

KEY POINTS

- » Most children in the US attend early care and education (ECE) such as public or private preschool, child care centers, or Head Start before entering kindergarten. High-quality ECE programs can promote positive educational, social-emotional, and behavioral outcomes.
- » Intensive, high-quality, model ECE programs, such as Abecedarian and the Infant Health and Development Program, have strong, lasting health benefits, including improved cardiovascular and metabolic health and reduced smoking. Less intensive, at-scale ECE programs—particularly those with health components (for example, nutrition, screenings, and links to health insurance) such as Head Start—also show health benefits for participants, including higher immunization, screening, and identification rates; improved mental health; and reduced smoking. However, the initial entrance into group care and education settings has short-term negative effects on the incidence of communicable diseases.
- » Investments in ECE programs, particularly those with health components, may provide lasting health benefits for participants.
- » There is a need for additional research on the effects of contemporary public and private early childhood programs on children's health and the mechanisms underlying these effects.

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THE EFFECTS OF EARLY CARE AND EDUCATION ON CHILDREN'S HEALTH

A growing body of research indicates that early child care and education may lead to improvements in short- and long-term health-related outcomes for children.

Early care and education (ECE) includes settings in which children are cared for and taught by people other than their parents or primary caregivers with whom they live. These include center-based care arrangements (for example, child care centers, preschools, and prekindergartens) and nonparental home-based arrangements, in which care is provided in the child's or caregiver's home (for example, care by nannies, relatives, or babysitters and in family child care homes, which are regulated settings in which a caregiver cares for multiple unrelated children in her own home). [Home visiting programs](#), in which a visitor spends time with children while the parents are present, are not considered ECE.

While ECE programs are not necessarily designed to improve child health, a growing body of research indicates that they may lead to short- and long-term improvements in health-related outcomes. This brief highlights such outcomes of ECE. It focuses specifically on center-based care, as the research base on the health effects of nonparental home-based care is still sparse.

Early Care And Education Programs

In 2012, [60 percent of children not yet in kindergarten](#) in the United States regularly attended at least one type of ECE arrangement, and of these, [56 percent](#) attended center-based arrangements. Rates of ECE attendance vary by child and family characteristics. Three-quarters ([76 percent](#)) of preschool-age children (ages 3–5 years) attended one or more nonparental care arrangements, compared to [46 percent](#) of children younger than 1 year. Four-year-old children were [more likely](#) than three-year-olds and younger children to be in center-based care. Children with employed mothers and those in higher-income families were [more likely than their counterparts](#) to be in center-based ECE, whereas Latino children were [less likely](#) to be in such care. [Half](#) of the children in households with incomes below the federal poverty level attended center-based care, compared to [57 percent](#) of children in households with incomes at or above poverty.

Center-based care, on average, tends to be of **higher quality** than care provided in home-based or informal arrangements, but it is also **more expensive** and **difficult to find, especially for infants and toddlers**. In most states, the **annual cost of center-based care** for an infant is more than tuition at four-year public colleges, but the parents of young children are in the **lowest earning years** of their careers and lack the financing mechanisms, such as loans, that are available for college.

Most ECE programs are designed for one or both of two purposes: to provide care while parents work or to promote children's readiness to enter kindergarten by supporting cognitive, social-emotional, and behavioral development. ECE in general has **positive effects** on parents' labor force participation, and high-quality ECE shows **positive effects** on children's kindergarten readiness.

“In 2012, 60 percent of [US] children not yet in kindergarten regularly attended at least one type of ECE arrangement.”

Over the past five decades, public investments in ECE in the US have increased but are not on par with those of peer nations. The US spends **0.5 percent of gross domestic product (GDP)** on early childhood education, compared to the nearly **1 percent of GDP** spent by many European countries—which typically begin public schooling at age three and heavily subsidize care before school entry. As a result, most **young children** in the US attend private center- or home-based ECE settings, rather than publicly operated or funded programs, before kindergarten.

