## PRENATAL-TO-3 POLICY CLEARINGHOUSE EVIDENCE REVIEW

ER 0920.012A



# **Child Care Ratios**

## **Evidence Review Findings: Needs Further Study**

More rigorous research is needed to build the evidence base on the impact that lower child-to-caregiver ratios have on children's development, health, and safety in early care and education settings, particularly in the infant and toddler years. The few causal studies identified for this review suggest mixed impacts, but the observational research conducted up to this point is promising, and it suggests that lower ratios and smaller group sizes may lead to more positive caregiving, better cognitive outcomes, and fewer illnesses among children.

In early care and education settings, a child care ratio refers to the number of children in a room per caregiver. The ratios considered best for child care quality and safety vary depending on children's ages and the type of child care setting (e.g., center- or home-based care). States include ratio requirements, typically with caps on the number of children allowed per classroom or home, in their licensing regulations for child care providers. Organizations such as the American Academy of Pediatrics and the American Public Health Association also provide recommended guidelines for ratios. Policies that encourage lower child-to-caregiver ratios and smaller group sizes may improve child supervision and facilitate better relationships between infants and toddlers and their caregivers, thereby improving classroom safety and quality. Higher-quality classrooms, in turn, may improve short- and long-term cognitive and social-emotional outcomes for young children by promoting healthy brain development. Ratio requirements and maximum group sizes for licensed child care centers and homes vary across the states based on the ages of the children served.

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## What Are Child Care Ratios?

Child care ratios represent the number of children per adult caregiver in the same room in an early care and education setting. Requiring better<sup>i</sup> ratios is a policy lever that states can use to promote the quality and safety of early child care environments, and ratios are often recommended alongside maximum group or class sizes. The ratio of children to caregivers is regulated in state statutes for child care licensing, and requirements vary by state, child age, and child care setting (e.g., center-based, home-based). In general, the younger the children in care, the fewer who can be cared for by a single adult. Table 1, below, presents a summary of recommended ratios for child care centers by age from the National Association for the Education of Young Children (NAEYC), the American Academy of Pediatrics (AAP), and the American Public Health Association (APHA). Table 7, at the end of this report, displays state licensing requirements by age and setting, which do not always align with the recommended standards.

Table 1: Summary of Child-to-Caregiver Ratio Standards by Broad Age Range for Center-Based Care<sup>26,27</sup>

Age	NAEYC	AAP/APHA
Infant (0-15* mo.)	4:1	3:1
Toddler (12-36 mo.)	6:1	4:1
Preschooler (30-60 mo.)	10:1	7:1 for 3-year-olds, 8:1 for 4- and
		5-year-olds

\*Note: NAEYC's broad age categories intentionally overlap. NAEYC standards within each broad age group depend on child age and classroom size; AAP/APHA guidelines vary within the preschool category depending on child age. The ratios in this table represent the maximum allowable ratio for the oldest children in a given broad age category. Note that state licensing requirements for ratios, as detailed in Table 7, use different age ranges for infants (up to 11 months) and toddlers (12 to 35 months) than the NAEYC recommendations.

For licensed home-based settings, which often include mixed age groups, the US Department of Health and Human Services recommends a maximum ratio of six children to one provider, with a cap of two children under age 2 among the six children.<sup>1</sup> The National Association for Family Child Care accreditation standards require a qualified assistant in addition to the primary provider if more than six children are in care, and a maximum of four children under age 2 may be cared for when seven or more children are present.<sup>2</sup> The federal government uses "family child care home" to refer to a setting with one provider and uses the term "group child care home" when multiple providers care for children in a single home.<sup>3</sup> However, the literature often uses "family child care home" to refer to home-based child care regardless of the number of caregivers present.

The National Resource Center for Health and Safety in Child Care and Early Education (NRC) developed guidelines with the AAP and APHA for small and large family child care homes, shown in Tables 2 and 3 below. The standards recommend no children over 2 years old in home-based settings with two or more children under age 2.

