

Early Childhood Research Brief

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Measuring Costs to Support Quality in Early Care and Education Centers

Efforts to measure quality of early care and education (ECE) typically focus on children’s experiences in the classroom. Researchers and program administrators are increasingly interested in understanding how decisions made at the ECE center level can support what happens in classrooms and what it costs to provide quality care. Past cost studies in ECE have found that higher quality centers tend to have higher costs, but the association between cost and quality does not have a consistent pattern or strength across studies.¹

The **Assessing the Implementation and Costs of High Quality Early Care and Education**, or **ICHQ** (pronounced I-check), project has developed two sets of center-level measures that capture (1) implementation of activities that can support quality in ECE centers that serve children from birth to age 5 (not yet in kindergarten) and (2) the costs to provide care and services. Implementation measures summarize what a center does to support quality, including the combination of structural features (for example, teacher–child ratios, group size, and staff qualifications) and adopted practices, as well as how features and practices are supported. Cost measures estimate the amount and allocation of resources needed to support the ECE services a center provides, including how staff use their time.

This brief, part of a [series of research briefs](#) presenting findings from a multi-case study, focuses on the cost measures. The multi-case study helped us develop draft measures and explore how well they are working to summarize implementation, estimate costs, and identify ways centers can



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ICHQ cost measures are built from data collected from 25 ECE centers in three states that varied in the following characteristics:

- Licensed capacity (a proxy for size)
 - Ages of children served
 - Funding sources
 - Profit status
 - Quality Rating and Improvement System (QRIS) ratings ▲
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achieve quality. The multi-case study included 30 ECE centers, 25 of which completed all the cost data collection. The measures are being further tested and validated in a field test with a larger sample of centers in 2021.

In ICHQ, we created cost measures that delve deeper into costs and resources used to help explain variations in quality. ECE cost studies have largely focused on estimating total program costs, but the ICHQ measures include finer-grained cost estimates that capture important information about

how much centers spend on different types of resources and activities. This approach supports a better understanding of how centers use resources in ways that could affect quality. In addition, we developed the ICHQ cost measures to work together with the implementation measures. The ICHQ implementation and cost measures combine information on the services centers provide and the cost of the resources they require to provide these services. Together, these measures will help center administrators and policymakers connect decisions about day-to-day operations to the larger question of how to allocate limited resources to provide high quality ECE.

ICHQ cost measures combine data on costs, child enrollment, and staff time use

To create the cost measures, we collected three essential data elements from each center through a cost workbook and staff time-use surveys. The elements included cost, enrollment, and time-use data:

/ **Cost data.** Center respondents (typically a center director or financial manager) provided information in the cost workbook on what they spent to provide services to children ages birth to 5 years over a one-year period.

/ **Enrollment data.** Center respondents provided information in the cost workbook on the number of children they served and the number of hours they provided care during the one-year period.

/ **Time-use data.** All teaching staff and select administrators at the center completed a time-use survey to provide information on how they spent their time across various activities related to ECE services.

We estimated center-level costs by using a method, commonly used in cost studies, that calculates total costs based on the value of the “ingredients” or resources across eight categories.² For each resource, we assigned a dollar value, either using the amount reported in the cost workbook or by estimating the value based on market prices.³

Estimating center-level costs

Calculate costs using the “ingredients” or resource cost method:

1. Identify the type and quantity of resources used to deliver a program or service
2. Determine the monetary value of these resources
3. Sum the values to estimate total cost ▲

Eight resource categories included in the ICHQ cost measures

Resource category	Description or definition
Salaries and fringe	Salaries, taxes, and fringe benefits for regular, paid staff
Staff training and education	Costs for training and education provided to center staff members
Contracted services	Services purchased from organizations and/or people that operate independently from the center
Facilities	Facilities-related costs incurred during report period, including rent and utilities or the estimated value of space used free of charge
Supplies and materials	Resources that cost less than \$1,000 that are used and replenished regularly
Equipment	Resources with a cost of more than \$100 and an expected useful life of more than one year
Other and miscellaneous	Items and services not captured under any other categories
Payments and overhead or resources from a larger organization	Costs incurred for or estimated value of resources the center received from a larger organization or entity, or for operating as part of a larger organization or entity

ICHQ uses three types of cost measures to reflect resource use in ECE centers

We created three types of cost measures that describe the cost of providing ECE to children ages birth to 5 in a center and how a center uses resources to deliver ECE services.

