Alliance *for* Early Success

Advancing State Policies for Young Children

Child TRENDS

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The Research Base for a Birth through Age Eight State Policy Framework

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The Research Base for a Birth through Age Eight State Policy Framework

OVERVIEW

Early experiences in childhood lay the foundation for later success. The relationships, environments, and supports that children experience have a profound impact on their development because critical neurological and biological systems grow most rapidly in these earliest years. Throughout early childhood, from birth through age eight, children need early, consistent, high-quality supports to promote and sustain their developmental gains.

State policies can help build a strong foundation that puts young children, particularly vulnerable[i] young children, on a path to success. The Alliance for Early Success developed the Birth Through Age Eight State Policy Framework as a tool, or roadmap, that can inform decision-making and guide policy choices. It focuses attention on what is critical within and across different aspects of early childhood development to address the physical, social, and cognitive needs of young children within various contexts. The framework is the collective work of more than 150 experts, including leaders in the fields of early childhood and K-12 education, advocates, researchers, policymakers, and foundation officers. Building on decades of research and theory identifying the essential supports for children's development, the framework emphasizes *health, family support, and learning as critical policy areas, and standards, assessment practices, and accountability systems as critical foundations to implement the policies.*

[i] "Vulnerable" is defined as having one or more of the following risk factors, which increase the likelihood of poor health, learning, and economic outcomes: poverty, low parental education, single or teenage parent, homelessness, and/or high residential mobility.

This report, The Research Base for a Birth through Age Eight State Policy Framework,[ii] *and the accompanying Research at a Glance: The Research Base for a Birth through Age Eight State Policy Framework are compendia to the framework that emphasizes three important messages:*

1. There is an evidence base for the policy areas and policy foundations identified in the Birth through Age Eight State Policy Framework;
2. The years starting at birth and continuing through age eight are a critical time for achieving good health, strong families, and better learning outcomes in early childhood and later in life; and
3. The supports and experiences that children receive have a cumulative effect—each experience influences the next and sustains previous growth and development.

What follows is the evidence base for the framework, providing the research for the factors that contribute to and sustain the healthy growth and development of young children. This report is organized into two sections, one presents the health, family support, and learning policies areas. The other presents the standards, screening and assessment practices and accountability system policy foundations. An overview of each policy area and foundation is followed by a list of relevant policy choices and the research base for each.

POLICY AREAS:

HEALTH, FAMILY SUPPORT, AND LEARNING

The Birth through Age Eight State Policy Framework is informed by developmental science theory and research, which asserts that "development" is a dynamic, interactive process that is not predetermined, but occurs in the context of relationships, experiences and environments. Children interact with their world in *dynamic* and *active* ways, thereby actively shaping their own development with their unique characteristics, interests and needs. Children's developmental trajectories are created over time through these transactions with their world. Patterns of interacting with the world are built on the experiences children have, and each experience influences the next. The period of birth through age eight is a critical period for this dynamic interplay between individual growth and the contexts of development—which can include the internal, biological context of the child as well as the home, school, and community contexts; the cultural context; and even the local, state or national policy context. Supporting

[ii] See also *Research at a Glance: The Research Base for a Birth through Age Eight State Policy Framework*, which is an abbreviated version of *The Research Base for a Birth through Age Eight State Policy Framework*. Available here: http://earlysuccess.org/sites/default/files/website_files/files/ChT-Alliance%20R%20at%20a%20Glance%20v9%20wactive%20links.pdf

children's growth and well-being within and across these important contexts during early childhood can ultimately lead to good health, strong families, and better learning outcomes that predict long-term health, high school graduation, and sustained success over time.[1] Developmental research indicates that targeted policies in *health, family support*, and *learning* during the critical years spanning birth through age eight can make a difference in children's life trajectories.

HEALTH

The first eight years of life are characterized by a series of critical periods during which development is particularly sensitive to experiences that are largely influenced by children's health and well-being. The development that occurs within these sensitive periods is often hardwired, and becomes the foundation for all subsequent development. In this way, health in the first eight years of life has significant cumulative and sustained effects on child and adult outcomes.[2] For example, poor health in utero may lead to poor birth outcomes[3] that further increase risk for poor health in early childhood. Young children who experience toxic stress as a result of significant adversity are, in turn, at higher risk for serious conditions in adulthood such as obesity and cardiovascular disease[4]—many of which have negative economic and societal consequences.

Poor health early in life compromises subsequent development. Prolonged and elevated stress from adverse experiences early in life such as violence or abuse causes changes in neural circuitry and chemical composition in the brain, which make children less resilient over time.[5] This reduced adaptability undercuts the developmental benefits of positive experiences and puts children at risk for physical and mental illness later in life.[6]

However, as developmental science asserts, development is not predetermined or necessarily linear, but occurs through a dynamic interplay between the individual and the environments and relationships in which each child engages. Health risks experienced early in life do not necessarily lead to poor health in adulthood, unless there are consistent and cumulative experiences that contribute to such a trajectory.[7] For example, Latino infants of Mexican heritage experience positive birth outcomes such as robust birthweight and low infant mortality rates despite many of these children coming from disadvantaged backgrounds (e.g., low maternal education, low household income). Nevertheless, one study found that Latino children have lower cognitive growth in early childhood compared to their white peers, even after controlling for socioeconomic differences between the groups.[8] Thus, early protective factors related to health do

not necessarily predict improved outcomes across developmental domains or for all children, nor do early health risks always predict poor outcomes across domains or for all children.

However, early health and economic risks can constrain the subsequent experiences children have. Children with poor nutrition and chronic illness are more likely to miss school, and therefore miss out on important social and academic opportunities.[9] This is especially true for uninsured children, who are less likely to receive preventive care, needed services, and screenings that allow for the early identification and effective management of health concerns.[10] Uninsured children living in poverty disproportionately suffer from lack of access to health care, particularly because poor children are less likely to be in excellent physical and oral health.[11] Moreover, low-income children stand to benefit the most from high-quality developmental opportunities available to them[12]—opportunities that are made possible largely by keeping children healthy and minimizing health risks as much as possible.

Policies that promote the health of all children—and particularly of vulnerable children—will enable these critical opportunities for development to be maximized and ensure that a strong foundation is set for all future development across the lifespan.

Health Policy Choices

- **Timely and ongoing prenatal, pediatric, and oral health care;**[13]
- **Access to affordable health insurance for children and families;**[14]
- **Partnerships to coordinate the identification and delivery of health care services with early learning programs;**[15]
- **Community-based programs targeting sources of toxic stress such as violence, crime, substance abuse, and mental illness, combined with supports for parents and caregivers who need them;**[16] **and**
- **Maximize participation of families, providers, schools and communities in federal nutrition and assistance programs.**[17]

The Research Base for Health Policy Choices

Timely and ongoing prenatal, pediatric, and oral health care

The U.S. ranks poorly among industrialized nations worldwide in both infant[18] and child mortality[19]—the former defined as the number of deaths within a full year of birth per 1,000 live births, and the latter as the number of deaths among children under

5 per 1,000 live births. Both infant and child mortality are predictors of child well-being within a nation, which is further regarded as an indicator of societal prosperity and development.

Prenatal care is a primary strategy for promoting the delivery of a healthy baby, and assuring that children have the greatest chance at having a healthy start in life. Common goals of prenatal care are to target the causes of low birth weight, minimize and preempt complications during pregnancy, and address predictors of Sudden Infant Death Syndrome (SIDS)—all of which are leading causes of infant mortality and morbidity in the U.S.—through a combination of psychosocial and behavioral, nutritional, and medical interventions.[20] Psychosocial and behavioral interventions have primarily focused on reducing maternal smoking, a leading cause of low birth weight and risk factor for SIDS. Evidence suggests that prenatal care can decrease maternal smoking in some demographic groups (e.g., black women living in urban areas) and may have the most positive effects on birth outcomes when provided early in pregnancy (rather than later).[21] Initiating prenatal care early can also reduce the likelihood of SIDS.[22] Nutritional interventions and counseling, such as folate supplementation during pregnancy, have also been found to reduce the incidence of low birth weight and decrease the risk of other poor pregnancy outcomes, such as neural tube defects.[23] The benefits of proper prenatal nutrition can extend into childhood and adulthood. For example, nutritional deficits in utero have been linked to serious cardiovascular disease in adulthood.[24] In addition, advancements in medical technology have facilitated improvements in monitoring fetal and maternal health and development and have dramatically improved the ability to detect risk factors such as hypertension, high blood pressure and excess weight gain.[25] Consistent and timely prenatal care allows these tools to be effective in identifying concerns and intervening early to preempt potential complications, such as gestational diabetes and eclampsia.

After birth, timely and ongoing pediatric physical and dental care is essential to maintaining and ensuring good health throughout the first eight years of life. This is especially true for children from low-income families, who are less likely to be in excellent or very good health compared to children from higher income families.[26] Regular pediatric care is important for assessing and monitoring children's health status over time, staying up-to-date on immunizations, and identifying and addressing any threats to development as early as possible.[27] Children with a usual source of pediatric care are less likely to have unmet health needs[28] and more likely to receive preventive services, such as immunizations.[29] Referrals are another important component of regular pediatric care, and are particularly integral to accessing dental services.[30] Dental caries—or, tooth decay—is the most common chronic childhood disease,[31] affecting 11 percent

of 1- to 5-year-olds and over 25 percent of 6- to 11-year-olds annually.[32] It is also one of the greatest unmet needs of children under eight, with low-income children having disproportionately higher rates of untreated tooth decay.[33] Untreated dental problems can lead to secondary physical illness, delay overall development, compromise school attendance and performance, and interfere with psycho-social functioning.[34] Many childhood dental diseases, along with their negative consequences, can be prevented by providing early and comprehensive dental services to children;[35] pediatricians are uniquely situated to facilitate access to needed dental care.

Access to affordable health insurance for children and families

Continuous and adequate health insurance coverage is critical to ensuring access to prenatal care and other preventive and routine services that minimize health risks. Women with health insurance are more likely to receive timely prenatal care than their uninsured or under-insured counterparts.[36] Insurance also helps children gain access to preventive and needed services. In early childhood, insurance coverage ensures access to well-child visits and immunizations, and is associated with decreases in the number of emergency room visits.[37] Continuous insurance coverage is associated with a greater likelihood of having a usual source of care, which in turn assures greater continuity of care, greater access to routine, preventive, and needed services, and fewer delays in needed care. Furthermore, children are less likely to have unmet health care needs when continuously and adequately insured, and families are more likely to report higher quality and satisfaction with care.[38] This is particularly important because illness in the early years disrupts participation in early learning programs that offer opportunities for social and cognitive development, and can cause employed parents to miss days at work.[39] In addition, persistent health disruptions, such as chronic respiratory illness, early in life have been linked to serious diseases in adulthood, such as lung disease.[40]

Partnerships to coordinate the identification and delivery of health care services with early learning programs

Coordinating the identification and delivery of health care services with early learning programs is a viable way to ensure timely and adequate receipt of comprehensive care for both insured and uninsured children. Head Start is an example of an effective national model for increasing low-income children's access to services by delivering educational and health supports and services under one roof to comprehensively address the myriad factors affecting children's well-being. Statewide initiatives such

as Michigan's Great Start Collaborative, North Carolina's Smart Start, or South Carolina's First Steps also support individual communities in increasing the coordination of health-related services and family supports through early learning programs.

