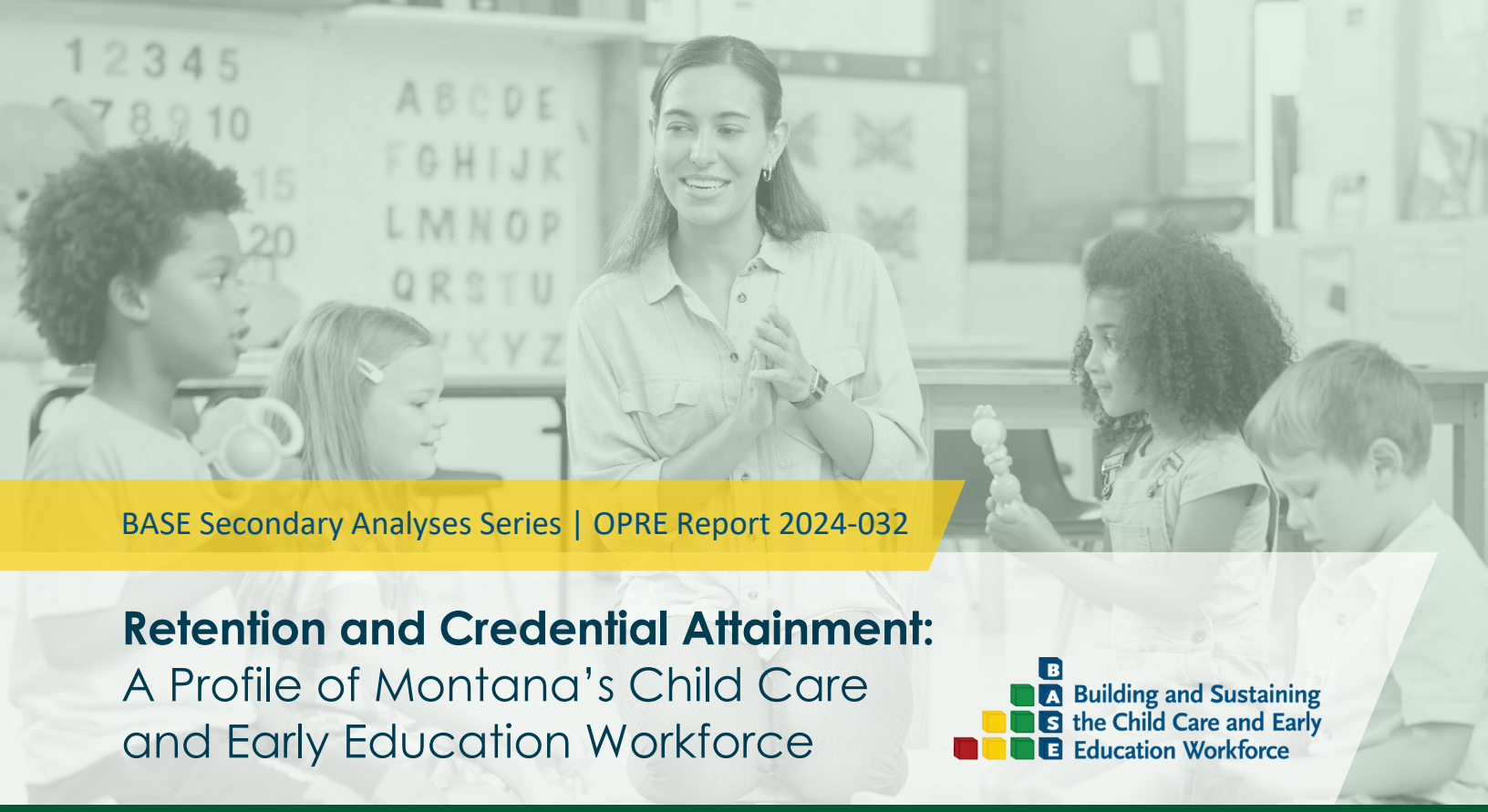

BASE Secondary Analyses Series | OPRE Report 2024-032

Retention and Credential Attainment: A Profile of Montana's Child Care and Early Education Workforce

Building and Sustaining the Child Care and Early Education Workforce

Cynthia Miller and Danielle Cummings

The workforce challenges facing the child care and early education (CCEE) sector are well known. CCEE educators typically have low levels of compensation; limited opportunities for education, training, and professional development; inconsistent working conditions; and high levels of stress and burnout.[1] There are also high rates of job turnover, which can strain remaining educators and decrease the quality of care they offer.[2]

Policymakers at the federal and state levels are taking steps to build and stabilize the CCEE workforce.[3] Effectively addressing these challenges requires a better understanding of which strategies increase retention and recruitment and which strategies work best for different types of teachers and different settings. There are also important gaps in knowledge about workforce dynamics in CCEE—that is, how teachers enter, stay in, and exit the field—due to a lack of data tracking individuals over time.

The **Building and Sustaining the Child Care and Early Education Workforce (BASE)** project aims to increase knowledge and understanding in child care and early education (CCEE) by documenting factors that drive workforce turnover and by building evidence on current initiatives to recruit, advance, and retain a stable and qualified CCEE workforce.

[1]Whitebook, Phillips, and Howes (2014); McLean, Austin, Whitebook, and Olson (2021).
[2]Whitebook, Phillips, and Howes (2014); Bassok, Fitzpatrick, Loeb, and Paglayan (2013); Phillips, Anderson, Datta, and Kisker (2019); Schaack and Le (2017); Totenhagen et al. (2016); Whitebook and Sakai (2003).
[3]Whitebook, Phillips, and Howes (2014).