ICHQ cost measures



Cost per Child Care Hour
Cost to provide care for one child for one hour, calculated by dividing total hours of care the center provided during that period



Cost Allocations by Resource Category
Total annual cost for each resource category divided by total annual cost



Cost Allocations by Function
Total annual cost for each key function divided by total annual cost

Our first measure, **cost per child care hour**, reflects the total cost to provide care for one child for one hour. This measure, calculated by dividing total annual costs by total hours of care provided during the same period, accounts for differences in centers' enrollment options and hours of care provided so we can compare the cost of providing care among different centers. The cost per child care hour measure reflects, in dollar terms, the amount of investment centers make within the resources they have available to provide care and services to young children and their families.

Two sets of measures estimate how costs are allocated and are expressed as a percentage of total costs. The **cost allocations by resource category** reflect the percentage of total annual cost spent on each of eight resource categories (discussed above).

The **cost allocations by key function** measures help us understand how centers use their resources on activities connected to each of five key functions, or areas, of ECE center operations that all centers

Five key functions

Key functions of center operations	Examples of costs included
Center Administration and Planning	<ul style="list-style-type: none"> • Staff time spent on regulatory compliance and reporting, managing center finances, and managing and maintaining center operations • Office supplies, furniture, and equipment • Licensing fees • Legal, technology, and program evaluation services
Instructional Planning, Coordination, and Child Assessment	<ul style="list-style-type: none"> • Staff time spent on planning curriculum, activities, and lessons and preparing, conducting, and sharing child assessments • Curriculum and assessment materials
Structural Supports for Instruction and Caregiving	<ul style="list-style-type: none"> • Staff time spent on providing instruction and care • Classroom supplies and equipment • Playground equipment
Child and Family Support	<ul style="list-style-type: none"> • Staff time spent on engaging with families or providing support services • Health and hygiene items provided to families
Workforce Development	<ul style="list-style-type: none"> • Staff time spent on staff development, recruitment, hiring, evaluation and attending staff meetings • Workshop and conference fees and expenses

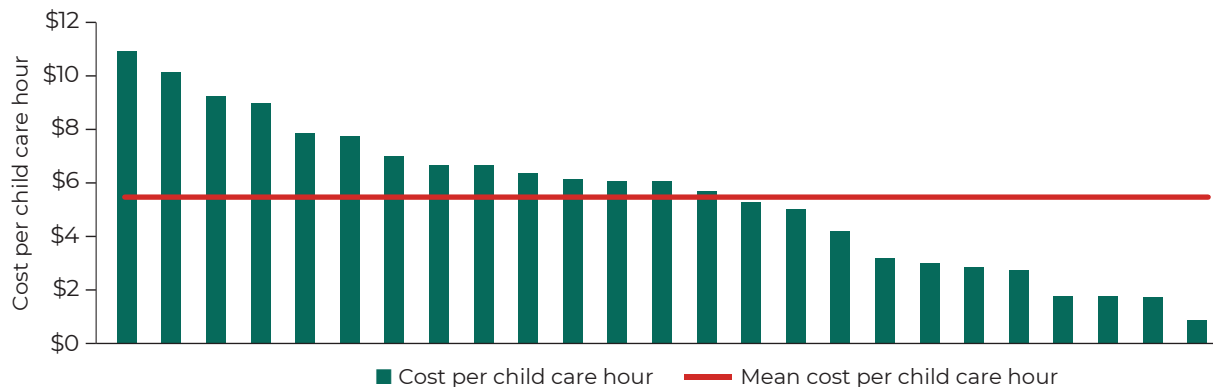
do to varying degrees to provide services to young children and their families.⁴ Each of the five key functions has associated costs. We allocated salaries and fringe to different functions based on data from staff time-use surveys. We allocated costs for other resource categories to key functions based on the purpose or description of the service or item purchased or received. This set of measures is reported as percentages of total annual cost spent on each key function.

The complete set of ICHQ cost measures shows how much centers spend overall as well as the level of spending for each resource category or key function relative to another. The two sets of allocation measures illustrate trade-offs centers might have to make to balance costs within available resources.

ICHQ cost measures show substantial variation across centers

Our goal for developing the measures was to ensure we could measure costs comprehensively and capture variation in costs across different types of centers. We saw an average cost per child care hour among the 25 centers of \$5.47 and, even in this small sample, we found a wide range in costs, from \$0.92 to \$10.77 per child care hour. Capturing total costs and the variation in costs across centers accurately is essential for examining how the ICHQ cost and implementation measures are related and whether patterns in cost and implementation help explain variations in quality.