School-based health centers (SBHCs) adopt a similar approach and coordinate care in early childhood and primary education settings. As with Head Start, these systems have been found effective in reducing nonfinancial barriers to health care.[41] Whereas Head Start focuses on low-income children, the benefits of school-based models can span across socio-economic strata. Evidence suggests that, irrespective of insurance coverage or status, children (ages 3-14 years) with access to a SBHC more easily receive immunizations, physical examinations, and treatment for illnesses and injuries. They are less likely to use the emergency department, and more likely to have visited a physician and a dentist within the year. Families whose children utilize a SBHC tend to report higher levels of satisfaction with care compared to families using community or hospital clinics.[42] Delivering health care services, such as vaccinations, in an educational setting can also have a profound effect on the student body as a whole. For example, children attending schools where vaccines were administered on-site reported far fewer flu-related symptoms compared to children at schools without a vaccination program.[43] With respect to mental health services, school-based interventions have been found effective in addressing a wide variety of emotional and behavioral issues, although few target specific clinical disorders.[44] Including mental health services in the continuum of care provided in education settings can mitigate comorbidities (i.e., the simultaneous presence of to diseases or conditions such as Oppositional Defiant Disorder (ODD) and depression)[45] and other negative effects on learning.[46]

- **Community-based programs targeting sources of toxic stress such as violence, crime, substance abuse, and mental illness, combined with supports for parents and caregivers who need them**

Toxic stress can have profound and lasting effects on health and development, with consequences that can extend well into adulthood. It results from repeated or prolonged exposure to trauma—such as violence, abuse, or untreated parental mental illness—that triggers an exaggerated stress response.[47] Given the brain and body's sensitivity to experience during the first eight years of life, changes at the chemical level due to adverse experiences can result in potentially permanent alterations in brain architecture and function.[48] These deep biologic changes can manifest behaviorally as maladaptive coping styles that disrupt learning, limit the capacity for resilience over time, and increase risk of adult mental illness. In addition, persistent elevated stress responses can compromise immune function, which further increases risk for an array of poor

health outcomes later in life, including cardiovascular disease, chronic respiratory conditions, and even autoimmune disorders.[49] A community approach to addressing toxic stress that supports children's families is particularly important because caregivers can significantly buffer children's exposure and reaction to toxic stress.[50] Moreover, toxic stress—by definition—results from exposure to adversity in the absence of quality relationships with caregivers. In its official position statement, the American Academy of Pediatrics explicitly identifies caregivers and communities as integral components of any successful framework for policies and programs targeting toxic stress that affects young children.[51]

Maximize participation of families, providers, schools and communities in federal nutrition and assistance programs

Food insecurity presents another threat to children's health and well-being that can be effectively averted through evidence-based public programming. The short-, intermediary-, and long-term effects of inconsistent and/or inadequate access to nutritious food in childhood are well-documented; they include delays in development and stunted growth, physical impairments due to nutritional deficiencies, behavioral and psycho-social problems along with disruptions in learning, and lower academic performance in primary school.[52] A number of public programs, such as the Child and Adult Care Food Program (CACFP); Supplemental Nutrition Assistance Program (SNAP); Women, Infants and Children Program (WIC); and the National School Lunch Program (NSLP), already exist that can effectively increase children and families' access to nutritious and sufficient food.[53] Across the 15 nutrition assistance programs comprising the food safety net, federal dietary guidelines inform state programming that local programs implement to meet children's nutritional needs during critical times of physical and cognitive development. Together, they target the causes of child health threats such as food insecurity, childhood obesity, and poor bone health across a variety of settings.[54] For example, CACFP provides adequate and nutritious meals and snacks annually to over three million low-income children—most of whom are under age 6—in early child care settings.[55] Nevertheless, complicated or unclear eligibility criteria, lack of awareness, and social stigma[56] leave a sizable portion of U.S. families at risk for food insecurity every year. These families could be more effectively targeted for programming through improvements in marketing and the recruitment and application processes.[57] Special consideration of the broad range of cultural and attitudinal factors that are known to impact participation in public nutrition programs could particularly help in targeting eligible families with historically lower rates of service utilization.[58]

FAMILY SUPPORT

Families play the most important role in a young child's life. Even before a child is born, families set the stage for their development, which begins with adequate prenatal care and a healthy pregnancy.[59] Families also work to ensure that their young children receive adequate food, shelter, and medical attention[60] and that children live in safe and stimulating environments in which they can explore and learn.[61] As children develop their skills and abilities through their relationships with those around them,[62] the opportunity to form secure attachments with sensitive, nurturing parents (or other primary caregivers) is critical to both their cognitive and social-emotional growth.[63] A lack of a warm, positive relationship with parents/caregivers increases the risk that children develop major behavioral and emotional problems, including substance abuse, antisocial behavior, and juvenile delinquency.[64]

Factors such as poverty, low education and family stress can compromise parent-child relationship quality by limiting opportunities for stimulating and responsive interactions, provision of emotional support, and exposure to activities that can enrich children's health, knowledge and skills.[65] Family support programs and services are designed to help families meet their needs and overcome stressors that can impair effective parenting. While the specific goals of family support programs may vary, they typically include increasing family engagement;[66] parents' knowledge of child development;[67] improving parenting skills;[68] providing work supports;[69] helping families access health and nutrition services, job training, or treatment for substance abuse;[70] and reducing parental stress.[71] These goals are met through a variety of different activities such as parent education classes and support groups, parent-child groups and family activities, drop-in time, child care, information and referral services, crisis intervention and/or family counseling, and auxiliary support services (such as emergency food).[72] Such programs should be sensitive to the cultural and ethnic diversity of the target populations they serve. For example, families of Mexican-heritage and Asian-heritage background have different strengths and challenges than families from European-American backgrounds.[73] Overall, by helping families achieve self-sufficiency and function more effectively, support programs enable families to provide a nurturing environment that will foster the healthy development and school readiness of young children.[74]

Family Support Policy Choices

- **Voluntary, evidence-based,[iii] home visiting programs for new and expectant families at risk for poor child outcomes;**[75]
- **Parent education and parent-child interaction programs that are linguistically and culturally appropriate and support development and nurturing of infants and toddlers;**
- **Access to child care assistance for eligible families with provisions for quality and continuity of care;**[76]
- **Effective outreach and enrollment in programs that promote family economic stability and parent participation in higher education;**[77]
- **Prevention programs and services for children at risk of abuse and neglect and their families;**
- **Family engagement policies starting with defining family engagement, establishing benchmarks of success for targeted populations, and monitoring progress;**[78] **and**
- **Access to health care and education programs for children cared for by grandparents and other relative caregivers.**

The Research Base for Family Support Policy Choices

- **Voluntary, evidence-based, home visiting programs for new and expectant families at risk for poor child outcomes**

Home visiting is a longstanding intervention strategy offering parenting information, guidance, risk assessment, and support at home for expectant and new parents. Home visits are used to deliver a variety of services; however, most are aimed at improving parents' capacity and skills and children's health and developmental outcomes.[79] Home visiting models vary not only in purpose but also in structure, intensity, and effectiveness. Home visitors may be professionals (such as nurses or social workers) or trained community workers. The duration and frequency of services can also vary considerably.[80] Many programs begin during pregnancy or soon after the birth of a child, while others do not begin interventions until some identified risk or significant event triggers action (such as suspected child abuse, developmental delay, or special health needs). Some efforts are intended to promote school readiness[81] and are more likely to serve preschool age children (rather than infants and toddlers).

[iii] Evidence-based programs or practices are approaches to prevention or treatment that are validated by some form of documented scientific evidence (e.g., are reported with positive effects in scientific journals). Programs and practices may also be deemed evidence-based if they are based on a clear and logical theory of change or conceptual model, have documentation of effective implementation, and experts in the field agree that the nature of the evidence in support of the practice or program is consistent. See http://captus.samhsa.gov/prevention-practice/defining-evidence-based/samhsa-criteria for more information.

Recent comprehensive reviews have been conducted on home visiting evaluation findings to identify patterns of outcomes and features of effective models. In general, this research indicates that the characteristics of effective programs include: interventions designed appropriately to fit family needs, home visitor qualifications that align with program design, ongoing staff training and supervision, cultural competency, family-centered approaches, and appropriate intensity and duration through frequent home visits.[82] Ongoing quality improvement has also been recognized as essential by each of the major home visiting models.[83] When programs are carefully implemented, participation in home visiting has been linked to improved parenting practices (such as increased sensitivity and reduced detachment), increases in maternal education, and the creation of more stable and nurturing environments for children.[84] Outcomes documented for children include increases in cognitive and social-emotional competence and school readiness.[85]

In 2010, the Obama administration appropriated $1.5 billion over five years for a state-based maternal, infant and early childhood home visitation grant program to be administered through the U.S. Department of Health and Human Services (HHS) as a new section of the Title V Maternal and Child Health (MCH) block grant program. The Maternal, Infant and Early Childhood Home Visiting Program is intended to build in every state a coordinated system of early childhood home visiting with the capacity to provide the needed infrastructure and supports to ensure a high-quality, evidence-based practice.[86] At least 75 percent of federal funds used must go to programs using national evidence-based models approved by HHS.[iv] Selecting an evidence-based model offers several important advantages for state home visiting programs, including a track record of effectiveness, accredited service quality, adherence to data-driven standards and often the provision of technical assistance available from a national office.[87] Although these features improve the likelihood that state-administered programs will deliver quality services, selecting an evidence-based model alone is not a guarantee of effectiveness. When considering home visiting models, it is also important to prioritize strategies that ensure fidelity of implementation.

[iv] In February 2011, the U.S. Department of Health and Human Services (HHS) published the minimum research criteria—evaluations using a high-quality, rigorous design—to qualify a model as evidence based and eligible for new federal dollars. HHS identified seven models that meet those criteria: Early Head Start-Home Visiting, Family Check-Up, Healthy Families America, Healthy Steps, Home Instruction for Parents of Preschool Youngsters, Nurse-Family Partnership and Parents as Teachers.

- **Parent education and parent-child interaction programs that are linguistically and culturally appropriate and support development and nurturing of infants and toddlers**

The goal of parent education programs is to strengthen parents' and other caregivers' knowledge about how their actions affect child development and give them skills to support their child's health and school readiness. As the first three years of a child's life are marked by rapid growth and development, programs that help parents provide home environments for infants and toddlers that are rich in social, emotional, and cognitive support are particularly important. Parent education programs include a broad range of initiatives to support parents, especially those who are most socio-economically vulnerable, in their role as their child's first teachers. Examples include home visiting services, like those offered through the Parents as Teachers program; parenting classes; family literacy promotion classes; brochures and books in pediatric offices; and federally funded interventions, such as Early Head Start and Healthy Steps for Young Children. Healthy Steps for Young Children is a package of services including well-child visits, home visits, telephone support for developmental or behavioral concerns, family health check-ups, parent groups, and written materials for parents.

Research examining the effects of the Early Head Start and Healthy Steps programs has found positive impacts on parenting outcomes.[88] For instance, in a 2002 evaluation of Early Head Start, participating parents were observed to be more emotionally supportive and scored significantly higher on a measure of the support for language and learning in the home environment than other parents. Early Head Start parents were also less likely than other parents to engage in negative parenting behaviors and reported a greater repertoire of discipline strategies, including milder and fewer punitive strategies, as a result of participating in the program.[89] A study examining the effects of the Healthy Steps program found that mothers participating in the program were more likely to interact sensitively and appropriately with their children than mothers in the comparison group.[90]

Home visitors in the Parents as Teachers (PAT) program teach principles of child development, model appropriate activities, and facilitate access to social and supportive services for parents with young children (from the prenatal period through age three). PAT staff also schedule parent group meetings to provide additional input from the staff or outside speakers, to allow parents to share successes and common concerns about their children's behavior, and to help parents build support networks. Many programs offer drop-in and play times to provide families with the opportunity to use the PAT center's facilities with their children, visit with other parents, and talk informally with the parent educator. A 2008 study of the program found that PAT participation improved

children's school readiness through better parenting practices; more reading to children at home; and a greater likelihood of enrolling the child in Early Head Start, Head Start, or public or private preschool programs.[91]

The Nurse-Family Partnership (NFP) is a widely recognized home visiting program that has demonstrated a strong and consistent evidence base for its efficacy among first-time, low-income mothers and their children. In the NFP program, trained nurses provide home visits, parent education, and as-needed referrals to community resources until the child's second birthday. Several evaluation studies demonstrate that participation in NFP results in positive outcomes for mothers during pregnancy (e.g., improved nutrition, use of food assistance programs, reduction in the number of cigarettes smoked) and improvements in the home environment (e.g., reduction of observable hazards, increase of positive parenting skills such as positive behavior management and language stimulation, and an increase in the number of stimulating toys).[92] Participating mothers also reported fewer subsequent pregnancies and a longer time between pregnancies.[93]

- **Access to child care assistance for eligible families with provisions for quality and continuity of care**

For families with low incomes or who are living in poverty, child care assistance is a vital support that facilitates engagement in the workforce as well as access to early care and education arrangements that can promote positive development. The Child Care and Development Fund (CCDF) is the largest source of child care subsidies for families, serving 1.7 million children per month in 2010.[94] CCDF subsidies can be used in settings that include child care centers, family child care homes, and the child's own home. The block grant structure of the CCDF allows for flexibility in subsidy policies at the state level. State policies can vary significantly in the investment of state dollars in the CCDF program, income eligibility limits, provider reimbursement rates, parental copayment rates, application and recertification requirements, policies regarding wait lists, and licensing/quality regulations for providers serving subsidized children.[95] These policies have implications for both families and programs, they determine which families can apply for and receive subsidies and which programs can serve children using subsidies.