1974-2024 mdrc BUILDING KNOWLEDGE TO IMPROVE SOCIAL POLICY
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The Building and Sustaining the Child Care and Early Education Workforce (BASE) project aims to increase knowledge and understanding in CCEE by documenting factors that drive workforce turnover and by building evidence on current initiatives to recruit, advance, and retain a stable and qualified CCEE workforce.[4] As part of the BASE project, the study team completed a literature review and an environmental scan designed to identify and document existing knowledge about the CCEE workforce and strategies to strengthen it. The literature review synthesized research on factors that shape CCEE workforce dynamics, as well as types of care and the effectiveness of strategies that aim to build a stable and qualified workforce.[5] The environmental scan identified and reviewed the range of strategies that are currently underway across the country to build, advance, and sustain the CCEE workforce.[6] The team also completed a data scan that documented and assessed the strengths and weaknesses of a range of potential data sources for examining workforce dynamics and addressing key gaps in the research identified by the literature review and environmental scan.[7]

This brief uses data from one of the sources identified in the data scan: state CCEE workforce registries. Using data from Montana's Early Care and Education (ECE) Workforce Registry, the brief addresses the following research questions.

1. What are the characteristics of the Montana ECE workforce?
2. What are retention rates in the ECE field, and how are they associated with teacher, job, and provider characteristics?
3. How many teachers earn credentials over time, and how is credential attainment associated with teacher, job, and provider characteristics?

Thirty-nine states currently have workforce registries, which typically collect data on teachers' credentials, professional development, and employment. Data from these registries can potentially be used to address several gaps in the research that were identified through the BASE project's knowledge review activities: the need for longitudinal data to track workforce dynamics; how these dynamics vary by role and setting type; and how they vary by multilevel factors at the teacher and provider level. Box 1 defines key terms used in the BASE project and in this brief.

This analysis illustrates the potential use of this type of data source for the broader field and how similar data sources might be improved to provide further insights. This brief is one of four from the BASE project that use existing data to address knowledge gaps related to CCEE workforce dynamics in the field. One brief discusses how Unemployment Insurance (UI) wage data can be used to address gaps in the research, another brief uses UI data from Illinois to examine CCEE workforce dynamics, and the final brief uses data from the Linked Information Network of Colorado Early Care and Education Workforce project to examine individuals' enrollment in and completion of CCEE postsecondary programs.

[4]For more information, see: https://www.acf.hhs.gov/opre/project/building-and-sustaining-early-care-and-education-workforce-base
[5]Maier and Roach (2023); Taylor (2023).
[6]Bernardi, Hsueh, Roach, and Rau (2023).
[7]Wiegand, Goerge, Porcelli, and Miller (2023).

Box 1. Definition of Terms

This box summarizes how two key terms are defined for this brief, highlighting where those definitions may differ from other project materials in the Building and Sustaining the Child Care and Early Education Workforce (BASE) project.

CHILD CARE AND EARLY EDUCATION (CCEE) WORKFORCE: This brief discusses the Montana CCEE workforce as it may be identified in the Montana Early Care and Education (ECE) registry, which covers individuals working in center-based or home-based, licensed providers. The brief focuses on directors, teachers, and providers that serve infants and toddlers or preschool-aged children, although they may also serve school-aged children in addition to these age groups.

In contrast, the workforce as defined for the BASE project is somewhat broader and includes current and prospective educators who are paid to care for children from birth to 13 years of age in center- and home-based settings. This definition includes educators in different positions and roles. For example, center administrators, directors, lead and assistant teachers, and home-based educators are included in this definition. This definition also includes licensed and license-exempt home-based settings. While the CCEE workforce also includes support staff members in centers, like coaches, education coordinators, and behavioral specialists, these individuals are not the primary focus of the project.

WORKFORCE DYNAMICS: The phrase "workforce dynamics" encompasses entry into and exit out of the CCEE field as an employed individual. For those in the field, it includes tenure and advancement, as well as entry into and exit from different roles, settings, and types of care. Workforce dynamics include multiple phases of employment: entry, retention, turnover, and advancement.

Key Findings

- In 2021, there were about 4,600 individuals in Montana working as directors or teachers at licensed providers. Nearly all were women, and most worked in child care centers. Average wages were generally low, although they varied by setting; those in school-based and Head Start settings earned $17 to $20 per hour, and those in child care centers and home-based settings earned $12 to $13 per hour.
- Among those working in the field in 2019 in Montana, about 60 percent were still in the field in 2021. Educators in home-based settings had higher retention rates than those in center-based settings, and assistant teachers had lower retention rates than directors and lead teachers. Teachers earning higher wages in 2019 were also more likely to stay in the field than their counterparts earning lower wages.
- One in four educators working in 2019 in Montana earned a credential by 2021. The most common credentials were shorter-term certificates, such as the Montana Infant/Toddler Certificate. Teachers in center-based settings were more likely than those in home-based settings to earn credentials, and lead teachers were more likely to earn credentials than directors and assistant teachers. Teachers in providers serving infants and toddlers only were more likely than other teachers to earn shorter-term certificates.

The Montana ECE Practitioner Registry

The Montana ECE Practitioner Registry, the data source used for this analysis, is maintained by the Early Childhood Project at the University of Montana and tracks teachers' employment, training, and credential receipt. It includes data on selected characteristics of teachers, their jobs, and the providers where they work. It was created to support the professional development of the ECE teachers in the state and to provide data that can inform policymakers in their efforts to support and sustain the workforce. Data from the registry for 2019 through 2021 were provided to the BASE team by staff members at the Montana Early Childhood Project.

