

LINDSAY DAUGHERTY, JASON C. LEE, JOSHUA EAGAN, JONAH KUSHNER

Care Forward Colorado and Career Advance Colorado

Financial Aid Programs to Support Workforce Credentialing in High-Demand Fields

This research was sponsored by the Colorado Community College System.

Research Report

For more information on this publication, visit **www.rand.org/t/RRA4747-1**.

About RAND

RAND is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. To learn more about RAND, visit www.rand.org.

Research Integrity

Our research integrity is grounded in RAND's core values of quality and objectivity. Rigorous quality assurance procedures, conflict of interest screening, and transparency in funding ensure that every study is objective and nonpartisan. Learn more at www.rand.org/integrity.

RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

Published by the RAND Corporation, Santa Monica, Calif.
© 2026 Colorado Community College System
RAND® is a registered trademark.

Cover photo credit: martinedoucet/Getty Images

RR-A4747-1

About This Report

State legislatures across the United States have been offering financial aid programs to encourage individuals to pursue short-term occupational credentials in high-demand fields. However, relatively little is known about how these programs are being implemented and their impacts on student outcomes. The Colorado General Assembly created the Care Forward Colorado program in 2022 through Senate Bill 22-226 and the Career Advance Colorado program in 2023 through House Bill 23-1246 to support individuals pursuing credentials in such fields as health care, education, and criminal justice. The funding was available to students enrolling in the state's 13 community colleges, three district colleges, and three area technical colleges. This report was legislatively mandated by the Colorado General Assembly, and the Colorado Community College System (CCCS) asked RAND to evaluate the two financial aid programs. In this report, we describe (1) how the programs were implemented, (2) how funding was distributed, (3) the relationship between the programs and student academic outcomes, and (4) the estimated return on investment for the Care Forward program. The aim is to provide Colorado legislators, CCCS, state agency staff, and college administrators in Colorado with actionable guidance to inform implementation and improve effectiveness of future financial aid programs. These findings may be relevant to other states that currently offer or are developing financial aid programs for short-term occupational credentials.

RAND Education, Employment, and Infrastructure

This work was conducted in RAND Education, Employment, and Infrastructure, a division of RAND that aims to improve educational opportunity, economic prosperity, and civic life for all. For more information, visit www.rand.org/eei or email EEI@rand.org.

Funding

This research was sponsored by the Colorado Community College System.

Acknowledgments

We thank CCCS for its support as a project funder. Chelsea Campbell, Megan Ellis, Melissa Martin, Keith Richard, and Sarah Heath from CCCS provided valuable insights into the project scope and findings. We are also grateful for the staff insights from 17 of the 19 community colleges and technical schools that participated in interviews for this project (we do not name these individuals to protect their anonymity). We appreciate the thoughtful reviews by Stephanie Murphy at HCM Strategists and Brian Phillips, Elaine Wang, and Julia Kaufman at RAND; the comments from these reviews led to improvements to this report. Finally, we thank Valerie Bilgri and Monette Velasco for their assistance with editing and production. In addition to engaging expert human peer reviewers, RAND Education, Employment, and Infrastructure's quality assurance process used assistive artificial intelligence tools to suggest writing improvements to the authors.

Summary

Issue

Between 2021 and 2023, the Colorado General Assembly established several temporary financial aid programs aimed at supporting individuals who pursue short-term occupational credentials in high-demand fields. In this report, we focus on two of these financial aid programs:

- Care Forward Colorado (Care Forward) was established in 2022 through Senate Bill 22-226, allocating $26 million in funding for high-demand health certificate programs (Colorado General Assembly, 2022a). Care Forward allowed funding to students through the spring 2026 semester.
- Career Advance Colorado (Career Advance) was established in 2023 through House Bill 23-1246, providing $38.6 million in funding for credit-bearing credentials in such high-demand occupations as nursing, early childhood education, and criminal justice (Colorado General Assembly, 2023). Career Advance allowed funding to students through the spring 2027 semester.

The Colorado Community College System (CCCS) oversaw the two financial aid programs, which were closely aligned with the CCCS's mission by putting learners first, supporting students financially, and contributing to community advancement by supporting workforce development in high-demand fields.

Colorado is one of many U.S. states providing funding to colleges and students for short-term occupational credentials. As of 2025, 34 states had invested $4.5 billion in funding initiatives for short-term occupational credentials (Murphy, 2025). Yet, relatively little is known about financial aid programs for short-term occupational credentials, including how institutions implement them, how the funding is distributed across instructional programs and students, and the impacts of funding on students' education and employment outcomes. Evidence on Colorado's financial aid programs (and programs in other states) can help inform state legislators, state agency staff, and college administrators who are involved in developing and overseeing financial aid programs for short-term occupational credentials.

Approach

CCCS contracted with RAND to conduct the legislatively mandated studies of Care Forward and Career Advance. In this report, we describe (1) how the programs were implemented, (2) how funding was distributed, (3) the relationship between the programs and student academic outcomes, and (4) the estimated return on investment for one program.

To describe implementation, we reviewed legislation and CCCS documentation, interviewed CCCS staff, and interviewed 35 administrators overseeing the programs across 17 of the 19 participating institutions. We also gathered perspectives on perceived program outcomes from these administrator interviews. To describe how funding was distributed and to estimate its impacts on students' educational outcomes, we leveraged CCCS data files, which included student-level records for all students enrolled at the 13 community colleges overseen by CCCS. Our quantitative analyses do not cover students who received funding at the six institutions outside CCCS (three district colleges and three area technical colleges). In addition, we excluded concurrent enrollees and students under the age of 18. Finally, we calculated an approximate measure of return on investment based on CCCS enrollees in one program by combining costs with an estimate of benefits.

Key Findings

The following highlights our key findings for Care Forward and Career Advance according to the four research questions we outlined above.

How Care Forward and Career Advance Were Implemented

The legislation and CCCS leadership provided some explicit guidance to institutions on which credential and instructional programs were eligible, the student paperwork that had to be completed (i.e., attestation forms, financial aid applications), and reporting requirements. Other than these stipulations, institutions had considerable flexibility in how they could administer Care Forward and Career Advance. The legislation did not set caps on the amount of funding that students could receive or specify student eligibility requirements (e.g., income). Institutions had the flexibility to add student eligibility criteria, but most did not. Care Forward and Career Advance both allowed institutions to cover tuition and fees and books and material costs. Career Advance also allowed institutions to cover certification exam costs and living expenses. Most institutions attempted to cover the main instructional program costs for eligible students (i.e., allow students to attend for free) and cover common materials and assessment costs, but fewer institutions reported allocating funding for living expenses. Institutions directed funding to varied instructional programs to meet specific regional workforce needs and students' funding needs.

Interviewees who oversaw Care Forward and Career Advance at institutions described the steps that they took to implement the financial aid programs. College leadership, financial aid directors, academic deans, faculty, and advisers all played a role in supporting program implementation. Institutions emphasized at least seven areas in which they had to devote substantial time and effort to implementation, including

- requesting institutional funding allocations from CCCS
- working internally and with CCCS to refine eligible instructional programs
- determining how funds would be used and calculating costs across programs
- establishing student eligibility and application requirements
- providing outreach to prospective students and identifying currently eligible students
- calculating and allocating award amounts on an individual basis
- tracking and reporting funding.

Interviewees did not report systematic follow-up with students who received funding (beyond informing students of the funding), and interviewees did not report offering additional wraparound supports to funding recipients beyond those that were available to all enrolled students.

Staff overseeing the Care Forward and Career Advance programs identified five key factors that helped support implementation: (1) opportunities to work with CCCS to reallocate funds throughout the grant period; (2) strong collaboration among institutional staff to identify eligible students and award funding; (3) cross-institutional collaboration among financial aid directors; (4) the involvement of faculty, advisers, and peers in getting the word out; and (5) minimal administrative burden on students.

Staff overseeing the two programs highlighted five barriers to implementation: (1) limited, vague, and evolving guidance from the legislature and CCCS; (2) substantial administrative work associated with applying last-dollar grants (i.e., funding awarded after other financial aid); (3) a lack of funding for labor-intensive administration and marketing; (4) student frustration with the winding down of the temporary programs; and (5) capacity limits in some fields (e.g., space, faculty, clinical rotations) that hindered enrollment.

How Funding Was Distributed

We analyzed how institutions distributed funding from Care Forward and Career Advance through the spring 2025 semester and the outcomes for students who received funding. Our data included the 13 community colleges in CCCS and excluded concurrent enrollees and students under age 18. The key findings for this subsample of funding recipients include the following:

- **A total of 10,155 CCCS students received Care Forward or Career Advance awards as of June 2025.** Care Forward served 4,704 students, Career Advance served 5,225 students, and 226 students received support from both programs.
- **Care Forward awards to CCCS students averaged $3,535 in total (cumulative) funding per student, and Career Advance awards averaged $4,763 in total funding per student.** The larger Career Advance awards were likely due to flexibility in the program to fund long-term credentials that may have been more costly, such as criminal justice and nursing.
- **CCCS institutions distributed Care Forward and Career Advance awards in the intended high-demand fields.** The top fields that received funding were those that were specifically named in the legislation. However, there was some variation in how institutions used the funding for credential and instructional programs, driven by differences in instructional program offerings, local workforce needs, and student financial needs.
- **CCCS funding recipients were more likely to be women, first-generation students, students with financial need, and students of color.** These patterns may have been driven by which students enrolled in the targeted instructional programs and differences in the levels of financial need across student groups. Funding recipients were also more likely to be enrolled more than half time.

Impacts on Student Academic Outcomes

We found large and positive impacts on retention, completion of certificates, and completion of any credential (certificate or degree) for CCCS students who were eligible for the Care Forward program. Estimates for CCCS students who were eligible for Career Advance funding were small and not statistically significant. Our ability to fully analyze the impact of Career Advance was limited due to the later start of the program and the longer period needed to observe effects. Because Care Forward primarily served health programs, we also examined the impact of Career Advance on non-health programs. When we excluded health programs from the Career Advance analysis, the results suggested possible short-run gains in certificate completion for CCCS recipients in non-health programs.

Interviewees from Colorado institutions broadly perceived Care Forward and Career Advance to be valuable and were in favor of sustained programs that offer financial support for short-term occupational credentials. Interviewees perceived that the financial support helped cover out-of-pocket student costs, and they did not commonly report that the funding displaced other types of financial aid. This aligns with the last-dollar design of the programs, which requires other sources of financial aid to be used first. Interviewees largely viewed the financial support for students as helping increase retention and persistence rates. In contrast, views on the enrollment impacts of Care Forward and Career Advance were mixed. Some reported increases in enrollment for certain fields in which institutions had excess capacity and the flexibility to expand. But others reported that capacity constraints (e.g., lack of space, faculty, clinical rotations) and the short-term nature of the financial aid programs limited their ability to attract new college enrollees.

Benefit-Cost Analysis

We found that the estimated benefits of Care Forward exceeded estimated program costs. Using the estimated Care Forward impact on certificate completion within two years and evidence on the labor market

returns for health certificates, our benefit-cost calculation suggests that Care Forward provided earnings benefits to individuals that exceeded the program's cost to the state.

Recommendations

As Colorado and other states consider future financial aid programs for short-term occupational credentials, we make six recommendations for implementing such programs to maximize effectiveness:

1. **Offer sustained financial aid programs that fund short-term credentials with labor market value.** Our results suggest that Care Forward increased credential completion and provided value that exceeded the program's costs. Colorado and other states should make ongoing and sustainable investments that support students as they pursue high-value credentials. States should use workforce demand as one measure of credential value.
2. **Provide explicit guidance up front on how institutions should distribute funding.** State legislation should grant CCCS (or other agencies overseeing financial aid programs) the authority to clearly define parameters for the program up front and ensure that institutions have access to common guidance before distributing funding. Those who develop guidance on statewide and CCCS-wide financial aid programs should consult with institutional leaders and financial aid directors.
3. **Provide funding to cover administrative costs.** Care Forward and Career Advance took substantial staff time to implement. When legislators allocate funding for short-term financial aid programs, they should include funding for institutions to build staff capacity to effectively distribute funds and support student applicants.
4. **Minimize administrative burden on students wherever possible.** Colorado institutions made it a priority to minimize administrative burden for students under Care Forward and Career Advance, but students had to complete financial aid forms. Administrative requirements pose major barriers for students and can prevent many students from accessing funding.
5. **Design financial aid programs with features that maximize effectiveness.** Some broader evidence on financial aid programs suggests that targeting funding to high-demand fields, providing larger grants, and prioritizing funding for low-income students can maximize impact on academic outcomes. More evidence is needed on features that maximize the effectiveness of financial aid programs for short-term occupational credentials. Care Forward and Career Advance targeted funding to high-demand fields and provided relatively large awards, but Career Advance did not target funding to low-income students.
6. **Conduct additional analysis on financial aid programs for short-term occupational credentials.** We suggest follow-up analysis on Career Advance. Given the timing of this report and data availability, we were unable to estimate impacts for academic year 2025–2026 Career Advance recipients, and we could only follow some participants for one or two semesters (i.e., not long enough to observe the completion of associate degree programs). Updated analysis may yield different findings. In addition, research on other state financial aid programs for short-term occupational credentials can help provide additional evidence on the efficacy of these programs and help states inform the design and implementation of more-effective programs.

Contents

About This Report iii
Summary v
Figures and Tables xi

Care Forward Colorado and Career Advance Colorado: Financial Aid Programs to Support Workforce Credentialing in High-Demand Fields 1
Introduction 1
Study Approach 3
Design and Implementation of Care Forward and Career Advance 6
How Institutions Distributed Funding 13
Program Impacts 21
Benefit-Cost Analysis 28
Key Findings and Recommendations 30
Conclusion 35

Abbreviations 37
References 39

Figures and Tables

Figures

1. Distribution of Per-Term Awards for CCCS Recipients 14
2. Distribution of Cumulative Awards for CCCS Recipients 14
3. Average Cumulative Funding Awards for the Top Ten Care Forward Fields at CCCS Institutions 18
4. Average Cumulative Funding Awards for the Top Ten Career Advance Fields at CCCS Institutions 19
5. Care Forward Event Study for Certificate Attainment Within Two Years in CCCS Institutions 26
6. Care Forward Event Study for Certificate or Associate Degree Attainment Within Two Years in CCCS Institutions 27

Tables

1. Details on Colorado's Funding Programs for Short-Term Occupational Credentials 7
2. Key Findings on How Colorado Institutions Implemented Care Forward and Career Advance 8
3. Average Per-Term and Cumulative Awards Per Recipient, by CCCS Institution 15
4. Share of Funding Recipients and CCCS Enrollees, by CCCS Institution 16
5. Top Ten Instructional Programs Receiving Care Forward Funding at CCCS Institutions, by Total Funding Amount 17
6. Top Ten Instructional Programs Receiving Career Advance Funding at CCCS Institutions, by Total Funding Amount 17
7. Student Characteristics for CCCS Funding Recipients and All CCCS Enrollees 20
8. Number of CCCS Institutions in Care Forward Treatment and Comparison Groups, by CIP 21
9. Number of CCCS Institutions in Career Advance Treatment and Comparison Groups, by CIP 22
10. Characteristics of Students in Treatment and Comparison Groups for the Care Forward and Career Advance Impact Analyses 24
11. Estimated Impacts of Care Forward in CCCS Institutions 25
12. Estimated Impacts of Career Advance in CCCS Institutions 28
13. Benefit-Cost Analysis for Care Forward Among CCCS Enrollees 29

Care Forward Colorado and Career Advance Colorado: Financial Aid Programs to Support Workforce Credentialing in High-Demand Fields

Introduction

The Colorado General Assembly established two recent financial aid programs aimed at supporting credentialing in high-demand fields: Care Forward Colorado (Care Forward) and Career Advance Colorado (Career Advance). In 2022, Colorado policymakers appropriated $26 million for the Care Forward program through Senate Bill 22-226 (Colorado General Assembly, 2022a), which supported individuals pursuing short-term occupational credentials in a subset of health programs in high-demand fields (e.g., emergency medical technician, certified nursing assistant). The program continued to fund students through spring 2026. In 2023, policymakers appropriated $38.6 million for the Career Advance Colorado program under House Bill 23-1246 (Colorado General Assembly, 2023), which supported students in some of the same health fields as Care Forward and in other high-demand fields (e.g., early childhood education, criminal justice, nursing). The program continued to fund students through spring 2027. The Colorado Community College System (CCCS) distributed funding to 19 institutions, including the 13 community colleges in CCCS, three local district colleges, and three area technical colleges.