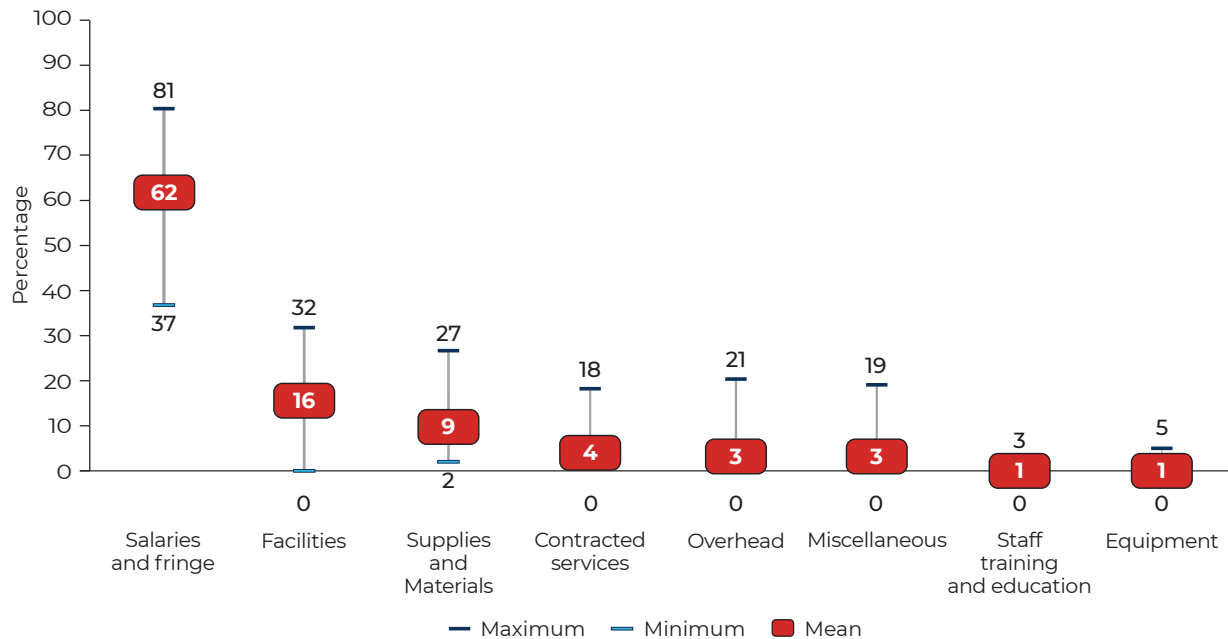
Cost per child care hour for 25 centers in the ICHQ sample



Personnel costs (salaries and fringe benefits) accounted for the largest proportion of costs, in line with past ECE cost studies.⁵ Facilities and supplies and materials accounted for the next two largest proportions of costs. Other resource categories comprised small proportions of center costs, such as contracted services, overhead costs, and other direct and miscellaneous costs. Just one percent of costs, on average, went to staff training and education and equipment.

Although personnel costs consistently accounted for the largest proportion of costs across all centers, the relative proportions of costs allocated to the other resource categories varied considerably. These trade-offs could be important in understanding different approaches centers take to maximizing their resources in pursuit of quality.

Cost allocations by resource category for 25 centers in the ICHQ sample



Note: Resource categories have minimums of 0 when at least one center had no costs in the category.

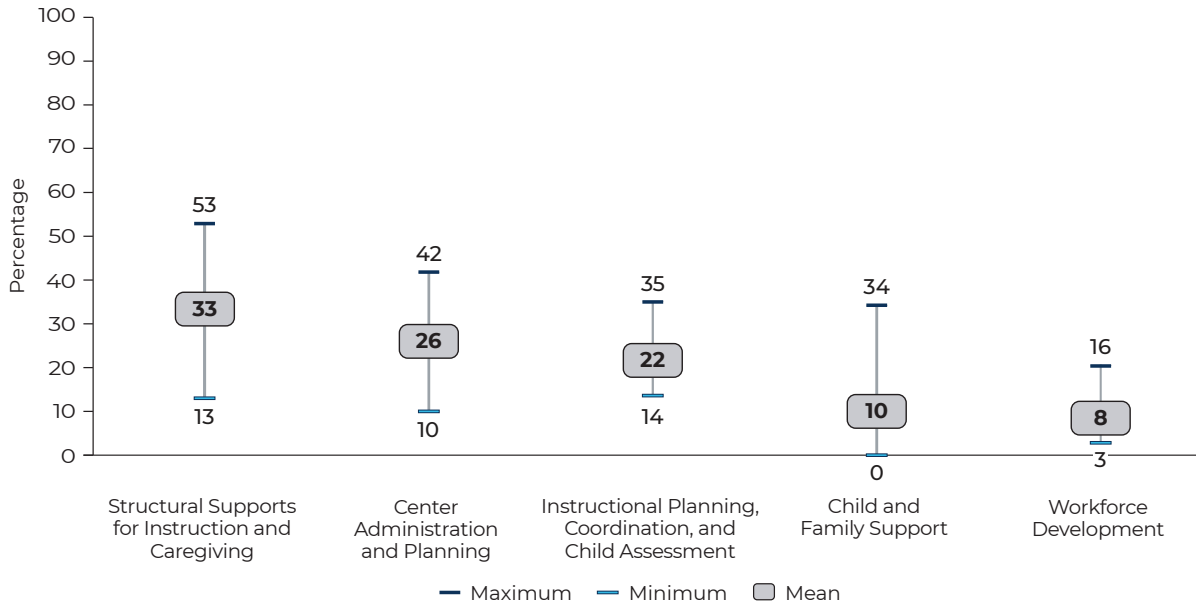
ICHQ cost measures provide information about the use of resources across key functions