Participation in the registry became mandatory in 2018 for all individuals working at licensed providers, including teachers, directors, and all staff members filling a range of other roles that do not involve direct care in the classroom. Participating staff members are required to reapply and update their information every year that they work at a licensed provider. For more details about the registry data, see Box 2.

A key strength of the registry is that it tracks individuals over time, requiring them to update information every year. However, the registry data also have some limitations. Teachers are only required to update employment information every three years, for example, regardless of whether they changed jobs or experienced a wage or role change. Teachers are also not required to report hourly wages, with the result that wage data are only available for a subset of teachers. Home-based providers were the least likely to report wages.

Because the registry is mandatory only for teachers working for licensed providers, it currently includes only a minority of Head Start teachers. Head Start providers are not required to be licensed by the state, although they do adhere to the regulations and standards set at the federal level.[8] There are currently about 100 Head Start or Early Head Start providers in Montana.[9] Thus, the 74 educators in Head Start/Early Head Start providers are a small fraction of all educators in this setting. This should be kept in mind when interpreting the findings.

Aside from Head Start teachers, other analyses suggest that the registry covers a majority of the center-based workforce in Montana. First, an analysis of state licensing data with data from the National Workforce Registry Alliance Dataset, which includes Montana registry participants from early 2017 through early 2019, indicates that the registry captured 75 percent of the center-based workforce.[10] Second, the Bureau of Labor Statistics collects occupation data by state through its Occupational Employment and Wage Statistics program. Using the occupational codes for "Preschool teacher, not including special education" and "child care worker," these data indicate that there were about 3,100 workers in CCEE in 2021, similar to the number of teachers in the registry data who were working in center-based settings (3,274, as shown in Table 1).[11] The Bureau of Labor Statistics data do not provide a comparison for teachers in home-based settings, given that the data do not cover self-employed individuals.

[8]For more information, see: https://mtkids.windfall.tools/wp-content/uploads/2022/12/Montanas-Child-Care-System-Investments-Needed-to-Support-Families-and-Child-Care-Businesses.pdf
[9]For more information, see: https://dphhs.mt.gov/ecfsd/childcare/hssco
[10]Mayfield and Cho (2019).
[11]For Montana occupation estimates, see: https://www.bls.gov/oes/2021/may/oes_mt.htm

Box 2. The Montana Early Childhood Practitioner Registry

Coverage

The Montana Early Childhood Practitioner Registry is open to all members of Montana's early childhood workforce. Participation was voluntary until July 2018 and then became mandatory for all individuals employed by a licensed early care and education facility, including home-based, group, and center-based programs. The new requirement led to a steep rise in participation starting in mid-2018. In a given year, the registry represents the current workforce, as members must reapply and update their information every year. Registry participants include program directors and administrators, teachers, and a range of other roles that impact provider quality and child and family outcomes, including Professional Development Specialists, Family Support Specialists, Child Care Resource and Referral staff members and Home Visitors.

Individual-level data

- Demographic data, including age, race/ethnicity, and gender
- Education data, documenting credentials earned and the date they were earned, including the highest level of formal education and credentials such as the Montana Infant/Toddler certificate, the Child Development Associate (CDA) credential, the Montessori certificate, and CDA apprenticeship

Job-level data

- Role (director, lead teacher, or assistant teacher); start date; hours worked; hourly wage; hours worked per week; months worked per year; and the end date of a previous job, when relevant

Provider-level data

- Provider type (child care center, home-based provider, or Head Start, among others); total capacity; ages of children served; Quality Rating and Improvement System (QRIS) rating (only for providers participating in QRIS, referred to in Montana as Best Beginnings STARS to Quality); and benefits offered (only for providers participating in QRIS)

Considerations

The provision of wage and salary data is voluntary, and this information is missing for about 30 percent of educators. Educators are only required to update their employment form every three years. Registrants are encouraged, but not required, to submit new employment forms for job changes in the intervening period. Thus, the data might miss some wage increases or position changes, particularly within the same employer. Entering the end date of a job is encouraged but not required if an educator leaves a position. Thus, for some educators, their job end date will be a rough estimate and will be based on their status in the subsequent year's registry.

Analyses

The data are used to examine retention and credential receipt over a two-year period. Retention in the field is measured by tracking the group of individuals working in CCEE and registered in 2019 who were still in the field and registered in 2021. Credential receipt is measured using the group of individuals working in CCEE and registered in both 2019 and 2021. For this group, the analysis examines how many individuals reported earning credentials between 2019 and 2021 and the types of credentials they earned. Both of these outcomes are presented for the full population as well as several subgroups of interest. Differences in outcomes between subgroups are only discussed if they are larger than 0.20 standard deviations in size. In the evaluation literature, effects sizes (or differences in an outcome divided by that outcome's standard deviation) are considered small if they are less than 0.20 standard deviations in size.