Colorado is not alone; states across the country are investing in short-term occupational credentials. When Care Forward launched in 2022, Colorado was one of 28 states that had funded 59 short-term occupational credential initiatives, totaling $3.81 billion nationally (Murphy, 2023). By 2025, state funding for short-term occupational credentials had expanded to 111 initiatives across 34 states, totaling $4.5 billion nationally (Murphy, 2025). These initiatives span formula funding for certificate completion, direct funding to institutions to build instructional programs, and financial aid programs that cover costs for students. Although some states have provided funding for short-term occupational credentials for decades, these initiatives accelerated during and immediately after the coronavirus disease 2019 (COVID-19) pandemic, when states and colleges had access to additional federal funding for student support and workforce development. We provide more details on short-term occupational credentials and financial aid programs in Box 1.

Relatively little is known about state financial aid programs that support short-term occupational credentials. It is critical for state policymakers to have better information on promising approaches to the design and implementation of these programs. In addition, state policymakers need evidence on student outcomes and benefit-cost analysis to determine whether these programs are good investments.

The Colorado General Assembly asked CCCS to conduct an evaluation of the implementation and impacts of the Care Forward and Career Advance programs, and CCCS contracted RAND to conduct this evaluation. Although these programs have ended, the evidence we present in this report can help inform the design and implementation of future financial aid programs for short-term occupational credentials in Colorado. We also provide evidence that may be relevant to policymakers in other states who are offering or considering financial aid programs for short-term occupational credentials.

BOX 1

Key Things to Know About Short-Term Occupational Credentials and State Financial Aid

What Are Short-Term Occupational Credentials and Who Earns Them?

The term *short-term occupational credentials* can be used broadly to include college certificates, industry certifications, and licenses. These credentials can be offered by community colleges, technical schools, states (e.g., licensing boards), and other third-party organizations (e.g., industry associations). However, in this report, we focus on for-credit instructional programs that colleges offered and programs that led to college certificates and associate degrees. Short-term credentials are typically occupation-specific and signal that an individual has received training or demonstrated a mastery of skills and knowledge in a particular area. Short-term occupational credentials are most common in the trades and the fields of health, information technology, business, and manufacturing. Colleges award more than 1.18 million certificates nationwide each year (National Center for Education Statistics, 2026). The individuals who earn college certificates are more likely than degree recipients to be older, from lower-income backgrounds, and balancing employment while enrolled (Carnevale, Rose, and Hanson, 2012).

What Are the Potential Benefits and Shortcomings of Short-Term Occupational Credentials?

Short-term occupational credentials may provide an opportunity for more-flexible workforce training pathways that better meets employer needs. In addition, short-term occupational training may attract individuals who are not interested in traditional college degrees and provide pathways to better jobs. Colleges are increasingly focused on ensuring that short-term occupational credentials feed into degree programs (i.e., stackable credentials) to enhance the pathways that are available to students and eliminate the either/or discussion around short-term credentials and degrees. The research evidence suggests that short-term occupational credentials can provide small gains in earnings (Huff Stevens, Kurlaender, and Grosz, 2019; Minaya and Scott-Clayton, 2022). However, the returns on short-term credentials vary widely across fields, with the largest gains often found for health credentials, and across states (Belfield and Bailey, 2017; Huff Stevens, Kurlaender, and Grosz, 2019; Minaya and Scott-Clayton, 2022; Zaber, Phillips, and Daugherty, 2025). Some research suggests that credentials lead to short-term gains that diminish over time (Minaya and Scott-Clayton, 2022). The gains associated with certificates generally fall below those associated with associate and bachelor's degrees (Belfield and Bailey, 2017), but a number of students go on to complete additional credentials beyond the certificates (Belfield and Bailey, 2017; Bohn and McConville, 2018; Daugherty et al., 2023). Critics of short-term occupational credentials worry that short-term instructional programs may divert students who could have earned degrees and may not be providing students with durable skill sets that allow them to pursue a variety of careers (Hanushek et al., 2017).

How Are States Investing in Short-Term Occupational Credentials, and How Are They Designing Financial Aid Programs?

Federal and state investments have contributed to growth in short-term occupational credentialing. Some states have established institutional funding formulas that explicitly fund colleges based on certificate and degree completion (Li and Ortagus, 2019; Ness, Deupree, and Gándara, 2015). When Colorado developed Care Forward in 2022 and Career Advance in 2023, 28 states offered financial aid programs for students enrolled in short-term instructional programs (Murphy, 2023). Large federal investments during and after the 2007–2009 Great Recession and the COVID-19 pandemic helped support short-term occupational credential programs and other student support initiatives (Employment and Training Administration, undated). The design features of financial aid programs for short-term occupational credentials vary widely. Programs vary in grant size, and a national scan suggests that average awards range from $750 to $3,816 (Murphy, 2023). State financial aid is typically awarded after federal aid (i.e., last-dollar grants). Some

grants cover tuition and fees only, while others cover a broader array of costs. Many states tie financial aid for short-term instructional programs to occupations with higher demand, higher wages, or both to improve the likelihood that individuals and the state benefit from the investment (Murphy, 2025). States have also established restrictions on financial aid eligibility based on age, prior educational achievement, and residence in a particular geographic region. The processes for applying to receive aid also shape the pool of individuals who receive funding from a financial aid program.

Is There Evidence of the Impact of State Financial Aid Programs on Student Outcomes?

There is limited evidence on the outcomes of financial aid programs that target short-term occupational credentials. But the broader financial aid literature suggests that financial aid positively affects individuals, especially low-income students. The research also suggests that an additional $1,000 in grant aid will increase degree attainment by approximately 1.5 to 2 percentage points (Nguyen, Kramer, and Evans, 2019). Such design features as targeting financial aid to lower-income students and to high-demand fields can increase cost-effectiveness (Anderson, 2020; Nguyen, Kramer, and Evans, 2019). Larger grants may drive greater effectiveness for the students who receive them but limit the number of students who benefit and/or drive up costs.

In the next section, we provide a brief overview of our study approach. We then provide findings on (1) how colleges implemented the Care Forward and Career Advance programs; (2) how funding was distributed across students, institutions, and instructional programs; (3) the impacts of Care Forward and Career Advance on enrollment and completion outcomes; and (4) a benefit-cost analysis for the financial aid programs. We conclude with a discussion of the results and some recommendations for policymakers, CCCS leaders, and institutional leaders in Colorado and other states.

Study Approach

Study Aims

The primary aims of the study were to assess the Care Forward and Career Advance programs and inform future state investments in financial aid for short-term occupational credentials in Colorado and other states. We examined four main research questions:

1. How were the Care Forward and Career Advance programs designed and implemented?
    a. What guidance did the Colorado legislature and CCCS provide on the programs?
    b. How did colleges implement the programs?
    c. What factors helped and hindered colleges' implementation of the programs?
2. How was funding from Care Forward and Career Advance distributed across individuals, institutions, and instructional programs?
3. What were the benefits of Care Forward and Career Advance?
    a. Did the programs lead to improved academic outcomes?
    b. What did college leadership and staff perceive as the benefits?
4. What was the approximate return on investment of the programs?

To address the first research question, we examined documentation on the financial aid programs and conducted interviews between February and April 2026 with CCCS staff and leadership and staff across the

institutions. We also used interview data to describe the perceived benefits of the programs (third research question). We leveraged student-level records for CCCS enrollees to describe how funding was allocated (second research question) and to calculate the impacts and costs (fourth research question). These analyses of CCCS administrative records excluded concurrent enrollment students (i.e., high school students enrolled in college courses) and students under age 18. In the following sections, we briefly describe these data sources and our analytic approaches.

Interview and Program Documentation Data

We first reviewed documentation and interviewed CCCS staff to learn about the structure of Care Forward and Career Advance and any guidance provided by CCCS, state agencies, or the legislature. Documentation on the programs was limited; we reviewed the legislation for each program, a CCCS slide deck, a CCCS interim report on the programs, and a press release on Care Forward. One college provided a sample of an email chain that clarified guidance on program rules. We interviewed two leaders at CCCS, but we did not interview the primary leader at CCCS who had been overseeing Care Forward and Career Advance because he had left the system and was unavailable for an interview.

We conducted a total of 21 semi-structured interviews with 35 individuals across 17 of the 19 institutions that received Care Forward and Career Advance funding. Two of the 13 community colleges in CCCS did not respond to invitations to participate. Our interviewees included financial aid directors, academic deans who oversaw eligible instructional programs, and vice presidents of student success. We recorded and transcribed these interviews. We systematically coded transcript notes based on key topics that were addressed in our semi-structured protocols and reflected in research questions one and three. Throughout the report, we use such terms as *a few*, *several*, *some* and *most* to characterize how many institutions had interviewees who made comments that contributed to the findings. We define *a few* as two institutions, *several* as three institutions, *some* as four to nine institutions, and *most* as ten or more institutions.

Analysis of Administrative Data

Although 19 institutions received funding, our analysis of how the funding was distributed, impacts, and costs is limited to students at these institutions because we had access to only funding data and longitudinal enrollment and completion files for the 13 CCCS institutions. The administrative data include enrollment and completion records from the 2017–2018 academic year through the 2024–2025 academic year. We asked that individuals under age 18 be removed from the data and excluded any concurrent enrollment students.

To create a consistent unit of analysis, we organized enrollment records into student-level spells. We defined a *spell* as a period of enrollment separated from another period of enrollment by a gap of one year or more without enrollment. For each spell, we identified the first institution in which the student enrolled and applied the six-digit classification of instructional programs code that we observed for that student during the spell. When a student's initial instructional program was coded as Liberal Arts and Sciences/Liberal Studies or General Studies, we instead assigned the first non–liberal arts, non–general studies program code observed during the spell, when available. We then measured outcomes relative to the beginning of the spell. This approach allowed us to follow students from entry into a funded pathway while reducing double-counting across separate enrollment episodes.

We assigned Care Forward and Career Advance treatment status based on the instructional programs identified in the legislation and in the institution-by-program assignment files that CCCS provided. To estimate financial aid program impacts, we examined changes over time in student outcomes. We used a difference-in-differences approach to compare changes in student outcomes before and after a program began with changes over the same period for a similar student group that did not receive program fund-

ing. Specifically, we compared outcomes for students in the same instructional program across colleges that did and did not award funding to that academic program. For example, we compared students in a certified nursing assistant program at colleges that allocated Care Forward funding with students in a certified nursing assistant program at colleges that did not allocate Care Forward funding to that particular program. These within-program comparisons avoid comparing funded instructional programs with unrelated fields and provide a consistent comparison strategy.

We treated Care Forward as beginning in academic year 2022–2023 and Career Advance as beginning in academic year 2023–2024. The primary models include indicators for (1) whether an instructional program received funding (i.e., treatment status), (2) post-implementation periods, and (3) treatment status interacted with the post-implementation period indicator. We controlled for student age, race and ethnicity, gender, first-generation status, enrollment intensity, and financial need. The models also include fixed effects for six-digit program codes to account for persistent differences across instructional programs, as well as cohort and institution fixed effects. Standard errors are clustered at the six-digit program code level. The coefficient of interest is the interaction between program treatment status and the relevant post-period indicator, which captures whether outcomes changed differentially in funded instructional programs after implementation.

Because some comparison instructional programs in the Care Forward analysis later became eligible for Career Advance funding, Care Forward models also include an indicator identifying Career Advance–funded instructional programs and an interaction between that indicator and the period after Career Advance was introduced (2023–2024 and later).[1] Career Advance models include the analogous adjustment for Care Forward–funded instructional programs after Care Forward was introduced (2022–2023 and later). This accounts for the fact that the two funding initiatives partially overlapped in program coverage and helps isolate the association of each program (i.e., Care Forward or Career Advance) from changes that may have occurred because of the other initiative.

Study Limitations

We cannot generalize our findings to all students who received Care Forward and Career Advance awards given our analysis restrictions of CCCS institutions, students over age 18, and students who did not receive funding for concurrent enrollment. We observed only enrollment and completion in CCCS institutions, so we cannot account for transfers to other non-CCCS institutions or completions at other institutions. We had data only through academic year 2024–2025, which prevented us from observing funding recipients in the final two years and limited our ability to observe long-term outcomes. Students in associate degree programs take longer to complete credentials, so it would be ideal to look at outcomes at least three years after initial enrollment. We did not have access to individual-level employment or earnings data, so we could not assess whether funded students entered jobs in the fields associated with their credentials or whether Care Forward and Career Advance improved labor market outcomes.

Financial aid programs may drive both enrollment changes (i.e., shifts in the composition of who enrolls) and improved academic outcomes. New students may have enrolled because of funding availability. In addition, some students may have shifted from unfunded instructional programs into funded instructional programs after Care Forward and Career Advance were introduced. Ideally, the funding helped support improved academic outcomes for all enrollees. We gathered stakeholder perspectives regarding enrollment and achievement impacts from Care Forward, but we did not try to capture and decompose these combined effects in the quantitative analysis. In our quantitative model, we accounted for observable student differ-

[1] There may also be overlap in the funding of Senate Bill 22-192, which we do not account for in our models. Importantly, this program is quite small by comparison, allocating only $1.4 million across six community colleges.

ences to compare outcomes for similar students across institutions. This helped reduce differences driven by student composition, but it did not fully separate enrollment or selection effects from changes in academic outcomes after enrollment. At the same time, there were student characteristics that we could not observe. If Care Forward and Career Advance attracted students with greater financial or academic barriers or more limited commitment to the instructional program, these unobserved compositional changes may have led to underestimates of impact. If more-resourced and more-motivated students sought out information on Care Forward and Career Advance and chose to enroll in or switch instructional programs, we may have overestimated the impacts on student outcomes.

Readers should interpret the impact estimates as suggestive rather than definitive causal evidence. Students were not randomly assigned to a program, and institutions were not randomly assigned to receive funding for specific institution-by-instructional-program combinations. Institutions also differed in why they applied funding to some eligible instructional programs and not others. For example, some institutions may not have offered certain instructional programs; employers, high schools, or other aid sources may have already covered some students' costs; and some institutions may have prioritized programs with stronger local workforce demand or larger unmet student costs. These institutional choices may have been related to trends in student outcomes in ways that were not fully captured by the models. Comparisons within the same program reduce concerns about the unobserved differences in students, program content, and labor-market orientation. The models account for student characteristics and cohort, college, and program fixed effects, but the institutional choices that influenced which instructional programs were eligible for funding may still differ in unobserved ways.

Finally, our return-on-investment calculations focused on student-facing financial support and do not capture all administrative, outreach, reporting, and implementation costs incurred by colleges and CCCS. Moreover, our calculations focused on direct benefits to award recipients in terms of lifetime earnings and do not capture indirect benefits to the state or society (e.g., increased tax revenue, reduced unemployment insurance costs).

Design and Implementation of Care Forward and Career Advance

Design of Colorado Funding Programs for Short-Term Occupational Programs

Colorado has rolled out three separate financial aid programs for short-term occupational credentials since 2021. We provide details on these programs in Table 1. Care Forward and Career Advance are the focus of this report; we discussed the implementation and outcomes of Stackable Credential Pathways, established under Senate Bill 22-192 (Colorado General Assembly, 2022b), in a prior report (Kushner and Daugherty, 2024).

