Child Care and Early Education for Infants and Toddlers

Ajay Chaudry and Heather Sandstrom

Summary

In this article, Ajay Chaudry and Heather Sandstrom review research on child care and early education for children under age three. They describe the array of early care and education arrangements families use for infants and toddlers; how these patterns have changed in recent decades; and differences by family socioeconomic status, race, and ethnicity.

Chaudry and Sandstrom note that families face many challenges both in getting access to child care and in finding care of more than mediocre quality. These challenges include limited supply and limited affordability relative to the needs of working parents and those pursuing education. Other challenges are based on families' and children's circumstances; for example, parents may work nontraditional or variable hours, or children may have special developmental needs.

Although experts agree that the quality of children's care is important for their learning and development, the authors write, there is no consensus on how to best measure quality and what factors are most important. They review what we know about the quality of infant and toddler child care in the United States, why child care quality matters for children's learning and development, and how the federal government as well as the states are trying to improve child care quality.

Chaudry and Sandstrom also examine the major public programs that support early care and education, primarily for children in low-income families—child care subsidies, tax credits, and the Early Head Start program. Overall, they note, the United States' public investment in quality child care and early education is relatively minimal, though bold proposals to bolster that investment are now on the table.

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Research in child development and neuroscience shows clearly that children's very early development and learning occur in the context of relationships and experiences.[1] During the earliest years of life, an infant's brain is forming at a rapid pace and is at its most flexible and adaptable.[2] Because babies are highly sensitive to environmental influences and their caregiving relationships in these years, this is the most promising time for human development. Through daily interactions with parents, other caregivers, and the environment, children acquire early social, emotional, and cognitive skills that form the foundation for later development.

Despite the importance of the first three years of a child's life, they are the most underresourced time in the human life span. Child care and early education settings are central to child development, and most US children receive care from people other than their parents starting very early in life; during their first three years they might spend thousands of hours in multiple care settings. Yet most of the responsibility for finding and funding early learning opportunities is left up to families. Public investment in child care and early education programs is minimal compared to spending on older children's education. Thus the quality of care children experience depends largely on what their families can afford and what is available in their communities.

Because many families can't afford higher-quality care for their infants and toddlers, the supply of good child care is generally low, and especially so for children in lower- and middle-income families.[3] These yawning gaps in access and quality in early care and education mean that many children miss out on enriching early childhood experiences that could help them develop skills and set the foundation for further learning and later success in school and life.

Child Care Statistics for Infants and Toddlers

Mothers' participation in the workforce has expanded dramatically since the 1960s, nearly tripling from 24 percent in 1965 to 69 percent in 2018.[4] As a result, over the last two generations nonparental care has become a common necessity for many families of young children. According to cross-sectional data from repeated national surveys, by 1997 6.9 million infants and toddlers, or 60 percent of all children, were regularly receiving nonparental care, and these numbers were unchanged in 2011.[5] Young children with working mothers averaged 36 hours in child care and early education per week, and 27 percent had multiple care providers each week.[6]

Data from a few national cross-sectional sources together provide a fuller picture of the characteristics and use of child care and early education than do descriptive data from any one source alone. The Survey of Income and Program Participation, the National Household Education Survey, and the 2012 National Survey of Early Care and Education (NSECE) each collected data from households with young children. These sources vary in how extensively they survey households, in how they define and categorize types of child care and early education, in how they word questions, in how many years they cover, and in how frequently they are repeated. Yet for common areas of questioning, such as the number of children regularly in nonparental care, weekly hours in care,

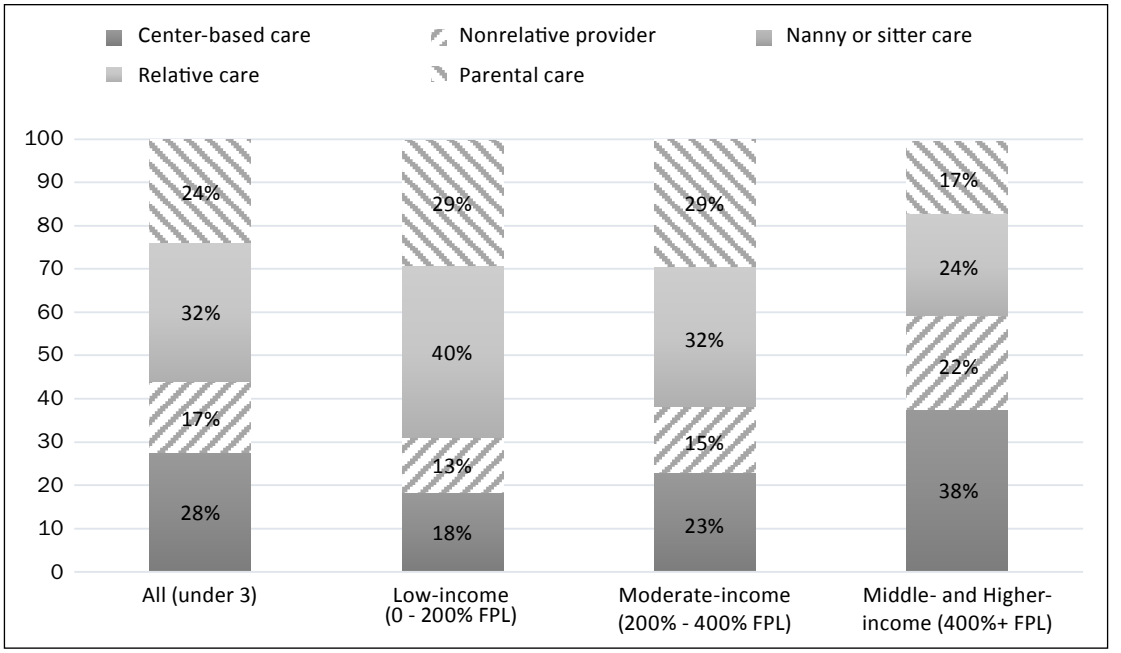
and use of multiple care arrangements, the results are roughly similar across surveys.[7]