Research examining the length of participation in the child care subsidy program in different states generally concludes that spells[v] of subsidized child care tend to be short. One study found that the median spell length ranged from three to seven months across five states.[96] A study in Wisconsin estimated the average child care subsidy

[v] Research on child care subsidies refers to participation periods as "spells" because many children cycle on and off the subsidy.

spell length to be six months, though the sample included only Temporary Assistance for Needy Families (TANF) recipients.[97] A more recent analysis of Minnesota's Child Care Assistance Program (CCAP) found that (during the 18 month-period studied) the typical child received CCAP for eight months without a break, and that arrangements were reasonably persistent while receiving CCAP. Some children had quite short spells of CCAP participation, with 25 percent of spells ending by the fourth month; however, the longest 25 percent of spells exceeded 16 months.[98] Participation in CCAP for a year or more is likely to help support stable employment for parents and consistent care-giving arrangements for children. This continuity of care is important in supporting the development of trust and security in relationships with caregivers,[99] and numerous studies find a relationship between child care stability, attachment, and child outcomes. For example, research demonstrates relationships between child care stability and social competence,[100] behavioral outcomes,[101] cognitive outcomes,[102] language development,[103] school adjustment,[104] and overall child well-being.[105]

Research studies have also examined whether receipt of a child care subsidy allowed families to purchase higher-quality child care for their children than they could otherwise afford by comparing the quality of care subsidy recipients and non-recipients used in a subsidy-eligible sample. Findings from one study show that families with subsidies selected higher-quality care on average than comparable families without subsidies. Subsidy recipients were also more likely to select center-based care than non-recipients.[106]

Research evidence supports the federal Office of Child Care's new goals to promote the implementation of policies that can serve both workforce and child development goals as well as strategies to support families' selection of high-quality care and continuity of care. Specifically:

- Regarding workforce goals, research indicates that parents receiving subsidies are more likely to maintain employment for longer periods than comparable parents not receiving subsidies.[107] Subsidies also are linked to a reduction of child care-related work disruptions and higher earnings;[108]
- Regarding quality, a number of states have tiered reimbursement rates that pay higher subsidy rates for higher levels of quality. In addition, a study of multiple states found that the use of center-based care is increased when subsidy programs pay at market value, use efficient subsidy payment processes and reduce bureaucratic hassles for families;[109] and
- Regarding continuity of care, research indicates that the duration of subsidy receipt is longer when the redetermination period—the time between requests to verify family income and employments status—is longer (for example, 12 months instead of six months).[110] Likewise, higher provider reimbursement rates and lower family co-payments have been associated with longer subsidy spells.

Effective outreach and enrollment in programs that promote family economic stability

Even when families are eligible for critical family support services such as child care subsidies, financial assistance (TANF), Supplemental Nutrition Assistance Program (SNAP), and Medicaid/State Child Health Insurance Program (SCHIP), many families do not receive them. When families do receive benefits, participation in the program may be limited by factors beyond those related to eligibility. Research documents barriers to initial receipt and retention of services that range from stigma around receipt of government assistance to administrative hurdles such as paperwork and redetermination policies.[111]

Strategies to support *enrollment* include policies to facilitate initial application for services or benefits.[112] These strategies may address the mode of application; the availability of options to apply in person, online, or by phone; and the availability of support to complete the application. A recent research review indicates that these strategies are generally effective, though some findings indicate mixed success with enrollment. The findings for enrollment strategies aimed at requirements for proving program eligibility have even stronger effects on initial application. These strategies involve, for example, simplification of the application and the ability to use eligibility for one program as proof of eligibility for another.[113]

Strategies to facilitate *retention* address the requirements for renewal of benefits and the circumstances under which changes that may affect eligibility are reported.[114] Retention is improved when programs use strategies to reduce the burden of renewal by simplifying forms and follow up procedures and lengthening the time period between renewal dates.[115]

While reduction of enrollment barriers is an important goal, "client-friendly" strategies may not be applicable to all families. For example, if a parent needs assistance to complete an initial application for subsidies or financial assistance, an online form may be difficult to navigate.[116] Provisions for parents who have limited access to technology or who are not English-speakers will be required.

Prevention programs and services for children at risk of abuse and neglect and their families

Abuse and neglect have extremely negative consequences for children and for society. Maltreatment harms the physical, psychological, cognitive, and behavioral development of children. Its consequences include minor to severe physical injuries, brain damage,

chronic low self-esteem, problems with forming relationships, developmental delays, learning disorders, and aggressive behaviors.[117] Maltreated children are at increased risk of low academic achievement, drug use, teen pregnancy, juvenile delinquency, and adult criminality.[118]

In recent years, increased attention has been paid to the importance of well-being for children who have suffered from abuse or neglect. Child welfare agencies in the U.S. are charged with ensuring the safety, permanency, and well-being of the children and youth in their care, but it is unclear how successful states are at addressing the latter domain. Federal policy has directly addressed the need for heightened focus in this area through the enactment of laws such as the Fostering Connections to Success and Increasing Adoptions Act of 2008 (P.L. 110-351), which among its provisions included new requirements for states around maintaining sibling connections for children in foster care and ensuring their educational stability.

With the growing body of knowledge around brain science, the impact of trauma, the effects of protective and promotive factors, and the relationship between permanence and well-being, the need for a greater emphasis on well-being for these vulnerable children is strong.[119] In "*A Call to Action on Behalf of Maltreated Infants and Toddlers,*"[120] a consortium of experts argues that child protection should not focus solely on safety, but also on supporting children's healthy development to help them reach their potential as they grow. However, viewing child welfare through a "developmental lens" has been the exception rather than the rule.[121] A national survey of states' approaches to working with maltreated infants and toddlers found that few states are addressing the unique needs of this population through targeted policies, practices, or programs.[122] Some key tenets of supporting the well-being of infants and toddlers with a developmental approach include promoting stable attachments for young children, intervening early when problems are identified, training the workforce in early child development, strengthening community connections for families, and focusing administrative attention (such as in the area of data collection) on this youngest group.[123]

One policy that can help child welfare agencies accommodate the unique needs of families and children that come to their attention is implementing a differential response (DR) system. Sometimes called "alternative response," "dual-track," or "multiple response," DR provides child welfare agencies with multiple options in how they respond to families and children who may be experiencing maltreatment.[124] Rather than conducting a formal investigation and issuing an official "finding" of abuse or neglect for a report of maltreatment, DR permits agencies to use alternative approaches (such as family assessments) when appropriate. By assessing the needs and strengths of a family, DR can promote engagement of the family in needed services and create a less adversarial relationship between the family and the agency.[125]

In addition to developing approaches that focus on child wellbeing, since the 1970's, child abuse and neglect prevention advocates have designed and implemented interventions to improve parents' child-rearing knowledge and skills, create networks of formal and informal supports, and improve societal standards for children's well-being. These interventions have primarily consisted of 1) media-based public education and awareness campaigns; 2) home visitation services, particularly for new parents; and 3) parenting education and support groups. The Strengthening Families approach developed by the Center for the Study of Social Policy is one of the first prevention strategies designed to build the capacity of early care and education (ECE) programs to prevent child maltreatment. This approach recommends that early childhood interventions incorporate five protective factors against child abuse and neglect: increasing parental resilience, building social connections, increasing knowledge of parenting and child development, providing concrete support in times of need, and supporting the social and emotional competence of children.[126] Research on ECE programs that include these protective factors have found promising results. For instance, the Chicago Longitudinal Study examined the effects of participation in Title I Child-Parent Centers (CPCs), a set of ECE programs located in high-poverty areas, on substantiated reports of child maltreatment. After adjusting for preprogram maltreatment and background factors, preschool participants had a 52 percent lower rate of court petitions of maltreatment by age 17 than children in the comparison group. The authors report that family support services, including parental involvement in the classroom, vocational and educational training, and receiving home visits by a school representative, were one of the two factors that best explain why this reduction in child maltreatment occurred.[127] (The other factor was children's extended engagement in the Child-Parent Centers from preschool through second or third grade).

The Positive Parenting Program (Triple P) is another early childhood intervention program designed to support families through treatment for severe behavioral, emotional, and developmental problems in children birth to 16 years of age by enhancing the knowledge, skills, and confidence of parents. Triple P incorporates five levels of interventions on a tiered continuum of increasing intensity. A 2008 meta-analysis of the effectiveness of Triple-P interventions found that Level 4, recommended for instances in which a child has multiple behavior problems in a variety of settings and there are clear deficits in parenting skills, had moderate to large effects on behavior problems that last in follow-up measurements of 6 to 12 months.[128]

Home visiting programs are also used to reduce incidences of child abuse and neglect among vulnerable families with young children. The Home Visiting Evidence of Effectiveness (HomVEE), a review of research literature on the effectiveness of home

visiting models launched in fall 2009, found that several programs had positive impacts on the reduction of child maltreatment. These programs include Child FIRST, Healthy Families America, the Nurse-Family Partnership, and SafeCare Augmented.[129]

In addition to these approaches, research on the effectiveness of family preservation programs suggests that intensive models can significantly reduce out-of home placement.[130] Intensive family preservation models include features like immediate response to referrals (within 24 hours), worker accessibility 24 hours a day, 7 days a week, intensity (12-15 hours a week of services), brief services (90 days for placement prevention), and low caseloads (2 families per worker or 5 families per worker with paraprofessional assistance).[131]

- **Family engagement policies starting with defining family engagement, establishing benchmarks of success for targeted populations, and monitoring progress**

The construct of family engagement has evolved in recent years, moving from an emphasis on parent involvement and participation to a focus on building strong relationships between families and staff in early childhood settings, schools, or other community organizations and programs.[132] In a family engagement framework, relationships are goal-directed and focus on establishing shared responsibilities for children's learning and development across multiple settings.

For instance, the Head Start Parent, Family and Community Engagement (PFCE) Framework provides examples of shared goals set across multiple outcomes defined for parents and families.[133] For each outcome, sample strategies are provided across the framework's program foundations (program leadership, continuous program improvement, and professional development) and program impact areas (program environment, family partnerships, teaching and learning, and community partnerships). Examples of progress for parents and families are also identified. To understand the type of information in the framework, it is useful to walk through one example. Under the goal "Positive Parent-Child Relationships: Beginning with transitions to parenthood, parents and families develop warm relationships that nurture their child's learning and development," progress indicators include items like "learned new ways to ensure the health and safety of their developing child" and "gained knowledge about their children's social, emotional and cognitive development in the context of community." The strategies used by programs include "use self assessments and related surveys to better understand participants' parenting practices, and use this information to improve parenting education and parenting supports."[134] The framework is one resource that can be consulted in the development of specific outcomes for family engagement, strategies and indicators of progress that can monitored over time.