Care Forward and Career Advance were implemented over multiple years to support workforce development in high-demand fields by attracting new enrollees and supporting the completion of certificates and degrees. In contrast, the Stackable Credential Pathways program was much shorter and distributed funds only to current enrollees. Care Forward and Stackable Credential Pathways leveraged federal pandemic relief funding, and Career Advance drew on state general funds. All three programs were intended to target high-demand fields, although the specific fields varied across programs, and Care Forward and Career Advance were limited to credit-bearing programs. Students who received federal funding from Care Forward or Stackable Credential Pathways had to complete attestation forms stating a loss of economic resources because of the COVID-19 pandemic. For Care Forward and Career Advance, most students completed the Federal Application for Federal Student Aid (FAFSA), the Colorado Application for State Financial Aid (CASFA), or both forms to ensure that colleges were leveraging other public dollars (e.g., federal Pell Grant dollars) prior

TABLE 1
Details on Colorado's Funding Programs for Short-Term Occupational Credentials

Program Detail	Stackable Credential Pathways (Senate Bill 22-192)	Care Forward (Senate Bill 22-226)	Career Advance (House Bill 23-1246)
Program length	• March–June 2023	• Fall 2022–Spring 2026	• Fall 2023–Spring 2027
Funding source	• Federal pandemic relief funds	• Federal pandemic relief funds	• State general funds
Funding allocation	• $1.4 million	• $26 million	• $38.6 million
Institutions that received funding	• Six community colleges	• Thirteen community colleges • Three local district colleges • Three area technical colleges	• Thirteen community colleges • Three local district colleges • Three area technical colleges
Eligible instructional programs	• Noncredit and credit programs that led to a certificate or certification in – behavioral health – cybersecurity – software programming or development – education – health care (where possible)	• Credit-bearing certificate programs in – certified nursing assistant – emergency medical technician – phlebotomy technician – pharmacy technician – medical assistant – dental assistant	• Credit-bearing certificate or associate degree programs in – construction – early childhood education – education – forestry – firefighting – law enforcement – nursing – Care Forward fields
Student eligibility and application process	• Attestation form (i.e., experienced economic loss related to COVID-19)	• Attestation form • Submitted financial aid applications • Some colleges had additional forms	• Submitted financial aid forms • Some colleges had additional application forms
Award amount	• No restrictions	• No restrictions	• No restrictions
How funding could be used	• Last dollar • Coverage for – tuition and fees – certification and licensing exams – books, supplies, and other expenses (e.g., transportation)	• Last dollar • Coverage for – tuition and fees – books and supplies	• Last dollar • Coverage for – tuition and fees – certification and licensing exams – books, supplies, and other expenses (e.g., transportation)

SOURCES: Adapts information from Colorado General Assembly, 2022a; Colorado General Assembly, 2022b; Colorado General Assembly, 2023; and CCCS staff and college staff, interviews with the authors, 2026.

to using program funding. There were no limits to the amount of funding that students could receive in a single term, and there were no restrictions on the number of terms a student could receive funding.

Implementation of Care Forward and Career Advance by Institutions

The guidelines set out by the Colorado General Assembly and CCCS for Care Forward and Career Advance provided considerable flexibility to institutions around the distribution of funding. Based on our interviews with staff who were overseeing the programs at 17 of the 19 institutions that received funding, we identified eight areas of implementation in which institutions had to make decisions and engage in activities to distribute funding (those areas are detailed in Table 2).

Across most colleges, high-level leadership collaborated with CCCS to resolve institutions' outstanding questions about the financial aid programs, make overarching funding requests for their institutions, and

TABLE 2

Key Findings on How Colorado Institutions Implemented Care Forward and Career Advance

Activity	Key Findings
Request institutional funding allocations	• Institutional leadership had to draw on enrollment data and cost estimates to request allocations. • Some institutions underestimated or overestimated funding needs, but CCCS was able to adjust allocations through subsequent rounds of redistribution.
Define eligible instructional programs and courses	• Determining which instructional programs were eligible required institutions to clarify with CCCS staff. • Institutions varied in how they applied funding to eligible instructional programs, driven by local workforce needs and programs in which students were facing substantial out-of-pocket costs (i.e., costs that were not covered by other funding). • A few interviewees raised questions about why some of the high-demand fields named in the legislation were chosen, and why other high-demand fields were not included. • Some interviewees described efforts to apply funding only to a program's required courses and not to electives or general education courses.
Establish student requirements	• Most institutions reported that the state requirements for attestation forms and FAFSA and CASFA completion were only a slight burden on students and staff. • Most institutions did not establish additional student eligibility criteria. • Some institutions asked students to complete a form to request funding.
Engage in student outreach	• All institutions created websites for the financial aid programs, and many interviewees noted peer word of mouth, faculty, advisers, and enrollment staff as valuable resources in getting the word out. • Some institutions focused less on marketing and worked behind the scenes to pull lists of students and apply funding.
Set award amount	• Few institutions established caps on individual student funding awards; institutions typically tried to cover all remaining balances for eligible students. • Individual student funding amounts were calculated by financial aid staff in spreadsheets. • Award amounts varied because of differences in instructional program costs and differences in the amount of additional aid received.
Determine allowable uses of funds	• Institutions could easily determine tuition and fees, but calculating the varying book, materials, and assessment costs across instructional programs was time-consuming. • Most institutions focused funding on common program-related costs, and institutions less frequently used funding to cover living costs.
Track and report on funding	• CCCS institutions tracked the awards similarly to other types of financial aid and did not view reporting as burdensome. • The three independent community colleges and three technical schools had additional reporting requirements and viewed reporting as slightly burdensome.
Follow up with funding recipients	• The primary communication with students was to notify them that funding had been awarded. • Some colleges reported that award recipients sometimes needed additional wraparound support, but colleges did not offer them unique or additional wraparound supports.

SOURCES: Features information from staff at 17 of the 19 institutions that received Care Forward and Career Advance Funding, interviews with the authors, 2026.

finalize the lists of eligible instructional programs. Financial aid directors ensured that student paperwork was completed, applied funding to student accounts, and tracked funding that was awarded. Academic deans and faculty in the relevant instructional programs helped financial aid staff by identifying eligible students, getting the word out to current enrollees, and collecting attestation forms. Other college staff assisted with creating websites and marketing the financial aid programs through enrollment and advising offices. Interview participants all agreed that these financial aid programs required substantial staff time to administer. We provide key findings related to the eight areas of implementation in Table 2 and in the sections that follow.

Institutions Had to Estimate Funding Needs, and the Accuracy of Estimates Varied

Interview participants conveyed that CCCS staff asked college leadership to estimate the funding needs for their institutions and make requests for initial Care Forward and Career Advance funding allocations. To inform these requests, college leadership leveraged prior enrollment data and estimates of how much financial support students might need. Some interviewees reported that their estimates were relatively close to what colleges ended up allocating and students ended up needing, while others described significantly overestimating or underestimating funding needs. CCCS staff worked with college leaders to make subsequent revisions to funding allocations that included awarding additional funding or redistributing funding that institutions were unable to spend. Interviewees described receiving as many as three rounds of funding for a single financial aid program.

Institutional Staff Emphasized Efforts to Target Funding to Eligible Programs and Courses, Although Programs That Received Funding Varied Across Colleges

To determine which students were enrolled in eligible instructional programs, financial aid officers frequently worked with academic deans to pull lists of enrollees in eligible programs. Some interview participants described extensive processes to audit student enrollment to ensure that financial aid staff applied program funds only to the courses required for the eligible instructional programs (i.e., not electives or general education courses). Financial aid administrators also reported waiting to award funds until they were certain that students had not withdrawn from courses before the census date.

Colleges offered various instructional programs, and this was one factor that contributed to variation in which students and instructional programs received Care Forward and Career Advance funding. Because of the last-dollar nature of the funding, instructional programs that were not eligible for Pell Grants or other types of state aid and instructional programs that were more expensive may have had students with larger balances. Colleges also had the flexibility to align funding with the instructional programs that were most in demand for a particular region. Finally, some interviewees reported receiving individualized email guidance and iteration with CCCS to determine whether certain instructional programs were eligible. This may have contributed to variation in awareness across institutions about which instructional programs were eligible.

Most Institutions Did Not Establish Student Eligibility Criteria and Minimized Application Processes

The main student eligibility requirement was enrollment in an eligible instructional program. A few interview participants reported that Colorado residency may have been a requirement, although that was not clearly specified in the legislation or any documents we reviewed and was not a provision according to CCCS staff. Institutions had the flexibility to layer on additional eligibility criteria to target the funding to certain types of students, but most interview participants reported that their colleges did not establish additional eligibility criteria. Several interviewees mentioned that students had to be in good academic standing to qualify. Some institutions did not allocate their funding to concurrent enrollment students, although those decisions may have been in part due to high school districts covering the costs of those students.

Because Care Forward drew on federal resources, students who received funding from this program had to complete forms attesting that they had faced economic hardship because of the COVID-19 pandemic. Some interview participants reported having to collect those forms retroactively through outreach to students and visits to classrooms because of a lack of clarity on this requirement at the outset of the program. Some interview participants reported this as an administrative burden, but college staff generally did not view the funding as difficult for students to access.

The final major requirement that students had to satisfy was completing the FAFSA and CASFA. Care Forward and Career Advance were last-dollar programs, which meant that the funding from those programs

was awarded after other federal and state funding was awarded. Students had to complete financial aid forms to ensure that their instructional program costs could not be covered by other sources. Some interview participants reported that this was a slight burden for students who were in shorter programs and knew that they would not qualify for other public funding, but college staff who were overseeing the financial aid programs generally understood why the requirements were in place and did not regard completing financial aid applications as a major barrier to distributing funds.

Institutions Varied in Their Approaches to Outreach and Identifying Eligible Students

Most college staff we interviewed described clear branding for Care Forward and Career Advance. CCCS provided some marketing guidance, but colleges could tailor the information. Most institutions used a combination of dedicated websites, social media posts, email campaigns, flyers, and press releases to publicize the financial aid programs. Several interview participants noted that Care Forward and Career Advance received media attention when the legislation passed, which led to early inquiries before colleges were ready to launch their programs. In some institutions, faculty, advisers, and enrollment staff helped promote the financial aid programs. According to college staff we interviewed across most institutions, students were aware of the financial aid programs by name, a distinction from free or low-cost short-term credential programs braided together from funding sources without student awareness. Interview participants at a few institutions were less sure about brand recognition and assumed that the "free instructional program" branding was more salient than the names of specific financial aid programs. In addition, a few interviewees noted that the naming and overlap in coverage across Care Forward and Career Advance created challenges in determining who was eligible for which program or explaining the two programs to students.

At most institutions, the financial aid staff described working collaboratively with academic departments to identify eligible students from enrollment lists and proactively reach out to these students to notify them of the funding opportunity. In some cases, institutions established an additional online form that students could fill out to request funding or information. But overall, most institutions emphasized efforts to limit administrative burden for students.

Few Institutions Set Caps on Awards, and Calculating Award Amounts Was Time-Consuming

Interview participants largely reported clearing balances for students. In other words, financial staff applied funding against all remaining tuition and fees for the semester, making the semester free for eligible students. Only one interviewee mentioned a $3,500 cap on Career Advance awards. Those interviewees explained that caps on awards helped stretch funding across more students and simplified the calculations of materials costs across instructional programs.

Once the institutions identified eligible students, the next step was to determine which students had eligible costs that could be supported by Care Forward or Career Advance. Some students received Pell Grants or other state financial aid that colleges applied prior to Care Forward and Career Advance funding. Once financial aid staff generated lists of eligible students, they made calculations in spreadsheets for each student to estimate the tuition and fee balances that could be paid off using financial aid program funds. Interviewees described these processes (and the instructional program variations in materials and books and other costs described in the next section) as time-consuming for financial aid staff.

Most Institutions Covered Common Program Costs, but Few Covered Living Expenses

Both Care Forward and Career Advance allowed institutions to cover expenses beyond tuition and fees. Both allowed funding to be used for books and supplies, and Career Advance allowed funding to be used for certification and licensing fees and living expenses (e.g., transportation, housing). Interviewees described Career Advance as covering background checks, drug screenings, immunizations, and equipment.

In interviews, all college staff reported covering tuition and fees with Care Forward and Career Advance funding. But only two interviewees reported that their institution limited the program to tuition and fees. Administrators most frequently reported using Care Forward and Career Advance funds to cover common instructional program costs, such as textbooks and certification fees. To support financial aid offices, academic deans calculated these program-specific costs and provided them for inclusion in spreadsheets alongside tuition and fee balances. One interviewee mentioned receiving later CCCS guidance on a common cross-program amount that colleges could use in lieu of calculating varying amounts each semester for each instructional program. Few interviewees reported using the funds to cover living expenses. When institutions did award funds for living expenses, it tended to be for unique situations that fell outside the processes used to calculate other costs.

All Institutions Tracked and Reported Distributions of Funding

Interview participants reported three types of tracking for Care Forward and Career Advance. As we described above, financial aid offices used spreadsheets to calculate unmet costs and the amounts that could be awarded to students. Interviewees at several institutions reported that they did not distribute funding until after the census date to ensure that students who received funding were still enrolled.

Once colleges distributed funding to students, they tracked student-level data on those who received funding. The 13 community colleges in CCCS used a common financial aid reporting system. Separate fund codes allowed staff to tag how funds were used, and staff entered student information and the amount provided. CCCS was able to directly access reports for these institutions, so college staff did not receive requests to submit additional data.

The process for tracking and reporting on student awards differed for the six institutions outside CCCS. These institutions received a reporting form that they had to complete and submit to CCCS on a monthly basis. According to CCCS interviewees, compliance with reporting requirements was inconsistent. Institutional interviewees outside CCCS noted that they would receive quick-turn requests to submit data outside monthly reporting, which may have been driven by incomplete reporting and a need to respond to legislative requests.

The third type of tracking and reporting that interview participants described was financial accounting to determine how much of the allocated funds had been spent. Finance offices and leadership were responsible for cross-checking the funding distribution lists against the total funds to communicate when funding was running low. This gave financial aid staff the ability to request additional funding from CCCS and communicate to students the end of funding when everything was allocated.

Institutions Offered Common Wraparound Supports for Grantees and Other Students

Interviewees reported that, beyond the additional financial support, the Care Forward and Career Advance programs did not come with other structured follow-up or wraparound supports for grantees. Care Forward and Career Advance students had access to the same wraparound supports as all other students attending the colleges. Some financial aid staff reported follow-up interactions to inform students of funding. As funding for the programs ran out, some interviewees reported hearing disappointment from students who had lost access to funding.

Facilitators and Barriers to Implementing the Programs

Staff who were overseeing Care Forward and Career Advance identified some key facilitators for the successful distribution of funding (Box 2). Given some uncertainty around the initial allocation estimates that institutions requested, interviewees appreciated the opportunities to receive funds throughout the grant period. Interview participants highlighted strong collaboration among institutional staff to identify eligible students and to award funding as essential to the success of Care Forward and Career Advance. Cross-institutional collaboration among financial aid directors was also valuable in helping address areas of uncertainty and align practices across institutions. To get the word out to students about the programs, some interviewees described faculty, advisers, and peers as essential. Other colleges focused more on pulling lists of students enrolled in eligible instructional programs from enrollment records and applying funding systematically to all eligible students rather than engaging in traditional student-facing outreach. This process also required cross-departmental collaboration. Most interviewees stressed the importance of minimizing administrative burden for students; some institutions did not develop additional application forms beyond the attestation form and financial aid forms required by the legislation.

Interviewees highlighted several barriers to implementation (Box 2). Most interviewees described financial aid program guidance as limited, vague, and evolving, which they perceived as a barrier. Interviewees commonly reported a preference for more explicit upfront guidance on the programs. The last-dollar nature of the grants—meaning they had to be spent after other financial aid was awarded—made Care Forward and Career Advance more time-consuming to implement because they required student-specific calculations of remaining balances. The need to build in books and materials costs, which varied across instructional programs, further complicated the calculations of student awards. Interviewees from several institutions reported that it would have been valuable to have some funding to cover the costs associated with the labor-intensive administration of the grants.

Interviewees described some barriers to using Care Forward and Career Advance to increase enrollment. Interviewees at all institutions described broad outreach to students and potential students, but some inter-

BOX 2

Facilitators and Barriers to Implementing Care Forward and Career Advance

Facilitators to implementing Care Forward and Career Advance were

- opportunities to ask for additional funds (or for the redistribution of funds)
- strong collaboration among institutional staff
- cross-institution communication among financial aid directors
- program awareness and outreach through peer sharing, faculty, and advisers
- minimal administrative burden for students.

Barriers to implementing Care Forward and Career Advance were

- limited state and system guidance to institutions and delays in guidance
- the tougher administration of last-dollar grants because they require individual student calculations
- a lack of funding for labor-intensive grant administration and marketing and a limited amount of time to launch
- capacity limits in some fields (e.g., lack of space, faculty, clinical rotations) to expand enrollment
- the temporary nature of the programs and student frustration with the winding down of funding.