Many families use home-based child care arrangements for their infants and toddlers (see figure 1). In 2011, nearly one-third of young children were primarily cared for by relatives, most often a grandmother. Seventeen percent were cared for by nonrelatives in a home: either by family child care providers (who are often licensed to care for multiple unrelated children in the provider's home), nannies, or unlicensed care providers such as friends and neighbors who care for one or two children (the threshold for licensing requirements is typically higher).[8] Nearly one-fourth of infants and toddlers with employed mothers are primarily cared for by parents, who often work different shifts so that one parent can care for the children while the other parent works. This arrangement is most common when mothers or fathers work part time.[9]

In recent years, more families, especially those with working mothers, have turned to center-based care for their infants and toddlers. Between 1995 and 2016, the rate of center-based care use for all children under three nearly doubled, from 11 percent to 20 percent.[10] Among families with employed mothers, 28 percent used center care for children under three in 2011—an increase from 20 percent in 1997 and just 7 percent in 1977.[11]

The types of child care that families use varies with children's age, family income, and race and ethnicity. Most families begin using nonparental care when their child is an infant, and 16 percent of such families with employed mothers use center care. The proportion in center care increases to 30 percent at ages one and two.[12]

Figure 1. Distribution of Types of Primary Child Care Used for Children under Three with Employed Mothers, by Income Level, 2011



Sources: Authors' analysis of SIPP Panel Data for Primary Care Arrangements in 2011.

As figure 1 shows, young children with employed mothers in low-income families (that is families with incomes below 200 percent of the federal poverty level [FPL] threshold, or below $51,500 for a family of four in 2019) are half as likely to be in center-based care as those in families with incomes of 400 percent or more of the FPL ($103,000 for a family of four in 2019). At all levels of family income, infants and toddlers are cared for by relatives; 25 to 40 percent of families use this type of care, but lower-income families are more likely to do so.

Non-Hispanic white and black families use nonparental care for infants and toddlers at a higher rate than do Hispanic families (50 percent versus 40 percent, respectively). This is consistent with the fact that Hispanic mothers are less likely to be employed. However, among families using child care, low-income families of different races and ethnicities select similar types of care, and there are similar proportions of children from non-Hispanic white and black families in center- and home-based care.[13]

Cost Constraints

Parents' child care choices are often constrained by cost and supply limitations, work schedules, and family circumstances.[14] Child care and early education are expensive, driven by the labor cost of caregivers and the greater care and attention that very young children require, which is reflected in the ratio of caregivers to children. In 2016, families spent an average of $309 per week on full-time center-based care for children three and under.[15] Costs vary considerably across states; full-time center care for infants ranges from $5,300 annually in Mississippi to more than $20,400 in Massachusetts, while full-time family child care for infants ranges from $3,700 annually in Mississippi to $17,600 in the District of Columbia.[16]

Partly because of high costs, most families place their young children in unregulated home-based care with relatives and nonrelatives, many of whom provide no-cost care or at least lower-cost care that more families can afford. The 2012 NSECE shows that families made payments for 87 percent of center-based care and 41 percent of home-based care arrangements. Generally, individual home-based caregivers with no prior relationship to the family were paid for their services, averaging $156 per week. Among home-based caregivers who did have a prior relationship with the family, most of whom were relatives, just 20 percent received payments; those payments averaged $77 per week.[17]

Low-income families were much more likely to rely on lower-cost or no-cost care arrangements. Sixty-three percent of those with incomes below 200 percent of the FPL had childcare they didn't pay for, compared to 32 percent of those with incomes higher than that. And when they were paying for care, low-income families paid less.[18] However, the payments made by lower-income families represented a much larger proportion of their family income. Among families with incomes below 200 percent of the FPL, those making payments spent 35 percent of their income on child care; those with incomes between 200 percent of the FPL and 400 percent of the FPL spent 14 percent of their income on child care; and those with incomes above 400 percent of the FPL spent 8 percent of their income on child care.[19]

Supply Constraints

Due to the high costs of infant and toddler care relative to most families' incomes, the effective demand and resultant supply of infant and toddler child care, particularly for center care, is very limited across the country. An analysis of 2018 licensed capacity across nine states found that overall 18 percent of children younger than three could be accommodated, with the lowest capacity being 12 percent in Indiana and the highest being 31 percent in Vermont.[20] Supply varies within states and municipalities as well—in areas that have more higher-income families, more center-based care is available and more families use such care. In 2012, in communities with relatively low concentrations of poverty (less than 13.9 percent of individuals living in poverty), 20 percent of children under age three attended centers, compared with 12 percent in communities with higher rates of poverty. In rural communities, just 10 percent of children under age three were attending centers in 2012.[21]

Other factors that restrict care options are parents' work circumstances, family and household composition, and children's particular developmental needs. Many parents work nonstandard and variable hours that include evenings, nights, or weekends, when child care options are more limited. These families disproportionately have low incomes. A recent analysis indicates that 58 percent of low-income families with young children work at least some hours outside of 8 a.m. to 6 p.m. on weekdays, which is the range of hours during which most child care centers operate. About 15 percent work the majority of their hours outside this traditional window.[22] Parents who mostly work nontraditional hours are much less likely to be able to use center care and more likely to rely on home-based care. Only 8 percent of centers in the NSECE supply study offered any care hours outside the traditional time window, while two-thirds of the "unlisted" caregivers (which refers primarily to informal care from relatives and nonrelatives) provided care that met the needs of families with nontraditional work hours.[23]

In two-parent families in which both parents work, the parents are more likely to care for their children themselves. This suggests that some parents arrange their work schedules to avoid needing nonparental care, particularly when their children are very young. Arranging work schedules in this way tends to be more common when one parent is working part time. Working single parents seldom rely on nonresident parents for care and are more likely to rely on relatives.[24]

The large share of children in informal, unlicensed care reflects a combination of individual family preferences and the employment and child care constraints that parents face. We know from household surveys over time that some share of families want their relatives, particularly grandmothers, to serve as their child's primary caregiver when they are working. Yet the fact that higher-income families don't use informal relative and nonrelative home-based care as much suggests that they can afford other options such as center-based care. For most lower-income families, supply and cost constraints limit access to and quality of child care and early education.