There are three main public programs for ECE in the United States (in addition to what are typically termed “model” or experimental programs), all of which primarily enroll low-income or otherwise at-risk children. Public programs serve a fraction of those

eligible, largely due to limited funds.

HEAD START AND EARLY HEAD START

Head Start (HS) and Early Head Start (EHS) constitute the largest public investment in ECE in the US, primarily providing services to children in poverty. In 2016, **HS served** about 40 percent of poor three- and four-year-olds, and **EHS served** fewer than 5 percent of poor children younger than three. Since their beginnings in the 1960s, HS and most EHS programs have included both center-based ECE services (typically provided for only part of the day and only during the school year) and **comprehensive services** for children and their families (such as nutritious meals and snacks, immunizations and screenings, and referrals or direct treatment for mental and physical health conditions). Programs also connect families to public health insurance and other types of assistance. HS and EHS funds go directly from the federal Administration for Children and Families to local grantees. In fiscal year 2017, **\$9.25 billion** was appropriated for HS and EHS.

PUBLIC PRESCHOOLS

Public preschools are typically part-day, school-year programs intended for children during the year before kindergarten (usually four-year-olds, although some states enroll three-year-olds also). These programs are largely funded and administered at the state level, with some limited federal grants (for example, the federal **Preschool Development Grants**, beginning in 2009). In 2016–17, 33 percent of four-year-olds and 5 percent of three-year-olds were enrolled in state-funded preschool programs, with state funding totaling \$7.6 billion. **Forty-three states** and several cities have some sort of publicly funded preschool program, but **programs vary greatly** in enrollment, quality, hours and days of availability, per child funding, eligibility, and other factors.

CHILD CARE SUBSIDIES

Child care subsidies, supported by the federal Child Care and Development Block Grant, are administered at the state level with federal block grant funds and

matching state funds to support care for children from birth to age thirteen during parents' working hours. Most subsidies are administered as vouchers that allow parents to choose among different types of nonparental child care. States have considerable discretion in administering the program. They determine eligibility, enrollment, recertification, and provider licensure requirements and reimbursement rates within broad federal parameters. Private and public child care settings may also participate in the [US Department of Agriculture's Child and Adult Care Food Program](#), which subsidizes the cost of healthy meals for qualifying children.

“In fiscal year 2017, \$9.25 billion was appropriated for [Head Start and Early Head Start].”

An estimated 15 percent of eligible children (by federal rules) received child care subsidies in fiscal year 2015. In 2016, twenty states had waiting lists for their subsidy programs. The 2014 reauthorization of the Child Care and Development Block Grant [expanded health and safety requirements](#) for providers, and the [Bipartisan Budget Act of 2018](#) increased total annual mandatory and discretionary funding to [\\$8.1 billion](#) for fiscal years 2018 and 2019.

MODEL PROGRAMS

Model programs are intensive, largely experimental, smaller programs, typically designed as randomized experiments. These include [Abecedarian](#), the [Perry Preschool Project](#), the [Infant Health and Development Program](#), and the [Chicago Child-Parent Centers](#), most of which provide multiple years of full-day, full-year programming that targets disadvantaged children and families. Programming typically includes high-quality curricula, well-trained staff, family supports, and an explicit focus on physical and mental health-related services. Aside from the Chicago

Child-Parent Centers, most model programs operated in past decades and no longer serve children, but longitudinal studies of former participants continue. The programs received funding through a range of public and private sources, including research grants and philanthropic funds.

■ Challenges In Evaluating Early Care And Education Programs

There are several challenges in studying the effects of ECE programs on participants. First, it is difficult to create an appropriate counterfactual or comparison group to contrast with children attending ECE. Few ECE programs use random assignment for enrollment, and families electing to enroll [often differ in many ways](#) from those that do not enroll. Furthermore, as participation in ECE has grown more common, many children in the comparison group in several recent evaluations participated in programs similar to the ECE program that served the intervention group. And estimates of the ECE programs' direction and sizes of effects [vary greatly](#) according to the [comparison group](#).