SOURCE: Staff at 17 of the 19 institutions that received Care Forward and Career Advance Funding, interviews with the authors, 2026.

viewees reported that the short nature of the programs did not allow institutions time to establish marketing and recruitment plans that would be likely to attract many additional students. In addition, some instructional programs were oversubscribed, and the institutions did not have the resources to expand capacity (i.e., add classrooms, hire additional faculty). Finally, some interviewees raised concerns that the winding down of Care Forward and Career Advance may have been discouraging to students: Some enrollees in longer instructional programs were upset that their financial support was disappearing.

Summary

Care Forward and Career Advance aimed to increase the completion of high-demand, short-term credentials. The funding largely went to the high-demand fields outlined in the legislation, although there was some variation in where each institution targeted funding because of differences in program offerings, workforce demand, and student need. Institutions minimized student administrative burden, but students did have to complete financial aid forms and COVID-19 attestation forms (for Care Forward). Institutions had considerable flexibility in how they administered Care Forward and Career Advance funding, and interviewees reported a desire for more-explicit guidance from the legislature and CCCS on how to distribute funds. The process of implementing last-dollar funding was time consuming, but colleges reported that strong staff collaboration and structured processes helped support Care Forward and Career Advance implementation.

How Institutions Distributed Funding

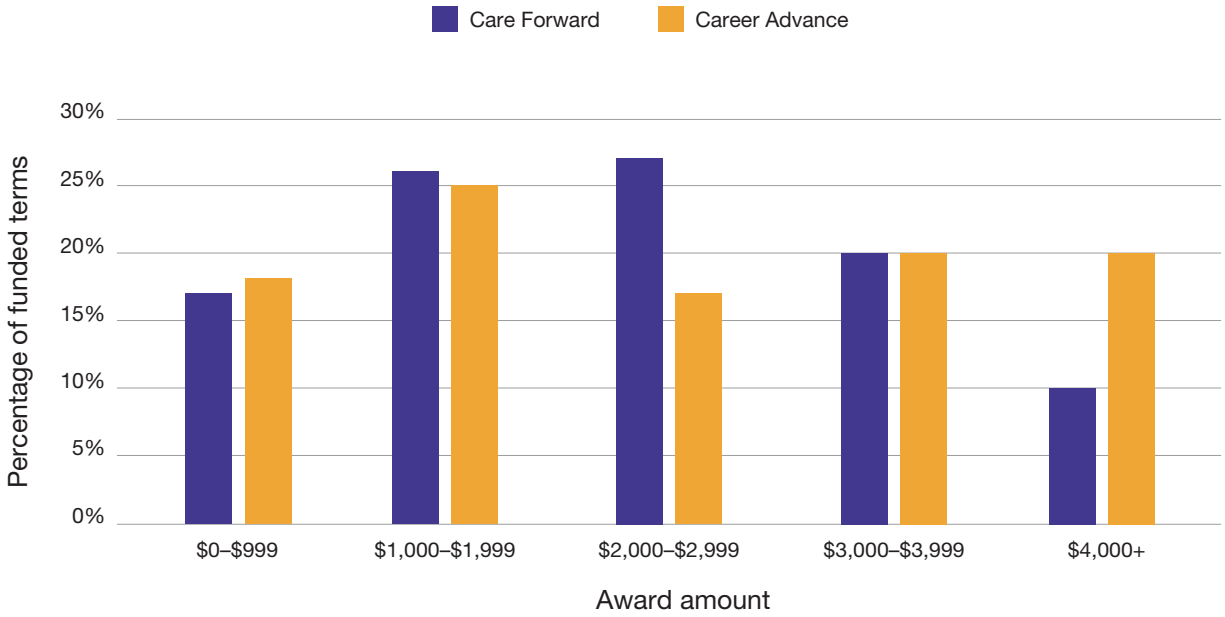
In this section, we describe how institutions distributed Care Forward and Career Advance funding, including award sizes, the fields and credentials awardees enrolled in, and the characteristics of students who received funding. As a reminder, our analysis of who received funding is limited in three ways: (1) our data are limited to enrollees in the 13 CCCS institutions for which we have obtained administrative data, (2) we excluded students under age 18 and concurrent enrollees, and (3) we do not observe funding recipients in the final two years of the program. Among this limited group of students, we found that 10,155 individuals received Care Forward or Career Advance awards. Among these, 4,704 students received Care Forward grants, 5,225 students received Career Advance grants, and 226 students received support from both programs.

Award Sizes Differed Across Instructional Programs and Institutions

Career Advance had larger per-term awards and larger cumulative awards to individual students than Care Forward (Figures 1 and 2). The average per-term student award was $2,419 for Care Forward and $2,829 for Career Advance. Approximately 30 percent of Care Forward awards and 40 percent of Career Advance awards were $3,000 or more per term. The average cumulative student award across all funded terms was $3,535 for Care Forward and $4,763 for Career Advance. The higher award amounts for Career Advance were likely driven by the eligible instructional programs, which could be longer (e.g., associate degrees) and may have been more costly (e.g., nursing). It is also worth noting that the programs were still awarding funding after spring 2025, so our estimates for the number of students who received awards and cumulative awards are likely lower than if we had included the last year of funding.

FIGURE 1

Distribution of Per-Term Awards for CCCS Recipients

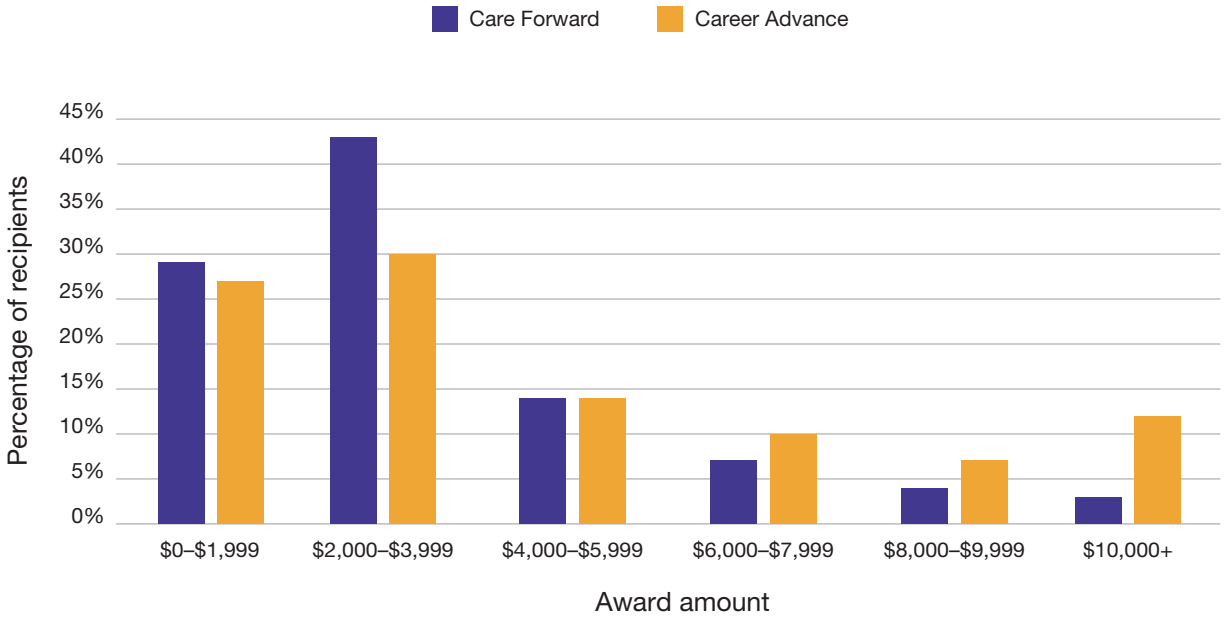


SOURCE: Features information from CCCS administrative data, which includes 13 of the 19 institutions that received funding.

NOTE: The figure displays the percentage of student terms by award amount bin. Awards are summed within person × institution × term before binning. Care Forward: *n* = 7,288 student terms; Career Advance: *n* = 9,256 student terms. The analysis excludes concurrent enrollment students and students under age 18.

FIGURE 2

Distribution of Cumulative Awards for CCCS Recipients



SOURCE: Features information from CCCS administrative data, which includes 13 of the 19 institutions that received funding.

NOTE: The figure displays the percentage of students by total award amount, summed across all terms and institutions. Care Forward: *n* = 4,987 students; Career Advance: *n* = 5,497 students. Note that this is the number of students by institution combinations, not the number of unique students. Therefore, the sample sizes in this chart are slightly larger than the ones reported at the beginning of this section. The analysis excludes concurrent enrollment students and students under age 18.

Average award amounts varied across institutions (Table 3). Per-term averages for Care Forward ranged from $657 to $3,246, and per-term averages for Career Advance ranged from $1,694 to $4,301. Cumulative averages ranged from $1,104 to $4,231 for Care Forward and $3,561 to $7,935 for Career Advance. Institutional differences in average award size should be interpreted cautiously. Larger awards at a given institution may reflect differences in the types of instructional programs offered, instructional program length, Pell Grant eligibility, institutional aid, student borrowing, or the order in which other aid was applied rather than differences in underlying instructional program cost or institutional practice alone.

The distribution of funding recipients across institutions was similar to the overall distribution of CCCS enrollees (Table 4). A few institutions accounted for slightly more recipients relative to their share of enrollees, such as Front Range Community College, Morgan Community College, and Trinidad State College. Our total enrollee counts are not limited to students in eligible instructional programs, so it may be that institutions with a greater proportion of grants have more students in eligible fields (e.g., health programs). We also do not account for grant recipients who were concurrent enrollment students or students under age 18 or students under age, which likely varied across institutions.

Many institutions provided funding that covered similar proportions of CCCS grant recipients across Care Forward and Career Advance, but a few institutions drew on funding from one program more than the other. Red Rocks Community College awarded Care Forward funding to a relatively large proportion of all students but did not award many Career Advance grants. Front Range Community College awarded a larger proportion of Care Forward grants than Career Advance grants. Lamar Community College, Northeastern Junior College, Otero College, Pueblo Community College, and Trinidad State College awarded more funding for Career Advance grants than Care Forward grants. Again, these patterns may be driven by the kinds of

TABLE 3

Average Per-Term and Cumulative Awards Per Recipient, by CCCS Institution

	Care Forward		Career Advance	
Institution	Per Term	Cumulative	Per Term	Cumulative
Arapahoe Community College	$3,246	$4,030	$3,186	$6,819
Colorado Northwestern Community College	$657	$1,307	$3,885	$7,935
Community College of Aurora	$2,133	$2,365	$4,301	$7,206
Community College of Denver	$3,036	$3,806	$2,159	$3,561
Front Range Community College	$2,412	$3,647	$2,535	$4,288
Lamar Community College	$2,229	$2,229	$2,154	$4,430
Morgan Community College	$1,566	$2,067	$1,694	$3,610
Northeastern Junior College	$1,104	$1,104	$2,672	$4,865
Otero College	$1,756	$1,881	$3,104	$5,196
Pikes Peak State College	$2,410	$4,043	$3,533	$4,589
Pueblo Community College	$2,556	$2,684	$3,133	$4,913
Red Rocks Community College	$2,584	$4,231	$2,712	$4,267
Trinidad State College	$1,914	$2,285	$2,300	$4,371
All CCCS institutions	$2,419	$3,535	$2,829	$4,763

SOURCE: Features information from CCCS administrative data, which includes 13 of the 19 institutions that received funding.

NOTE: Per-recipient awards were summed within student × institution before averaging, and per-term awards were summed within student × institution × term before averaging. The analysis excludes concurrent enrollment students and students under age 18.

TABLE 4

Share of Funding Recipients and CCCS Enrollees, by CCCS Institution

	Care Forward Funding Recipients		Career Advance Funding Recipients		CCCS Enrollees	
Institution	Number of Funding Recipients	All Funding Recipients (%)	Number of Funding Recipients	All Funding Recipients (%)	Number of Enrollees	All Enrollees (%)
Arapahoe Community College	414	8.3	484	8.8	17,648	12.1
Colorado Northwestern Community College	94	1.9	94	1.7	1,626	1.1
Community College of Aurora	239	4.8	228	4.1	9,429	6.5
Community College of Denver	276	5.5	502	9.1	16,055	11.0
Front Range Community College	1,474	29.6	1,471	26.8	35,952	24.6
Lamar Community College	17	0.3	105	1.9	1,062	0.7
Morgan Community College	222	4.5	228	4.1	1,884	1.3
Northeastern Junior College	52	1.0	167	3.0	2,646	1.8
Otero College	28	0.6	224	4.1	1,878	1.3
Pikes Peak State College	921	18.5	1,027	18.7	27,217	18.7
Pueblo Community College	259	5.2	410	7.5	11,783	8.1
Red Rocks Community College	800	16.0	265	4.8	15,553	10.7
Trinidad State College	191	3.8	292	5.3	3,314	2.3
All CCCS institutions	4,987	100.0	5,497	100.0	146,047	100.0

SOURCE: Features information from CCCS administrative data, including 13 of the 19 institutions that received funding.

NOTE: The counts represent combinations of students and institutions rather than unique students. Students associated with more than one institution are counted once for each institution. The percentages for Care Forward and Career Advance show each institution's share of all recipient records in that program. The last column ("All Enrollees") shows each institution's share of all enrollee records across the 13 CCCS colleges included in the administrative data. The counts include students enrolled in fall 2022 or later. The analysis excludes concurrent enrollment students and students under age 18.

instructional programs that institutions offered and variations in costs and other financial aid across eligible instructional programs.

Funding Was Aligned with Eligible Instructional Programs and In-Demand Fields

The legislation called for each financial aid program to target different fields and credentials. Care Forward focused exclusively on health certificate programs. Table 5 shows that the funding was aligned with the fields outlined in the legislation. Fields explicitly named in the legislation, such as emergency medical technician, medical assistant, health information technician, nursing aide, and phlebotomist were the ones with the largest funding allocations.

The Career Advance legislation expanded eligibility to the high-demand fields of early childhood education, criminal justice, and nursing. The Career Advance legislation did not specify a focus on certificates, so institutions used the funds to cover some longer instructional programs up to the associate degree level. Table 6 indicates that much of the Career Advance funding was distributed to enrollees in these newly eligible instructional programs, and Career Advance also continued to fund enrollees in the health certificate programs served by Care Forward.

TABLE 5

Top Ten Instructional Programs Receiving Care Forward Funding at CCCS Institutions, by Total Funding Amount

Instructional Program	Funding Recipients	Funding Awarded
Emergency Medical Technology/Technician	1,619	$5,800,315
Medical/Clinical Assistant	605	$2,794,344
Health Information/Medical Records Technology/ Technician	522	$2,474,985
Nursing Assistant/Aide and Patient Care Assistant/Aide	805	$1,547,402
Phlebotomy Technician/Phlebotomist	438	$1,118,541
Licensed Practical/Vocational Nursing	205	$722,606
Dental Assisting/Assistant	109	$619,456
Pharmacy Technician/Assistant	89	$503,194
Medical Office Assistant/Specialist	116	$466,923
Holistic/Integrative Health	105	$425,399

SOURCE: Features information from CCCS administrative data, which includes 13 of the 19 institutions that received funding.

NOTE: The table lists the top ten instructional programs ranked by total Care Forward award dollars. The awards are summed across all terms within student × institution before aggregating. The analysis excludes concurrent enrollment students. The recipient dataset provides the instructional programs that students were enrolled in at the time of their awards but does not attribute funding to specific programs. When a student was enrolled in multiple instructional programs, we identified any eligible program or programs and split funding equally among all eligible instructional programs. If the student was not enrolled in any eligible instructional program, we assigned the award equally among all certificate programs.

TABLE 6

Top Ten Instructional Programs Receiving Career Advance Funding at CCCS Institutions, by Total Funding Amount

Program	Funding Recipients	Funding Awarded
Registered Nursing/Registered Nurse	1,473	$8,701,780
Early Childhood Education and Teaching	1,443	$5,432,593
Criminal Justice/Police Science	297	$2,715,642
Licensed Practical/Vocational Nurse Training	292	$1,510,943
Elementary Education and Teaching	299	$1,364,052
Emergency Medical Technology/Technician	322	$1,208,345
Liberal Arts and Sciences/Liberal Studies	201	$936,077
Nursing Assistant/Aide and Patient Care Assistant/Aide	292	$777,677
Fire Science/Fire-Fighting	168	$770,172
Construction Trades, General	54	$306,118

SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: The table lists the top ten instructional programs ranked by total Career Advance award dollars. The awards are summed across all terms through spring 2025. The recipient dataset provided by CCCS provides instructional programs of enrollment at the time of the awards, but this field is often not updated to reflect the relevant instructional programs for which funding was awarded. When a student was enrolled in multiple instructional programs, we assigned any eligible Classification of Instructional Programs (CIP) codes and split the award equally among all eligible instructional programs. If the student was not enrolled in any funded programs, we assigned the award equally among all instructional program enrollments. The analysis excludes concurrent enrollment students and students under age 18.