Ample economic research also demonstrates the inverse relationship between the price of child care and the level of parental employment.[25] Limited access to child care contributes to lower employment levels among parents, fewer hours worked, and

reduced family income and resources. This translates to less overall labor force participation and lost economic activity. Though the rate of women's participation in the labor force rose significantly and continuously between 1970 and 2000, it has now plateaued and fallen well behind those of other countries with advanced economies, both because US families pay more for child care and because fewer public resources are devoted to it.[26]

Public Support for Infant and Toddler Child Care

Families privately finance the bulk of their children's care and early education, especially in the first three years. As a result, the total devoted to young children's development in early learning settings is limited by what families can afford, which varies tremendously. In the aggregate, this constricts overall child care supply, and it means that not enough is invested in children's development. Most of what does get invested in early learning and care supports the development of children from families with the greatest means, exacerbating inequalities across generations.[27]

Relative to the overall need, governments invest very little in child care and early education for children younger than age three. We have a hodgepodge of fairly modest programs that reach a small share of children, are insufficient to support quality care, and are challenging for families to access and navigate.

The two primary ways that governments offer financial assistance for children's care and early education are child care subsidies and income tax credits. The federal Child Care and Development Block Grant (CCDBG) provides the lion's share of funding for child care subsidies, with states providing additional funding to meet matching requirements. The states administer the child care subsidy programs, which are means tested and targeted to low-income families with employed parents; they aim to reduce child care costs for children up to age 13. Families receiving or transitioning off the states' Temporary Assistance to Needy Families (TANF) programs, which provide cash assistance to poor families, are also eligible. Parents in school and training programs may be eligible depending on their state and the program type, though most subsidy recipients work; in 2016, only 4 percent of those who received non-TANF subsidies were getting the assistance for education or training only.[28]

In 2017, total public spending on child care assistance for children under age 13 was $11.4 billion, including federal CCDBG allocations, state matching funds, and TANF block grant funding used for child care assistance.[29] Roughly one-third of this total went toward subsidies for children under age three. This is the largest source of public investment in infant and toddler child care and early education, and yet just 15 percent of the 13.6 million children eligible under federal guidelines received child care subsidies in an average month in 2015.[30]

The federal child and dependent care tax credit is a second source of financial assistance. The tax credit is small—the maximum benefit is $600 per year for most people who are eligible—and many low-income families can't benefit from it because they don't have significant tax liability and the credit isn't refundable. In

Table 1. Early Care and Education (ECE) Enrollment and Public Spending, Children Under Three, Selected Countries

Country	Enrollment in Licensed, Formal Child Care	Public ECE Spending per Child	Public ECE Spending as Percent of GDP
France	56%	$7,200	0.60
Germany	37%	$3,600	0.20
Japan	30%	$5,700	0.30
Korea	56%	$6,500	0.50
United Kingdom	38%	$900	0.10
United States	28%	$700	0.04

Source: OECD Family Database, http://www.oecd.org/els/family/database.htm.

2017, 6.5 million households claimed the credit and received nearly $3.7 billion in benefits for child care expenses for children under age 13, with an average credit of $575.[31] Some fraction of this total was used for infant and toddler child care and early education. Many states have established child care tax credits that offer further modest assistance with child care costs, and several of these do make their credits refundable to lower-income families with limited tax liability.

Unlike programs that give working families money to help with child care, Early Head Start (EHS) is a federal child development program that offers early care and education for children under age three in families living below the poverty level. EHS is much smaller than the Head Start program for three- and four-year-olds. It began in 1995, and since then its reach has grown; by 2018 it was serving 160,000 children. But this number represents only 7 percent of those meeting the income eligibility guidelines and 1.3 percent of all infants and toddlers.[32]

Total US public spending for child care and education of children younger than age three, including CCDBG, EHS, and tax credit expenditures, amounts to just $700 per child, or .04 percent of the nation's gross domestic product (GDP), placing the United States 36th of 38 developed countries when it comes to spending on young children's early care and education. Other large countries with advanced economics, including France, Germany, Japan, and Korea, each spend five to 10 times as much, both per child and as a share of their national income for public investments (table 1). Countries with the most public investment per child, such as France and Korea, have a much larger proportion of very young children enrolled in licensed, formal early care and education—twice as large as in the United States.[33]

Public investments in child care and early education for children younger than three (as well as for three- and four-year-olds) are also just a tiny fraction of the 3.3 percent of GDP the United States commits in public expenditures for K–12 education and the 1.0 percent for higher education, both of which are on par with its peers among countries with advanced economies.[34]

Since funding for child care subsidies is very limited overall relative to the number of families who are eligible and could use them, most states have program features that effectively restrict or prioritize the available assistance. Though states rely broadly on federal guidelines to manage their subsidy programs, their child care policies and rules vary widely.[35] States establish many of the policy parameters, including eligibility for the program, family copayments, payment rates for care providers, and administrative procedures for applying for and continuing to receive subsidies. For example, the income eligibility thresholds states set for child care subsidy assistance are generally much lower than those recommended by federal guidelines, and by the same token, many states have relatively steep copayment schedules that exceed those recommended by federal guidelines. These and other policies serve to direct a disproportionate share of limited funds to the poorest families. More than half of all child care subsidies serve families making less than the federal poverty level ($21,330 for a family of three).[36] A great many more families with only slightly higher incomes have just as limited or even less access to care; many care settings remain unaffordable for them without assistance.