The ICHQ cost allocations by key function go further than prior ECE cost work by identifying patterns in the use of resources across the five key functions, or areas, of center operations. On average, among the 25 centers in our sample, centers allocated about one-third of their total annual costs to the Structural Supports for Instruction and Caregiving key function and just under one-quarter of costs to the Instructional Planning, Coordination, and Child Assessment key function.

It is logical that centers would devote most of their resources to the two key functions that, combined, most directly connect to activities in classrooms.

We also saw that, on average, centers spent just over one-quarter of their total costs on the Center Administration and Planning key function and less on the key functions of Workforce Development and Child and Family Support. Again, the distribution of the cost allocations to each of the five key functions varied widely. This variation might reflect center responses to the needs of participating children and families or priorities tied to different funding sources.

Cost allocations by five key functions for 25 centers in the ICHQ sample

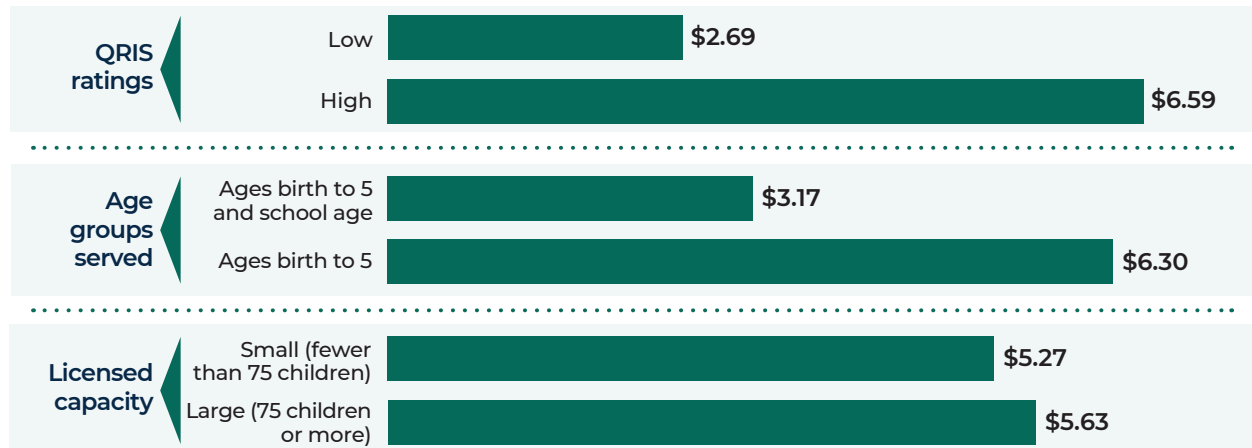


ICHQ cost measures vary with center characteristics in ways we expect and that help in understanding supports for quality

We examined differences in the cost measures by center characteristics to see if they were consistent with what we might expect based on previous cost studies in ECE. Our findings suggest the measures captured

important distinctions and can help us further explore what drives differences in costs in a larger sample of centers. The cost per child care hour was higher, on average, among centers with high QRIS ratings than among centers with low QRIS ratings,⁶ in line with previous studies that observed higher costs in centers of higher quality.⁷ The average cost per child care hour was lower for centers that served school-age children in addition to children ages birth to 5. Costs per child care hour did not differ by program size.