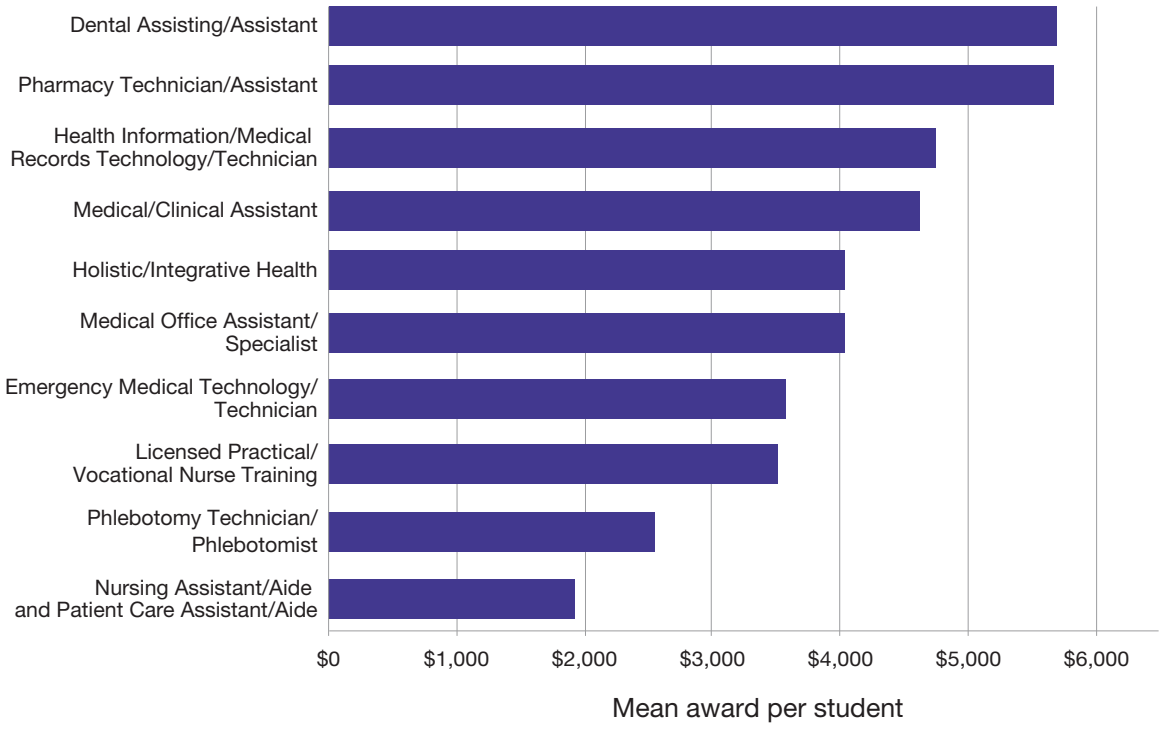
However, the data suggest that some funding went to students who were designated as Liberal Arts and Sciences/Liberal Studies students. This may reflect long-standing challenges that postsecondary institutions face with maintaining current instructional program codes when students switch fields. In addition, students waiting for entry into competitive instructional programs, such as nursing, may have been assigned to Liberal Arts and Sciences/Liberal Studies or General Studies until they gained entry.

It is also informative to understand which instructional programs received the largest grants in terms of per-student funding. The size of the grants was driven both by instructional program costs and the other financial aid support students received. The largest cumulative awards under Care Forward went to individuals in Dental Assisting/Assistant, Pharmacy Technician/Assistant, Health Information/Medical Records Technology/Technician, and Medical/Clinical Assistant programs, which averaged more than $4,500 in cumulative per-student awards (Figure 3). Per-student awards for individuals in Nursing Assistant/Aide and Patient Care Assistant/Aide programs were less than $2,000 cumulatively.

For Career Advance, Criminal Justice/Police Science programs were an outlier, averaging nearly $10,000 in cumulative awards for each student (Figure 4). Registered Nursing/Registered Nurse and Licensed Practical/Vocational Nurse Training students received cumulative awards of more than $5,000 on average. Natural Resources/Conservation and Nursing Assistant/Aide and Patient Care Assistant/Aide students received the smallest cumulative grants among the top ten instructional programs we examined at approximately $3,000–$4,000.

FIGURE 3

Average Cumulative Funding Awards for the Top Ten Care Forward Fields at CCCS Institutions

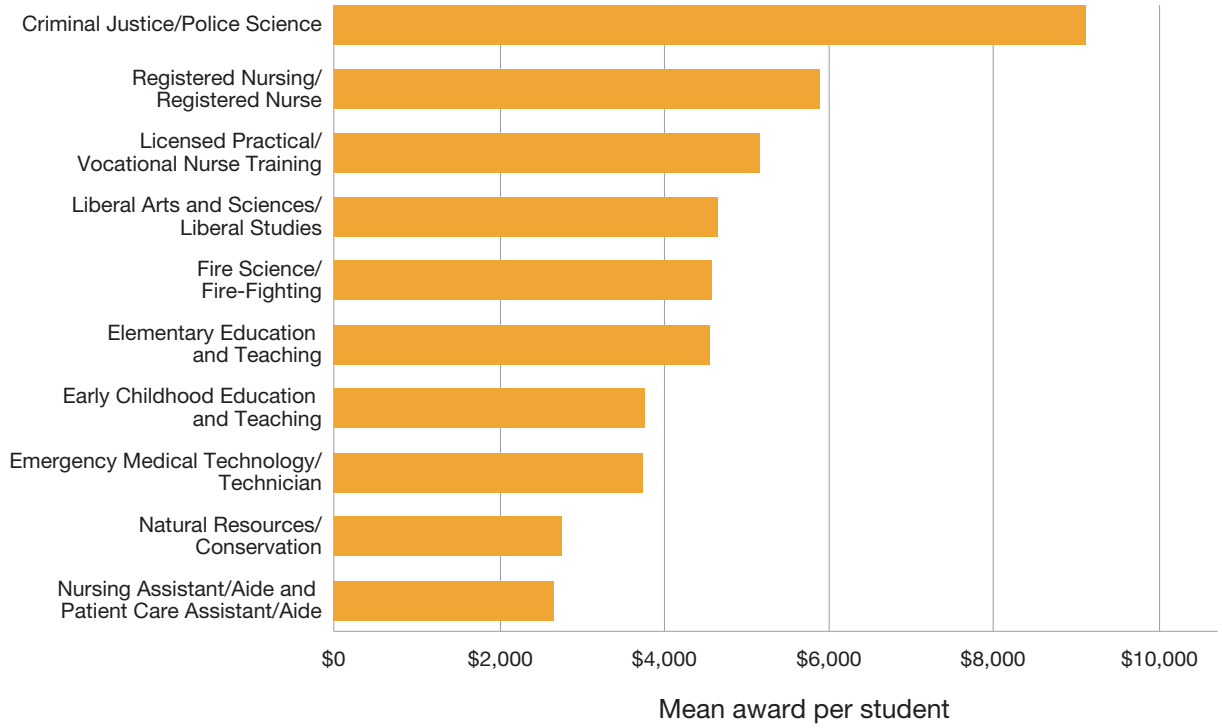


SOURCE: Features information from CCCS administrative data, representing 13 of the 19 institutions that received funding.

NOTE: The bars show the mean award per recipient for the top ten Care Forward instructional programs. The analysis excludes concurrent enrollment students and students under age 18.

FIGURE 4

Average Cumulative Funding Awards for the Top Ten Career Advance Fields at CCCS Institutions



SOURCE: Features information from CCCS administrative data, representing 13 of the 19 institutions that received funding.
NOTE: The bars show the mean award per recipient for the top ten Career Advance instructional programs. The analysis excludes concurrent enrollment students and students under age 18.

Overall, these patterns in funding across fields (i.e., instructional programs) suggest that institutions were distributing awards in alignment with legislative and system guidance. Our interview participants described extensive efforts to clarify eligible instructional programs from the system, carefully pulling lists of students enrolled in eligible programs to create rosters and examining the specific courses that students were enrolled in to ensure that the grants were being used on coursework to prepare individuals for the eligible credentials.

Funding Reached Underserved Student Populations

We examine the characteristics of Care Forward and Career Advance recipients compared with all enrollees in Table 7. The grants tended to serve individuals who have historically been underrepresented in college programs. Students who received Care Forward and Career Advance grants were slightly older. Recipients, particularly Career Advance recipients, were more likely to be first-generation college students. The patterns for Pell Grant recipients diverge by instructional program. Institutions awarded Care Forward funding only for certificate programs, so Care Forward recipients were less likely to be Pell Grant–eligible and less likely to receive Pell Grants than Career Advance recipients. Career Advance recipients were more likely to be Pell Grant–eligible and receive a Pell Grant. The representation of Pell Grant–eligible students and Pell Grant recipients among Career Advance recipients suggests that federal aid did not cover all their instructional program costs and that students benefited from the state funding on top of Pell Grants and other state awards. Hispanic students were disproportionately represented among students who received Care Forward

TABLE 7

Student Characteristics for CCCS Funding Recipients and All CCCS Enrollees

Characteristic	Care Forward Recipients	Career Advance Recipients	CCCS Enrollees
N (unique students)	4,930	5,451	395,444
Median age	25	26	23
First generation (%)	60.4	63.0	50.4
Eligible for Pell Grant (%)	39.8	50.9	34.1
Pell Grant recipient (%)	25.8	41.1	27.9
White (%)	50.5	50.4	53.8
Hispanic (%)	30.2	30.1	22.9
Black or African American (%)	5.9	7.7	6.4
Other race or ethnicity (%)	13.4	11.8	16.9
Female (%)	74.5	75.5	55.4
Part-time (%)	62.2	65.7	70.8

SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: The dataset used to calculate these statistics contained one row per student, with demographics measured at the first enrolled term. We excluded concurrent enrollment students and students under age 18. The Care Forward and Career Advance columns include students who received funding from that source. "Other race or ethnicity" includes unknown, multiple races, Asian, international, American Indian or Alaskan Native, and Native Hawaiian and other Pacific Islander. In this table, "CCCS Enrollees" refers to unique students observed in our enrollment data from CCCS, which extends back to fall 2016. The numbers of unique students in this table are slightly smaller because this table presents counts of unique students who could be matched with the enrollment dataset by fund type, whereas the counts in the first paragraph report the number of unique students by institution combinations found in the recipient dataset for each fund type.

and Career Advance awards, accounting for 30 percent of grant recipients versus 23 percent of CCCS enrollees. Black or African American students were modestly overrepresented among Career Advance recipients. White students were slightly underrepresented. Grant recipients were substantially more likely to be women. The overrepresentation of women among funding recipients may be driven in part by the proportions of women participating in health care and early childhood education programs.

Students who received Care Forward and Career Advance grants were more likely to be enrolled full time than students across all CCCS institutions. It is unclear whether the instructional programs that were eligible for funding disproportionately consisted of students who would have been enrolled full-time regardless or whether the funding may have played a role in facilitating full-time enrollment.

Summary

In our descriptive analysis of how CCCS colleges distributed funds from Care Forward and Career Advance, four findings stand out. First, Career Advance awarded larger per-term and cumulative grants because of the length and cost of eligible instructional programs. Second, there was some variation in the average size of grants across institutions, but the proportion of grant recipients at each institution was similar to the distribution of all enrolled students. Third, institutions awarded funding to the instructional programs specified in the legislation. Care Forward funding was directed to enrollees in health certificate programs, and Career Advance funding supported enrollees in certificate and associate degree programs in the additional high-demand fields of early childhood education, nursing, and criminal justice. Finally, Care Forward and Career Advance funding reached student groups that have been historically underserved in postsecondary education (e.g., older students, first-generation students, students of color).

Program Impacts

Estimated Impacts for CCCS Students

In this section, we examine the effects of Care Forward and Career Advance on student retention and credential attainment. We first describe the treatment and comparison groups used in the impact analysis, including the number of institutions that contributed treated and comparison observations within each six-digit program code. We then present estimates from same-program difference-in-differences models that compare changes in outcomes for students enrolled in programs across institutions that did and did not award funding to that particular instructional program.

Treatment and Comparison Groups Were Defined Within the Same Instructional Programs

The impact analysis compares students within an instructional program across institutions that did and did not award Care Forward and Career Advance funding to that instructional program. Tables 8 and 9 provide additional detail on the treatment and comparison groups for Care Forward and Career Advance. For each CIP included in the analytic sample, the tables report the number of CCCS institutions represented in the comparison group, the number represented in the treatment group, and the total number of institutions with students in that instructional program.

Table 9 shows that the Career Advance analysis includes a broader set of instructional programs. These include education, criminal justice and public safety, construction and skilled trades, natural resources, computer and information sciences, and health-related programs. As with Care Forward, there was variation in how colleges aligned funding to instructional programs (treated and comparison institutions in each field), although the balance varies across fields.

TABLE 8

Number of CCCS Institutions in Care Forward Treatment and Comparison Groups, by CIP

Program Code	CIP Description	Comparison	Treated	Total
51.0602	Dental Hygiene/Hygienist	2	1	3
51.0705	Medical Office Management/Administration	2	3	5
51.0707	Health Information/Medical Records Technology/Technician	3	6	9
51.0710	Medical Office Assistant/Specialist	1	6	7
51.0801	Medical/Clinical Assistant	2	7	9
51.0904	Emergency Medical Technology/Technician	2	11	13
51.1012	Sterile Processing Technology/Technician	1	2	3
51.3306	Holistic/Integrative Health	1	2	3
51.3399	Energy Medicine	1	1	2
51.3501	Massage Therapy/Therapeutic Massage	3	1	4
51.3801	Registered Nursing/Registered Nurse	9	4	13
51.3901	Licensed Practical/Vocational Nurse Training	6	3	9
51.3902	Nursing Assistant/Aide and Patient Care Assistant/Aide	1	12	13

SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: The counts represent the number of CCCS institutions with students in each six-digit CIP in the analytic sample. "Treated" indicates institutions where that CIP received funding from the relevant program, and "Comparison" indicates institutions where students were enrolled in the same CIP, but the institution-by-CIP combination did not receive funding from Care Forward.

TABLE 9

Number of CCCS Institutions in Career Advance Treatment and Comparison Groups, by CIP

CIP Code	CIP Description	Comparison	Treated	Total
01.0507	Equine Management	2	1	3
03.0101	Natural Resources/Conservation, General	3	1	4
03.0208	Natural Resources Law Enforcement and Protective Services	1	1	2
11.1003	Secure Software Development	7	1	8
13.1202	Elementary Education and Teaching	9	4	13
13.1210	Early Childhood Education and Teaching	1	12	13
42.0101	Psychology, General	12	1	13
43.0107	Criminal Justice/Police Science	4	6	10
43.0203	Fire Science/Fire-Fighting	1	5	6
43.0206	Wildland/Forest Firefighting and Investigation	1	2	3
46.0000	Construction Trades, General	5	4	9
46.0415	Advanced Remodeling Certification	2	2	4
47.0201	Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician	2	2	4
48.0508	Welding Technology/Welder	9	1	10
51.0601	Dental Assisting/Assistant	4	1	5
51.0707	Health Information/Medical Records Technology/Technician	8	1	9
51.0710	Medical Office Assistant/Specialist	6	1	7
51.0801	Medical/Clinical Assistant	8	1	9
51.0805	Pharmacy Technician/Assistant	2	1	3
51.0904	Emergency Medical Technology/Technician	12	1	13
51.0909	Surgical Technology/Technologist	3	1	4
51.1009	Phlebotomy Technician/Phlebotomist	8	1	9
51.3306	Holistic/Integrative Health	2	1	3
51.3801	Registered Nursing/Registered Nurse	4	9	13
51.3901	Licensed Practical/Vocational Nurse Training	4	5	9
51.3902	Nursing Assistant/Aide and Patient Care Assistant/Aide	10	3	13

SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: The counts represent the number of CCCS institutions with students in each six-digit CIP in the analytic sample. "Treated" indicates institutions where that CIP received funding from the relevant program, and "Comparison" indicates institutions where students were enrolled in the same CIP, but the institution-by-CIP combination did not receive funding from Career Advance.