A lot of states also set their subsidy payment rates for providers very low, which means that many providers, including those who might offer high-quality care, choose not to participate. Low-income families receiving subsidies are often limited to the lowest-cost providers in their communities because those tend to be the providers who will accept subsidies. In 2012, 11 percent of infants and toddlers in families with incomes up to 100 percent of the FPL were in center-based care; most of those families either received child care subsidies or had a child enrolled in Early Head Start. Among families with incomes between 100 and 300 percent of the FPL, 10 percent of infants and toddlers were in center-based care, and only 1.5 percent received publicly supported care through subsidies or other programs.[37]

In addition to disparities by family income, we see racial and ethnic disparities in subsidy access. Hispanic children have historically been enrolled in the subsidy program at somewhat lower rates than other groups. In 2018, Hispanic children made up 36 percent of all children in poverty and 37 percent of all children enrolled in EHS, yet they constituted only 22 percent of children receiving child care subsidies. Non-Hispanic black children, who made up 25 percent of children in poverty, were enrolled in EHS at a similar rate (29 percent) but they accounted for a disproportionately higher share of children receiving child care subsidies (39 percent).[38]

How Is Child Care Quality Measured?

Although experts agree that the quality of children's care is important for their learning and development, there is no consensus on how to best measure quality and what factors are most important. Growing evidence points to a multifaceted definition of quality that encompasses structural factors and child care processes or interactions.[39] Structural factors include the adult-to-child ratio, group size, and physical space; the extent of caregivers' education and specialized training; use of an evidence-based curriculum;

and health and safety standards, such as caregiver background checks. These factors can generally be regulated through licensing and monitoring, though licensing requirements and minimum qualifications for child care providers and early childhood teachers vary across states.

Child care processes are children's experiences in the care setting, such as their interactions with caregivers and peers. Caregiver-child interactions are a key predictor of children's learning and development and are arguably the most critical component of child care quality.[40] Infants in particular thrive most when they have healthy attachment relationships with adult caregivers who are warm and sensitive, engage in "serve and return" interactions (that is, respond appropriately to a child's signals or needs), and provide a secure base for exploration.[41]

Observational tools are commonly used to assess the care environment and aspects of process quality. For example, center-based classrooms that serve children under age three use the Infant-Toddler Environment Rating Scale, which measures the organization of physical space and furnishings, the presence of books and learning materials, and structured opportunities for learning activities that foster language, motor, social-emotional, and creative development. A similar observational tool measures structural quality features in home-based child care programs but is designed for a broader age range of infants through school-age children. The Classroom Assessment Scoring System (CLASS) is used in classrooms to measure teacher-child interactions. The CLASS has infant and toddler versions, each of which measures both emotional support children receive in the classroom (for example, in the form of teacher sensitivity) and academic support for early learning and language development. The infant version focuses more heavily on verbal and physical interactions, such as helping infants explore their environment, and less on behavior management. Other tools attend more narrowly to the quality of caregiver-child interactions and less to the care environment and emotional climate.

Because of the expense of collecting reliable process data, structural quality indicators are often used as proxy measures for quality. Elements of structural quality such as small group size, good child-to-adult ratio, or a degreed teacher, however, don't guarantee process quality, given the complexity of other influential factors. Certain teaching beliefs, such as being child-centered and following developmentally appropriate practice, as well as the teachers' career motivation (seeing teaching as a way to get a paycheck, or as more than that), also predict quality caregiving and teaching.[42]

Early childhood program accreditation can also serve as a proxy for high-quality child care. Accreditation standards account for structural components of quality; accrediting organizations often require smaller group sizes and child-to-adult ratios and higher minimum staff education levels than state licensing standards do. Accreditation procedures include observing the caregiving environment.

On a continuum of quality, at a minimum, care environments should be safe and keep children free from harm. As quality improves, environments will be more

organized, better managed, and full of stimulating and developmentally appropriate materials, and caregivers will be warm, sensitive, and responsive and foster language and early learning.

The evidence suggests that smaller groups and lower child-to-teacher ratios are particularly important with very young children, who need more individualized caregiver attention.

Associations between Structural and Process Quality

Research clearly shows the relationship between structural factors such as group size and teacher qualifications and process quality.[43] Caregivers who work with smaller groups and lower child-to-adult ratios, for example, can better manage children's behaviors and more easily interact with them positively. The evidence suggests that smaller groups and lower child-to-teacher ratios are particularly important with very young children, who need more individualized caregiver attention. In a sample of 104 child care centers in three states, group size was found to be negatively associated with observed quality in toddler classrooms but not in preschool classrooms, after controlling for teacher education and training.[44] A study of 217 caregivers in child care centers in the Netherlands found improvements in the quality of teacher-child interactions when ratios of children to teachers dropped from five to one to three to one, especially with infants and toddlers.[45] Children cooperated better in groups of three, and caregivers displayed more support and regard for autonomy.

Although most research on the effects of early childhood teachers' educational background and training focuses on center-based programs for preschoolers, the few studies that incorporate infant-toddler caregivers and educators point to a link between educational attainment and care quality. In the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care, more teacher education (on a continuous measure) predicted more positive caregiving in centers and homes when children were 24 and 36 months old.[46] In the EHS Family and Child Experiences Survey, teachers with a bachelor's degree or higher supported toddlers' early learning better than teachers without a degree, according to observational measures.[47]

Associations between Child Care Quality and Child Development

Experimental evaluations as well as observational studies indicate a link between child care quality and child outcomes; higher quality predicts stronger language, cognitive, and social skills and fewer problem behaviors.[48] Two closely studied experimental interventions from the 1970s and '80s are the Abecedarian Project and the Infant Health and Development Program, which provided high-quality, center-based early care and education to low-income infants and toddlers. Researchers followed children over time and found that program participants performed better academically in reading and math than did children who were randomly assigned to the control groups. By age 21, Abecedarian participants had completed more years of education, were more likely to have gone to

college, and were less likely to have been a teenage parent or to have committed a crime. These programs demonstrate that significant effects are possible and that gains can be maintained into adulthood when services are of high quality, comprehensive (with attention to child health and nutrition and family engagement), and delivered over multiple years.[49] Evidence from a multisite randomized controlled trial of EHS similarly found that the amount of time spent in a program matters. At many sites, the number of days children spent in center care was quite low, weakening impacts on their development.