Average cost per child care hour by select center characteristics

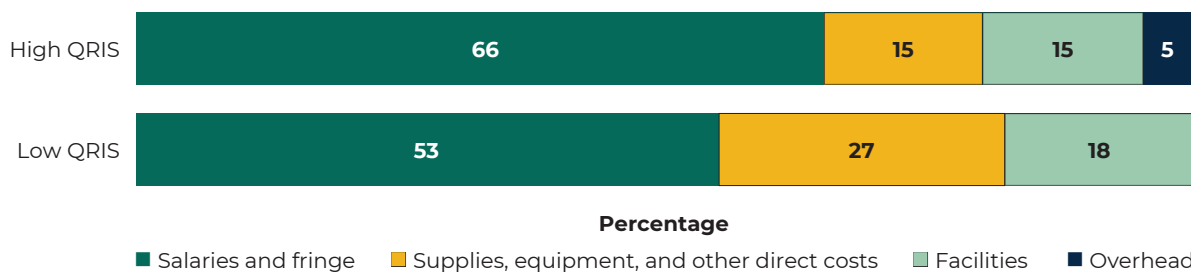


Note: Centers are categorized as having high or low QRIS ratings based on the requirements for the different rating levels in each of the three states in the multi-case study.

The cost allocation measures can help us understand how centers with different characteristics use their resources to support quality. For example, in the cost allocations by resource category, high QRIS-rated centers invested more in staff compensation, on average, than low QRIS-rated centers, suggesting

high-rated centers might pay their staff more than low-rated centers. Despite the differences in how centers with high and low QRIS ratings allocated their costs by resource category, we found their allocations of costs to key functions were similar to the allocations for the overall sample.

Cost allocations by select resource categories for 25 centers in the ICHQ sample that vary by QRIS rating



Note: Centers are categorized as having high or low QRIS ratings based on the requirements for the different rating levels in each of the three states in the multi-case study.

Next steps for validating and using the measures

The ICHQ cost measures vary in ways we would expect based on past ECE cost studies, providing preliminary evidence of their validity in helping us understand supports for quality. The measures also extend what we know about ECE costs by creating finer-grained measures that reflect how centers spend their resources across resource categories and key functions. We are further testing the ICHQ measures in a field test with a larger sample of centers to explore how costs differ by centers’ characteristics and implementation of the key functions. As the ICHQ measures are tested further and used more widely, benchmarks could emerge that signal the tipping point at which costs, in total or for certain key functions, predict center quality outcomes.

Combining the ICHQ cost and implementation measures can help ECE researchers and policymakers understand the investments necessary to support high quality ECE. The measures, in combination, can also help practitioners map out a strategy for resource use to support quality and that matches a particular center’s needs and available resources.

Endnotes

¹ Caronongan, P., G. Kirby, K. Boller, E. Modlin, and J. Lyskawa. “Assessing the Implementation and Cost of High Quality Early Care and Education: A Review of Literature.” OPRE Report #2016-31. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation, 2016.

² G. Kirby, P. Caronongan, A. Burwick, S. Monahan, D. Poznyak, T. Schulte, J. Lyskawa, and A. Kelly. (2022). Developing measures of the implementation and cost of high quality early care and education. OPRE Report 2022-04. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

³ We made three adjustments to the estimated costs. We estimated the value of the space centers used free of charge using local market prices. We calculated the annual value of equipment and facility improvements using items’ estimated useful life based on Internal Revenue Service depreciation guidelines. We adjusted local resource prices to national equivalents to account for geographic differences in wages and the cost of other resources using metropolitan area-level and national Bureau of Labor Statistics data.

⁴ The ICHQ implementation and cost measures are framed around five key functions, or areas, of ECE center operations that contribute to high quality care. Each of the five key functions are defined by a specific set of activities and practices that allows us to measure implementation and costs for each key function distinctly. Constructing measures around each of the five key functions will help the ECE field better understand how implementation and costs in specific areas relate to quality. More information about these key functions can be found in the [ICHQ Conceptual Framework snapshot](#).

⁵ Caronongan et al. 2016.

⁶ High QRIS generally includes the top one or two rating levels, depending on the total number of rating levels and the definitions of high quality set by each of the three states in the multi-case study. We excluded the first rating level from the low category in two of the three states because there was no assessment or gauge of quality made at entry. We also excluded middle rating levels in two of the states to get a better distinction between high and low quality based on the QRIS requirements.

⁷ Caronongan et al. 2016.

About the Project

OPRE sponsored the ICHQ project to create measures of implementation and costs of providing ECE services at centers for children from birth to age 5. The project produced measures to examine how differences in what a center does and how resources are used influence quality. Products include [a literature review](#) and a [methods paper](#) that describes how we developed draft measures through a multi-case study.

This brief is part of a [series of research briefs](#) summarizing findings from the ICHQ multi-case study that collected data from 30 ECE centers between October 2017 and June 2018 to develop draft measures. Subsequent products from the ICHQ project will describe findings from a 2021 field test in which we are testing and validating the measures in a purposive sample of 80 centers in four states and will further specify uses of the measures for research and practice.

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