Table 2: Summaı	y of Recommended	Ratios for Small Fan	ily Child Care Homes	(1 to 6 children)27
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Number of Children Under 2 Years of Age	Maximum Number of Children Over 2 Years
0	6
1	3
2	0

Table 3: Summary of Recommended Ratios for Large Family Child Care Homes (/ to 12 child	ГаЫе	ole 3	3: Sum	mary	of Re	comme	nded	Ratios	for	Large	Family	Child	Care	Homes	(7 t	o 12	chila	lren)	27
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Age	Child-to-Caregiver Ratio	Maximum Group Size
<12 months	2:1	6
13-23 months	2:1	8
24-35 months	3:1	12
3-year-olds	7:1	12

<sup>&</sup>lt;sup>i</sup> Because ratios can be represented in multiple ways (e.g., the number of adults per child, or the number of children per adult), this summary uses "better" and "lower" child care ratios to mean *fewer children per adult caregiver*.

### Who Is Affected by Child Care Ratios?

Licensing requirements for child care ratios affect the millions of children cared for in child care centers and homes that participate in the regulated market. According to 2017 data from the US Department of Health and Human Services' Administration for Children and Families (ACF), the US has 109,414 licensed centers, 98,308 licensed small family child care homes, and 25,529 licensed large family child care homes.<sup>4</sup> No enforcement mechanism exists for unlicensed providers' compliance with recommended ratios, but most states require that providers serving more than three or four children at a time become licensed.<sup>5</sup> Over half of state quality rating and improvement systems (QRIS) use ratios and group sizes as indicators of quality in their rating programs.<sup>29</sup>

## What Are the Funding Options for Child Care Ratios?

Achieving better child care ratios means requiring more staff per child served, and if centers and home-based providers decide to hire additional staff to meet this goal rather than accept fewer children, then costs for child care worker salaries may increase. Funding sources may include public federal and state grant programs, such as the Child Care and Development Fund and the Preschool Development Grant Program.<sup>6</sup> Child care centers may also raise child tuition or seek other private funds to support the increased staff costs.

## Why Should Better Child Care Ratios Be Expected to Impact the Prenatal-to-3 Period?

The rationale for the importance of low child-to-caregiver ratios and group sizes, especially for children under age 3, is that better ratios and smaller groups may lead to higher-quality care environments by facilitating richer, more frequent interactions and more positive relationships between children and their caregivers. These interactions and relationships, in turn, may promote child brain development and produce better cognitive and social-emotional outcomes.<sup>7</sup> Lower ratios may also lead to safer environments for children because of greater supervision and a lower likelihood of accidental injury.<sup>8</sup> Achieving better ratios can be costly because of the additional staff required, and some scholars argue that stricter regulation may have the unintended consequence of deterring providers from becoming licensed or making high-quality care less affordable for families.<sup>9</sup> In addition, because most infants and toddlers are cared for in settings with lower ratios than those with older children, greater numbers of 3- and 4-year-olds may subsidize the higher costs for younger children in the same centers.<sup>10</sup> Reducing the number of older children that may be cared for in a given classroom or center may therefore have the effect of increasing costs and limiting access for young children and their families to thrive.<sup>7</sup> These conditions are represented by our eight policy goals, shown in Table 4. The goals with which child care ratios are theoretically aligned are indicated below.

Aligned	Policy Goal
	Access to Needed Services
	Parents' Ability to Work
	Sufficient Household Resources
	Healthy and Equitable Births
	Parental Health and Emotional Wellbeing
	Nurturing and Responsive Child-Parent Relationships
	Nurturing and Responsive Child Care in Safe Settings
	Optimal Child Health and Development

Table 4: Policy Goals Theoretically Aligned with Child Care Ratios

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## What Impact Do Better Child Care Ratios and Group Sizes Have, and for Whom?

The strength of the evidence on the effects of child-to-caregiver ratios on child care quality, safety, and outcomes for infants and toddlers is limited by methodology (the majority of studies use observational and correlational study designs) and a focus on older age groups (preschoolers). Most research uses natural variation in ratios across child care settings and classrooms to examine the association between ratios and various outcomes rather than evaluate the impacts of specific state policies regarding ratios or group size. Experimental studies of ratios may not be feasible because of the practical difficulties and ethical challenges associated with randomly assigning children to classrooms with better or worse child-staff ratios.