A recent experimental study examined Educare, a center-based program model subsidized by a mix of public and private funding that provides comprehensive early care and education services to children ages zero to five from low-income families. The researchers found that when children from low-income families received high-quality early education for longer than one year, they transitioned to kindergarten with language and social skills near the national average and performed better academically than children with similar economically disadvantaged backgrounds who didn't attend an early education program. Educare participants also had more positive interactions with their parents and showed fewer problem behaviors. Gains in English language ability were strongest for dual language learners, signaling that early language exposure is important for this group of children.[50]

Nonexperimental studies using observational data further illustrate that the relationship between child care quality and child outcomes is complex. First, patterns of associations are notably stronger between more closely aligned quality measures and child outcomes—for example, there is a stronger relationship between teachers' language modeling and quality of feedback, on the one hand, and child language development, on the other. Second, meta-analyses and secondary data analysis of national early childhood studies indicate that while higher quality is associated with better child outcomes, the relationship is not linear.[51] Instead, research points to a curvilinear relationship in which positive child outcomes are more evident when programs meet a threshold of quality (specifically, in the good to high range) and when the dosage (the child's length of exposure to quality care) is sufficient.[52] Recent evidence from the EHS Family and Child Experiences Survey also found threshold effects for the CLASS-Toddler measure; scores above five (out of seven) for emotional and behavioral support were the minimum level at which significant improvements in children's social-emotional outcomes were seen.[53]

Quality of US Infant-Toddler Child Care

To examine the quality of care that infants and toddlers experience, we turn to three sets of measures: national estimates of structural indicators of quality, including group size, adult-to-child ratio, and caregiver educational attainment; observational data from national surveys using validated tools; and program accreditation.

Evidence of Structural Quality

Child care programs serving infants and toddlers generally have more stringent maximum group sizes and child-to-teacher ratios than do programs serving preschoolers. A 2012 national survey of child care centers found that median group sizes were 5.8 for

infants under one year and 9 for toddlers ages 12 to 36 months. Child-to-adult ratios were 2.6 to one for infants and four to one for toddlers. These figures are close to federal recommendations, although some programs have larger groups and higher ratios.[54]

Lead infant and toddler teachers are generally required to hold a child development associate credential, if anything. In contrast, half of states plus the District of Columbia require lead teachers in public prekindergarten programs to hold a minimum of a bachelor's degree.[55] No state requires a bachelor's degree for home-based providers, and 24 don't require any formal education or training for lead caregivers in small home-based settings.[56]

About half of center-based teaching staff across age groups have a postsecondary degree (36 percent hold a bachelor's degree or higher and 17 percent hold an associate degree).[57] However, education levels are lower among teachers serving younger children. In programs that serve only preschoolers, 49 percent of teachers hold a bachelor's degree or higher, compared with 30 percent in centers serving children birth through five and 16 percent in centers serving only infants and toddlers.[58] Among all home-based providers, 18 percent hold a bachelor's degree or higher and 11 percent hold an associate degree.[59]

EHS may be unique among early care and education programs serving infants and toddlers because its child-to-adult ratio—three to one—is lower than the average. EHS teachers are also more likely to have a postsecondary degree: 33 percent hold a bachelor's degree or higher, and 39 percent hold an associate degree.[60] More than 80 percent of EHS teachers receive benefits, including health insurance and retirement contributions, and they have greater exposure to staff professional development than do teachers in centers that receive other types of funding.[61] The reported annual turnover rate among EHS teachers is 12 percent, compared with 21 percent among center-based teachers of toddlers, and they are less likely to report moderate to high depressive symptoms than are early care and education teachers overall.[62] Observed quality in EHS classrooms averages medium to high for emotional and behavioral support (5.3 out of 7), though it's lower (3.6 out of 7) for engaged support for learning.[63] Thus EHS quality is promising. But, as we've mentioned, EHS enrolls just 7 percent of infants and toddlers whose family incomes fall below the federal poverty level.

Evidence from Observational Quality Measures

Most studies that include observational measures of child care quality have focused on classrooms in publicly funded Head Start programs and public prekindergartens. Fewer large-scale studies have assessed the quality of care for children under age three. Although it's nearly 20 years old, the Early Childhood Longitudinal Study, Birth Cohort provides some of the best data available. The study followed a nationally representative sample of 14,000 US children born in 2001 through kindergarten. At age two, 49 percent of children were in nonparental care; to gather data on the quality of these arrangements, researchers then observed a subsample of 1,400 children regularly receiving such care. Observers measured the quality of both center-based and home-based care, including care from relatives and unrelated individuals. They found that the majority of

toddlers experienced poor to mediocre care and that quality was lower in home-based arrangements. Specifically, among children in centers, 9 percent received low-quality care, 66 percent medium-quality (that is, adequate) care, and 24 percent high-quality care. In home-based arrangements, 36 percent of children received low-quality care, 57 percent medium-quality care, and only 7 percent high-quality care.[64]

Analyses of the data found large differences in quality ratings between classrooms and homes. Quality was significantly higher in formal classrooms, even after researchers controlled for child characteristics that can influence quality ratings. These differences in quality translated into differences in children's early math and reading skills at age five—children who had attended center-based early care and education programs performed at a higher level.[65]

Because informal care is generally not subject to state licensing requirements, the care that a significant number of children under age three receive is unlicensed and unregulated, and its quality is therefore unknown.