Family engagement during the preschool years can set the stage for engagement in school in the early grades and beyond. Interventions to meaningfully engage families in their child's early care and education and to build positive relationships between families and providers have been linked with improved family and child outcomes as well as outcomes for teachers and caregivers. For example, improvements in children's emotional well-being (e.g., improved attachment, reduced anxiety) have been associated with interventions or programs characterized by a stable, trustworthy family-caregiver relationship, positive communication between caregivers and parents, and validation and empathy for parents' experiences.[135] For parents, outcomes such as improved perceptions of the parent-child relationship and improved parenting skills and home environments have been documented in interventions that integrate services for parents into early care and education settings, and engage parents in children's learning. Teachers and caregivers also have reported improved relationships and connectedness with families linked to the receipt of professional development on family engagement and increased interactions with families.[136]

Access to health care and education programs for children cared for by grandparents and other relative caregivers

When parents are not able to take care of their children due to severe emotional, mental health, alcohol or drug problems, or when abuse or neglect has occurred, extended family often step in to provide support. The majority of children in the care of relatives (58 percent) live with a grandparent.[137] In 2010, 2.7 million grandparents were solely responsible for meeting the basic food, clothing, and shelter needs of their grandchildren under age 18.[138] Families in which children are being raised by grandparents are among the most vulnerable in the United States, and are over-represented by single-mother and low-income families who arrived at their status due to substance abuse, teen pregnancy, illness, and incarceration in the middle generation.[139] Almost one-third of children cared for by their grandparents live in poverty, but only 17 percent receive public assistance and only 18 percent receive food stamps.[140] Grandparents raise grandchildren under a variety of legal and custody arrangements, which may result in differing legal rights, eligibility for financial subsidies, and relationships with birth parents. As a result, grandparents often face difficulty accessing benefits for the children in their care.[141] For instance, more than one-third of children being raised by grandparents do not have health insurance; however, grandparents who are retired (or otherwise not employed) are unlikely to have access to an affordable group plan and may have to turn to a more expensive private plan if the grandchild cannot be insured through a parent. Grandparent caregivers who are employed often must have legal custody of the grandchild in order for him/her to be considered a dependent eligible for health benefits.[142]

Many child welfare agencies are adapting services to better serve relative caregivers involved with the child welfare system.[143] Relative caregivers are more likely to receive financial assistance services, food stamps, or Medicaid when they are involved with child welfare.[144] However, as the majority of grandchildren are being cared for by grandparents privately without the involvement of the child welfare system, these families may need to seek the support of other agencies. In some states, agencies administering child-only payments through TANF coordinate with the child welfare agency to provide added supports to relative caregivers.[145] The Older Americans Act (OAA) provides funds to local aging agencies for the National Family Caregiver Support Program (NFCSP), which includes services to grandparents and other relative caregivers over the age of 60. Many local organizations, such as churches and community centers, have recognized the need to support relative caregivers and provide support groups, respite care, and legal services.[146] Further research is needed to identify other promising programs designed to assist grandparents in accessing the services they need to support the grandchildren in their care.

LEARNING

Early childhood and elementary school educators have long seen the period of birth through age eight as a critical span of development for physical well-being and motor development, language and literacy development, cognitive development (including early math and science skills), social-emotional development, and motivational and regulatory skills associated with school readiness and later life success.[147] The years from infancy through early elementary school are ones in which *continuity* of practice and *integrated* support services are needed.[148] For example, this time period encompasses a shift from mastering the mechanics of language acquisition to mastering reading comprehension. Language acquisition in terms of both comprehension and production increases dramatically and rapidly in the first four years of life,[149] and third grade (which most children enter around age eight) is seen as a watershed for moving from "learning to read" to "reading to learn."[150] At the same time, early math skills are found to be a stronger predictor of later school achievement than early reading skills.[151] In addition, tremendous gains are made in physical and motor development as well as social-emotional development from early infancy through early elementary school.[152]

Research indicates that low-income children tend to lag behind their more affluent peers on a range of developmental outcomes, including skills at school entry.[153] The gap in skill development between advantaged and more disadvantaged children emerges as early as nine months of age[154] and is predictive of academic trajectories through later schooling.[155] Dual language learners and children with disabilities may also lag behind their peers on some developmental outcomes at school entry, although these disparities may be a result of inappropriate assessments or inadequate assessment procedures being applied to these special populations.[156] Still, without early and consistent intervention and support, these early disparities can persist. One-third of all U.S. fourth-graders and half of African-American and Hispanic fourth-graders nationwide are reading below basic levels.[157]

Children who have high-quality early care and education experiences tend to have better outcomes across developmental domains than similar children who do not have such experiences.[158] Conversely, children experiencing poor-quality early care and education on average display more behavior problems, fewer language skills, and lower levels of academic skills than children in medium- or high-quality care.[159] The benefits of high-quality early care and education are greater for vulnerable children,[160] and there is research evidence that suggests greater exposure to high-quality early care and education environments (either by starting at a younger age or receiving more hours of such care) can improve developmental outcomes for young children.[161] Furthermore, children who enter formal schooling with stronger school readiness skills tend to maintain their advantage over the elementary school years, while children who enter with lower school readiness skills tend to maintain their relative disadvantage over time.[162] These findings emphasize the importance of insuring that all vulnerable children reach school entry with the strongest school readiness skills possible and the simultaneous need for elementary schools to support children so that early learning successes are sustained.[163]

The early childhood care and education (ECCE) workforce and teachers in the early gradesviare at the core of providing quality early experiences for children birth through eight. Decades of research document the critical role of early childhood teachers

[vi] Throughout this paper, we refer to the early childhood care and education (ECCE) workforce as a group that is distinct from "teachers in the early grades" (kindergarten through grade three). The ECCE workforce encompasses individuals who are paid to provide care and education for children ages birth through age five including teachers in center-based child care programs, teachers in Head Start and Early Head Start, teachers in prekindergarten programs, early care and education program directors, and paid home-based providers including family child care providers. The decision to identify the ECCE workforce and teachers of kindergarten through third grade as distinct groups is based on the current hiring requirements and ongoing professional development requirements for each group. While hiring and professional development requirements for teachers of kindergarten through grade three are quite uniform nationally, parameters for the ECCE workforce vary greatly by state, setting, funding stream, and role (e.g., director versus teacher). Thus, it is problematic to discuss the current context and policy choices for early learning without distinguishing between the ECCE workforce and teachers in the early grades.

and caregivers in promoting the well-being of young children. The knowledge and skills of the workforce across all levels of an early childhood setting or school shape the quality of the curriculum and assessment practices that are used, the activities and materials in the environment, the daily routines, and the specific interactions and activities to promote the development of children's language, literacy, social skills and self-regulation.[164] Children who experience high-quality early care and education have stronger gains in their cognitive, academic, and social development.[165]

Yet, the work context for many early childhood teachers and caregivers does not provide adequate support for workforce quality. In particular, working conditions for community-based child care programs (including family child care) are often characterized by low compensation, limited benefits, and few opportunities or incentives to advance. Data from 2009 indicate that 61 percent of the ECCE workforce has annual earnings below the federal poverty guidelines, though teachers in prekindergarten and kindergarten have higher earnings.[166] Access to benefits such as health insurance, paid vacation and sick leave and retirement savings is limited, though conditions are better for teachers in prekindergarten and the early grades.[167] Nearly one-third of child care center-based staff leave their positions each year, and 18 percent leave the field altogether.[168] The expectations for teachers and caregivers to produce high-quality learning experiences for young children, particularly in the years before kindergarten, are not aligned currently with resources, compensation or access to professional development for the workforce.[169]

Teacher preparation and professional development involve experiences that support both the acquisition of knowledge and the application of knowledge to practice.[170] Professional development for teachers and caregivers working with children from birth through age eight is challenging to provide in an effective, integrated way. Currently the type, availability, and quality of preparation and professional development opportunities vary greatly depending on the sector and settings in which educators work. These variations reflect different entry requirements, regulatory structures, funding streams, and professional development service providers that are distinct for educators in schools, pre-kindergarten programs, community-based child care centers, Head Start, early intervention programs, licensed family child care homes, and before- and after-school care programs. For example, teacher training systems certify teachers for pre-kindergarten to third grade, or pre-kindergarten to fifth grade working in schools. These systems typically require a Bachelor's degree in education or early childhood education, and they require ongoing professional development. In contrast, licensing standards for programs typically include only minimal pre-service and ongoing requirements for staff in child

care settings. Additionally, the type, quality, and availability of professional development for teachers within a public school system differ from the professional development for other community-based early childhood educators.

Supporting learning for young children thus includes the provision of access to high-quality early care and education experiences for young children and simultaneously strengthening the infrastructure and content of preparation and professional development for the early childhood workforce. Policies should reflect these dual goals.

Learning Policy Choices

- **Access to high-quality care and learning programs for infants and toddlers with educational, health, and development components; high-quality child care; voluntary, full-day preschool for all low-income 3- and 4-year-olds; and full-day kindergarten;**[171]
- **Collaboration among community- and school-based early learning programs and services;**
- **Opportunities for learning outside of the school day, including summer;**[172]
- **Transition planning from early care, to preschool, to K-12 learning environments;**[173]
- **Access to effective pre-service education, training, and onsite support for applying knowledge to practice;**[174]
- **Training and coaching for teachers working with special populations including dual language learners and children with disabilities;**[175]
- **Coordinated professional development, including coaching and training that improves practice and provides effective learning opportunities for all children;**[176] **and**
- **Specialized certification areas that reflect the education continuum from birth through 3rd grade.**

The Research Base for Learning Policy Choices

- **Access to high-quality care and learning programs for infants and toddlers with educational, health, and development components; high-quality child care; voluntary, full-day preschool for all low-income 3- and 4-year-olds; and full-day kindergarten**

As noted earlier in this review, the quality of early care and education environments is a critical factor contributing to child outcomes.[177] Research suggests that exposure to high-quality early care and education can have positive developmental benefits

for young children, especially those who are low-income or otherwise disadvantaged. But for low-income children, access to high-quality care may not be available in their immediate communities, or may be physically accessible yet still out of reach financially.

Findings from research examining quality and dosage of care are nuanced. For example, researchers find that the associations between quality and child outcomes are stronger for domain-specific measures of quality (i.e., measures of quality that support development in specific developmental domains such as language or social-emotional development) as compared to global measures of quality.[178] Researchers have examined both *cumulative dosage* of early care and education over a number of years and *current dosage* of early care and education (e.g., number of hours in care, attendance). Some studies point to positive (mostly academic) outcomes for children attending more (current and cumulative) hours in care,[179] while others indicate that more exposure to center-based care may magnify social or behavioral problems.[180] What makes the research landscape complicated is that not all studies are simultaneously monitoring the dosage of early care and education and the level of exposure to *high-quality* care; and some studies are not always considering exposure to different *types* of care (e.g., center-based and home-based), or monitoring attendance separate from enrollment in a program.[181] It becomes necessary to specify exactly what type of care and the amount of care that the research indicates has effects on child outcomes. For example, findings indicate that children enrolled in Head Start for two years have better expressive vocabulary than children enrolled in Head Start for one year.[182] New research is examining whether there is a particular threshold of high-quality care that matters the most for child outcomes in early childhood.[183] As we await the results of this most recent research on thresholds of quality, state policymakers should consider monitoring the quality of the care that children receive while at the same time increasing access to (and duration of) comprehensive care services for children from birth through age eight in all types of settings, including school-aged care in after-school settings.[184]

High-quality, comprehensive early care and education for children starting in infancy and toddlerhood is important, because starting early to provide high-quality early care and education can boost the dosage of such care that children receive prior to school entry, and also can increase the likelihood of positive outcomes for children. Results of the national Early Head Start Research and Evaluation Project (EHSREP) indicate that Early Head Start has a statistically significant, modest, positive impact on child cognitive ability, maternal supportiveness, and the home environment and reductions in child

aggressive behavior. Furthermore, these positive impacts appear to persist; the effects are approximately the same size from age 3, the time Early Head Start services end, through age 5.[185]

Educare is another type of comprehensive early education program for high-risk children, birth to age five, and their parents. Educare uses public-private partnerships to create special spaces and comprehensive programming in low-income communities. Currently there are 20 operating Educare centers and three sites currently in development in communities across the U.S. A four-year study of Educare sites shows that low-income children, including children with limited English proficiency, who started in an Educare school as infants enter kindergarten with achievement levels close to their middle-income peers and much higher than would be expected of children living in poverty.[186] A randomized controlled study is currently underway to examine the impact of participation in Educare sites on child outcomes. Based on the currently available research evidence, state policymakers may consider efforts to increase access to high-quality, comprehensive early care and education for infants and toddlers.

