Children, Inc. Written (email) communication. January 18, 2013.

Currently, 71,573 children in North Carolina receive child care subsidies.[20] However, available subsidies do not adequately meet the need. As of July 2012, there were 34,252 children on the waiting list.[20] Child care subsidies offer an opportunity for children who may be at risk for low school readiness to participate in high quality center-based care. Some counties have chosen to incentivize quality by offering higher subsidy rates to higher rated centers. One drawback to this approach is that it inevitably means there will be fewer subsidized child care slots without commensurate increases in resources. However, given the research on early childhood brain development and school readiness, the Task Force concluded that incentivizing quality was critical to maximizing impact on school readiness.

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Workforce Development

A professional workforce is critical to the delivery of high quality child care. Credentials and ongoing training have been strongly associated with teacher quality and academic success in child care and early education. Training takes place in university and community college settings across the state. The quality star rating system incentivizes centers to encourage teachers to get ongoing education. However, less than half of child care teachers in North Carolina have a two or four year degree and many make minimum wage.[21] With low salaries and benefits, it is hard for an individual teacher to justify ongoing education and investment in early childhood education as a profession. Studies conducted outside of North Carolina have demonstrated that teacher education is, on average, lower in rural areas than urban areas.[22,23] The Child Care Services Association runs two important programs to support workforce development of teachers in the state: T.E.A.C.H Early Childhood Project – North Carolina and the Child Care WAGE$® Project – North Carolina. The Teacher Education and Compensation Helps (T.E.A.C.H) program provides a partial scholarship to child care teachers for college coursework in early education and provides a cash bonus upon completion. In return, the teacher commits to continued work in the field of early childhood education for 6-12 months, depending on the scholarship. In 2011-2012, 3,831 teachers received T.E.A.C.H scholarships.[24] WAGE$® supports ongoing education and decreases teacher turnover by providing a salary supplement to teachers based on ongoing education, center quality, and partnership with the local Smart Start. As a teacher advances his or her education, WAGE$® salary supplements increase.[25] Local Smart Start agencies are critical partners in these child care workforce development efforts.

Parenting Supports

Children spend more time at home with their parents or caregivers than in any other setting. The relationships children have with their parents or caregivers have a profound impact on cognitive, linguistic, emotional, social, and moral intelligence. Supporting parents in their caregiver roles may have an important impact on school readiness. Three decades of research on parent support programs illustrates some common themes. Most parenting support programs target low-income families, provide social support, and educate

parents about child development.[26] North Carolina has invested in evidence-based home visitation programs, particularly in the last decade. A combination of state appropriation, philanthropic support, and federal grants as well as local leadership and support has facilitated the increased delivery of the Nurse-Family Partnership (NFP) and of Parents as Teachers (PAT). NFP has been shown to lead to higher language scores, higher IQ, and a higher grade point average in math and reading at age 9.[27,28] PAT has led to improved school readiness through increased parent reading and more enrollment in preschool.[29] Child FIRST, a new program under development in North Carolina, and Healthy Families America, a program with limited reach in North Carolina, have shown similar school readiness outcomes.[30,31]

The NFP is, in some ways, an exemplary program to support parents through intensive home visiting. This program has been studied in three randomized control trials with first time, low-income mothers. Mothers are enrolled during the third trimester of pregnancy and a nurse visits the mother and family through the child's 2nd birthday. NFP has demonstrated success in reducing child maltreatment, delaying second pregnancies, improving child and maternal health, decreasing juvenile delinquency, and increasing economic self-sufficiency.[32] In 2005, North Carolina had one NFP site in Guilford County. With a combination of state, federal, and private philanthropic support, North Carolina now has 14 NFP programs serving families in 24 counties.[d] NFP cannot serve all families in need; it is limited to first time mothers that are either adolescent or low-income. It is expensive to run an NFP program, which limits the number of communities that can be served at this time. Additionally, running NFP programs in rural communities has special challenges due mostly to the geographic distance between families served.[33] The three main trials that established the evidence base for NFP were conducted in urban communities. NFP has been widely replicated in rural and urban communities, but rigorous evaluation and cost effectiveness studies have not been done in rural communities.