Some instructional programs, such as Early Childhood Education and Teaching and Registered Nursing/Registered Nurse, are represented in many treated institutions; others have more comparison than treated institutions. These patterns underscore that the estimates should be interpreted as effects of funding availability at the instructional program level rather than as effects of individual grant receipt alone.

Together, Tables 8 and 9 clarify the treatment-comparison contrast that underlies the impact estimates. The models compare students in similar instructional programs—those with the same six-digit program codes. The comparison institutions are those that did not use Care Forward and/or Career Advance funding for the similar instructional programs. This approach helps account for persistent differences across fields, but it does not eliminate all possible differences between funded and unfunded institution-by-program combinations. Institutions may have differed in why they applied funding to some eligible instructional programs and not others, and students may have selected into funded instructional programs after Care Forward and Career Advance were introduced. We therefore interpret the estimates as suggestive evidence of Care Forward and Career Advance impacts rather than definitive causal estimates.

Treated and Comparison Students Differed on Some Observed Characteristics

Table 10 provides additional descriptive context on the students who were included in the treatment and comparison groups for the Care Forward and Career Advance impact analyses. These groups are defined at the institution-by-program level. *Treatment students* are those enrolled in instructional programs that received Care Forward or Career Advance funding from the institutions. *Comparison students* are those enrolled in the same instructional programs who did not receive Care Forward or Career Advance funding from the institutions.

The Care Forward treatment and comparison groups differed on several observed characteristics. Students in Care Forward–funded instructional programs were less likely than comparison students to be female, first-generation students, part-time students, Pell Grant–eligible students, and Pell Grant recipients. For example, 68 percent of students in treated Care Forward instructional programs were female compared with 86 percent in comparison instructional programs and institutions. Similarly, 32 percent of treated students were Pell Grant–eligible compared with 42 percent of comparison students, and 22 percent of treated students received Pell Grants compared with 34 percent of comparison students. The treatment and comparison groups were more similar in age and racial and ethnic composition, although treated students were somewhat more likely to be White and somewhat less likely to be Hispanic or Black.

The Career Advance treatment and comparison groups were similar on some characteristics but differed on others. The racial and ethnic composition of the two groups was nearly identical and the shares of Pell Grant–eligible students and Pell Grant recipients were also similar. However, students enrolled in Career Advance–funded instructional programs were more likely to be female, older, first-generation students, and part-time students. For example, 73 percent of treated students were female compared with 59 percent of comparison students, and 69 percent of treated students were enrolled part-time compared with 60 percent of comparison students.

These differences are important for interpreting the impact estimates. The difference-in-differences models control for the observed student characteristics shown in Table 10 and include cohort, college, and fixed effects for instructional programs. However, the table also reinforces that the institutional variation in how instructional programs were targeted by Care Forward and Career Advance may differ in ways that are not fully captured by observed characteristics. We therefore interpret the impact estimates as suggestive evidence of the effects of funding availability at the instructional program level rather than as definitive estimates of the effect of individual grant receipt.

TABLE 10

Characteristics of Students in Treatment and Comparison Groups for the Care Forward and Career Advance Impact Analyses

	Care Forward		Career Advance	
Variable	Comparison	Treated	Comparison	Treated
Hispanic (%)	29	25	27	26
Black (%)	8	5	5	7
White (%)	52	57	55	55
International (%)	1	2	2	2
Multiracial (%)	4	4	4	4
Other race (%)	7	8	8	8
Female (%)	86	68	59	73
Age	28.1	27.4	26.9	28.4
First generation (%)	63	54	55	59
Part time (%)	79	61	60	69
Eligible for Pell Grant (%)	42	32	36	37
Received Pell Grant (%)	34	22	27	28
N	12,857	26,302	31,467	36,358

SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: The table presents characteristics for students in the same-CIP analytic samples used for the Care Forward and Career Advance impact analyses. "Treated" indicates students enrolled in institution-by-CIP combinations that received funding from the relevant program. "Comparison" indicates students enrolled in institution-by-CIP combinations in the same six-digit CIPs that did not receive funding from the relevant program. Race and ethnicity percentages may not sum to 100 because of rounding. Age is reported in years. *N*s refer to the broad analytic samples for the treatment-comparison descriptives; *N*s may differ across outcome models because some outcomes require different follow-up windows.

Care Forward Was Associated with Improved Retention and Certificate Attainment

As shown in Table 11, Care Forward was associated with statistically significant increases in short-term retention and credential attainment. Students in instructional programs and institutions with Care Forward funding were 7.5 percentage points more likely to be retained in the next term and 9.2 percentage points more likely to be retained in the next academic year than students in comparison instructional programs that did not award Care Forward funding. The largest estimated impacts were on certificate completion and certificate or associate degree attainment. Care Forward was associated with an 11.8 percentage point higher rate of certificate attainment within one year and a 15.2 percentage point improvement within two years. The program was also associated with a 12.9 percentage point improvement in earning any credential within one year and a 12.0 percentage point higher rate of attainment within two years. This pattern is consistent with Care Forward's emphasis on health certificates: The funding was associated with improved short-term certificate completion. This pattern could indicate that some students shifted toward shorter certificate pathways, but it could also reflect changes in the composition of students entering funded instructional programs if Care Forward attracted more certificate-oriented students.

We can also examine visual trends in completion over time through an event study. Figures 5 and 6 show how outcomes in funded and comparison instructional programs differed before and after Care Forward began. Values above zero indicate that funded instructional programs had higher attainment rates than com-

TABLE 11
Estimated Impacts of Care Forward in CCCS Institutions

Outcome	Care Forward Effect pp (SE)	*N*
Retained in next term	7.5** (2.3)	39,159
Retained in next academic year	9.2** (2.5)	35,331
Certificate within 1 year	11.8** (3.3)	39,159
Certificate within 2 years	15.2*** (3.4)	33,255
Associate degree within 1 year	0.6* (0.2)	39,159
Associate degree within 2 years	–1.5 (0.7)	33,255
Certificate or associate degree within 1 year	12.0** (3.3)	39,159
Certificate or associate degree within 2 years	12.0** (3.3)	33,255

SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: *Treatment students* are those enrolled in institution-by-CIP combinations that received funding from the relevant program. *Comparison students* are those enrolled in institution-by-CIP combinations in the same six-digit CIPs that did not receive funding from the relevant program. Estimates are percentage point (pp) differences from difference-in-differences models comparing students in Care Forward–funded institution-by-program combinations with students in unfunded institution-by-program combinations within the same six-digit CIP codes. Standard errors (SEs) are shown in parentheses. The models include controls for student age, race and ethnicity, gender, first-generation status, part-time enrollment, Pell Grant eligibility, and Pell Grant receipt. The models also include cohort, college, and six-digit CIP fixed effects. Standard errors are clustered at the six-digit CIP level and the models include 13 CIP clusters. Because some comparison instructional programs later received Career Advance funding, the models also include a Career Advance treatment-by-post interaction to account for outcome changes associated with the later Career Advance initiative. The models do not include concurrent enrollment students or students under age 18. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

parison instructional programs relative to the pre-program baseline; values below zero indicate lower attainment rates. Prior to the implementation of Care Forward (Year 0), the estimates for Figures 5 and 6 were not uniformly zero. These non-zero estimates prior to Care Forward implementation mean that our findings should be interpreted as suggestive rather than definitive causal evidence. However, after Care Forward was implemented, the estimates become positive and grow in later cohorts. This is consistent with the main difference-in-differences findings that show positive post-implementation estimates on the attainment of a certificate or degree.

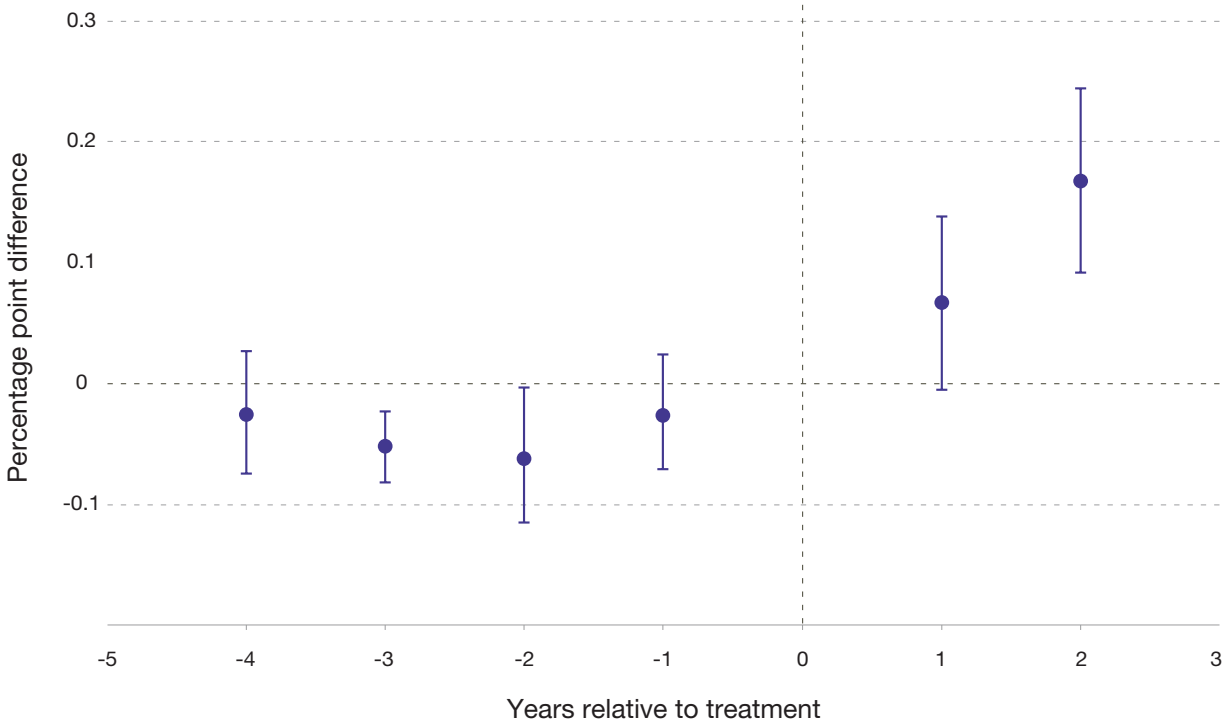
Career Advance Impacts Were Inconclusive Given the Short Follow-Up Period

The estimated impacts for Career Advance are smaller and less consistent than those for Care Forward. In the same-instructional program models, the estimated Career Advance effects are close to zero for retention, one-year certificate completion, and one-year attainment of any credential (Table 12). None of the estimates in the main same-instructional program model are statistically significant. Because Career Advance began in fall 2023 and included many longer instructional programs, the data currently provide limited post-program follow-up for assessing medium-term credential outcomes.

We conducted a sensitivity analysis for Career Advance by excluding health care programs because these programs typically require more time to complete. The sensitivity analysis suggests that Career Advance may have increased certificate completion in non-health fields, which may be more completely captured by our post-program data. The estimated effects are 6.0 percentage points for certificate attainment within one year and 6.1 percentage points for earning any credential within one year. These estimates are smaller than the Care Forward estimates and should be interpreted cautiously because the Career Advance post-period is short and because the program covered heterogeneous fields. In particular, our short window for examin-

FIGURE 5

Care Forward Event Study for Certificate Attainment Within Two Years in CCCS Institutions



SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: The figure shows the estimated effect of being in a Care Forward–funded instructional program over time. The vertical dotted line indicates when Care Forward was implemented, and the years are relative to Care Forward implementation. The analysis excludes students under age 18 and concurrent enrollment students.

ing outcomes may not capture the intended benefits of Career Advance for longer pathways, such as nursing, public safety, early childhood education, and skilled trades.

Perceived Benefits According to Staff Who Were Overseeing the Program

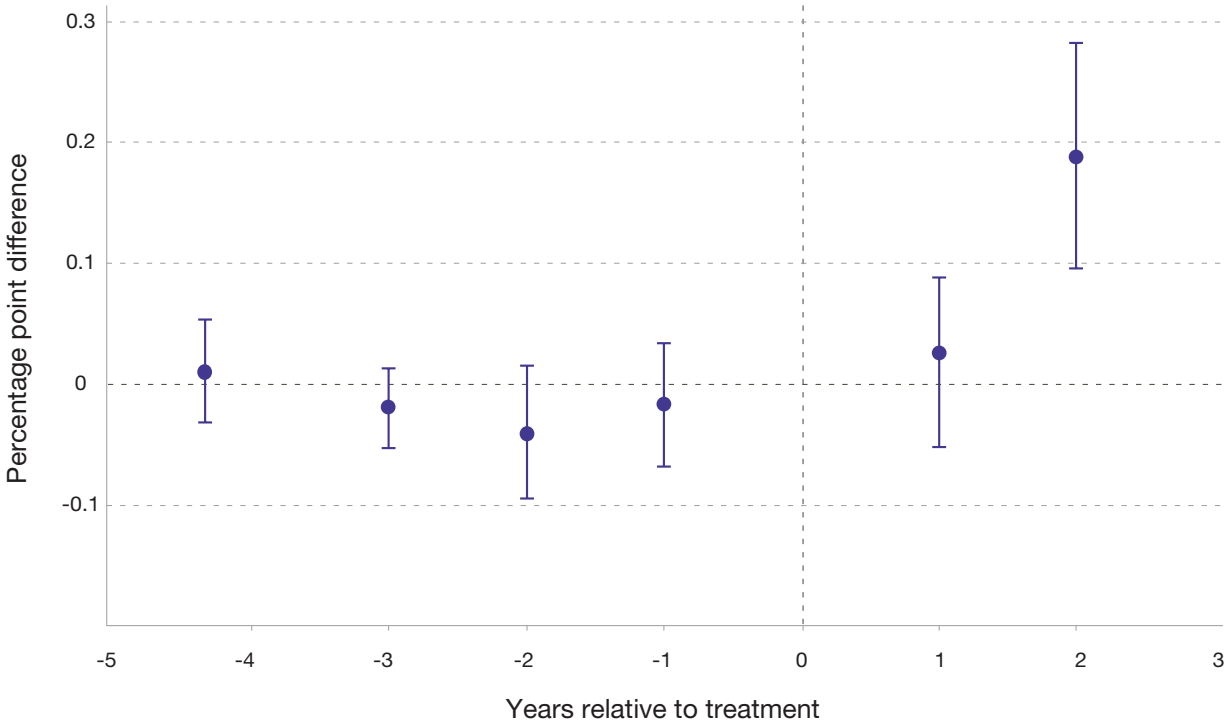
Across the institutional staff and leadership we interviewed, interviewees generally reported positive perceptions of Care Forward and Career Advance. Interviewees acknowledged the value of state investments and felt that their successful distribution of funding was an achievement. On the other hand, institutions did not make major long-standing changes to instructional program offerings or processes as a result of the funding because of its sudden introduction and temporary nature.

Interview participants did not generally report that Care Forward and Career Advance displaced other public funding, and most reported that the programs covered out-of-pocket costs that otherwise would have been paid by students. Although some instructional programs were Pell Grant–eligible and eligible for state financial aid, these grants did not cover costs for all enrollees. Colorado also provides a small amount of career and technical education program funding to institutions. Interview participants reported shifting some of this small amount of career and technical education funding to other instructional programs not covered by Care Forward or Career Advance.

Some college representatives said that Care Forward and Career Advance expanded access to college credentials for students who faced barriers to traditional financial aid programs. These included middle-income students who did not qualify for Pell Grants, students in certificate programs who were ineligible for Pell

FIGURE 6

Care Forward Event Study for Certificate or Associate Degree Attainment Within Two Years in CCCS Institutions



SOURCE: Features information from CCCS administrative data, which represents 13 of the 19 institutions that received funding.

NOTE: The figure shows the estimated effect of being in a Care Forward–funded program over time. The vertical dotted line indicates when Care Forward was implemented, and the years are relative to Care Forward implementation. The analysis excludes students under age 18 and concurrent enrollment students.