By extension, state policymakers might also consider increasing access to care for slightly older children (i.e., children in preschools, pre-kindergarten, and kindergarten programs) and school-age children. Some policy options include increasing the duration of time children are exposed to such programs, for example, by extending part-day pre-kindergarten or kindergarten to full-day programs. Research at the local, state, and national level has found better academic outcomes, for both literacy and math, for children attending full-day versus half-day kindergarten programs.[187] Similar benefits have been noted for full-day versus half-day preschool.[188] However, initial benefits of attending a full-day kindergarten program have been found to disappear by third grade,[189] with some researchers finding that the benefits dissipate by first grade.[190] These findings underscore the need to continue investing in children during the early elementary school grades in order to sustain the benefits of investments made earlier in children's lives. Economic analyses suggest that investing in state-funded pre-kindergarten programs for low-income children will generate net gains for society in terms of enhanced earnings for individuals in adulthood and higher intergenerational earnings.[191] But public preschool programs can support such long-term outcomes only if these investments are reinforced with additional supports during the early elementary school grades and beyond. Early investments are not an inoculation against subsequent learning environments that lack adequate quality and dosage of supports for children's continued growth and development.

Collaboration among community- and school-based early learning programs and services

Collaborations across multiple early childhood programs and systems have garnered the attention of policymakers and researchers in recent years.[192] There are many benefits to collaboration, including the opportunity to leverage resources, share training, and provide better services to and for families. The federal government supports early education and care collaboration in a variety of ways. The authorizing legislation for many early education and care programs requires partnerships or collaboration. Additionally, federal agencies have undertaken a number of initiatives and offered federal grants to support collaborations. Federal agencies have also issued a number of regulations regarding collaboration.

Among the federal laws that require partnerships or collaboration are the Child Care Development Block Grant (CCDBG) authorizing legislation, Head Start legislation, the Individuals with Disabilities Education Improvement Act of 2004 (IDEA), as well as other federal laws. For example, the authorizing CCDBG legislation requires the state or territorial agency responsible for administering CCDBG services to coordinate child care services with other federal, state, or local child care and early childhood development programs (§§98.12(c); 98.14(a)(1)) as well as public health, employment services, public education, TANF and child welfare offices (§§98.12(a); 98.14(a)(1)).[193] The Head Start Act requires coordination between Head Start and the state child care agency, while the 2007 reauthorization required governors to designate state advisory councils on early childhood education and care.[194] IDEA requires state level coordination to ensure children with disabilities participating in child care have access to appropriate disability services.[195] Moreover, family preservation and support laws also promote coordination between child welfare systems and child care programs.[196]

States and local communities are also exploring collaboration among programs and services that are not necessarily federally supported or mandated. For example, states and local communities are forming collaborations between early intervention and child care, and between school districts and community-based providers offering pre-kindergarten or wrap-around care for elementary school-aged children. Another example is a model called Community Connections, which has been piloted in the state of Illinois. Community Connections is an extension of *Illinois Preschool for All* to help assure that preschool reaches unserved children and families who are regularly using home-based child care.[197] This mixed model approach incorporates classroom-based and home provider-based elements and visits of the teacher to the home-based care setting to share lesson plans and other resources. This model therefore represents a significant

departure from the common state pre-kindergarten models that are entirely classroom-based. An implementation evaluation of Community Connections indicated that the model was well-implemented in the pilot sites in Illinois. However, the evaluation also identified additional room for improvement. For example, individual schedules presented challenges and limited opportunities to connect parents, providers and teachers. In addition, further training or supports could be used to connect both families and home providers with community resources. Further evaluation of this and other program models that focus on collaboration across community and school-based early learning programs and services can determine whether the long-term goals of these models can be achieved at scale.[198]

Collectively, this information provides state policymakers with the knowledge that there are multiple ways to support collaborations among community-based and publicly-funded early learning programs and services. In addition to the options of blended funding of Head Start and pre-kindergarten, there are also innovative pilot programs being implemented and studied at the state level. These are all policy options that can be explored further by state administrators interested in reaching as many children as early as possible with high-quality, comprehensive early childhood services.

Opportunities for learning outside of the school day, including summer

Learning opportunities within the home environment and during the summer months contribute to children's long-term outcomes and remain important contexts for children's early learning and development outside of educational institutions.[199] Ecological systems theory[200] provides a helpful framework for highlighting the direct effect a child's home environment has on the various aspects of development. From parental employment to weekly family dinners, a wide variety of family characteristics can shape each child's home learning environment. For example, frequent family meals have been associated with positive behavioral outcomes for children ages 13 and younger.[201] Children ages 2 to 8 who spend more time visiting outside environments with their families (such as the zoo or a museum) tend to score higher on cognitive tests than their peers who spend less time this way.[202] In particular, the home literacy environment (including both books and literacy activities) can be an important factor in children's acquiring new knowledge and skills.[203] In addition, research finds that elementary school-age children who participate in structured after-school programs have better academic and motivational outcomes than their peers who participate in other forms of out-of-school-time care such as parent care, sibling care, informal adult supervision, or self care.[204] However, the quality and features of after-school programs can affect

social and behavioral outcomes for young children, especially boys. For example, one study found program flexibility associated with first-grade boys having better social skills, and positivity among after-school staff was associated with fewer externalizing and internalizing problems among boys.[205] Based on this collective evidence, state policymakers may consider efforts to increase public awareness about the importance of engaging children in stimulating and varied learning activities in the home and community outside of the school day. Such efforts could range from public service announcements, to parent education classes, to community-wide programs aimed at enriching the home and after-school environments for children from low-income families.

The summer months provide families with a concentrated period of time and varied opportunities for engaging in "extracurricular" activities that can increase children's knowledge and skills. Yet summer is a time when many young children, especially vulnerable young children, tend to lose ground.[206] On average, students end their summer breaks academically behind where they ended school in the spring. Students from disadvantaged families are less likely to access educational resources than their more advantaged peers during the summer months.[207] One study found that during a child's elementary school years, summer learning loss was attributed to half the achievement gap between low-income and high-income students.[208] Another study in 2003 found that the cumulative effects of summer reading loss on struggling readers entering middle school may result in students lagging two years behind their peers' ability to read.[209] Consequently, state policymakers may wish to consider supporting summer enrichment programs for young, disadvantaged children. Ideally, such programs would include experiential learning opportunities that could involve the entire family and not rely exclusively on the traditional educational model of "frontal teaching"[vii] associated with some summer school programs.

Transition planning from early care, to preschool, to K-12 learning environments

Moving from an early care and education program to school is a major transition for young children that can be even more challenging because of potential disconnects between the two systems. Kindergarten classrooms may differ significantly from the learning environments children encounter earlier. Even within schools, transitions can be challenging from grade to grade. Kindergarten classroom routines and expectations, for instance, may not fully resemble what children will encounter in the later elementary

[vii] "Frontal teaching" is a term used to describe instructional activities that take place from the front of the classroom, usually lead by a teacher; individual children in this environment are typically passive recipients of information, are encouraged to respond as a group, or need to wait long stretches for a turn to participate. This type of instruction is in contrast to student-centered instruction, hands-on learning, cooperative learning, or experiential learning.

school years. Children may have difficulty adjusting to different rules, routines and expectations from birth through age eight, and beyond. Providing support to children, including peer support, as they transition from early care and education into kindergarten classrooms and then into the later grades is shown to have positive effects on later social competence.[210] Positive social outcomes in children may be bolstered by aligning parental expectations for the transition to school and school policies aiming to meet the diverse needs of all families.[211]

A review of research focusing on children's transition to kindergarten highlights promising practices for schools. These include developing partnerships between children, parents and teachers; setting the stage for the parents' role within their child's education; and promoting teacher professional development.[212] One study examining the effects of a Head Start-to-Public School Transition project showed positive outcomes in multiple categories of social competence.[213]

Research indicates that making explicit connections between developmental contexts, especially during critical transition points (such as increasing the connections across the home and school environments when a child is moving to a new school setting) can help smooth out these developmental transitions and guard against stressful and detrimental outcomes for young children.[214] Such "bridging" activities between developmental contexts are key to supporting and sustaining the acquisition of new skills and abilities. Implementing transitional policies and practices for children, such as increased parental involvement during the child's move to a new school environment, is particularly important for low-income families. A study examining the effects of poverty on parent involvement with children's transition to kindergarten found that the negative effects of poverty in the home environment were mediated through school-based parent involvement.[215] Taken together, this evidence suggests that state policymakers may want to focus attention on a multi-pronged approach to easing young children's transitions across learning environments—an approach that involves intentionally and proactively engaging both parents and educators individually and collectively in planning for and moving through these important transitions.

Access to effective pre-service education, training and on-site support for applying knowledge to practice

Pre-service preparation, hiring/licensing requirements and requirements for ongoing professional development vary significantly across the sectors and settings in which educators work. Qualifications of the current ECCE workforce and teachers in the early grades reflect these differences. For example, recent data indicate that nearly half of

teachers in child care centers and licensed family child care settings have attained only a high school diploma as their highest level of educational attainment.[216] Program directors and preschool teachers (making up 30 percent of the ECCE workforce) are more likely than other teachers working with children ages birth through five to have attained a bachelor's degree, though under half have reached this level of education. A majority of the ECCE workforce seeking to engage in professional development is already working full-time and is diverse in language and culture.[217] In contrast, over 50 percent of teachers working with children in kindergarten and the early grades have attained education beyond a Bachelor's degree, and nearly 100 percent participate in professional development activities each year.[218]

Consideration of approaches to promote effective pre-service preparation begins with an acknowledgement that licensing regulations and/or hiring requirements for the ECCE workforce and for teachers in the early grades are key drivers of workforce qualifications. Improving pre-service preparation for the ECCE workforce includes efforts to strengthen the requirements for licensing and/or hiring by designating required levels of educational attainment and/or attainment of national or state certificates with specialization in early childhood development and pedagogy. In kindergarten and the early grades, teacher preparation can be strengthened by supplementing content learned in teacher preparatory courses with ongoing, on-site support for putting knowledge into practice through practica and supervised student teaching. Teachers in the early grades may benefit particularly from additional on-site support for math and science instruction, or for addressing the needs of dual language learners. Yet, research indicates that student teacher placements for early childhood teachers are uncommon, and many early childhood educators do not have access to a coach or consultant.[219] Analysis of faculty qualifications and curricula in existing preparation programs also indicate minimal attention to children of diverse races, cultures, languages and abilities.[220] Preparation programs can be strengthened by addressing these concerns.

- **Training and coaching for teachers working with special populations including dual language learners and children with disabilities**

Professional development opportunities for early childhood educators must be tailored to fit the demographic characteristics of the children who are served. For example, early childhood educators should be trained to be familiar with the developmental stages of language acquisition for children learning a second language. Specifically, they should be aware that there are different patterns of language development for

those learning two languages simultaneously (i.e., before the age of three) as opposed to sequentially (i.e., after the age of three).[221] Specifically, it is typical for young children simultaneously learning two or more languages to develop language skills in a particular language more slowly; this phenomenon should not be misunderstood as a developmental delay. Researchers argue that all children, regardless of background characteristics, benefit from high-quality early care and education experiences, but children from diverse backgrounds could need, in addition, some specialized supports in early childhood settings to maximize their ability to benefit from these experiences.[222] In addition, children with disabilities may need accommodations in the physical setting or in the method by which they demonstrate their abilities in an assessment situation.[223] Yet studies of existing pre-service and other professional development opportunities indicate that issues related to poverty, diversity, children who are dual language learners, and children with special needs are not adequately addressed.[224]

Both the content of professional development and the qualifications of the faculty or trainers need to be considered. Faculty in early childhood preparatory programs may not match the diversity of the students taking the coursework or of the children that will be served, and many have not had recent experiences in the field that would provide grounding in effective practices for working with diverse children.[225] State policymakers should consider investments in faculty, preparatory programs and ongoing professional development that can support educators with appropriate specialized education and training. Professional standards should be updated to ensure that they reflect best practices in teaching diverse populations, including children from different racial/ethnic backgrounds, dual language learners and children with special needs. Some promising strategies include, but are not limited to:

- Ensuring components of diversity in both coursework and field experiences (or practica)—although there is no research consensus on whether this content needs to be infused throughout pre-service training or is sufficient to be included in targeted coursework or practica;[226]
- Including within an early care and education program's goals/mission the explicit support of diversity;[227]
- Implementing a multicultural program or curriculum in classrooms, especially those that include a focus on anti-bias, intergroup relationships, and specific accommodations for children from ethnic-minority backgrounds, linguistic backgrounds, and different ability levels.[228] These strategies have been demonstrated to affect outcomes such as children's cognition, behavior, and academic achievement;[229] and
- Using research-based curricula and instructional practices that support first and second language and literacy development, incorporate elements of children's diverse cultures and languages into the curricula, implement activities that view children's emergent bilingualism as an asset rather than as a deficit, and build on children's prior knowledge.[230]

Coordinated professional development, including coaching and training that improves practice and provides effective learning opportunities for all children

Professional development goals and strategies at the state level can be guided by an extensive research base. Recent reviews of the empirical literature on teacher preparation and professional development including a meta-analysis of the research on training have identified characteristics of effective professional development.[231] The evidence indicates that effective professional development is specific in goals and content. *Clear objectives for learning* with specific curriculum aimed at those objectives are more effective in training than content that is more open or flexible. The content for professional development should be aligned with standards for educators and early learning guidelines for children. Effective teacher preparation and professional development also have *direct links to practice and interactions with children*. The results of numerous studies show larger improvements in practices with children when professional development pairs delivery of relevant research-based content with individualized supports such as coaching to apply new knowledge and skills in work with children.[232] Effective professional development also aligns the intensity and duration with the content. Evidence suggests that content with multiple components (for example, knowledge and practices to support children's early literacy) cannot be conveyed or applied in one-time workshops or even multiple sessions of short duration. However, single session workshops may be effective for a single pedagogical strategy or specific skill (for example, a training on first aid and cardio pulmonary resuscitation - CPR) or for raising awareness about an issue (for example, a workshop to promote awareness of the state early learning guidelines). Finally, effective professional development must have a *strong foundation in child development* and promoting the specific skills needed to observe, assess, and develop plans to support children's individualized learning.