The research discussed here meets our standards of evidence for being methodologically strong and allowing for causal inference, unless otherwise noted. Each strong causal study reviewed has been assigned a letter, and a complete list of causal studies can be found at the end of this review, along with more details about our standards of evidence and review method. The findings from each strong causal study reviewed align with one of our eight policy goals from Table 4. The Evidence of Effectiveness table below displays the findings associated with lower child care ratios or group size (beneficial, null,<sup>ii</sup> or detrimental) for each of the strong studies (A and B) in the causal studies reference list, as well as our conclusions about the overall impact on each studied policy goal. The assessment of the overall impact for each studied policy goal weighs the timing of publication and relative strength of each study, as well as the size and direction of all measured indicators.

Policy Goal	Indicator	Beneficial Impacts	Null Impacts	Detrimental Impacts	Overall Impact on Goal
Optimal Child Health and Development	Child Cognitive Development		А		
	Child Social-Emotional Health		Α		Mixed
	Frequency of Illness (Respiratory Infections)	В			

#### Table 5: Evidence of Effectiveness for Child Care Ratios and Group Size by Policy Goal

## Optimal Child Health and Development

## **Center-Based Care**

Most research on the impact of child-to-caregiver ratios in formal child care centers examines how ratios contribute to overall process quality<sup>iii</sup> or the quality of caregiving and instruction (e.g., frequency of child-caregiver interactions, positive regard shown by caregiver).<sup>11</sup> Fewer studies make the connection between ratios and specific cognitive or developmental outcomes for children. The studies that do examine cognitive and developmental outcomes tend to have less rigorous designs, including small sample sizes,<sup>12</sup> or focus on preschool-aged children rather than children under age 3.<sup>13,30</sup> A 1979 study, the National Day Care Study (NDCS), is widely cited as the basis for later research on lower ratios and class sizes.<sup>14</sup> The study examined 64 day care centers in three cities, and in eight of the centers, students were randomly assigned to classrooms of different sizes and ratios. The authors found that overall, smaller class sizes had significant positive effects on cognitive outcomes (as measured by instruments including the Preschool Inventory, or PSI, and the Peabody Picture Vocabulary Test, or PPVT) for 3- and 4-year-olds, through increased engagement in "creative, verbal/intellectual and cooperative activity" (p. 25). For example, doubling the group size led to a reduction in fall-to-spring growth on the PPVT.<sup>iv</sup> A smaller sub-study of the NDCS that included infants and toddlers found that lower ratios were associated with higher-quality care in settings with children younger than 3. However, unmeasured center characteristics may have influenced the

<sup>&</sup>lt;sup>ii</sup> An impact is considered statistically significant if p<0.05.

<sup>&</sup>lt;sup>iii</sup> "Quality" in child care is often conceptualized into components of "structural" and "process" quality. Structural features of quality are the aspects of the child care environment that can be legislated or mandated, such as child-to-staff ratios or caregiver education requirements. Process quality refers to the richness of interactions between children and caregivers, or children and their peers, and of the learning experiences and instruction.<sup>31</sup>

<sup>&</sup>lt;sup>iv</sup> As discussed and interpreted in Blau (1999).

results because the centers were not randomly selected.<sup>v</sup> No US studies since then have employed true experimental designs to examine the effects of ratios or group size.

The evidence for how lower ratios and smaller class sizes may influence children's cognitive and developmental outcomes tends to find null effects or focuses on children ages 3 and older. A 2017 meta-analysis using data from 38 prior studies that focused on centers serving children ages 3 to 5 found that ratios under 7.5:1 and class sizes of 15 or fewer children were associated with small improvements in children's cognitive outcomes. Changes in ratios and class sizes above those low thresholds, however, were not associated with more positive outcomes.<sup>30</sup> The authors found mostly null effects for social-emotional outcomes, but they noted that there were fewer effect sizes available for social-emotional outcomes, limiting statistical power. The results suggest that reducing ratios and class sizes may be most effective when they are already at lower levels. This study was excluded from our evidence review because it did not examine children under age 3.