Program Accreditation

Nationally, 11 percent of child care facilities are accredited by the National Association for the Education of Young Children or the National Association for Family Child Care—the two most commonly recognized child care accrediting bodies in the United States. To become accredited, facilities must meet standards for all the age groups they serve. The proportion of accredited child care centers and homes ranges from a low of 1 percent in South Dakota to a high of 46 percent in Connecticut and 56 percent in the District of Columbia. However, only 64 percent of accredited centers serve children under three years, and only 42 percent serve infants under 12 months.[66] Most very young children are cared for in settings that are not accredited.

Aspects of Quality in Home-Based Care

Overall, research has focused less on the quality of home-based child care than the quality of center care, even though many more infants and toddlers are cared for by home-based providers. Because informal care by relatives, friends, and neighbors is generally not subject to state licensing requirements, the care that a significant number of children under age three receive is unlicensed and unregulated, and its quality is therefore unknown. License-exempt, home-based providers play an especially important role in meeting the child care needs of families with infants and other families who otherwise face significant challenges finding care—families living in rural areas, families in which the parents work nontraditional hours, or families that have children with special needs, for example.[67]

A key aspect of home-based child care is that it's often based on family ties and thus offers the potential for more continuity in children's relationships with caregivers, compared to other care settings.[68] Some children in home-based care benefit from the long-term relationship they have with an individual provider, particularly when the provider is a relative who has an ongoing relationship

with the child beyond the care arrangement. Children in center-based programs are typically cared for by multiple staff members in a single day. They often change teachers year to year as they move from infant to toddler classrooms and then to preschool. A trusting relationship with a consistent single caregiver is an attractive feature of home-based care.[69]

According to national survey data, a primary motivation for informal providers, whether paid or unpaid, is to help children's parents, whereas listed providers (that is, those running a home business) view their work primarily as a personal calling or career.[70]

Given this diversity, a recent expert review of the research points to the need to define quality in home-based child care more broadly. A broader definition would incorporate factors such as the provider's ability to build relationships with families and community partners and to support learning through culturally relevant experiences.[71]

Caregivers' Capacity and Wellbeing

Studies of how early childhood programs are implemented highlight additional factors that are often absent in quality measures. Most critical is the teacher's or caregiver's own health, wellbeing, and job satisfaction, which can affect the quality of their relationships with children as well as their length of tenure or turnover.

Studies that examine early childhood educators' wellbeing find that they struggle with high levels of economic insecurity, depression, anxiety, and stress.[72] In a survey of more than 600 early childhood educators in child care centers, more than half said they worried about their family's economic security, expressing concern about how they would pay for housing (63 percent), cover routine health care costs (71 percent), pay monthly bills (73 percent), and save for retirement (80 percent).[73] According to multiple studies, about one in four early childhood teachers meet the criteria to be diagnosed with clinical depression.[74] Their physical and mental health is often worse than that of US women with similar sociodemographic characteristics as a whole.[75] Home-based child care providers may have it even tougher; unlike center-based staff, who interact daily with coworkers, they often work in isolation and do so with a large child-to-caregiver ratio. One caregiver, for example, may be responsible for up to five or six children of mixed ages.[76] In focus groups, center-based and home-based providers mentioned that interacting with difficult parents and the public perception that they're "babysitters" caused them stress. They also discussed how work stress affects their personal wellbeing, manifesting itself in exhaustion, sleep disturbances, and physical health problems.[77]

Multiple studies show a link between early childhood teachers' own wellbeing and the quality of their interactions with children.[78] The EHS Family and Child Experiences Survey found that toddler teachers with more symptoms of depression and lower job satisfaction scored lower in emotional and behavioral support and provided less support for learning in their classrooms.[79] Fewer researchers have focused specifically on infant-toddler caregivers in other settings compared with those working with preschool-age children, but the challenges are similar. A study of Head Start classrooms in Pennsylvania found that more workplace stress was related to greater conflict in the teacher-child relationship.[80]

In studies of preschool classrooms, depressive symptoms in teachers were associated with lower teacher sensitivity and lower ratings on instructional quality.[81]

Poor mental health and wellbeing among teachers contributes to high turnover in child care and early education. In a national survey of early childhood educators, teachers who were more emotionally exhausted and teachers who rated their working conditions poorly were more likely to say that they intended to leave the field.[82] The average staff turnover rate in centers nationally is about 13 percent; for-profit private centers have a rate twice as high, while publicly funded programs like Head Start have lower turnover.[83] Staff retention is greater when wages are higher; when teachers are older and have more tenure, work experience, responsibility, and job satisfaction; and when the employer is a publicly operated or nonprofit center that meets accreditation or policy standards.[84]

With a median wage of $11.17 per hour (or $23,240 per year full time) in 2018, teaching in child care programs is among the lowest-paid occupations in the United States.[85] By comparison, in 2017 kindergarten teachers earned a median annual wage of $54,230. National estimates show significant wage disparities between infant-toddler teachers and preschool teachers, including for teachers with the same level of education. Teachers with a bachelor's or graduate degree suffer a predicted wage penalty of $4.04 per hour for working with infants and toddlers compared to working with children ages three to five. No states set required compensation standards for child care and early education outside of public prekindergarten, including for infant and toddler teachers.[86]

Low compensation undermines program quality and makes it hard to recruit and retain a highly qualified workforce. Despite mounting evidence from brain science that the first three years of life are critical in children's development and evidence that qualified early educators are key to children's early learning experiences, wages are barely above the federal poverty line—even for infant-toddler teachers who have earned higher credentials and degrees.