Table 1. Characteristics of Montana's Child Care and Early Education Workforce in 2021, Overall and by Provider Type

Characteristics	All	Child Care Center	Home-based Provider	Head Start Center	Preschool or School
Individual characteristics					
Female (%)	95.7	97.2	92.5	97.3	88.0
Age	33.5	31.3	37.8	39.9	39.0
Race/ethnicity (%)					
White, non-Hispanic/Latino	60.6	61.6	58.4	58.3	65.4
Multiracial, non-Hispanic/Latino	28.8	26.3	34.2	31.9	26.9
Hispanic or Latino	6.1	6.8	4.8	4.2	3.9
Some other race or ethnicity	4.5	5.4	2.6	5.6	3.9
Highest education level (%)					
High school diploma or below, Montana Infant/Toddler or Preschool certification, CDA, or MACTE certification	58.0	56.8	63.9	29.7	17.7
Some college, MT CDA Apprentice Certification, or one-year certificate[a]	14.0	14.9	11.9	16.2	9.8
Associate's, bachelor's, master's, or doctoral degree	28.0	28.3	24.2	54.1	72.6
Job characteristics					
Role (%)					
Director, owner, or administrator	21.0	10.2	44.6	16.2	53.9
Teacher	40.4	40.3	40.7	39.2	38.5
Assistant or substitute teacher	38.6	49.5	14.8	44.6	7.7
Years in current job	4.3	3.3	6.7	5.4	2.8
Wage	12.9	13.0	12.1	17.4	20.2
Provider characteristics					
Age of children served (%)					
Infant and toddler only	17.1	22.9	4.6	4.1	13.5
Preschool only	18.5	23.5	2.9	93.2	25.0
Multiple ages	64.5	53.6	92.5	2.7	61.5
Located in a rural county (%)[b]	55.2	52.1	61.4	58.1	76.0
PTO benefits offered, among QRIS providers (%)	81.9	85.5	63.2	100.0	100.0
Sample size	4,663	3,148	1,389	74	52
Percentage of sample	100	67.5	29.8	1.6	1.1

SOURCE: MDRC calculations based on the Montana Early Care and Education Workforce Registry.

NOTES: CDA = Child Development Associate credential, MACTE = Montessori Accreditation Council for Teacher Education certificate, PTO = paid time off, QRIS = Quality Rating and Improvement System.

[a]Includes one-year certificates in early childhood education or child development.

[b]Rural is defined as non-metropolitan areas or metropolitan areas with fewer than 50,000 residents.

Finally, some provider-level data, such as benefits offered to teachers, are only available for those providers participating in the state's Quality Rating and Improvement System (QRIS). Suggestions for ways to strengthen the registry data to capture workforce conditions and dynamics are provided at the end of the brief.

A Profile of the Montana CCEE Workforce

Most educators in Montana are women with at least a short-term credential. There were about 4,600 individuals working as directors or teachers at licensed providers in Montana at some point in 2021. Nearly all educators are women, with an average age of 34. Most educators are White, although just under 30 percent identify as multiracial. In terms of credential attainment, the majority of individuals report having a short-term credential, such as the Montana Infant/Toddler certification, a high school diploma, or both. Just over one-fourth of educators report having an associate's degree or higher.

Educators in Montana have been at their jobs for just over four years on average and earn $13 per hour, similar to wages for child care workers nationally.[12] Most educators are teachers or assistant teachers. In terms of the providers at which they work, a majority of providers serve multiple age groups, and about half are located in rural areas, defined as non-metro or metro areas with fewer than 50,000 residents. Just over 80 percent of providers report offering paid time off as a benefit to teachers. Benefit data are available only for providers participating in the state's QRIS, covering about 40 percent of educators in the registry, and may not be a good estimate of benefits offered by providers not in QRIS.

Educators in Montana in the registry worked across a variety of provider types. Provider type was determined using information listed in the registry. Although the majority (68 percent) of educators worked at community-based child care centers, about 30 percent worked in home-based settings, and the remaining educators worked in Head Start centers (1.6 percent) or school-based settings (1.1 percent). As noted earlier, Head Start providers are not required to be licensed in Montana, so the registry data only capture a small fraction of educators in this setting.

There are several differences in educators' characteristics by provider type.[13] The discussion that follows only highlights meaningful differences, or those that are notable in size from a statistical standpoint.[14] Although the majority of teachers working in each provider type are women, the percentage who are women is somewhat lower (88 percent) for those working in school-based settings. Educators working in child care centers tend to be a bit younger than those working in other settings, with an average age of 31. There is a fair amount of diversity in education levels by provider type. The majority of educators in centers and home-based settings, for example, have a high school diploma or lower or a high school diploma and a short-term teaching certificate, while one in four have an associate's degree or higher. In Head Start and school-based settings, in contrast, the majority of educators have an associate's degree or higher, consistent with typical requirements for school systems and the federal mandate that 50 percent of Head Start teachers hold a bachelor's degree.[15]

The majority of educators in center-based settings, including child care centers and Head Start centers, are either lead or assistant teachers, reflecting the larger size of these settings, while those in home- or school-

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[12]Bureau of Labor Statistics (2023).

[13]Organization types listed on the registry include, for example, child care center, registered family group home, registered group child care home, Head Start grantee, Early Head Start, public school, and private school. These categories were used to sort each provider into one of the types listed in Table 1.

[14]The evaluation literature typically defines difference as effect size, which is the difference in the outcome divided by the standard deviation of that outcome. Effect sizes less than 0.20 are considered small and are not discussed in the text. See Sullivan and Feinn (2012).

[15]For information on Head Start policy and regulations, see: https://eclkc.ohs.acf.hhs.gov/policy/head-start-act/sec-648a-staff-qualifications-development

based settings are either directors or lead teachers. The average wage for educators in child care centers was $13 per hour, which is very similar to wages for child care workers nationally.[16] Those working in Head Start and school-based centers earned the highest wages, on average, at $17 and $20 per hour, respectively. National data are consistent with these higher wages for teachers in both of these settings.[17] Staff members in home-based settings earn the lowest wages, on average, at $12 per hour. Wage data are missing for a large number of home-based staff members, but national data also show a similar pattern, in which home-based providers earn less than center-based providers.[18] Home-based providers have the longest tenure in their current jobs, at nearly seven years, compared with just over three years for those working in child care centers.