Research indicates that outcomes for young children can be improved by providing coordinated professional development opportunities for teachers and caregivers that link knowledge of child development and pedagogy with individualized supports for better teaching through coaching and consultation.[233] Research on effective coaching and consultation in early care and education and primary school settings identifies core features that are linked to positive effects on teaching practices and children's outcomes. For example, effective coaching typically follows a specific approach or model with clearly articulated goals. Implementation of the coaching is supported by training, supervision and fidelity checks in the field to ensure that the model is being implemented as intended. Effective coaching usually is linked to other professional

development strategies such as training, coursework or professional learning communities that ensure delivery of relevant content with an opportunity to reflect on and apply new knowledge. Research is not clear about the dosage of coaching that is most effective in supporting change in practice, though there is general consensus that the intensity and duration of coaching should be matched with the goals of coaching. Changes in multiple teacher practices will need more support than changes targeting single skills or practices.

Promoting access to effective professional development is a challenge, given the structure of existing opportunities (with specific opportunities within early childhood sectors such as Head Start and pre-kindergarten programs that are not available widely) and the characteristics of the workforce.[234] Discrepancies across different professional development opportunities in their accessibility, quality, alignment with professional standards and relevance for individual needs are an important backdrop for efforts by state policymakers to design or refine professional development for the program directors, teachers, and caregivers working with children ages birth through eight. For example, a pre-kindergarten teacher working in a public school may have access to regular in-service training provided by a highly qualified trainer while a family child care provider working in a rural area may encounter limited training offerings within 50 miles of her home and addressing a content area that matches her needs for particular knowledge and skills. Accommodations and incentives may be necessary to promote participation.[235] A number of promising strategies for improving access have been identified including the provision of scholarships (Teacher Education and Compensation Helps; T.E.A.C.H.™) that support access to degree-granting institutions and wage incentive and retention programs that aim to provide additional resources to educators who seek additional education and training on the job.[236] Distance learning opportunities that offer remote access to training or education are increasing to provide options for educators who have difficulty attending face-to-face training or coursework. Cohort models, which provide a peer group and other supports for students, are also a promising approach to encouraging participation and completion of coursework by non-traditional students (e.g., those who are working full-time or are dual language learners). [237]

A challenge in designing and implementing accessible, effective professional development policies and programs that is ensuring that the needs of a diverse workforce, working in a variety of settings serving children ages birth through eight, are being met. Planning for professional development should include a comprehensive assessment of the workforce that identifies key characteristics and needs as well as a scan of available opportunities in communities and institutions of higher education that can highlight gaps and duplication of services in the state and opportunities to improve access.

- **Specialized certification areas that reflect the education continuum, birth through grade three**

Research on the qualifications of teachers and caregivers working with young children demonstrates associations between high-quality environments for young children and qualifications that are specific to early childhood (for example, a degree in an early care and education or an early childhood-related field).[238] Yet there is a range of different certification options for teachers and caregivers and distinct requirements for coursework, training and/or demonstration of skills/direct practices with children. Innovations are needed to develop more effective strategies for ensuring that early care and education educators have gained the required skills and that they can apply them to their daily work. There are limited strategies for identifying whether or not a teacher has achieved proficiency on a given skill.[239] State policymakers can work with professional development stakeholders including institutions of higher education to design strategies for certification that include rigorous processes for ensuring proficiency on skills across the education continuum. Some states have developed certification processes to encourage specialization in care for infants and toddlers, children with special needs or school-age care. These certification strategies should be evaluated to determine their effectiveness in promoting higher quality environments across age groups and across sectors.

POLICY FOUNDATIONS:

STANDARDS, SCREENING AND ASSESSMENT, AND ACCOUNTABILITY SYSTEMS

Implementation science asserts that positive outcomes for young children and families can be achieved when programs and services are provided by a skilled workforce working within well-designed programs under strong leadership that will ensure adequate support and resources for the program, and that will collect and use data for continuous program improvement.[240] Policy choices must be based on evidence and undergirded by standards, assessment practices, and accountability practices in order to monitor and evaluate the effectiveness of programs and services and to sustain good outcomes. These foundational elements cut across the areas of health, family support, and learning and serve as the underlying base for effective policy implementation.

STANDARDS

Standards for both programs and children are important for a birth through eight state policy framework. Program standards establish quality and practice expectations for the field, and early learning and development standards for children establish expectations that guide children's developmental progress. Many states have developed a statewide quality rating and improvement system to define, measure, monitor, and promote high-quality early learning in homes, centers, or school-based settings.[241] Quality standards vary across states but usually include measures of professional development or the qualifications of teachers and caregivers, the quality of the learning environment, and family engagement efforts. Core knowledge and competency standards support effective job performance for early childhood and early elementary teachers and caregivers who work with young children.[242] Learning standards or guidelines articulate what children should know and do at all stages of development.[243] In early childhood, these standards and guidelines typically address cognitive skills (language, reading, math, science) and foundational skills (social skills, behavioral control, motivation, problem solving) because both are essential for success in school and in life. In the early elementary years, standards address content areas such as mathematics, language arts, health education, science, social studies, and physical education. The alignment of program, professional, and learning standards between early childhood and K-12 systems is critical for maintaining continuity in the level of quality of children's experiences from birth through age eight and supporting children as they transition to new settings.[244]

Standards Policy Choices

- **Developmentally, linguistically, and culturally appropriate early learning standards that reflect the major domains of development (social-emotional, physical, cognitive, and language) and foundational skill areas (literacy, math, science, social studies, and the arts);**
- **Alignment of early learning standards and K-12 standards across the major domains of development and foundational skill areas;**
- **Core competencies for professionals tied to standards and desired outcomes;**
- **Implementation of standards through teacher preparation, training, curricula and assessment, with review of results for vulnerable children;**
- **Quality Rating and Improvement Systems (QRIS) that are financed to advance programs to higher quality ratings and improved child outcomes; and**
- **Development and use of program quality and practice standards for family support providers.**

The Research Base for Standards Policy Choices

- **Developmentally, linguistically, and culturally appropriate early learning standards that reflect the major domains of development**

State early learning standards articulate what children should know and do at all stages of development. Early learning standards address major domains of development (social-emotional, physical, cognitive, and language) and foundational skill areas (literacy, math, science, social studies, and the arts) because both are essential for children to be successful in school and in life. Developmentally appropriate standards are designed to meet children where they are at each stage of their development. Culturally and linguistically appropriate standards honor the values, traditions, and languages of children from all backgrounds. States have only recently developed learning standards for children from birth to age five who participate in early care and education settings. Yet, for decades, states have developed, refined, and expanded learning standards for children in the K-12 education system. In 2010, 45 states adopted the Common Core State Standards in literacy and mathematics and are working to incorporate these standards into their existing grade level expectations.[245]

In 2002, through the Bush Administration's Good Start Grow Smart initiative, states worked to develop voluntary early literacy and math standards for children between the ages of three and five and to align them with their K-12 standards.[246] The 2007 Head Start Reauthorization Act required governor appointed states advisory councils to, "make recommendations for improvements in state early learning standards and,

where appropriate, develop high-quality comprehensive early learning standards."[247] As of 2013, all 49 of the funded state and territory councils focused on revising or expanding existing early learning standards, developing new early learning standards for infants and toddlers, or working to align existing standards to the Common Core State Standards or the existing state K-12 education standards.[248]

Though states have worked in recent years to develop, refine, and expand early learning standards, the adoption and use of these standards is voluntary for most early care and education programs, and as such, have not been widely adopted. It is important for state policymakers to articulate why the use of learning standards are fundamental to the success of children's growth and development and that professionals have the skills and competencies needed to foster these skills and abilities. Early learning standards articulate the set of expectations for what children should know and be able to do at each stage of their development so that they can be ready for their transition into kindergarten. Articulating these expectations helps to make clear the skills early care and education professionals need to support children from birth through school entry.

Alignment of early learning standards and K-12 standards across the major domains of development and foundational skill areas

Alignment between early care and education and the K-12 system can improve student achievement; reduce the need for costly special education services; and produce a more educated, skilled, and competitive workforce.[249] Coordination between these two systems includes alignment across the foundational skill areas such as math and literacy as well as the major domains of development, such as social emotional development, cognitive, and physical development. Though many state early childhood advisory councils have reported engaging in efforts to align their current early learning standards to the K-12 Common Core State Standards or their state's K-12 education standards, these efforts have largely focused on alignment in the areas of math and literacy, due in part to the Common Core emphasis on these areas of learning in the early grades.

Core competencies for professionals tied to standards and desired outcomes

Professional standards or core competencies define the goals of professional development activities as well as the desired outcomes for teachers and caregivers.[250] Multiple recommendations for voluntary standards/competencies exist currently at the state and national levels that are distinct by sector or sponsor and may not always reflect the most current research.[251] A challenge for state policymakers is developing a set of integrated standards that are aligned across the settings and schools in which

teachers and caregivers work and ensure that there are no gaps in skill sets or in practices that are relevant for particular subgroups of children including dual language learners, children with special needs, and infants and toddlers. Strengthening the qualifications of directors, principals, teachers, and caregivers working with young children will require an alignment of core competencies across sectors with professional development opportunities. For example, state policymakers can consider embedding the competencies within the QRIS (if available) to ensure that the professional development received by educators is directly linked to the competencies deemed most important for children and aligned with requirements for teachers working with children in the early grades.[252] Skills and qualifications can also be embedded in regulatory structures such as licensing that determine the entry requirements for jobs in certain early childhood settings.

Implementation of standards through teacher preparation, training, curricula and assessment, with review of results for vulnerable children

The best designed early learning standards will have minimal impact on children's success unless they are incorporated into the early childhood professional development system and program curriculum and assessment practices.[253] An effective way to promote the use of state early learning standards is to provide early care and education professionals with access to training and coursework that incorporates the standards. State policymakers can support effective implementation by embedding early learning standards in the syllabi of early care and education courses, curricula, and trainings that are offered to early childhood professionals. Further, state policymakers can support onsite coaching, mentoring, and promote the use of appropriate curricula, teaching, and assessment strategies that align with the state's early learning standards.[254] States can also align early learning standards with a core knowledge and competency framework and with a QRIS.[255] Such alignment can help define a pathway for early childhood professionals to obtain (and gain recognition for) the foundational knowledge and skills they may need to provide optimal support for children's learning.[256]

Quality Rating and Improvement Systems (QRIS) that are financed to advance programs to higher quality ratings and improved child outcomes

A QRIS is a framework of activities to promote high-quality early care and education that will support children's learning and development. In a QRIS, early care and education and (in some states) school-age care quality is defined, measured, and rated. The results of the ratings are disseminated (usually via a website) to support informed decision-making among parents and to provide information to programs that can help

them improve their quality over time, typically with the support of technical assistance and financial incentives. QRIS currently are operating or under development in the majority of states and territories.[257] Participation is voluntary, though some states require provider participation in the QRIS for receipt of public funds such as child care subsidies. QRIS development typically includes six broad activities: selection and refinement of program quality standards and indicators; development of a process to rate program quality; provision of quality improvement supports, such as coaching; provision of financial incentives to recognize and reward quality and to support parental access to quality; marketing and dissemination of rating information to parents and the public; and data tracking and evaluation. While QRIS may have these basic components, there are still significant differences across states in how these basic components are implemented.