Instability of Birth-to-Three Child Care Arrangements

In conceptualizing access to high-quality child care, researchers have pointed to the importance of child care stability and continuity of child-caregiver relationships.[87] As Stacey Doan and Gary Evans note elsewhere in this issue, instability characterizes many aspects of children's home and care environments. Children often transition from one care setting to another, moving, for example, around age three or four from home-based to center- and school-based programs serving preschoolers. They also frequently transition within a setting, moving from one classroom or group to another, typically changing teachers or caregivers. Though some transitions are expected as children's needs and family circumstances change, changes that are unexpected, frequent, or abrupt can disrupt children's sense of security and learning.[88]

Researchers have examined the frequency of child care changes in early childhood, the reasons for those changes, and the outcomes for children. The NICHD Study of Early Child Care and Youth Development found that nearly 40 percent of infants who start child care before they are 12 months

old experience at least one arrangement change by the time they reach 15 months. Earlier national longitudinal surveys found that the average arrangement lasts 12 months; more recent studies of low-income working families and families that receive child care subsidies report much shorter arrangements.[89]

Instability in nonparental care arrangements is associated with poorer socioemotional outcomes. Analyses of data from the Fragile Families and Child Wellbeing Study found that long-term instability between birth and age three is associated with higher levels of externalizing behavior problems (for example, shows of aggression and hyperactivity) regardless of gender, family income, or type of care.[90] The NICHD Study of Early Child Care found that the number of care arrangements between 12 and 24 months is positively associated with mother-reported problem behaviors and observed noncompliance in child care at 24 months; negative outcomes were more prevalent for younger toddlers between 12 and 24 months.[91] These poor social-emotional outcomes may stem from children's inability to develop secure relationships with caregivers; during early developmental periods, children need secure attachment to confidently explore and interact with their environment. One study found that infants and toddlers transitioning to a new caregiver showed increased levels of distress that persisted for an average of three weeks and that distress was greatest among the youngest children.[92]

Child care instability not only affects child outcomes but can also disrupt parents' work. When parents don't have reliable, stable care, they may need to miss work to care for their children. Repeated child care issues can lead to parents losing their jobs; low-income workers are particularly at risk of losing their jobs in such circumstances, as they don't tend to get paid sick leave or personal time off.[93]

Among low-income families, loss of child care subsidies can cause major disruptions in child care and work. A study of more than 600 child care subsidy recipients in Illinois and New York showed that about half of families switched providers during gaps in subsidies or after leaving the subsidy program.[94]

The impacts of a care change depend on the circumstances surrounding it, such as whether the change is planned or forced and the quality of care before and after the transition. A transition from lower- to higher-quality care may be temporarily disruptive but may benefit the child in the long term. Recent qualitative work that explored low-income mothers' child care experiences found that if transitions were planned, families were able to use preferred arrangements and child and family wellbeing was enhanced. Forced transitions that occurred when mothers were dissatisfied with their providers and had to quickly change arrangements without much notice were unsupportive and stressful.[95]

In sum, positive and stable relationships with providers are critical for young children's development, particularly when it comes to social competence and emotion regulation. Yet change in itself doesn't signal negative instability; changes that are planned and lead to high-quality or desired arrangements can ultimately support children and families.

Initiatives to Improve Quality

Both the federal government and the and states have introduced a number of

initiatives to improve child care quality in recent years, including quality rating and improvement systems (QRISs) and initiatives to professionalize the early childhood workforce. The American Recovery and Reinvestment Act of 2009 provided new federal funding opportunities including Race to the Top Early Learning Challenge grants and Preschool Development Grants. Dozens of states used these funds to build and evaluate QRISs and to develop standards for their workforces.

A QRIS is a systemic approach to assessing, improving, and communicating the level of quality in early care and education programs. Like rating systems for restaurants and hotels, QRISs award quality ratings to child care and early education programs that meet a set of defined program standards. The QRIS framework aims to increase the availability of high-quality programs, deliver professional development and quality supports to providers, and strengthen consumer education, specifically parents' understanding of the importance of quality care and their ability to identify quality. As of late 2020, 41 states and the District of Columbia have an active QRIS and eight others are piloting or developing them.

A few states mandate participation in a QRIS and automatically enroll all licensed providers, while others mandate participation for providers that use the child care subsidy system, but in many states participation is voluntary. As an incentive to increase participation, 31 states offer higher child care subsidy payments or tiered reimbursements for center providers that improve their quality, while 30 states have tiered rates for family child care providers. Across states, participation in QRISs has been increasing. In 2010, in more than half of the 22 states that were implementing a QRIS, less than one-third of eligible center-based programs participated. By 2016, 22 of the 41 implemented QRISs reported that more than half of eligible center-based programs were participating, and 16 reported that more than half of eligible family child care programs were participating.[96]

States are also increasingly including requirements specific to infant and toddler care in QRIS ratings; for example, at least 30 states use the Infant-Toddler Environment Rating Scale and 11 use the CLASS Infant and Toddler observational measures to assess infant-toddler classroom quality.

State efforts to support quality improvement and enhance the care supply have emphasized formal settings, especially center-based programs. Centers have much higher participation rates in state QRISs than do home-based care providers. Several states don't include home-based child care in their QRIS at all, and those that do limit participation to licensed or registered providers. Unlicensed home-based providers who are seeking to provide quality caregiving have fewer avenues of support.[97]

One strategy to improve home-based care quality involves creating family child care networks that connect providers to each other and to useful community resources. For example, All Our Kin in New Haven, CT, is one of several organizations nationally that offer targeted training and coaching to family child care providers in an effort both to support workforce development for business owners and to improve child care quality.

States have also focused on developing professional standards that identify the skills, knowledge, and attitudes early childhood educators should possess in an attempt to

improve and professionalize this workforce. Three states—Maine, New Hampshire, and New York—have separate standards for professionals who work with infants and toddlers. More than 38 state or regional early childhood workforce registries have been created to unify and recognize the workforce, capture data on employment history and qualifications, and track and verify professional development. Several states are formalizing career ladders for child care workers, providing tuition assistance to help them attain two- and four-year degrees, and offering bonuses to encourage personal advancement and support retention. Yet only limited public financing exists in the form of scholarships, bonus incentives, and student loan forgiveness for workers trying to meet rising educational requirements or to advance along their career pathways.