A 1999 study using a large national, longitudinal dataset found null effects of ratios and group sizes on cognitive and behavioral outcomes for infants and toddlers when controlling for a variety of other factors.<sup>A</sup> Infants and toddlers were assessed using the Behavior Problems Index (BPI), the Peabody Individual Achievement Tests (PIAT) in mathematics and reading, and the PPVT. Results for the PIAT-Reading were positive and significant in some specifications, but outcomes were null for all assessments when the full range of controls (including mother fixed effects) were included.

A 2000 study following 89 Black children over the first 3 years of life found that those infants and toddlers in classrooms that met recommended ratios for their age experienced higher expressive and receptive vocabulary growth in classes that met the guidelines compared to those that did not.<sup>28</sup> Although this is a promising result, the observational nature of the study and small sample size precluded it from inclusion in our evidence review.

Child-to-caregiver ratios may be more strongly linked to the intermediate outcome of positive caregiving than to child developmental outcomes, but insufficient causal evidence exists to confirm this link. A widely cited study by the National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network in 2000 analyzed observational data for over 600 infants and toddlers in a variety of care settings and concluded that "the strongest and most consistent predictor of observed positive caregiving was the child-adult ratio" (p. 131).<sup>15</sup> The study did not, however, meet the standards of evidence for this review because of the cross-sectional nature of the analysis. More rigorous research linking ratios and group sizes in centers to caregiving quality and developmental outcomes over time for children under age 3 is needed.

Lower child-to-caregiver ratios and group sizes may produce better health and safety outcomes for infants and toddlers in centers, but no causal research supports this association. Findings from two correlational studies, however, found that settings with fewer children per caregiver and smaller group sizes saw fewer illnesses and safety violations.<sup>16,17</sup>

#### Home-Based Care

Home-based providers are often more difficult to include in research than centers, and the research on ratios and group sizes in family child care homes suffers from many of the same methodological weaknesses that affect studies of centers. Results from two studies that did not meet the standards of evidence for this review found that positive caregiving improved with lower ratios and group sizes in home settings.<sup>15,18</sup> Evidence for other outcomes, including stronger attachment between children and caregivers, has also been found in some studies that did not meet causal standards.<sup>19</sup>

More research is needed on the link between ratios and child outcomes in home-based settings. Most studies examine how ratios or group sizes contribute to process quality in homes, including factors such as positive caregiving, but do not make the ultimate connection to cognitive or social-emotional outcomes.<sup>21</sup> A 2002 study of children in home-based settings found that although group sizes that complied with recommended guidelines were associated with more positive caregiving, group size did not significantly predict child outcomes as measured by test scores.<sup>18</sup> The small sample size and observational design precluded this study from informing our evidence review.

<sup>&</sup>lt;sup>v</sup> See the discussion in Blau (1999).

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Very little evidence links child care ratios or group sizes to safety outcomes in home-based settings, but one longitudinal study that analyzed data for over 1,200 children in various care settings found that larger group sizes (up to a threshold of 8 to 10 children) were associated with a greater risk of respiratory infections (19 to 25 percent higher odds), among 1- and 2-year-olds attending home-based and relative care.<sup>B</sup> This finding suggests that limiting group sizes to recommended caps may reduce the likelihood of illness. No identified studies examined risk of illness by specific child-to-caregiver ratios in home settings. More research on how child-to-caregiver ratios affect health and safety in home-based settings is warranted.

## Is There Evidence That Better Child Care Ratios Reduce Disparities?<sup>vi</sup>

Limited research examines the role of lower child-to-caregiver ratios in early care settings for improving equity of outcomes by race, ethnicity, or socioeconomic status. A correlational study excluded from our evidence review assessed 314 Black and White children from 54 months through fifth grade and found that lower child-to-caregiver ratios in early care settings made a significant difference in improving later mathematics skills, and gains in skills over time, for Black children, but no significant effect of ratios was observed for White children.<sup>22</sup> As mentioned above, another observational study found that better ratios improved the growth in language skills of Black children over time.<sup>28</sup> These findings suggest that requiring lower ratios could be an effective policy for reducing achievement gaps, but more rigorous research is needed for children in the O to 3 age group.