Second, the examination of long-term effects requires longitudinal data from programs that operated years ago. This is problematic for generalizing results to today's ECE programs for two reasons: First, the programs from the 1960s and 1970s for which we have longitudinal data tended to be intensive and expensive model programs or Head Start; and second, the counterfactual of where children typically spend their time has changed, with few children now lacking any ECE experiences—[which narrows](#) the contrast between intervention and comparison groups.

Finally, evaluating the health effects of ECE is particularly [challenging](#), as children are a generally healthy population. Adverse health outcomes often take years or decades to emerge, which requires longitudinal data on a large sample.

Health And Other Effects On Children

Despite the above challenges, most research finds that both intensive model programs and most at-scale preschool programs promote children's academic school readiness (Duncan and Magnuson, 2013; Gormley et al., 2005; Gormley et al., 2017; Morris et al., 2018; Morrissey et al., 2014; Phillips et al., 2017; Reynolds and Temple, 1998; Thompson, 2018; Weiland and Yoshikawa, 2013; Yoshikawa et al., 2013). Effects are generally strongest for the most disadvantaged participants, which suggests that preschool expansions may reduce socioeconomic and racial/ethnic inequalities. Beyond short-term effects, however, much research finds “fade-out,” or a convergence in test scores and some other outcomes between children who attended ECE and those who did not as they age, which may be due to the quality of schools attended following ECE. Yet other research shows benefits for reduced grade retention, and ECE programs that have been in existence long enough to have former participants reach adulthood show some lasting educational, economic, and even intergenerational benefits.

Less research has investigated the health effects of ECE programs. ECE may affect health via several pathways: directly and positively, via access to health

rental employment or earnings or via improvements in education—which are associated with improved health behaviors and health outcomes. Supplemental exhibit 1 summarizes recent studies on the effects of ECE on short- and long-term health and health behaviors.

In general, the initial entrance into group settings—either ECE or kindergarten, if children are older—is associated with an increase in the short-term incidence of common communicable diseases or missed days of school due to illness. The number of children rather than the number of hours in care appears to underlie these effects. ECE does not appear to be linked with serious infectious diseases and may serve as a protective factor against asthma and other conditions. However, attending multiple or unstable arrangements, which is common among young children, may lead to more illness or diagnoses compared to attending one nonparental arrangement.

Unlike most at-scale ECE programs, Head Start and Early Head Start explicitly provide nutrition and health services. HS participation has been shown to increase children's access to preventive care and is associated with a short-term improvement in parent-reported child health. Furthermore, the introduction of HS in the 1960s was associated with declines in child mortality due to causes likely modified by HS programming, including nutritional deficiency, anemia, asthma, and communicable diseases preventable by immunizations. The more recent randomized EHS evaluation found that participants had slightly higher rates of immunizations and fewer hospitalizations for accidents or injuries than the control group did, although both groups received high levels of health services.

A smaller but growing body of research investigates the mid- and long-term health effects of ECE programs. In randomized controlled trials, model programs such as Abecedarian, the Perry Preschool Project, and the Infant Health and Development Program show substantial benefits for health and health behaviors in adulthood—particularly reduced smoking and improved cardiovascular and metabolic

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screenings, health care, improved nutrition, or other health-promoting activities; directly and negatively, via exposure to other children and pathogens that could harm health; and indirectly, either by increasing household resources resulting from increased pa-

health. The more limited research on the health effects of at-scale programs, specifically center-based care, finds similar improvements in [blood pressure](#), reductions in [smoking](#), and improved [self-reported health](#) in adolescence and adulthood. Other research finds that [Head Start](#) and [model](#) program participation reduces depression and disability rates in adolescence and early adulthood. Findings for weight outcomes are mixed ([Currie and Thomas, 1995](#); [Frisvold and Lumeng, 2011](#); [Herbst and Tekin, 2011](#); [Sabol and Hoyt, 2017](#)). Importantly, most of the limited research in this area focuses on programs that serve preschool-age children, with only studies of Abecedarian, the Infant Health and Development Program, and nonparental child care generally including settings that serve both infants and preschool-age children.