Over 90 percent of home-based providers serve children of multiple ages, compared with about half of child care centers. In contrast, over 90 percent of Head Start centers serve only preschool-aged children.[19] About 50 percent to 60 percent of providers are located in rural areas, with the exception of school-based providers, of which 76 percent are located in rural areas. Finally, all Head Start and school-based providers offer paid time off as a benefit, with lower rates for child care centers (86 percent) and home-based providers (63 percent).

Retention in the Field

Earlier BASE project activities highlighted the need for more longitudinal data to track workforce dynamics. However, many previous studies on teacher retention and turnover did not have this type of data and could not fully capture movement into and out of CCEE jobs and the field.[20] Point-in-time survey data, for example, provide information on individual teachers' "intent to turnover," and directors' reports of turnover rates at the center level. Although informative, intent to turnover is only partially correlated with actual turnover, and center-level turnover rates do not capture the movements of individual teachers.[21]

The Montana registry provides an opportunity for a longitudinal analysis of teachers' employment since it requires teachers to update their information every year that they are working at a licensed provider. The data allow for a look at retention in the (licensed) field and how retention varies by teacher, job, and provider characteristics.

For these analyses, retention in the field is measured for a two-year period by tracking the group of individuals working in CCEE and registered in 2019 to see how many of them were still in the field and registered in 2021. While this time period includes the disruption of the COVID-19 pandemic, analyses using the 2017-2019 period yielded similar findings.

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[16]Bureau of Labor Statistics (2023).
[17]National data show higher average wages for these settings than in Montana. Data from Glass Door indicate that the average wage for Head Start teachers is $20 per hour. Data from the Bureau of Labor Statistics indicate that the median wage for preschool teachers in schools was $28 in 2021.
[18]Herbst (2018).
[19]Note that these data are at the provider level and do not indicate the ages of children in the individual teachers' classrooms.
[20]Many studies rely on intent to turnover rather than actual turnover. For example, see Grant, Jeon, and Buettner (2019).
[21]Schaack, Le, and Stedron (2020).

About 60 percent of individuals working in CCEE in Montana in 2019 were still in the field two years later. This rate is similar to the rates found in other studies using comparable methods. Data from Louisiana's QRIS, for example, found a two-year retention rate of 57 percent among center-based teachers.[22]

Educators working in Montana in home-based settings have higher retention rates than those in center-based settings. Retention rates vary across types of teachers, their roles, and their settings (Figure 1). As noted earlier, differences between groups are only discussed if they are sizable from a statistical standpoint. Those working in home-based settings have the highest retention rates, consistent with their longer tenure, as shown earlier. This pattern of longer tenure for home-based teachers is also found in other research.[23] Retention is very low for teachers in school-based settings, potentially reflecting the closing of schools during the pandemic.[24]

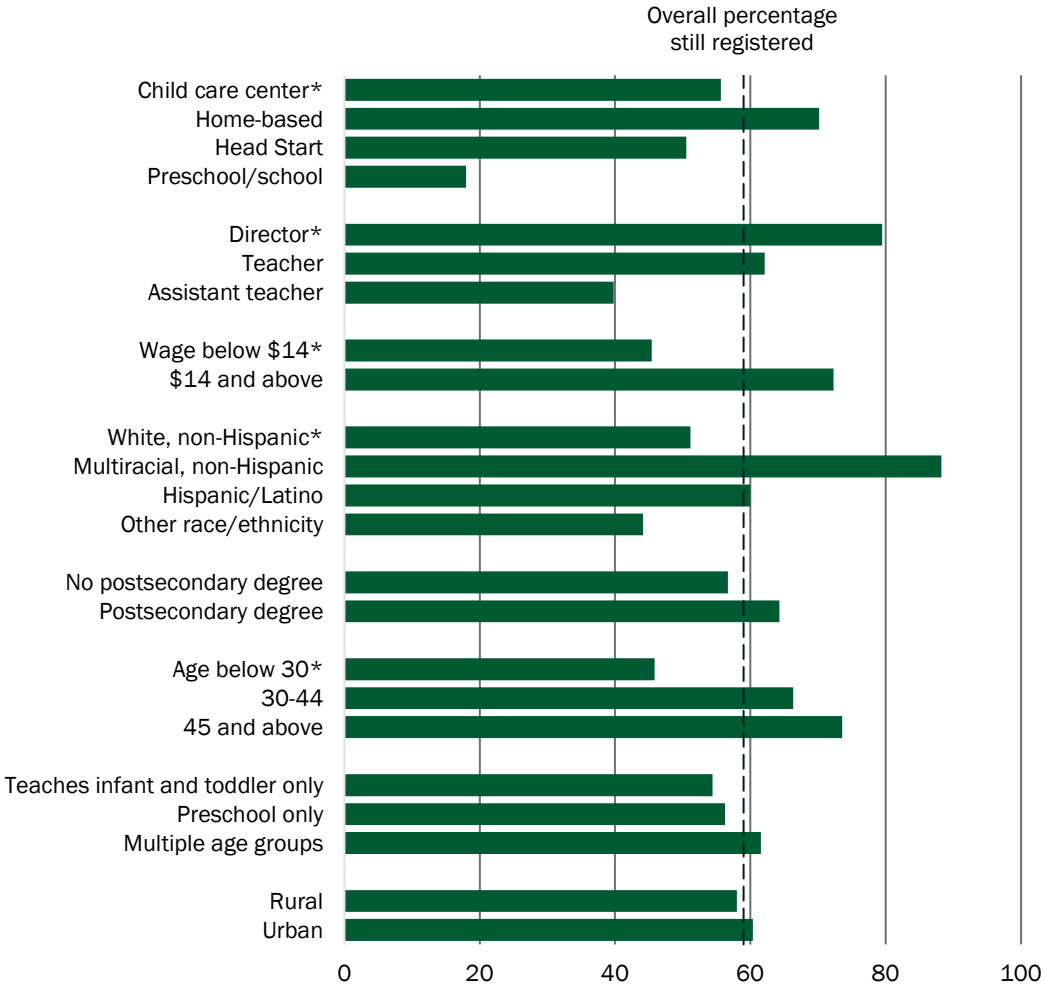
Retention rates are highest among directors and lowest among assistant teachers. Among those who were directors or owners in 2019, for example, 80 percent were still in the field in 2021. In contrast, only 40 percent of assistant teachers were still in the field in 2021.