Grants, students without lawful immigration status, students with prior bachelor's degrees returning for new credentials, and adult learners who otherwise would not have considered college. Most interviewees reported that funding from Care Forward and Career Advance helped students successfully complete credentials in high-demand fields. Financial aid staff recalled specific instances of students coming to thank them for the funding and conveying that the funding was essential to their success.

Interviewees' perceptions of enrollment impacts were more mixed. Some staff reported seeing explicit upticks in enrollment for eligible instructional programs. Other interviewees noted that such programs as nursing were oversubscribed and could not accommodate additional students. The availability of classroom facilities, faculty, and clinical rotations constrained the expansion of certain instructional programs. In addition, the temporary nature of Care Forward and Career Advance may have reduced incentives to launch major enrollment campaigns and expand capacity.

Summary

Overall, our estimates provide stronger evidence of positive impacts for Care Forward than for Career Advance in the data during the period observed. This pattern may be partially driven by the different program designs and timing of our evaluation. Care Forward targeted certificates and was implemented earlier, allowing more time for short-run completion effects to emerge. Career Advance covered longer pathways, such as nursing, early childhood education, public safety, and skilled trades, and began later in the study

TABLE 12
Estimated Impacts of Career Advance in CCCS Institutions

Outcome	Career Advance pp (SE)	*N*	Career Advance, Excluding Health pp (SE)	*N*
Retained in next term	0.5 (2.5)	67,825	2.7 (3.1)	26,029
Retained in next academic year	0.7 (4.1)	60,184	6.7 (5.9)	22,449
Certificate within 1 year	0.3 (2.8)	67,825	6.0* (2.5)	26,029
Certificate within 2 years	–1.7 (3.5)	56,113	0.3 (3.5)	20,594
Associate degree within 1 year	–0.6 (0.6)	67,825	–0.1 (0.4)	26,029
Associate degree within 2 years	–2.1 (1.1)	56,113	–2.1 (1.0)	20,594
Certificate or associate degree within 1 year	–0.2 (3.1)	67,825	6.1* (2.6)	26,029
Certificate or associate degree within 2 years	–3.0 (4.1)	56,113	0.2 (2.9)	20,594

SOURCE: Features information from CCCS administrative data, which includes 13 of the 19 institutions that received funding.

NOTE: The non-health sample excludes instructional programs with six-digit CIP codes beginning with 51. *Treatment students* are those enrolled in institution-by-CIP combinations that received Career Advance funding. *Comparison students* are those enrolled in institution-by-CIP combinations in the same six-digit CIPs that did not receive Career Advance funding. Estimates are percentage point differences from difference-in-differences models comparing students in Career Advance–funded institution-by-program combinations with students in unfunded institution-by-program combinations within the same six-digit CIP codes. Standard errors are shown in parentheses. The models include controls for student age, race and ethnicity, gender, first-generation status, part-time enrollment, Pell Grant eligibility, and Pell Grant receipt. The models also include cohort, college, and six-digit CIP fixed effects. Standard errors are clustered at the six-digit CIP level, and the main Career Advance models include 26 CIP clusters, and the no health sensitivity models include 14 CIP clusters. Because some comparison instructional programs previously received Care Forward funding, the Career Advance models also include a Care Forward treatment-by-post interaction to account for outcome changes associated with the earlier Care Forward initiative. Models do not include concurrent enrollment students or students under age 18. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

period. As a result, we had a shorter post-period window for assessing Career Advance. Staff generally perceived both programs as valuable for covering student costs and supporting students' completion of short-term occupational credentials in high-demand fields.

Benefit-Cost Analysis

Using student administrative data, impact estimates from the difference-in-differences analysis, and evidence from the broader literature on labor market returns for health-related certificates, we conducted a notional benefit-cost analysis. This analysis should be interpreted as a rough estimate rather than a full economic evaluation of the return on investment. It is intended to illustrate the scale of the benefits that could result if the estimated increase in certificate completion translates into the kinds of labor market gains documented in prior research.

We focus this calculation on Care Forward's impact on certificate attainment within two years for three reasons. First, Care Forward explicitly targeted health certificates, and the strongest and most consistent estimated effects were on certificate completion. Second, the event study results provided additional support for the certificate findings. Third, Career Advance began later, covered a broader mix of instructional programs, and did not yet show a clear and positive impact on completion in the main model. Many Career Advance pathways, such as nursing, public safety, early childhood education, and skilled trades, may require more time before the effects on completion are observable.

Because the difference-in-differences estimates capture the effect of being enrolled in an instructional program that is being funded by Care Forward at the institution rather than whether an individual received

a grant, we apply the estimated impact to the broader population of students in Care Forward–funded instructional programs with sufficient follow-up to observe two-year certificate completion. This population includes 7,442 students. Some of these students may not have personally received Care Forward funds because their eligible costs were covered by other sources of aid.

Table 13 documents the steps and assumptions used in the calculation. In rows 1 through 5, we estimate the total cost of Care Forward awards. Across the study period, 4,930 students received Care Forward support, and the average cumulative award per Care Forward recipient was $3,535. The difference-in-differences estimate applies to students in Care Forward–funded instructional programs rather than only to students who personally received Care Forward awards. We therefore apply the average Care Forward award amount to the 7,442 students in Care Forward–funded instructional programs during terms with sufficient follow-up to observe certificate attainment within two years. This implies an imputed award cost of approximately $26.3 million.

We estimate the total Care Forward cost under two administrative cost assumptions. The first assumes that administrative costs equal 10 percent of award costs, reflecting the assumption that institutions and CCCS incurred additional costs to administer, track, and report the funding. The second assumes that administrative costs equal 20 percent of award costs. We use 10 percent as the lower administrative cost assumption to align with prior RAND researchers' analysis of Colorado's SB 22-192 program (Kushner and Daugherty, 2024), which assumed 5 percent institutional administrative costs and an additional 5 percent in

TABLE 13

Benefit-Cost Analysis for Care Forward Among CCCS Enrollees

Row	Assumption or Estimate	Scenario 1	Scenario 2	Scenario 3	Scenario 4
1	Average Care Forward award amount	$3,535	$3,535	$3,535	$3,535
2	Number of students in Care Forward–funded institution-by-CIP cells	7,442	7,442	7,442	7,442
3	Imputed award cost	$26,307,470	$26,307,470	$26,307,470	$26,307,470
4	Administrative cost as a percentage of award cost	10.0%	10.0%	20.0%	20.0%
5	Total estimated program cost	$28,938,217	$28,938,217	$31,568,964	$31,568,964
6	Estimated impact on certificate completion within two years	15.2 pp	15.2 pp	15.2 pp	15.2 pp
7	Estimated additional certificate completions	1,131	1,131	1,131	1,131
8	Cost per additional certificate completion	$25,586	$25,586	$27,912	$27,912
9	Assumed net present value of earnings benefit	$48,200	$35,750	$48,200	$35,750
10	Net benefit per additional certificate	$22,614	$10,164	$20,288	$7,838
11	Total net benefit	$25,576,434	$11,495,484	$22,945,728	$8,864,778

SOURCE: Rows 1–3 feature information from CCCS administrative data, which represents 13 of the 19 institutions that received funding. Row 6 features information from the Care Forward difference-in-differences impact estimates. Row 9 adapts information from Minaya and Scott-Clayton's (2022) estimates of returns on health-related short-term and long-term certificates, converted to a ten-year net present value using a 3 percent discount rate.

NOTE: We calculate Row 7 by multiplying the two-year certificate impact estimate by the number of students in Care Forward–funded institution-by-CIP cells with sufficient follow-up to observe certificate attainment within two years. We calculate Row 8 by dividing the total estimated program cost by the estimated number of additional certificate earners. We calculate Row 10 by subtracting cost per additional certificate from the assumed net present value of a health certificate. Scenario 1 assumes 10 percent administrative costs and a 50 percent short-term and 50 percent long-term mix of health certificate returns. Scenario 2 assumes 10 percent administrative costs and a more conservative mix of 75 percent short-term and 25 percent long-term health certificate returns. Scenarios 3 and 4 repeat these benefit assumptions using a higher administrative cost assumption of 20 percent. Estimates are rounded to the nearest dollar. This analysis excludes concurrent enrollment students and students under age 18.

state or system administrative costs. Because interviewees in this study described Care Forward and Career Advance as administratively time intensive, we also estimate a 20 percent administrative cost scenario.

In Rows 6 through 8, we use the estimated impact of Care Forward on certificate completion within two years. The difference-in-differences analysis estimated that Care Forward increased certificate attainment within two years by approximately 15.2 percentage points. Applying that estimate to 7,442 students in Care Forward–funded instructional programs implies that approximately 1,131 additional students earned a certificate within two years because of Care Forward. Dividing the total financial aid program cost by the number of additional certificate earners yields an estimated cost per additional certificate ranging from approximately $25,600 under the 10 percent administrative cost assumption to approximately $27,900 under the 20 percent administrative cost assumption.

Rows 9 through 11 estimate the benefit per additional certificate. Prior research suggests that labor market returns on certificates vary substantially by field, credential type, and credential length, with especially strong returns for health-related credentials. Because Care Forward funded a mix of shorter and longer health certificate pathways, we model two assumptions about the earnings value of the additional certificates generated by the program. The first assumes that the additional certificates reflect an even mix of short-term and long-term health certificate returns. The second, more conservative scenario assumes that 75 percent of the additional certificates resemble short-term health certificates and 25 percent resemble long-term health certificates. We use annual wages from short-term and long-term health certificates estimated by Minaya and Scott-Clayton (2022) to calculate mean earnings from a 50 percent short-term and 50 percent long-term mix and a 75 percent short-term and 25 percent long-term mix over a ten-year period, and we calculate the net present value of these amounts using a 3 percent discount rate.

Under the 50 percent short-term and 50 percent long-term mix on health certificate returns, the assumed net present value of an additional certificate is approximately $48,200. Under the more conservative 75 percent short-term and 25 percent long-term mix, the assumed net present value is approximately $35,750. Across the four scenarios, the estimated net benefit ranges from approximately $8.9 million to $25.6 million. Net benefits remain positive in each scenario, suggesting that Care Forward plausibly generated economic benefits that exceeded program costs.

Readers should interpret these estimates cautiously. The calculations do not account for possible reductions in associate degree attainment, do not include benefits beyond individual earnings, and do not capture all possible administrative or implementation costs. The calculations also assume that additional certificate completions that were attained as a result of Care Forward have labor market returns that are similar to the average labor market returns of health-related certificates in prior studies. This may overestimate the benefits if the additional credentials were concentrated in shorter instructional programs with lower earnings returns or if additional completers faced greater labor market barriers than the average certificate earner in prior studies. At the same time, the calculation may underestimate benefits if earnings gains persist beyond ten years, if additional certificates improve employment stability or access to further education, or if actual student-facing instructional program costs were lower than the conservative imputed cost used here. Overall, the calculations suggest that Care Forward plausibly generated positive economic returns, but readers should interpret the estimates as illustrative rather than definitive.

Key Findings and Recommendations

We provide a brief summary of our findings in the following sections and describe how they align with findings in the literature and other state policies. We then provide six recommendations for policymakers, state and system leaders, and institutional leaders in Colorado and other states to consider as they implement financial aid programs for short-term occupational credentials.

Key Takeaways

Institutions Had Considerable Implementation Flexibility, but Most Took a Similar Approach and Faced Common Barriers and Facilitators

Between 2022 and 2026, Care Forward provided $26 million in funding for health care certificates, and Career Advance provided $38.6 million in funding for a broader set of high-demand credentials. State and CCCS guidance outlined which instructional programs were eligible, what forms needed to be completed by students, and how financial aid offices should track funding. But there were few restrictions on other program design features, such as award sizes or student eligibility.

Colorado institutions had considerable flexibility in how they distributed funds. Interviewees expressed a preference for more financial aid program structure and guidance from CCCS. For example, institutions wanted more transparency on why certain instructional programs were selected, clear lists of eligible programs, more guidance on calculating materials costs, and more lead time to plan for marketing and internal processes. Importantly, the authority for CCCS to make some of these changes may need to be granted by the state legislature. Interviewees suggested that it would be valuable to invite college leadership and financial aid directors to weigh in early on legislation and system guidance.

Despite flexibility at the institutional level, most institutions took similar approaches to implementation. The evidence suggests that institutions distributed the funding in alignment with state and system guidance; staff targeted funding to high-demand fields, with some variations in how instructional programs were funded across colleges, which necessary forms students were required to complete, and how funding was tracked according to CCCS requirements. Most institutions did not add student eligibility criteria or burdensome application processes. Most institutions attempted to cover the maximum possible costs for eligible students, including tuition and fees, books and materials, and other instructional program costs (e.g., certifications, background checks).

Staff who were overseeing the Care Forward and Career Advance programs identified five key factors that helped support implementation: (1) opportunities to work with CCCS to reallocate funds throughout the grant period; (2) strong collaboration among institutional staff to identify eligible students and award funding; (3) cross-institutional collaboration among financial aid directors; (4) the involvement of faculty, advisers, and peers in getting the word out; and (5) minimal administrative burden on students.

Staff who were overseeing the two financial aid programs also highlighted five barriers to implementation: (1) limited, vague, and evolving guidance from the legislature and CCCS; (2) substantial administrative work associated with applying last-dollar grants (i.e., funding awarded after all other financial aid); (3) a lack of funding for labor-intensive administration and marketing; (4) student frustration with the winding down of the temporary programs; and (5) capacity limits in some fields (e.g., space, faculty, clinical rotations) that restricted the ability to increase instructional program enrollment, particularly given the short-term nature of the funding.

Funding Was Distributed to Students in Eligible Instructional Programs and Supported Student Groups That Are Typically Underrepresented in College

More than 10,000 students age 18 and older (excluding concurrent enrollees) in CCCS institutions received funding from Care Forward and Career Advance. If we had included concurrent enrollment students, the six non-CCCS institutions, and funding recipients in 2025–2026 and 2026–2027, these numbers would be higher. We found that award size was somewhat larger for Career Advance students at CCCS institutions, at least in part because of the longer periods associated with eligible instructional programs. There were some variations in the size and number of awards across CCCS institutions, but that might be expected given the different instructional programs that were offered, variations in cost, and differences in other financial aid. For the most part, the awards were distributed proportionally across CCCS institutions. The students

who received funding were more likely than the typical CCCS student to be from historically underrepresented groups, such as first-generation students, Pell Grant–eligible students, and/or adult learners. Women were also overrepresented given that the fields of focus (e.g., health, early childhood education) are female-dominated fields.

Program Impacts Were Positive for Care Forward and Inconclusive for Career Advance, and Staff Viewed the Programs as Valuable

Our impact analysis demonstrated positive and statistically significant impacts on retention in any CCCS college, completion of a certificate, and completion of any credential. We did not find statistically significant impacts for Career Advance, but we had a limited time frame for that program that hindered our ability to observe the final two years of recipients and examine long-term outcomes. Institutional leadership and staff perceived that Care Forward and Career Advance played an important role in covering unmet student costs and supporting the completion of high-demand credentials.

Estimates Suggest That Care Forward Produced Benefits That Exceeded Costs

Our benefit-cost analysis suggests that Care Forward may have generated benefits that exceeded program costs. Using the estimated impact on certificate completion within two years and prior evidence on the earnings returns on health certificates, we estimate positive net benefits under each scenario examined. Depending on the assumptions about administrative costs and the earnings value of the additional certificates, the estimated net benefits range from approximately $8.9 million to $25.6 million. These estimates should be interpreted cautiously because they rely on modeled assumptions and do not capture all possible costs or benefits. Even so, the results suggest that Care Forward was a promising investment in high-demand health credentials.

Features of Short-Term Credential Financial Aid Programs Vary Across States, and Program Design May Influence Effectiveness

Colorado is one of many states implementing financial aid programs for short-term occupational credentials (Murphy, 2025). In this section, we highlight how Care Forward and Career Advance are situated within the broader context of state financial aid programs. We highlight key features of Care Forward and Career Advance, discuss how these features vary across state financial aid programs for short-term occupational credentials, and consider how these features may influence program effectiveness.