Little research has examined the health effects of public preschool programs, with two studies finding that [prekindergarten improves immunization, screen-](#)

“Head Start participation... increase[s] participants’ access to preventive care.”

[ing, identification, and treatment rates](#) and may lead to short-term [increases in school absences](#) due to illness. Furthermore, aside from the few studies that examine the health effects of a range of nonparental child care types (see, for example, [Sabol and Hoyt, 2017](#)), little research has examined the health effects of home-based care—settings particularly common [among low-income children](#).

There is a need for more research on the health effects of ECE, particularly of the at-scale public and private programs that are representative of those attended by children today and whose expansion is under debate. Random-assignment experiments would add to the quasi-experimental studies done to date. We also lack research on the mechanisms that link ECE participation to health behaviors and outcomes, whether health may play an intermediary

role in linking short-term effects to the long-term educational and economic benefits identified in longitudinal research, and whether the age of participation (the preschool period or the infant or toddler period) matters for later health outcomes. Such work is needed to identify health-promoting program characteristics in which to invest. Finally, the field is debating, developing, and testing [measures of ECE quality](#) that adequately predict child outcomes. These conversations should include children’s health outcomes.

■ Policy Implications

Traditionally, ECE investments have been framed so that child care is seen as a work support, and early education is seen as child developmental support. This false dichotomy has resulted in fragmented policies, such as part-day prekindergarten that requires working parents to arrange wraparound child care and child care subsidies with reimbursement rates so low that they can’t support high-quality educational programming. Moving forward, ECE policy must attend to both aims to jointly promote parental employment and children’s outcomes.

Over the past few decades, there has been a general bipartisan consensus on expanding preschool and child care. A [2017 poll](#) by the First Five Years Fund found that 79 percent of voters want Congress to “work together to improve the quality of child care and preschool and make it more affordable for parents.” At the federal level, the recent [Preschool Development Grant Birth through Five Grant Competition](#) funds states to plan comprehensive systems that cover children from birth to school entry and create partnerships across programs that serve infants, toddlers, and young children. In 2018, Congress [substantially increased child care subsidy funding](#). Recent proposed [legislation](#) would greatly expand child care subsidy eligibility and funding.

However, most of the ECE policy debate and change has been at the state and local levels. Over the past decade, the [District of Columbia](#) (2010), [San Antonio](#) (2013), [New York City](#) (2014), [Seattle](#) (2016), and [Cincinnati](#) (2016) have created or vastly expanded

public prekindergarten programs. In 2018 alone, the [District of Columbia](#), [San Francisco](#), and [Oakland](#) passed or considered legislation to enhance the affordability of child care. Furthermore, while Head Start is a federal program, two states ([Oregon](#) and [Washington](#)) contribute state dollars to expand services to eligible children and are considering doing more.

Cost-effectiveness studies of ECE programs suggest that public investments would likely pay off: The

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benefits of both model and public ECE programs—such as improved health, educational, and economic outcomes and reduced crime and reliance on public assistance—likely outweigh the initial program costs. Model programs showed large benefits but were more intensive and expensive than at-scale programs

and served very disadvantaged children. ECE programs that target disadvantaged groups may cost less in total (costing more per child, but serving fewer children) and yield better cost-effectiveness ratios than those that are [universally available](#). However, some research demonstrates the benefits of public [universal programs](#) and [mixed-income programs](#). Multiple fiscal, political, value, and other considerations factor into the [targeted versus universal preschool debate](#). In addition, the programs for which long-term cost-benefit studies have been done by definition operated decades ago, when preschool attendance was rare. We lack longitudinal data on contemporary programs that would enable thorough cost-effectiveness analysis.

To maximize positive impacts, ECE programs should offer [high-quality, evidence-based programming](#) and [curricula](#) and be [aligned](#) with the content taught in the elementary schools children attend following preschool. The inclusion of physical and mental health components such as screenings and nutrition may be helpful for promoting health behaviors or outcomes, but more research is needed to understand the specific mechanisms by which ECE affects health.

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