Retention rates are higher for educators who are older, multiracial, and earn $14 per hour or more. Older teachers in Montana have higher retention rates than their younger counterparts, and educators who identify as multiracial are more likely to stay in the field than other groups. Wage rates are also correlated with retention, which is consistent with other research.[25] Among teachers earning $14 or more per hour in 2019, 72 percent were still in the field two years later, compared with 45 percent among teachers earning less than $14 per hour. Finally, the differences in retention by education level, ages of children served, and urban versus rural location are small in size and not highlighted here.

This analysis provides one example of how these data could be used to study retention in CCEE. More in-depth analyses could consider retention rates for specific subgroups of teachers, such as for recently hired assistant teachers in center-based providers, or for teachers who recently earned certain credentials. More sophisticated methods could also be used to examine the "net" association of a characteristic with retention. For example, analyses could compare retention rates for teachers with more versus fewer credentials, accounting for the fact that those with more credentials are probably older on average than other teachers and work in different roles and different settings. In addition, job exit dates could be used to examine when during the year teachers leave, given that turnover during the school year may be more disruptive than during the summer. When considering policies to improve retention, it is important to understand when turnover occurs and whether the problem of high turnover rates is concentrated among certain types of teachers or settings. If policies are implemented, such as wage increases, retention bonuses, or efforts to improve working conditions, these data could be used to evaluate the effects of such policies.

[22]Bellows, Bassok, and Markowitz (2021).
[23]LeBoeuf, Perrin, and Kennedy (2020).
[24]For example, see: https://www.mtpr.org/montana-news/2020-05-01/difficulty-following-state-guidance-keeps-many-montana-schools-closed
[25]Schaack, Le, and Stedron (2020); Schaack, Le, and Ortega (2020).

Figure 1. Percentage of Montana Child Care and Early Education Workforce Registered in 2019 and Still Registered in 2021



SOURCE: MDRC calculations based on the Montana Early Care and Education Workforce Registry.

NOTE: The top group of each category is marked with an asterisk (*) if the difference between the largest and smallest value within that category has an effect size of greater than 0.20.

Credential Attainment over Time

A primary role of state workforce registries, including Montana's registry, is to track and support the professional development of teachers. These efforts reflect a national push to increase the credentials of CCEE teachers in order to raise the quality of child care that is provided. In Head Start settings, federal legislation requires that at least 50 percent of teachers have a bachelor's degree.[26] Numerous states also have programs that aim to help teachers acquire postsecondary credentials, through scholarships and other supports.

[26]For Head Start regulations, see: https://eclkc.ohs.acf.hhs.gov/policy/head-start-act/sec-648a-staff-qualifications-development

For example, a widely known model that promotes professional development is the Teacher Education and Compensation Helps (T.E.A.C.H.) Early Childhood Project, which operates in 23 states and aims to increase workers' knowledge, skills, and compensation, and reduce turnover.[27] Program benefits and eligibility vary across states. In Pennsylvania, T.E.A.C.H. provides annual scholarships to staff members in licensed centers or to registered family child care providers who want to pursue their associate of arts degree in CCEE or the Child Development Associate (CDA) credential. Participants are also eligible to receive a bonus or a raise at the end of the scholarship year if they complete their educational requirement.[28]

There has not been much research tracking credential attainment over time. The exception is the evaluation of programs—such as T.E.A.C.H. However, these studies tend to focus on program participants rather than the broader population of teachers.[29] Further research is needed to track how many educators are gaining credentials, the types of credentials earned, and how these outcomes vary across types of teachers and settings.

The Montana registry provides the opportunity to examine teachers' credential attainment over time, since teachers are required to update their credentials each year. This analysis focuses on individuals working in CCEE in both 2019 and 2021 and examines how many of them reported gaining credentials over that period and the types of credentials they earned. Credentials captured in the registry data include diplomas and degrees as well as a range of CCEE certifications.

About 25 percent of educators in Montana gained a credential over the two-year period, and the most common credential earned was a shorter-term certification. (See Table 2.) Most of the educators who gained a credential over the two-year period earned shorter-term certifications, such as the Montana Infant/Toddler certificate, which requires 60 hours of training, or the CDA credential, which requires 120 hours of training in addition to hours of work experience in child care. About one in five educators who earned a credential earned a medium-length credential, such as the Montana CDA Apprenticeship certificate, which takes one to two years to complete. The remaining educators, among those who earned a credential, earned an associate's degree or higher. The focus on a two-year time frame likely skews the completed credentials to shorter-term options. However, with multiple years of registry data, it would be possible to track teachers over a longer period to provide a more complete picture of their professional development trajectories. This analysis is not possible for this brief, given that the data provided only cover the 2019-2021 period.