## Has the Return on Investment for Child Care Ratios Been Studied?

Research has found that high-quality early child care and education provides a significant return on investment; for example, the National Forum on Early Childhood Policy and Programs found that each dollar invested can generate \$4 to \$9 in later economic returns and long-term cost savings.<sup>23</sup> To the extent that better child care ratios contribute to higherquality care environments, ratios may be one of the factors supporting the economic benefits found for high-quality care overall. However, no studies identified for this review examined the specific return on investment produced by better child care ratios. Such studies must take into account the costs associated with hiring additional staff to achieve better ratios. More research should examine how lower ratios affect child care providers' ability to cover their costs and sustain high-quality programs. A more comprehensive analysis of the return on investment is forthcoming.

## Are Better Child Care Ratios an Effective Policy for Improving Prenatal-to-3 Outcomes?

More rigorous research is needed to build the evidence base on the impact that lower child-to-caregiver ratios have on children's development, health, and safety in early care and education settings, particularly in the infant and toddler years. The few causal studies identified for this review suggest mixed impacts, but the observational research conducted up to this point is promising, and it suggests that lower ratios and smaller group sizes may lead to more positive caregiving, better cognitive outcomes, and fewer illnesses and safety incidents among children in home- and center-based care.

## What Do We Know, and What Do We Not Know?

Although the theory linking lower child care ratios to better child outcomes is strong, insufficient causal evidence exists to establish the optimal ratios. Most research exploring the link between child care ratios and child outcomes has found small effect sizes and has focused on preschool-aged children rather than those under age 3. Most studies examining child care ratios and group sizes investigate their association with caregiving quality, using observational methods, rather than evaluate outcomes such as cognitive or social-emotional skills using rigorous experimental designs. Health and safety outcomes appear to be better in smaller groups of children, but only a few studies have examined health and safety.

More rigorous research examining the causal link between child care ratios and child outcomes for infants and toddlers, in addition to measuring the intermediate outcome of caregiving quality, would strengthen the evidence base for children under age 3. Much of the research on child care ratios and group size is observational and focuses on preschoolers and centers, rather than younger children and other child care settings. Settings caring for infants typically show less variation in ratios, given stricter requirements, so it may be more fruitful to examine how lower ratios affect the outcomes of toddlers (ages 12 to 36 months). Another area for further research is the cost-effectiveness of policies related to ratios and

<sup>&</sup>lt;sup>vi</sup> Disparities are defined here as differential outcomes by race, ethnicity, or socioeconomic status (SES).

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group size, given the relatively modest associations found and the additional staff costs required. Despite the lack of rigorous research on ratios, recommendations from organizations such as the American Academy of Pediatrics suggest that one adult should take care of no more than three infants at a time, which tends to align with the anecdotal and qualitative experiences of caregivers.<sup>26,27</sup>

## How Do Child Care Ratios Vary Across the States?

The ratio requirements for infants<sup>vii</sup> in center-based settings range from 3-to-1 in Kansas, Maryland, and Massachusetts to 6-to-1 in Arkansas, Georgia, Louisiana, Nevada, and New Mexico.<sup>24,25,26,27</sup> A total of 35 states<sup>viii</sup> meet NAEYC ratio requirements for infants, but only three states meet the stricter AAP standards. State requirements for toddlers in center-based settings vary to a greater degree, with maximum ratios ranging from 4-to-1 in the District of Columbia and Connecticut to 12-to-1 in Louisiana and Mississippi. Only 16 states meet the 6-to-1 NAEYC ratio standard for toddlers and only two (Connecticut and the District of Columbia) meet the AAP/APHA ratio standards.<sup>24,25,26,27</sup> As shown in Table 7, only 10 states meet *all* of the NAEYC standards for both ratios and group sizes for infants and toddlers.

According to the ACF, 44 states and two US territories license family child care homes.<sup>ix,5</sup> See Table 6 below for the maximum group sizes (not including school-aged children) for family child care homes, as listed in state licensing regulations.<sup>24</sup> Note that maximum group sizes increase for providers who become licensed as "group child care homes," requiring more than one caregiver.