With a combination of state, federal, and private philanthropic support, North Carolina now has 14 NFP programs serving families in 24 counties.

A recent systematic review by the Administration for Children and Families demonstrated positive results on child development and school readiness from a variety of home visiting programs. All of the following programs have high or moderate levels of evidence for overall impact on children and families: Child FIRST, Early Head Start Home Visiting, Early Start, Family Check-Up, Healthy Families America, Parents as Teachers, Home Instruction for Parents of Preschool Youngsters, Nurse-Family Partnership, and Play and Learning Strategies Infant. Of these evidence-based programs, North Carolina has invested heavily in NFP and PAT. In addition, North Carolina has invested more modestly in HealthyFamilies America and may begin to invest in Child FIRST. The systematic review evaluated effectiveness along eight domains of child and family well-being.

d Catherine Joyner, MSW, Child Maltreatment Prevention Leadership Team, Women's and Children's Health Section - Division of Public Health, North Carolina Department of Health and Human Services. Email communication. June 27, 2014

Of these four evidence-based programs, it should be noted that PAT has demonstrated positive results in two domains, Child FIRST in four domains, NFP in seven domains, and Healthy Families America in eight domains.[34] Studies of these programs and experience with replication are generally more limited in rural communities.

Triple P (Positive Parenting Program) is an evidence-based population approach to promoting young children's social-emotional development. Though school readiness has not been studied as a direct outcome of Triple P, the program has been shown to increase protective factors, improve parental confidence, and increase the use of positive parenting practices.[35] The demonstrated impact of Triple P on children's social-emotional well-being can be thought of as indirect evidence for the impact on school readiness. Triple P is a multi-level system of interventions. Level 1 is a broad-based parenting information campaign. Levels 2 and 3 involve training public health, social service, and medical providers with specific skills to provide brief interventions to caregivers with specific mild behavioral concerns. Level 4 provides intensive parenting skills training. Level 5 provides intensive family behavioral interventions. North Carolina has invested significant resources from local communities, private philanthropic organizations, Maternal and Child Health block grants, Race to the Top – Early Learning Challenge, and other resources. Triple P has expanded rapidly in North Carolina, with some communities partially implementing Triple P, and other communities implementing all five levels.[36]

Local Communities

Ultimately, local rural communities should partner with state agencies to implement evidence-based programs that will best meet the needs of their community. Local community members are experts in the culture and custom of early child care, education, and parenting supports in their community. However, in some cases, they will need resources, technical assistance, and training to implement the strongest programs at the local level.

Recommendation 2: Ensure that all childhood settings (ages 0-8), including child care, home, and other environments, provide a high quality and nurturing environment, and promote parenting supports that improve school readiness and long-term educational success.

a) The North Carolina Division of Child Development and Early Education should re-evaluate its star rating system to identify high quality child care facilities based on updated evidence and best practices. The rating system should specifically include criteria that consider the program's focus on learning that supports children's

social and emotional development, executive function, language skills, and health.

b) The North Carolina General Assembly should enhance child care subsidies to facilities that receive the highest star ratings by the North Carolina Division of Child Development and Early Education. Given the rural/urban disparity in both the quality and quantity of regulated child care, the Division should consider adjustments to its funding formula to incentivize quality care in rural counties.

c) The North Carolina Division of Public Health should seek additional funding from multiple sources, including North Carolina and national foundations to support more evidence-based parenting programs in rural communities such as Nurse-Family Partnership, Child FIRST, and Triple P to enhance school readiness and improve long-term educational success.

d) The North Carolina Division of Child Development and Early Education, in partnership with community stakeholders including child care resource and referral agencies, community colleges, Smart Start partnerships, and child care providers should continue to work toward adequate wages and/or wage support, benefits (especially health insurance), education and training, and career advancement opportunities to continue to grow a high quality and well-trained early care and education work force.

e) Local Smart Start partnerships, in conjunction with the North Carolina Partnership for Children, the North Carolina Division of Child Development and Early Education, child care resource and referral agencies, the North Carolina Department of Public Instruction, local education agencies, and local businesses should choose from and implement a range of evidence-based and best practices strategies for improving school readiness and long-term educational success. These agencies should involve parent coalitions in the selection and implementation of strategies in local communities.

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