It is difficult to place these rates in the national context, given that credential requirements tend to be specific to each state. However, a common feature across states is that the requirements are minimal, compared to the requirements for kindergarten to third-grade teachers. Most states, for example, do not require center directors to hold a bachelor's degree, and most do not have minimum requirements for staff members in home-based settings.[30] In place of minimum requirements, many states, including Montana, offer educators incentives for attaining certain credentials.

[27]For information on T.E.A.C.H., see: https://www.childcareservices.org/programs/partner-programs/teach-national-center/

[28]Miller and Bogatova (2009).

[29]Miller and Bogatova (2009).

[30]Center for the Study of Child Care Employment, Bellwether Education Partners, and National Institute for Early Education Research (2020).

Table 2. Credential Attainment Rates from 2019 to 2020 Among Child Care and Early Education Educators Registered in 2019 and 2021

Type of Credential	Percentage of all Educators	Percentage of Educators who Earned any Credential
Short-term credentials Montana Infant/Toddler Certificate, Montana Preschool Certificate, CDA, MACTE	16.3	63.9
Medium-term credentials Some college, one-year certificate, Montana Apprenticeship Certificate	4.6	18
Long-term credentials Associate's, bachelor's, master's, doctoral degree, or educator's license	4.6	18

SOURCE: MDRC calculations based on the Montana Early Care and Education Workforce Registry.

NOTES: CDA = Child Development Associate credential, MACTE = Montessori Accreditation Council for Teacher Education certificate. Credentials are grouped by the approximate amount of time needed to obtain them. Short-term credentials take less than one year to obtain, medium-term credentials take one to two years, and long-term credentials take more than two years.

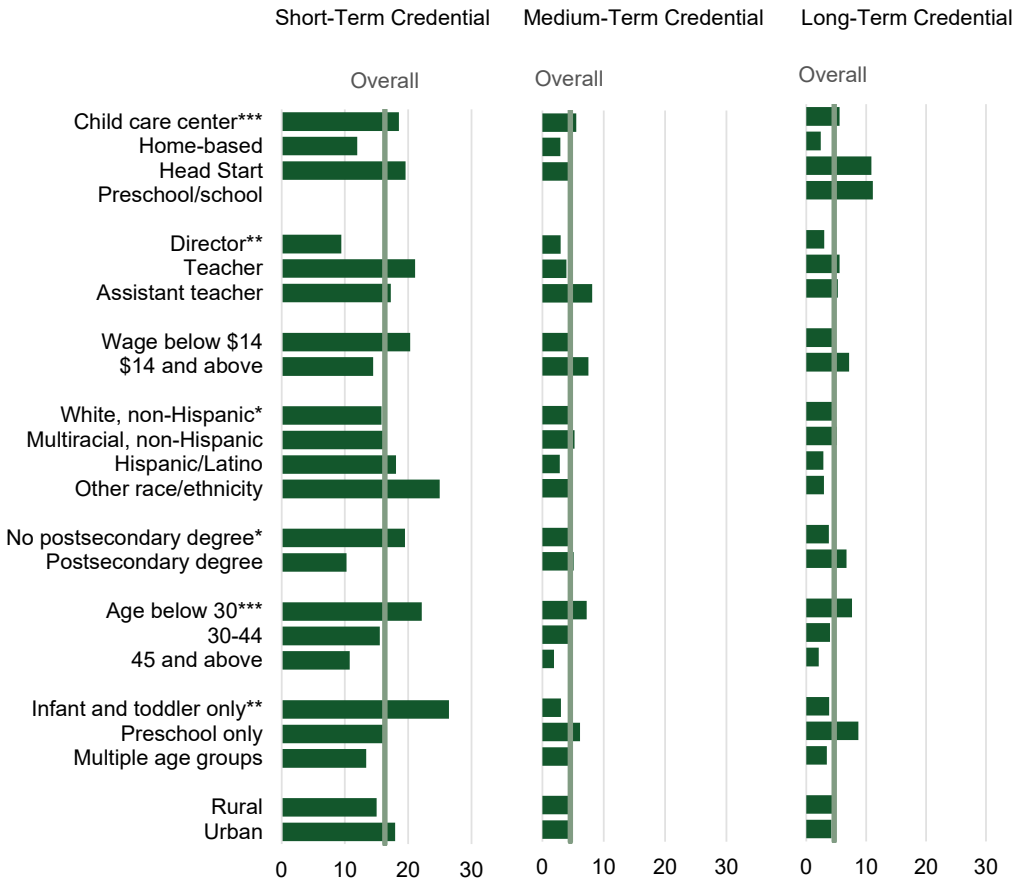
Teachers in center-based settings (including child care centers, Head Start, and school-based providers) were more likely to earn short and long-term credentials than those in home-based settings. Credential attainment rates over the two-year period vary across types of educators and settings (Figure 2). Twenty percent of Head Start teachers earned a short-term credential over the period, for example, compared with only 12 percent of home-based teachers. Teachers in Head Start and school-based programs were also more likely to earn postsecondary, or longer-term, credentials.