Maximum Number of Children	States
N/A – State does not license family child care homes	Arizona, Idaho, Indiana, Louisiana, New Jersey, Ohio, South Dakota
4	Delaware
5	North Carolina
6	Alabama, California, Colorado, Connecticut, District of Columbia, Georgia, Hawaii, Iowa, Kentucky, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Mexico, New York, Oregon, Pennsylvania, South Carolina, Texas, Vermont, West Virginia
7	North Dakota, Oklahoma, Tennessee
8	Alaska, Illinois, Maryland, Nebraska, Rhode Island, Utah, Wisconsin
10	Florida, Kansas, Massachusetts, Missouri, Wyoming
12	Maine, Mississippi, Virginia, Washington
16	Arkansas

Table 6: Maximum Number of Children Permitted in a Licensed Family Child Care Home (excluding school-aged children)<sup>24</sup>

<sup>&</sup>lt;sup>vii</sup> The ACF considers infants to include children up to 11 months old and toddlers to include children 12 to 35 months old. See Table 7 for state licensing requirements for both infants and toddlers using these age ranges. Other sources, such as the National Association for the Education of Young Children (NAEYC), use slightly different age ranges (which overlap) for infants (O to 15 months) and toddlers (12 to 36 months).

viii State counts include the District of Columbia.

<sup>&</sup>lt;sup>ix</sup> "Family Child Care Home" is defined in this source as "One individual who provides child care services for fewer than 24 hours per day per child, as the sole caregiver, in a private residence other than the child's residence, unless care in excess of 24 hours is due to the nature of the parent(s)' work" and is distinct from a group child care home, which has more than one provider.

Table 7: State Variation in Child Care Ratios and Group Size (State Licensing Requirements for Centers)

	Variation							
State	Maximum Number of Infants Allowed for One Staff Member to Supervise for Center-Based Care (Child-Staff Ratio)	Maximum Number of Toddlers Allowed for One Staff Member to Supervise for Center-Based Care (Child-Staff Ratio)	Maximum Group Size for Infants in Center-Based Care	Maximum Group Size for Toddlers in Center-Based Care	State Meets All 4 NAEYC Standards for Ratios and Group Size for Center- Based Infant and Toddler Care			
Alabama	5:1	8:1	**	**	No			
Alaska	5:1	6:1	10	12	No			
Arizona	5:1	8:1	**	**	No			
Arkansas	6:1	9:1	12	18	No			
California	4:1	6:1	**	12	No			
Colorado	5:1	7:1	10	14	No			
Connecticut	4:1	4:1	8	8	Yes			
Delaware	4:1	8:1	8	16	No			
District of Columbia	4:1	4:1	8	8	Yes			
Florida	4:1	11:1	**	**	No			
Georgia	6:1	10:1	12	20	No			
Hawaii	4:1	8:1	8	**	No			
Idaho	Ratios determined by point system	Ratios determined by point system	**	**	No			
Illinois	4:1	8:1	12	16	No			
Indiana	4:1	7:1	8	14	No			
lowa	4:1	6:1	**	**	No			
Kansas	3:1	7:1	9	14	No			
Kentucky	5:1	10:1	10	20	No			
Louisiana	6:1	12:1	**	**	No			
Maine	4:1	5:1	8	10	Yes			
Maryland	3:1	6:1	6	12	Yes			
Massachusetts	3:1	10:1	7	20	No			
Michigan	4:1	8:1	12	16	No			
Minnesota	4:1	7:1	8	14	No			
Mississippi	5:1	12:1	10	14	No			
Missouri	4:1	8:1	8	16	No			
Montana	4:1	8:1	**	**	No			
Nebraska	4:1	6:1	12	**	No			
Nevada	6:1	10:1	**	**	No			
New Hampshire	4:1	6:1	12	18	No			
New Jersey	4:1	10:1	12	20	No			
New Mexico	6:1	10:1	**	**	No			
New York	4:1	5:1	8	12	Yes			
North Carolina	5:1	10:1	10	20	No			
North Dakota	4:1	7:1	10	20	No			
Ohio	5:1	7:1	10	14	No			

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#### PRENATAL-TO-3 POLICY CLEARINGHOUSE