Investment in research on QRIS has increased in recent years, and a number of national and state-level reports have been produced that offer emerging evidence about the effectiveness of QRIS practices.[258] Regarding implementation, the evidence indicates that enrollment is facilitated when the QRIS uses targeted outreach and individualized strategies that vary by program type. Nevertheless, participation rates vary greatly across QRIS (from under 10 percent of eligible programs to over 70 percent of eligible programs).[259] More information about the conditions under which programs are willing to enroll and invest organizational resources in QRIS participation will be useful for further refining recruitment strategies and tailoring the supports that are provided. State policymakers can focus recruitment efforts in particular on programs that serve children with the highest needs.

Research has also documented changes in program quality associated with participation in a QRIS.[260] Currently, quality improvement strategies vary greatly across states.[261] Research on the on-site technical assistance provided to QRIS programs (which may include coaching, consultation or other professional development strategies depending on the state) indicates that there are opportunities to strengthen existing quality improvement strategies by including a greater focus on teacher/caregiver practices that are most likely to support children's positive development. These efforts may begin first by designing or revising the quality standards to incorporate more practices directly related to children's learning (for example, practices related to curriculum, progress monitoring, and individualized learning supports in domain specific areas such as language and literacy, mathematics, and social-emotional development) across a ll levels of the QRIS (not placing them only at the higher levels where they will reach fewer programs).[262]

A growing number of states have invested in validation studies that examine the degree to which the QRIS standards and rating process are producing levels of quality that are distinct (for example, a program rated with four stars is truly different in quality than a program rated with two stars) and related to children's developmental progress. Validation studies produce information that states can use to review their quality standards and engage in redesign or refinement efforts as needed.[263] For example, states can examine whether the QRIS ratings are varying in the way that they expect. If all programs receive the highest or the lowest rating level, for instance, it will be beneficial to examine the scoring criteria in more detail and to refine the process as needed. Moving beyond questions about the mechanics of the QRIS ratings, states can also examine how measures of observational quality or assessments of children's development vary across the QRIS rating levels. Studies demonstrate some capacity of the QRIS to differentiate observed quality, though distinctions between levels are not as large as expected.[264] Similarly, findings on linkages between quality levels and children's development are not as strong as expected. Therefore, state policymakers can continue to work with researchers and evaluators to develop strategies for refining QRIS rating processes and the tools used to assign QRIS ratings with a focus on strengthening the linkages between quality promotion and improvement activities and children's development.

Development and use of program quality and practice standards for family support providers

Family support services assist children and families who are at risk or in crisis and are designed to increase the strength and stability of families and caregivers so that they can in turn promote the health and well-being of the children in their care.[265] Family support providers aim to strengthen families and support parents in their role as their child's first teacher. Developing program quality and practice standards can help to define common expectations and understanding of practice among family support providers. For example, standards can articulate specific provider practices related to family centeredness, diversity, community building, and can serve as a programmatic tool for planning and implementing continuous program evaluation and improvement practices.[266] State policymakers can promote the development and use of program standards for family support providers, which can help to define minimum quality requirements and support continuity in the experiences of children and families who benefit from these services.

SCREENING AND ASSESSMENT

Screening provides essential information about whether a child appears to be progressing as expected. Screenings may also be effective when conducted by pediatricians during well-child visits that use protocols to detect maternal depression, which can have severe and negative effects on children's development. The results of a screening indicate whether a more in-depth diagnostic assessment is needed to identify if a child needs specific intervention services.[267] When screenings indicate that further action is needed, follow up typically includes the coordination of different groups including families, early educators, and medical or early intervention specialists.[268]

Assessments measure children's progress towards meeting specified standards and benchmarks of child development.[269] Assessments that are well designed are age appropriate in content and methodology, tailored for a specific purpose, and reliable, valid, and fair.[270] Effective assessment systems benefit young children by informing adults and educators about individual children's strengths and areas of growth, particularly as they transition from early care and education settings to elementary school.

Screening and Assessment Policy Choices

- **Screenings and assessments for hearing, vision, metabolic disorders, and developmental delays with appropriate follow-up;**
- **Timely, appropriate behavioral and mental health identification and intervention including the needs of children who come to the attention of the child welfare system;**
- **Timely and appropriate screening, referral, and enrollment in early childhood development and prevention programs;**
- **Child assessment tools that are formative, as well as developmentally, culturally, and linguistically appropriate;**
- **Statewide kindergarten entry assessment to assess readiness and inform initial instruction; and**
- **Aligned early learning, kindergarten entry, and K-3 assessments.**

The Research Base for Screening and Assessment Policy Choices

- **Screenings and assessments for hearing, vision, metabolic disorders, and developmental delays with appropriate follow-up**

Screenings for hearing and vision impairments, metabolic disorders, and development delays are an aspect of adequate and ongoing pediatric health care that can have significant effects on children's developmental outcomes. Screening tests have been found effective in detecting hearing impairments in newborns for which treatment prior to 6 months of age can significantly improve language and communication outcomes for high-risk infants.[271] Similarly, the most common cause of preventable vision impairment can be easily and effectively identified through current screening measures, enabling early treatment and reducing the likelihood of permanent vision problems and vision loss.[272] Identifying risk factors for developmental delay is equally as important, as children with even mild impairments in language, cognition, and learning tend to have poorer health and academic outcomes in the absence of early and effective intervention.[273] Professional communities across disciplines strongly endorse early intervention based on evidence that it can improve cognitive and academic outcomes, as well as have positive effects on employment later in life. In contrast, outcomes are not as positive when treatment is delayed, reaffirming the importance of early identification and intervention.[274] States looking for guidance on best practice might refer to the Division of Early Childhood of the Council for Exceptional Children (DEC). The DEC has outlined 240 recommended best practices that are organized into seven strands such as: (1) assessment; (2) child-focused interventions; (3) family-based practices; (4) interdisciplinary models; (5) technology applications; (6) personnel preparation policies, procedures; and (7) systems change.[275]

When developmental concerns are identified early, intervention services can provide effective therapies and can assist with coordinating other services that may be needed, such as social work services, transportation, family training, counseling, and home visits.[276] Coordination between the medical community and early care and education professionals is also critical for supporting the developmental outcomes of children.[277] However, even when developmental concerns are identified early, there is often a long delay before a referral; there may be no follow-up at all; or children may not participate in intervention services long enough to benefit.[278] State policymakers can promote the importance and use of screenings by ensuring policies support and streamline the reimbursement process for conducting these tests. Further, policymakers can support efforts to ensure vulnerable children and families have access to a medical home[viii] that conducts developmental screenings and early intervention services provided by the Individuals with Disabilities Act (IDEA).

[viii] A medical home is a team based health care delivery model that provides comprehensive, primary and continuous care to patients.

Timely, appropriate behavioral and mental health identification and intervention including the needs of children who come to the attention of the child welfare system

Mental health during the first eight years of life can have a considerable impact on a children's development across all domains, as well as affect outcomes later in life. In infancy and early childhood, poor mental health is associated with changes in brain architecture,[279] disruptions in relationships with caregivers,[280] and reduced opportunities for cognitive and social development.[281] Once children enter primary school, the effects of poor mental health can become even more pronounced, often manifesting in behavioral problems that interfere with learning and socialization.[282] These disruptions in learning can lead to poor academic outcomes and even affect employment and income in adulthood.[283] Moreover, many adult psychiatric conditions originate in early childhood[284] and, if identified and treated early, can be mitigated or avoided all together.[285]

Young children in the child welfare system may be particularly vulnerable to poor behavioral and mental health outcomes as they have often experienced severe stress that has significant and lifelong consequences.[286] Yet most children in the child welfare system do not receive the mental health screenings and services they need.[287] The screening and health services provided focus primarily on the physical safety of the child and not the child's mental health.[288] Providing timely, appropriate screening and intervention services to young children as early as possible should be a priority for the child welfare system, in addition to increasing access to high-quality services and treatment in order to prevent poor outcomes later in life.[289]

Timely and appropriate screening, referral, and enrollment in early childhood development and prevention programs

An effective screening and referral system uses evidence-based screening tools to identify potential developmental concerns and connects parents and caregivers to appropriate services that may be needed in a timely fashion.[290] State policymakers can support the development and use of screening and referral systems by promoting the buy-in and participation of physicians and public health partners as key resources in the referral system. Additionally, state policymakers can encourage families' use of screening and referral systems by promoting the importance of early identification and consistent engagement in treatment and follow-up visits, especially among vulnerable families.[291]

Child assessment tools that are formative, as well as developmentally, culturally, and linguistically appropriate

The early childhood field has gathered a wealth of relevant information on the appropriate use of early childhood assessments. Fifteen years ago, the National Education Goals Panel (NEGP) published *Principles and Recommendations for Early Childhood Assessments*,[292] which provided important guidelines on assessing young children. The NEGP recommendations were that assessments should:

- Bring about benefits for children;
- Be tailored to a specific purpose;
- Be reliable, valid, and fair;
- Bring about and reflect policies that acknowledge that as the age of the child increases, reliability and validity of the assessment increases;
- Be age-appropriate in both content and methodology;
- Be linguistically appropriate because all assessments measure language; and
- Value parents as an important source of assessment information.[293]

More recently in 2008, the National Research Council (NRC) Committee on Developmental Outcomes and Assessments for Young Children reiterated many of these principles and noted that child assessments are used for diverse purposes, including determining the level of functioning of individual children, guiding instruction, and measuring functioning at the program, community, or state level. The NRC Committee recommended that the purpose of a child assessment should guide all assessment decisions, including decisions about: (a) which developmental domains to measure; (b) which tools to use; (c) who will be assessed; (d) how the information will be collected, analyzed, interpreted, and reported; and (e) who will use the information (e.g., parents, educators, policymakers).[294] Furthermore, the NRC Committee recommended selecting an assessment tool with acceptable reliability and validity for the specific purpose and population(s) of interest, and indicated that infrastructure and resources should be available to carry out the assessments and to respond to assessment findings.[295]

The NRC Committee cautioned that it was inappropriate to use child assessment data in isolation to make decisions about early childhood programs. Rather, it was important to:

- Measure child progress rather than end-of-year status;
- Collect direct indicators of program quality;
- Collect information on risk status of families and children;
- Collect information on program resources (e.g., funding, administrative support, professional development); and
- Have a clear plan for program improvement.[296]

Assessing the abilities of children from diverse backgrounds and ability levels can pose unique challenges.[297] For example, some researchers note that dual language learners may be over-diagnosed with developmental delays when they are, in fact, just developing language normally for a bilingual child.[298] It is therefore important that all individuals involved in assessment and screening of young children understand what is considered normative development for culturally and linguistically diverse populations.[299] Similarly, individuals involved in child assessment should be aware of the accommodations necessary to determine the accurate skill levels of children with disabilities.[300]

Collectively, this guidance from the early childhood field suggests that state policymakers consider child assessments to be used primarily for formative purposes (i.e., to guide individual, ongoing instruction) rather than for program accountability. State policymakers should also develop a state assessment system, which will include various assessments for particular purposes, rather than relying on a single child assessment to serve multiple purposes. Furthermore, when considering policies around early childhood screening and assessment, state policymakers should work with early childhood assessment experts to ensure that assessment materials and procedures are appropriate for the age, ability level, and cultural and linguistic background of the children being assessed, and that the assessment data are collected with care and fidelity by well-trained practitioners.