In 2015, the National Academies of Sciences, Engineering, and Medicine released a landmark report that closely examined the state of the early childhood workforce and made detailed recommendations for strengthening the knowledge and skills of early care and education professionals.[98] In response, a task force of 15 national organizations that represent early childhood professionals launched Power to the Profession—a national collaboration to define the early childhood profession by establishing a unifying framework for career pathways, workforce competencies and qualifications, and compensation. These initiatives are promising, yet financing such changes will require additional resources. The National Academies report estimated that it will cost at least $140 billion per year to make high-quality early care and education accessible to all young children from birth until kindergarten, including support for a highly qualified and adequately compensated workforce, with the largest share allocated to infant-toddler care.[99]

Policy Directions

The United States' public investment in and policy support for programs designed to help meet the developmental needs of very young children with quality child care and early education is relatively minimal. But several recent developments signal increased attention to child care and early education in the United States. These include the reauthorization of the main federal child care law, additional federal appropriations for the child care subsidy program, the creation of new program service models to extend higher quality standards to more infant and toddler care providers, and increased federal funding to states to support improved planning and systems for integrating care for infants and toddlers within a birth-to-five continuum.

In 2014, Congress reauthorized the CCDBG for the first time in nearly 20 years, and in 2016 the Administration for Children and Families instituted new rules governing states' administration of child care programs. The reauthorization strengthened the child development focus of the block grant program. Several provisions aim to establish higher and more uniform health and safety licensing standards (for example, by requiring mandatory training, background checks, and monitoring), which had previously varied tremendously across states. To help increase stability in child care arrangements, families are granted subsidy approval for a minimum of 12 months before they must submit paperwork to verify their continued eligibility. Half of states previously had shorter eligibility periods.

Notably, the reauthorization didn't increase funding, hampering states' efforts to

implement its provisions and rule changes. However, for fiscal years 2018 and 2019 Congress increased federal child care appropriations, which had remained relatively stagnant for most of the previous seventeen years, by $2.4 billion annually, the largest annual increase in federal child care investment ever. For fiscal year 2020, Congress increased the $2.4 billion appropriation by another $550 million. States report that the additional funding has been used to implement new quality provisions, increase pay rates for providers, improve policies that help families continue to receive subsidies with less interruptions, and broaden eligibility.[100] More than half of the states anticipate serving more children as a result of the new funding, even though the initial state response to these historic new investments hasn't primarily been to increase access but rather to fix problematic aspects of the child care system: to manage health and safety issues, increase workforce training, and raise provider payment rates. Some states had to make these changes to meet new federal requirements and regulatory changes. Other changes came in response to conditions that had worsened across many states over the years of nearly flat federal funding, which, once inflation is taken into account, represented a significant erosion in support. With the continuation and further expansion of federal CCDBG funding, many states are more likely to view these as higher baseline funding levels that can be sustained and therefore will be willing to commit more of the resources to serving additional children, expanding eligibility, and reducing parent copayments.

While EHS has capacity for just 7 percent of children in families with incomes below the poverty level, this still represents positive growth in recent years. The number of pregnant women and children served through EHS nearly doubled between 2008 and 2017, from 84,000 to 162,000. Furthermore, in an effort to expand the reach of EHS, the federal government created the Early Head Start–Child Care Partnerships in 2014 to help extend EHS program supports and program standards to infant and toddler child care providers. Approximately 250 partnerships across the country were initially awarded to serve about 27,000 children enrolled in infant and toddler child care.

Bolder policy proposals are being developed to remedy the historic lack of investment in early childhood care and education.

Congress also established the Preschool Development Grant Birth-through-Five program, which provides competitive grant funding to help states improve their early childhood systems. Funded with an initial annual appropriation of $250 million, the program awarded 12-month grants to 46 states and territories beginning in December 2018. The grants are designed to support state-level needs assessments and strategic planning; the goal is to improve services and systems across the birth-to-five continuum, focusing explicitly on birth-to-three services and the quality of early care and education programs. Twenty states and territories have since been awarded three-year grants to implement the strategic plans they developed, and another six states and territories that didn't previously receive funding have received initial planning grants.

Finally, bolder policy proposals are being developed to remedy the historic lack of investment in early childhood care and education, such as the Child Care for Working Families Act that was introduced in the 2019 Congressional session and is still on the table in 2020. This legislation proposes that early care and education program resources be treated as an entitlement that would make child care affordable to all eligible families rather than financed through a block grant. If enacted, it would guarantee subsidy support to all families earning up to 150 percent of their state's median income, and participating families would be expected to contribute no more than 7 percent of their household income toward the cost of child care and early education. Subsidies would support the costs of high-quality care, workforce provisions would support higher compensation for all teaching staff, and lead teachers with similar education would receive pay on par with that of early elementary school educators. Under this law, much of the earliest investments would be dedicated to developing infrastructure for high-quality care and to increasing the supply of licensed care to further families' options. Finally, recognizing the most acute need in early care and education, the legislation would increase the federal share of the costs of infant and toddler care. While the near-term prospects for this type of transformative investment are uncertain, the legislation nevertheless signals a clear recognition of the scale of the problems in access, affordability, and quality of child care and early education, as well as growing support for federal investments on the scale needed to address the challenges we face.

Conclusions

For more than two decades now, the United States has suffered from inadequate infrastructure to support young children's early care and education, despite the reality that six to seven million babies and toddlers have working parents and are attending child care every work day.

Over that same period, research has shown time and again that the early childhood years are the most rapid period of human development, when investments in children can be particularly effective for developing early skills that serve as the building blocks for increasing their capacities over time.

Children experience a diverse array of nonparental child care and early education that varies based on their families' resources. Families' choices for infant and toddler child care are constrained by cost and supply limitations and family circumstances. The early developmental settings where very young children receive care lack sufficient resources, and the caregivers who provide it are underpaid. This is part of the reason that most care is merely adequate and fails to meet the threshold of high quality. In recent years, increased attention and resources have been directed toward building and improving states' quality provisions and on stabilizing subsidies at both the federal and state level. But much more remains to be done to offer our youngest children the care and early education they need.

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