Care Forward and Career Advance funding was limited to credit-bearing instructional programs (i.e., credentials of value) in high-demand fields. Tying funding to credentials of value is a promising practice, and the literature suggests that this practice is likely to result in more-effective financial aid programs (Murphy, 2023; Nguyen, Kramer, and Evans, 2019; Stiddard and Reichlin Cruse, 2024). The movement to tie funding to credentials of value is growing, but the ways in which state agencies, legislators, and systems define credential value vary widely (Murphy, 2026). Beyond workforce demand, definitions of credential value may consider wages, employer validation, the stackability of a short-term credential into a long-term credential, and other indicators of societal value (Murphy, 2026; Stiddard and Reichlin Cruse, 2024). A national scan highlights Colorado as having an "advanced" definition of credentials of value (Murphy, 2023). The legislature could tie these more-robust measures of credential value to future financial aid programs. Care Forward and Career Advance were also limited to credit-bearing instructional programs, whereas some other state financial aid programs cover noncredit instructional programs (Murphy, 2023; Stiddard and Reichlin Cruse, 2024). There is limited evidence comparing the gains from credit and noncredit instructional programs, but at least one study found larger earnings gains from credit-bearing programs (Hester and Kitmitto, 2020).

Care Forward and Career Advance were last-dollar programs but covered costs beyond tuition and fees and had large cumulative awards compared with other state grant programs. State financial aid pro-

grams for short-term occupational credentials are commonly designed as last-dollar programs (Stiddard and Reichlin Cruse, 2024). There are trade-offs between first-dollar and last-dollar programs. As the Colorado experience demonstrates, last-dollar financial aid programs are more administratively complex for institutions to implement. Last-dollar programs may allow states to stretch total award funding further by directing funding to students who face gaps after other sources of aid have been applied, but they may be less equitable and direct funding to students who do not qualify for aid (Stiddard and Reichlin Cruse, 2024). A concern about last-dollar programs is whether they cover expenses beyond tuition and fees, which can provide more flexibility to institutions and fill more financial need gaps (Stiddard and Reichlin Cruse, 2024). Care Forward and Career Advance did cover costs beyond tuition and fees, and many interviewees saw the ability to cover additional costs as valuable. However, some state financial aid programs for short-term occupational credentials cover only tuition and fees (Murphy, 2023).

The average cumulative grants awarded in Colorado were $3,535 for Care Forward and $4,763 for Career Advance. These were larger than grants from many state financial aid programs, which ranged from $750 to $3,816 in a 2023 scan (Murphy, 2023). It is common for states to set caps on total awards (Murphy, 2023), but Colorado legislators and institutional leaders did not set a cap on award amounts or the number of terms an individual could receive funding. A scan of the literature suggests that larger financial aid awards lead to larger impacts on student academic outcomes (Nguyen, Kramer, and Evans, 2019).

Students applying for Care Forward and Career Advance had to complete financial aid forms but otherwise faced limited administrative burdens, and the funding was not explicitly targeted to low-income students. Colorado's programs required students to complete financial aid forms, but some states do not require these forms to access student aid for short-term occupational credentials (Murphy, 2023; Stiddard and Reichlin Cruse, 2024). Federal financial aid forms add administrative burden and may restrict student access to funding (e.g., Bettinger et al., 2012; Stiddard and Reichlin Cruse, 2024). Yet, these forms may be necessary for states that want to administer funding after other financial aid is awarded (i.e., design the program as a last-dollar program). Interview participants from Colorado institutions considered financial aid form requirements a small burden. In addition, most interview participants emphasized a commitment to minimizing student administrative burden beyond that requirement, and institutions required either no additional paperwork or a simple application form. The literature suggests that administrative burden limits access to financial aid programs (e.g., Herd and Moynihan, 2018; Stiddard and Reichlin Cruse, 2024).

Care Forward drew on federal funds and required students to sign an attestation form declaring financial hardship or loss from the COVID-19 pandemic; all states using federal pandemic funding to support financial aid programs would have faced the same requirement. COVID-19 attestation forms were self-reported and represent a relatively broad indicator of financial need. Career Advance did not have any income or financial need requirements. This is distinct from other state financial aid programs that direct funding to lower-income individuals (Murphy, 2023; Stiddard and Reichlin Cruse, 2024). The literature also suggests that targeting financial aid programs to lower-income students may generate the largest benefits (Anderson, 2020; Dynarski, Page, and Scott-Clayton, 2022; Nguyen, Kramer, and Evans, 2019; Stiddard and Reichlin Cruse, 2024).

Care Forward and Career Advance were temporary programs. The programs offered funding for three academic years. Although many financial aid programs have been established with federal COVID-19 funds and have been temporary, some states, such as Louisiana and Indiana, have established sustained funding through state general funds (Murphy, 2023; Zaber, Phillips, and Daugherty, 2025). Interviewees suggested that the rapid start and sunsetting of programs created implementation challenges. Long-term financial aid programs may provide more time for institutions to market those programs and create sustainable processes, which could support greater student access to funding.

Recommendations

The analysis in this report is descriptive, so we are cautious about making strong recommendations. But we suggest that CCCS, the Colorado General Assembly, the Colorado Department of Higher Education, and other key stakeholders consider six actions related to future investments in short-term occupational credentials.

Recommendation 1: Reestablish sustained financial aid programs to fund high-value, short-term occupational credentials. Interviewees from institutions that awarded Care Forward and Career Advance funding appreciated the programs and perceived them as valuable. Our analysis of student-level data suggests that Care Forward funding resulted in positive impacts on the completion of certificates in health fields. But these programs have ended. Interviewees highlighted the temporary nature of the programs as hindering implementation and their ability to drive long-term enrollment. The temporary Care Forward and Career Advance programs were longer and served a broader set of fields than the Stackable Credential Pathways funding, but interviewees raised concerns about the temporary (and evolving) timelines for distributing Care Forward and Career Advance funding and about the way that legislators defined eligible instructional programs. Colorado should consider sustained financial aid programs that target a consistent set of high-value credentials. Many states—including Colorado—have established more-rigorous definitions of credential value that consider factors other than demand (Murphy, 2023; Murphy, 2026; Stiddard and Reichlin Cruse, 2024), and legislators may want to tie funding to these more-robust definitions of credential value. Federal funding for the Workforce Pell Grant may cover a small subset of instructional programs that can meet the Pell Grant's rigorous requirements, but many instructional programs will not qualify, and state funding for short-term occupational credentials can help fill gaps.

Recommendation 2: Provide explicit guidance at the outset on how institutions should distribute funding. State legislation should grant authority to CCCS (or other agencies that oversee financial aid programs) to clearly define program parameters up front. Financial aid staff expressed a strong preference for detailed guidance on the distribution of funding for new financial aid programs rather than open-ended policies that leave the details to institutions. Interviewees from the institutions and CCCS acknowledged that the flexible and iterative approach to establishing guidance was well-meaning (i.e., aimed at providing institutional autonomy), but, ultimately, the lack of clear guidance left institutional staff uncertain and concerned about funding misuse. Through conversations with the institutions, CCCS leadership and financial aid directors clarified many areas of uncertainty over time. But interviewees suggested that policymakers consult with institutional representatives (e.g., leadership, financial aid directors) prior to rolling out the programs and issuing system guidance.

Recommendation 3: Account for the administrative burden associated with new financial aid programs on staff and build in funding to cover these costs. State financial aid programs are frequently last-dollar programs. As a result, these programs involve student-specific calculations of uncovered balances and variations in award amounts that require staff time to determine. Our findings suggest that these processes require substantial staff time. State legislators should acknowledge the added administrative burden associated with new (last-dollar) financial aid programs and set aside funds to cover the costs of program administration. CCCS and institutions should at minimum receive funds to cover administrative costs in a program's initial years when institutions are establishing new processes and developing guidance.

Recommendation 4: Minimize administrative burden on students wherever possible. Interviewees across Colorado institutions acknowledged the importance of streamlining the funding process for students. However, Care Forward and Career Advance did impose some administrative burden by requiring students to complete financial aid forms. Most interviewees saw this as minimally burdensome, but several interviewees mentioned that students in short-term instructional programs were confused about why they needed to complete complex forms if they would not qualify for other funding. Attestation forms were specific to Care Forward because of the program's use of federal COVID-19 pandemic relief funding; institutions were

unclear about this requirement in the early months of implementation. Most Colorado institutions minimized student burden on top of these state requirements to increase the accessibility of their programs.

Recommendation 5: Design financial aid programs with features that are likely to maximize effectiveness. Evidence suggests that financial aid programs are the most effective when they target high-demand fields, award larger grants, and target low-income students (Anderson, 2020; Nguyen, Kramer, and Evans, 2019; Stiddard and Reichlin Cruse, 2024). Care Forward and Career Advance targeted high-demand fields, but institutional representatives were not always clear about why those specific fields were chosen. Legislators, state agencies, or college systems may consider adopting a more rigorous and transparent definition of value regarding short-term occupational credentials. Care Forward and Career Advance awards were relatively large because the Colorado General Assembly and institutions chose not to cap per-student funding. The promise of a free instructional program was very compelling to some enrollees, according to our interviewees. The decision to allow Career Advance to support associate degrees led to larger cumulative awards. On the other hand, the returns on financial aid for long-term credentials take more time to materialize, and students may be more likely to have funding run out mid-instructional program if the funding sources are temporary. Finally, Colorado did not limit Career Advance to low-income students. Targeting funding to low-income students may increase the effectiveness of the financial aid program and support goals around equity.

Recommendation 6: Conduct additional analysis on financial aid programs for short-term occupational credentials. Our analysis of Career Advance was particularly limited because we were not able to observe the final two years of funding recipients, which limited our overall sample size. In addition, Career Advance funding was awarded to individuals in both certificate and associate degree programs, but our data did not allow us a sufficient number of years of follow-up to observe associate degree completion for many students. To fully capture the impacts of Career Advance, we suggest a follow-up evaluation that addresses these limitations. In addition, the evidence on short-term occupational credentials is limited. States need more evidence on the efficacy of these financial aid programs and more evidence on the specific features of these programs that make them effective. Research could also help identify promising practices around implementation.

Conclusion

State investments in short-term occupational credentials are expanding, and 34 states now offer at least one state funding initiative (Murphy, 2025). The Colorado General Assembly has been proactive in leveraging federal and state funds to target financial aid to students who enroll in instructional programs that lead to high-demand jobs. Overall, we found evidence that Care Forward and Career Advance were implemented as planned. More than 10,000 CCCS students received awards (excluding concurrent enrollees and students under age 18), and the average Care Forward and Career Advance award to students was large compared with other state programs. We found relatively large positive impacts on certificate completion from the Care Forward program and no impacts for the Career Advance program. The programs served groups of students that may benefit the most from college financial supports (e.g., first-generation students, low-income students). The findings from this report can help inform the decisionmaking of policymakers, state agencies, system leaders, and college administrators in Colorado and other states who are designing and implementing financial aid programs to support short-term occupational credentials.

Abbreviations

CASFA	Colorado Application for State Financial Aid
CCCS	Colorado Community College System
CIP	Classification of Instructional Programs
COVID-19	coronavirus disease 2019
FAFSA	Free Application for Federal Student Aid
pp	percentage point
SE	standard error

References

Anderson, Drew M., "When Financial Aid Is Scarce: The Challenge of Allocating College Aid Where It Is Needed Most," *Journal of Public Economics*, Vol. 190, October 2020.

Belfield, Clive, and Thomas Bailey, "The Labor Market Returns to Sub-Baccalaureate College: A Review," Center for Analysis of Postsecondary Education and Employment, March 2017.

Bettinger, Eric P., Bridget Terry Long, Philip Oreopoulos, and Lisa Sanbonmatsu, "The Role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment," *Quarterly Journal of Economics*, Vol. 127, No. 3, August 2012.

Bohn, Sarah, and Shannon McConville, *Stackable Credentials in Career Education at California Community Colleges*, Public Policy Institute of California, October 2018.

Carnevale, Anthony P., Stephen J. Rose, and Andrew R. Hanson, *Certificates: Gateway to Gainful Employment and College Degrees*, Center on Education and the Workforce, Georgetown University, June 2012.

Colorado General Assembly, Programs To Support Health-care Workforce, Senate Bill 22-226, May 18, 2022a.

Colorado General Assembly, Opportunities for Credential Attainment, Senate Bill 22-192, May 26, 2022b.

Colorado General Assembly, Support In-demand Career Workforce, House Bill 23-1246, May 16, 2023.

Daugherty, Lindsay, Peter Riley Bahr, Peter Nguyen, Jennifer May-Trifiletti, Rooney Columbus, Jonah Kushner, *Stackable Credential Pipelines and Equity for Low-Income Individuals: Evidence from Colorado and Ohio*, RAND Corporation, RR-A2484-1, 2023. As of August 3, 2026:
https://www.rand.org/pubs/research_reports/RRA2484-1.html

Dynarski, Susan, Lindsay C. Page, and Judith Scott-Clayton, "College Costs, Financial Aid, and Student Decisions," National Bureau of Economic Research, Working Paper 30275, July 2022.

Employment and Training Administration, "Trade Adjustment Assistance Community College and Career Training: Equipping Community Colleges for Success," fact sheet, U.S. Department of Labor, undated.

Hanushek, Eric A., Guido Schwerdt, Ludger Woessmann, and Lei Zhang, "General Education, Vocational Education, and Labor-Market Outcomes over the Lifecycle," *Journal of Human Resources*, Vol. 52, No. 1, Winter 2017.

Herd, Pamela, and Donald P. Moynihan. *Administrative Burden: Policymaking by Other Means*, Russell Sage Foundation, 2018.

Hester, Candace, and Sami Kitmitto, *The Relative Returns to Credit- and Non-Credit-Bearing Credentials*, American Institutes for Research, October 2020.

Huff Stevens, Ann, Michal Kurlaender, and Michel Grosz, "Career Technical Education and Labor Market Outcomes," *Journal of Human Resources*, Vol. 54, No. 4, October 2019.

Kushner, Jonah, and Lindsay Daugherty, *How Colorado Community Colleges Used Funding for Short-Term Credentials: Descriptive Analysis of Senate Bill 22-192*, RAND Corporation, RR-A3354-1, 2024. As of June 2, 2026:
https://www.rand.org/pubs/research_reports/RRA3354-1.html

Li, Amy Y., and Justin C. Ortagus, "Raising the Stakes: Impacts of the Complete College Tennessee Act on Underserved Student Enrollment and Sub-Baccalaureate Credentials," *Review of Higher Education*, Vol. 43, No. 1, Fall 2019.

Minaya, Veronica, and Judith Scott-Clayton, "Labor Market Trajectories for Community College Graduates: How Returns to Certificates and Associate's Degrees Evolve over Time," *Education Finance and Policy*, Vol. 17, No. 1, Winter 2022.

Murphy, Stephanie M., *A Typology and Policy Landscape Analysis of State Investments in Short-Term Credential Pathways*, HCM Strategists, 2023.

Murphy, Stephanie M., *A 2025 Update of State Investments in Short-Term Credential Pathways*, HCM Strategists, December 2025.

Murphy, Stephanie, *State Approaches to Short-Term Credentials: Lessons (So Far) from Lumina Foundation's FutureReady States Initiative*, HCM Strategists, March 2026.

National Center for Education Statistics, "Table 318.40. Number of Degrees/Certificates Conferred by Postsecondary Institutions, by Control of Institution and Level of Degree/Certificate: Academic Years 1970-71 Through 2023-24," webpage, February 2026. As of May 29, 2026: https://nces.ed.gov/programs/digest/d25/tables/dt25_318.40.asp

Ness, Erik C., Mary M. Deupree, and Denisa Gándara, *Campus Responses to Outcomes-Based Funding in Tennessee: Robust, Aligned, and Contested*, Tennessee Higher Education Commission, 2015.

Nguyen, Tuan D., Jenna W. Kramer, and Brent J. Evans, "The Effects of Grant Aid on Student Persistence and Degree Attainment: A Systematic Review and Meta-Analysis of the Causal Evidence," *Review of Educational Research*, Vol. 89, No. 6, December 2019.

Stiddard, Jennifer, and Lindsey Reichlin Cruse, *State Financial Aid for Non-Degree Credentials: Models and Considerations for Policy and Program Desig*n, National Skills Coalition, 2024.

Zaber, Melanie A., Brian Phillips, and Lindsay Daugherty, *Examining Short-Term Credentials and Student Outcomes in Indiana*, RAND Corporation, RR-A3407-1, 2025. As of June 22, 2026: https://www.rand.org/pubs/research_reports/RRA3407-1.html