Credential attainment varied by role, age, and initial education level. Directors were less likely than lead and assistant teachers to have earned credentials over the period, particularly short- and medium-term credentials. As expected, educators without a postsecondary degree were more likely to have earned a shorter-term credential than those with higher education levels, with small differences for medium- and long-term credentials.

Younger teachers were more likely than older teachers to have earned credentials of any type over the two-year period. For example, 22 percent of teachers under age 30 earned a short-term credential over the two-year period, compared with 11 percent for those age 45 or older. There is an association between short-term credential attainment and race/ethnicity—teachers who identify as White, multiracial or Latino are less likely to earn a short-term credential than those who identify as some other race, including Black, Asian, Native Hawaiian, other Pacific Islander, or other. This group represents about 5 percent of all teachers.

Credential attainment also varied by the ages of the children served at the provider. There are also differences in credential receipt by the ages of children served. Teachers working in settings that only serve infants and toddlers have higher rates of short-term credential attainment—26 percent of these teachers earned a short-term credential over the period, compared with 16 percent of teachers in settings serving only preschool-aged children. In contrast, teachers working in settings serving only preschool-aged children had higher rates of long-term credential attainment. This may reflect the fact that many of these providers are Head Start centers, in which 50 percent of educators are required to have at least a bachelor's degree.

Figure 2. Percentage of Montana Child Care and Early Education Educators Who Gained a Credential in 2019 or 2020, Among Those Registered in 2019 and Still Registered in 2021



SOURCE: MDRC calculations based on the Montana Early Care and Education Workforce Registry.

NOTES: Credentials are grouped by the approximate amount of time needed to obtain them. Short-term is less than one year, medium-term is one to two years, and long-term is more than two years.

The top group of each category is marked with asterisks (*) to indicate if the difference between the largest and smallest value within that category has an effect size of greater than 0.20. *, **, and *** indicate that effect sizes were larger than 0.20 for one, two, and all three credential types.

As with the analysis of retention, more sophisticated analyses of credential attainment could examine differences by the ages of children served, for example, accounting for the fact that providers serving preschool-aged children only are disproportionately Head Start centers, to examine the "net effect" of this factor. There are a number of additional analyses that might be conducted with these data. Further analyses could examine credential receipt among specific subgroups of teachers, such as assistant teachers in rural settings or those with only a high school diploma. The findings could help identify particular groups that might face challenges to professional development. In addition, a central question in the field is how to best support teachers in gaining credentials, and Montana, like many other states, is offering scholarships and other supports to help teachers do so. The registry data could be used to evaluate these efforts, tracking credential receipt over time and for targeted groups.

Conclusion

State CCEE workforce registries, available in 39 states and typically used to track the professional development of the workforce, are a promising source of data to help address key gaps in the research highlighted by the BASE project. This brief uses data from Montana's ECE workforce registry to document retention rates and credential attainment over time.

The data provide a portrait of the Montana CCEE workforce. Most educators in the CCEE workforce are women and most work in center-based settings. The average educator has been employed at the same job for three to seven years and earns low wages. In terms of retention, among those working in the field in 2019, about 60 percent were still in the field two years later. Retention rates varied somewhat with teacher, job, and setting factors, such as age, hourly wage, and setting type. For credential receipt, the data show that one in four educators working in 2019 earned a credential by 2021, with the most common being shorter-term certificates, such as the Montana Infant/Toddler certificate or the CDA credential. Credential receipt also varied with teacher, job, and setting characteristics. Younger teachers were more likely to earn credentials than older teachers, for example, as were those in settings serving only infants and toddlers.

This brief provides some examples of the types of analyses that could be conducted with the data. Additional analyses could provide a more detailed portrait of workforce dynamics and potentially examine the effects of various strategies designed to impact those dynamics. For example, multiple years of registry data could be used to track credential attainment over time and its association with teachers' roles, wages, and retention in the field. Challenges to this type of analysis, as noted earlier, are that the reporting of wages is voluntary and there is limited coverage of teachers in Head Start providers. As another example, job exit dates could be used to examine rates of turnover that occur during the school year and whether they are concentrated among certain providers or certain types of teachers. A challenge to this type of analysis is that teacher job data are only required to be updated every three years, reducing the timeliness of this type of analysis. To address these challenges, some information could be made mandatory, and some information could be required on a more frequent basis. Wage or salary data could be required of all registrants, for example, and questions could be added to the yearly update asking if a teacher is still employed at the last reported employer and, if not, the teacher's date of exit. Similarly, for teachers who have left the field, their last date of employment could be required by directors, to provide a more accurate measure of tenure. The limited coverage of Head Start educators could be addressed through a mandate

for these providers to participate in the registry, although the lack of coverage of unlicensed providers reflects the broader challenge of fully describing the CCEE workforce and the workforce's experiences.

This analysis addressed selected gaps in the research identified by the BASE project—the need to understand the experiences of CCEE educators over time using longitudinal data and the need to assess how workforce dynamics and credential attainment vary with teacher, job, and setting characteristics. Remaining gaps include the need for data on the take-up of workforce support strategies, data on teacher psychological well-being, more rigorous evidence on the effects of strategies, and research that addresses systemic biases and barriers faced by teachers from historically marginalized backgrounds. Registry data could potentially be used to address some of these questions, such as the need for evidence on the effects of strategies. Information on teacher psychological well-being would most likely require survey data to be linked to the registry data. Linking data sources represents a promising next step in CCEE research. Linking registry data with UI wage records, for example, would provide the ability to track teachers as they enter and leave the CCEE field, with critical demographic information, providing further insights into workforce dynamics.

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