Statewide kindergarten entry assessment to assess readiness and inform initial instruction

The "school readiness gap" that has been well-documented in early childhood research[301] has focused state and federal efforts on initiatives to improve young children's school readiness, such as through early care and education programs including Head Start, child care and public pre-kindergarten. These initiatives have also led to a proliferation of state early learning guidelines and kindergarten entry assessments aimed at articulating and evaluating the set of skills and competencies young children need in order to prepare them for the increased challenges and demands of kindergarten and to succeed in later schooling. [302]

The number of states mandating kindergarten entry assessments has increased substantially in recent years; in 2011, 25 states had legislation requiring assessment of kindergartners near the beginning of the school year.[303] Data collected from kindergarten

entry assessments can help states document population trends, set improvement goals, and quantify the school readiness gaps they must work to close. However, kindergarten entry assessments are also used in a formative manner to guide individualized instruction for children. Thus, kindergarten entry assessments may be used for multiple purposes: to "look back" and understand the cumulative benefits of investments made prior to entering the K-12 educational system, to set instructional plans for the current year, and to "look forward" and begin to plan for and support children's successes within the K-12 system.

As noted above, researchers do not recommend using a single child assessment tool for multiple purposes; it may be necessary to develop multiple kindergarten entry assessments to meet different purposes. Furthermore, a robust state early childhood data system can be a critical tool for tracking individual children's experiences with multiple supports across disparate service sectors (e.g., prenatal care, early intervention, early care and education, nutrition programs, etc.). Robust data systems can also collect information on a host of family background characteristics (e.g., parental education, employment, and income, etc.). Developing these systems and ensuring they are in place and linked to the K-12 data system can help states make informed conclusions about early investments based on kindergarten entry assessment data. Few states have such a system currently in place.

As with other types of early childhood assessments, the guidelines and safeguards that are considered "best practice" would apply to kindergarten entry assessments. "Best practice" includes using child assessments primarily for formative purposes (i.e., to guide individual, ongoing instruction) rather than for program accountability. Programs can be held accountable for appropriately monitoring children's progress and providing interventions and supports when needed.[304] When considering policies around early childhood screening and assessment, state policymakers should try to ensure that assessment materials and procedures are appropriate for the age, ability level, and cultural and linguistic background of the children being assessed, and that the assessment data are collected with care and fidelity by well-trained teachers and early childhood practitioners.[305]

Position statements about kindergarten entry assessments and appropriate use of assessment have been released by the National Association of the Education of Young Children (NAYEC), the National Association of Early Childhood Specialists in State

Departments of Education (NAECS/SDE), and the Council of Chief State School Officers (CCSSO).[306] These organizations support the following guidelines for kindergarten entry assessments:

- Assessment instruments are:
  - Used for their intended purposes. Use multiple tools for multiple purposes, if necessary;
  - Appropriate for ages and other characteristics of children being assessed;
  - Valid, reliable, and helpful in initial planning and information-sharing with parents;
  - Address multiple developmental domains and diverse cultural contexts;
  - Aligned with early learning guidelines and common core standards; and
  - Implemented in a systems-based approach, including informing all stakeholders of the purpose and process of assessment, thoroughly training the assessors to be valid data collectors, testing for reliability of data, and carefully analyzing and interpreting the gathered data.

- Data and information gathered from assessments:
  - Are used to understand and improve learning;
  - Are gathered from realistic settings and situations that reflect children's actual performance;
  - Are gathered from multiple sources including family and community-based contexts and prior early care and education experiences;
  - Are gathered over time. That is, a one-time assessment at the beginning of the year provides limited information, especially for formative purposes; and
  - Are not used inappropriately, specifically including high-stakes decisions, labeling children, restricting kindergarten entry, segregating children into extra-year programs prior to or following regular kindergarten, and predicting children's future academic and life success.

Aligned early learning, kindergarten entry, and K-3 assessments

Formative assessments used in early childhood and at kindergarten entry can be used as the initial assessment within a longitudinal, formative assessment system that can track children's progress over their academic careers. Formative assessments such as kindergarten entry assessments can and should be aligned with both early learning standards and curriculum.[307] Aligning assessment efforts that help to inform instruction from early childhood through the early elementary years can help support children as they transition into elementary school by ensuring that elementary educators are prepared to continue supporting their academic development and are also able to address any gaps in learning.[308]

ACCOUNTABILITY SYSTEMS

Accountability systems across the policy areas can inform good policy decisions, effective and efficient resource allocation, effective instruction and provision of services, and continuous quality improvement. For example, statewide longitudinal early childhood data systems that are linked to the K-12 data systems can provide information about children, the workforce, and programs as children progress from early care and education settings into elementary school.[309] Accountability systems help define important benchmarks and outcomes for programs, children and families, and measure progress towards identified goals.

Accountability Systems Policy Choices

- **Evaluate the quality of learning environments, educator/child interaction, and teaching strategies by collecting early childhood data that can be analyzed at the level of children, programs and the workforce;**
- **Clear indicators of child, family, and program effectiveness that include health, family support, and learning objectives;**
- **Longitudinal, linked data systems between programs and state agencies that can be disaggregated by risk factors to inform strategies for improving program quality and child outcomes;**
- **Early warning systems to identify problems such as chronic absence and allow for timely intervention; and**
- **Professional development for data users (parents, teachers, administrators) to support the correct interpretation and use of data.**

The Research Base for Accountability Systems Policy Choices

- **Evaluate the quality of learning environments, educator/child interaction, and teaching strategies by collecting early childhood data that can be analyzed at the level of children, programs and the workforce**

State-level data systems that include data about early care and education programs, educators and children can be used for a number of activities including monitoring access to programs, reporting to the federal government and other funders, using data for continuous program improvement, tracking trends over time to inform quality improvement efforts and to improve access to high-quality programs for children with high needs. A comprehensive data system can allow analysis of the characteristics of high-quality programs and the children they serve, changes in program quality and

practitioner qualifications over time, use of high-quality programs by children with different characteristics, and changes in availability of high-quality programs in the state by different regions or counties.[310] Early care and education programs can use data to identify strengths and areas of need, develop improvement plans, and engage in continuous quality improvement with the support of a coach or consultant (if available). These data can also be used in the larger system through inclusion in a QRIS or other quality improvement system. When data are included at the system level, it is critical that provisions be in place to ensure reliability of data collection and data management systems that reduce error and duplication of data entry.

- **Clear indicators of child, family, and program effectiveness that include health, family support, and learning objectives**

Identifying and tracking discrete child, family, and program indicators can help states allocate limited resources, identify and set goals, track progress, and hold agencies and programs accountable for progress.[311] Such indicators might include program quality, children's health, education, and the economic status of children and their families. To identify the most relevant and meaningful indicators that should be tracked, many states have engaged in a vision setting process to identify the outcomes the state wants for children, families, and programs. This process often involves convening a diverse set of stakeholders, and primarily those that work in or represent the agencies, offices, services, or programs that support the vision the state has for young children and families. Some states have initiated this vision setting process on their own. Others have engaged in this process through the assistance of federal grants such as the Maternal and Child Health Bureau's Early Childhood Comprehensive Systems Planning Grant and the Head Start State Advisory Councils (or Early Childhood Advisory Councils).

For example, the Early Childhood Colorado Framework[312] was developed in 2008 and involved input from over twenty stakeholder groups including state agency officials, local partners and providers, program administrators, advocates, advisors to the lieutenant governor, parents, and others. The process identified the key outcomes the state collectively wanted to work towards improving. Outcomes were outlined in three categories: *Access* outcomes that define the programs and services children and families should be able to obtain in the states; *Quality* outcomes, indicators of the quality improvements that should be made across programs and services; *Equity* outcomes, improvements that target specific populations. This framework is used at the state level in three ways: as a tool to communicate the state's overall vision for children and families and the importance of early childhood; as a planning tool to identify the agencies, programs, and services that are working towards each of the outcomes; and as a tool to track change for children and families over time.

Once the vision and outcomes are identified, states can then identify the specific indicators that can be used to track improvements in the identified outcomes or how to allocate resources. For example, child well-being can be measured by indicators, such as percent of low-weight births, the rate of infant mortality in the community, and achievement test scores.[313] Program quality can be tracked through a state's tiered quality rating and improvement system. Tracking the economic status of families with young children can help to identify the percentage of children growing up in poverty. Some states such as Pennsylvania[314], Maryland[315], Louisiana[316] and the District of Columbia[317] have used a similar collection of "risk" indicators to look geographically at the needs of young children and their families in relation to available resources. Using child- and family-level indicators of "risk" at the regional- or county-level, policymakers can identify geographic pockets of high need. These findings are then compared with "reach" data that may include the type and location of selected health, family support, early childhood and education programs, capacity, and utilization rates, which can also be tracked over time in order to identity trends or emerging patterns.

- **Longitudinal, linked data systems between programs and state agencies that can be disaggregated by risk factors to inform strategies for improving program quality and child outcomes**

Most states lack accurate and timely data that can inform efforts to improve the quality of early care and education programs and the workforce, and efforts to increase access to high-quality programs. As a result, state policymakers cannot answer basic questions about which children are able to access high-quality care, the availability of high-quality care, child outcomes, or the quality of the early care and education workforce.[318] The Early Childhood Data Collaborative (ECDC) has established a national framework around early childhood data systems that identifies 10 fundamental characteristics of an early childhood data system. A statewide early childhood longitudinal data system that incorporates these 10 fundamentals can provide state policymakers with information to better understand the relationship between children, programs, and early care and education professionals over time. Such systems collect data over time, are connected to the K-12 education data system, and can easily link to data housed in related agencies, offices, or services that touch the lives of children ages birth to five and their families. While all states are in different stages of developing an early childhood data system, state policymakers can support data development efforts by conducting a review of the existing early childhood data efforts in relation to the 10 fundamentals identified by the ECDC.

- **Early warning systems to identify problems, such as chronic absence, and allow for timely intervention**

Early warning systems combine information from multiple data points to provide actionable information for educators, administrators, and policymakers in support of long-term, positive outcomes for children and youth.[319] Early identification of students who are either at risk for school disengagement or failure, or who may need to be placed in more rigorous academic programs, can be identified by the timely access to and use of high-quality data that can support the development of research-based indicators for predictive analysis. For example, the use of developmental screening instruments in early care and education settings can identify children at-risk for developmental delay and thus children who might benefit from early intervention services. In a school-based setting, data might be gathered to inform indicators related to school disengagement and dropout rates. Such data may include data on student behavior, student attendance, or parental involvement in school. For example, research indicates that problem behaviors, especially physical aggression, in early and middle childhood are predictive of later high school dropout.[320] Hyperactivity-inattention and high levels of anxiety among kindergartners have also been associated with high school dropout.[321] Being retained in first grade is also negatively related to school completion.[322] Chronic absence in kindergarten has been linked to lower levels of achievement in math, reading, and general knowledge in first grade;[323] however, chronic absence may also be an indicator of poor health among children.[324] Finally, teacher ratings of parental involvement in elementary school have been positively correlated with higher grade completion in high school.[325] Early childhood educators and administrators can monitor indicators such as these over time and use that information to make actionable decisions about who should receive and when to provide extra support or resources.

- **Professional development for data users (parents, teachers, administrators) to support the correct interpretation and use of data**

As early childhood data systems become embedded in state policy and programs, it is critical that data users receive adequate orientation, training, and support on using and interpreting the data. Teachers and administrators across early childhood programs will benefit from multiple opportunities, provided in different formats such as in-person sessions, webinars, and teleconferences, to become familiar with data use and strategies for interpreting the data. Likewise, parents reviewing assessment data or information about quality ratings need support to know what the data mean and how they can use the data to make decisions for their family.[326]

CONCLUSION

The findings from decades of developmental research are clear that early childhood, from birth through age eight, is a critical period for supporting children's health, their family relationships, and their opportunities for learning. During this period, children develop patterns of relating to others, regulating their own behavior and emotions, engaging in new experiences, and learning about the world through listening, talking, and reading.

A Birth through Age Eight State Policy Framework focuses attention on what is critical within and across different aspects of early childhood development, and it provides guidance for state-level investments that can lead to better health, family, and learning outcomes. The age range is important, as each experience influences the next and sustains the growth that comes before. With targeted supports, the period of time from birth through age eight can help put and keep children on a path to success.

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