	Variation								
State	Maximum Number of Infants Allowed for One Staff Member to Supervise for Center-Based Care (Child-Staff Ratio)	Maximum Number of Toddlers Allowed for One Staff Member to Supervise for Center-Based Care (Child-Staff Ratio)	Maximum Group Size for Infants in Center-Based Care	Maximum Group Size for Toddlers in Center-Based Care	State Meets All 4 NAEYC Standards for Ratios and Group Size for Center- Based Infant and Toddler Care				
Oklahoma	4:1	8:1	8	16	No				
Oregon	4:1	5:1	8	10	Yes				
Pennsylvania	4:1	6:1	8	12	Yes				
Rhode Island	4:1	6:1	8	12	Yes				
South Carolina	5:1	9:1	**	**	No				
South Dakota	5:1	5:1	20	20	No				
Tennessee	4:1	7:1	8	14	No				
Texas	4:1	11:1	10	22	No				
Utah	4:1	7:1	8	14	No				
Vermont	4:1	5:1	8	10	Yes				
Virginia	4:1	10:1	**	**	No				
Washington	4:1	7:1	8	14	No				
West Virginia	4:1	8:1	8	16	No				
Wisconsin	4:1	6:1	8	12	Yes				
Wyoming	4:1	8:1	10	10	No				
Best State	3:1	4:1	6	8	N/A				
Worst State	6:1	12:1	20	22	N/A				

Table 7: State Variation in Child Care Ratios and Group Size (State Licensing Requirements for Centers) (continued)

"\*\*" indicates that group size is not regulated by the state for this age group.

4:1

N/A

Licensing requirements are from the National Center on Child Care Quality Improvement, US Department of Health and Human Services, as of 2014. NAEYC guidelines are as of 2018. National Association for the Education of Young Children. NAEYC child-staff ratio for infants: 4:1. NAEYC child-staff ratio for toddlers: 6:1. NAEYC maximum group size for infants: 8. NAEYC maximum group size for toddlers: 12.

7:1

N/A

8 (excluding \*\*

states)

N/A

14 (excluding

\*\* states)

N/A

N/A

10

For additional source and calculation information, please refer to the Methods and Sources section of pn3policy.org.

## How Did We Reach Our Conclusions?

## Method of Review

**Median State** 

State Count

This evidence review began with a broad search of all literature related to the policy and its impacts on child and family wellbeing during the prenatal-to-3 period. First, we identified and collected relevant peer-reviewed academic studies as well as research briefs, government reports, and working papers, using predefined search parameters, keywords, and trusted search engines. From this large body of work, we then singled out for more careful review those studies that endeavored to identify causal links between the policy and our outcomes of interest, taking into consideration characteristics such as the research designs put in place, the analytic methods used, and the relevance of the populations and outcomes studied. We then subjected this literature to an in-depth critique and chose only the most methodologically rigorous research to inform our conclusions about policy effectiveness. All studies considered to date for this review were released on or before March 31, 2020.

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## Standards of Strong Causal Evidence

When conducting a policy review, we consider only the strongest studies to be part of the evidence base for accurately assessing policy effectiveness. A strong study has a sufficiently large, representative sample, has been subjected to methodologically rigorous analyses, and has a well-executed research design allowing for causal inference—in other words, it demonstrates that changes in the outcome of interest were likely caused by the policy being studied.

The study design considered most reliable for establishing causality is a randomized control trial (RCT), an approach in which an intervention is applied to a randomly assigned subset of people. This approach is rare in policy evaluation because policies typically affect entire populations; application of a policy only to a subset of people is ethically and logistically prohibitive under most circumstances. However, when available, randomized control trials are an integral part of a policy's evidence base and an invaluable resource for understanding policy effectiveness.

The strongest designs typically used for studying policy impacts are quasi-experimental designs (QEDs) and longitudinal studies with adequate controls for internal validity (for example, using statistical methods to ensure that the policy, rather than some other variable, is the most likely cause of any changes in the outcomes of interest). Our conclusions are informed largely by these types of studies, which employ sophisticated techniques to identify causal relationships between policies and outcomes. Rigorous meta-analyses with sufficient numbers of studies, when available, also inform our conclusions.

## Studies That Meet Standards of Strong Causal Evidence

- A. Blau, D. (1999). The effect of child care characteristics on child development. *The Journal of Human Resources*, 34(4), 786–822. https://www.jstor.org/stable/146417?seq=1#metadata\_info\_tab\_contents
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