



Third Party Evaluation of the Impact of the Health Professions Pathways (H2P) Consortium

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Third Party Evaluation of the Impact of the Health Professions Pathways (H2P) Consortium

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EXECUTIVE SUMMARY

The Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant was launched in 2011 by the United States Department of Labor (DOL), in partnership with the United States Department of Education. The Office of Community College Research and Leadership (OCCRL) at the University of Illinois at Urbana-Champaign conducted the third-party evaluation of the Health Professions Pathways (H2P) Consortium that was funded with a Round One TAACCCT grant of over \$19M. The overall evaluation has three major components: 1) implementation evaluation, 2) impact evaluation, and 3) performance reporting on behalf of the H2P Consortium to the DOL. This report focuses on the impact of the H2P Consortium, taking into account programs of study and strategy implementation by the following nine co-grantee colleges:

- Anoka-Ramsey Community College in Coon Rapids, MN
- Ashland Community and Technical College in Ashland, KY
- Cincinnati State Technical and Community College in Cincinnati, OH (*H2P Lead*)
- El Centro College in Dallas, TX
- Jefferson Community and Technical College in Louisville, KY
- Malcolm X College in Chicago, IL
- Owens Community College in Toledo, OH
- Pine Technical and Community College in Pine City, MN
- Texarkana College in Texarkana, TX

There were eight strategies that represent the H2P Consortium's efforts to enact transformative change in healthcare education in the community college context. Through the first six strategies the co-grantee colleges strived to transform their healthcare education pathways in the following ways:

- Recognize the skills and knowledge gained by students through their previous experiences through an enhanced prior learning assessment process that accelerates students time to completion;
- Provide contextualized and integrated developmental education that improves students' foundation skills and the likelihood that they would earn a credential;
- Provide a healthcare occupations core curriculum that raises students' awareness of career options, prepares students for rigor of healthcare study, provides students with foundational knowledge and skills, and expands access for underserved populations;
- Implement incumbent healthcare programs that advance lower-skilled healthcare workers into more advanced positions;
- Provide comprehensive and inclusive career and retention services to foster student success in their career pathway; and
- Build industry-recognized stackable credentials and incumbent healthcare programs that accelerate time to completion, streamline pathways to the labor market, and advance lower-skilled healthcare workers into more advanced positions.

The final two strategies demonstrate a larger commitment to transformative change in healthcare education and training in and beyond the H2P co-grantee colleges. The Consortium's strategy of enhanced data and accountability systems was designed to not only allow the colleges to meet the DOL reporting requirements, but to use data for program improvement, and to support both sustaining and scaling these strategies. The strategy to galvanize a national movement to reform healthcare education represented the Consortium's commitment to engaging community college, employer, and workforce partners in an effort to effect transformative change in healthcare education and training on a broader scale. Through strategic development of networked partnerships, the Consortium leveraged the national TAACCCT stage to build interest in curriculum reform, most notably the healthcare occupations core curriculum. In this strategy the Consortium exceeded its goal of engaging the nine co-grantee colleges named in the H2P Consortium grant in implementing a health occupations core curriculum, having garnered written commitments from 24 additional community colleges as of July 2015.



Overall, the nine co-grantee colleges that comprised the H2P Consortium served more than 6,500 participants, nearly 5,000 of which enrolled in one or more TAACCCT-funded POS. The remaining students participated in one or more of eight strategies specified above. Out of the six student-focused strategies emphasized by the Consortium, three stand out as particularly important in terms of the number of students who participated and the degree of student engagement. The first was credit for prior learning (CPL). Across the Consortium, 415 students earned at least some CPL for a total of 3,055.5 credits, averaging 7.36 credits per student in terms of credits granted or waived. The second strategy is enhanced retention services. Bolstered by the student success/retention coaches hired with grant funds, all co-grantee colleges increased efforts to provide students with intrusive advising and targeted retention services to increase their chances of success. Among three of the colleges that collected particularly detailed data on retention services, 2,221 students received 14,473 individual services for a total of 9,504 hours of services, or roughly 4.5 hours of services per student. Finally, the healthcare occupations core curriculum (HOCC), which was implemented to some extent at all nine colleges and more fully implemented at six of the nine colleges, is perceived as particularly successful. In total, 2,202 students enrolled in one of the 40 HOCC courses implemented across the Consortium for a total of 3,682 student-course enrollments with an overall pass rate of 97.5%. Given that only El Centro College (ECC) had a pre-existing core curriculum, the breadth and depth of implementation of this strategy by the Consortium is noteworthy.

In terms of the educational outcomes of H2P students, our analyses revealed that the majority of H2P participants received educational benefits from participating in a grant-funded Program of Study (POS), and there is compelling evidence that the reforms that H2P colleges implemented made a positive impact on the attainment rates of healthcare students. Of the 4,888 students who enrolled in a POS that was created or modified through TAACCCT funds, roughly two-thirds had either earned a postsecondary credential or were still enrolled in their H2P co-grantee college by the Fall 2014 semester, and this figure was higher than 90% at one college. More than 1,000 long-term certificates and associate's degrees were awarded to students, in addition to more than 1,000 short and very short certificates. Nearly one out of every ten students who earned a credential earned more than one, supporting the assumption that the stackable credential strategy improved credential attainment rates for H2P participants. Additionally, our analyses provides support that H2P increased the likelihood that students enrolled in healthcare POS would complete their credentials, particularly in regards to the LVN/LPN programs across colleges. H2P participants in LVN/LPN programs were roughly 18% more likely to earn that credential compared to a retrospective (Retro) cohort of students in the same programs when using the most rigorous methods available to control for potential differences in background characteristics between the groups.

This report also demonstrates that the labor market outcomes of H2P participants improved greatly when comparing their employment and earnings prior to H2P to their labor outcomes at the end of the grant period. Across the Consortium, students gained \$1,400-\$1,700 in average quarterly earnings (depending on the precise method of calculation). When assessing earnings growth between the quarter immediately preceding when each student enrolled in H2P and final earnings, students gained \$1,900-\$2,500 in quarterly earnings. Earning a credential of any length was shown to have a beneficial impact on the likelihood that students were employed post-H2P, and the earnings gains for students who completed long-term certificate and associate's degree programs were particularly pronounced. Students who completed long-term certificates earned roughly \$2,500 more compared to their pre-H2P average and \$3,600 more compared to their earnings in the quarter immediately prior to enrollment in H2P. For students who completed associate's degrees, these gains were \$4,000 and \$6,000. These results underscore the high labor market value of the majority of credentials awarded to H2P participants.

Our results also support the positive impact that H2P made on the labor market outcomes of healthcare students, although our conclusions are tempered by the fact that the economy was improving over the course of the grant, and substantially changed between the time periods of enrollment for the Retro and H2P groups. Nevertheless, H2P students experienced median earnings gains roughly 60% higher than Retro students, and they were significantly more likely to be employed at the end of the cohort time period. They also had significantly higher quarterly earnings, even when controlling for a broad range of student characteristics and the specific credentials students earned. Using rigorous quasi-experimental techniques, H2P students had an estimated 8% greater likelihood of employment and 22% higher wages than Retro students, both significant differences.



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CHAPTER 1: INTRODUCTION

The Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant was launched in 2011 by the United States Department of Labor (DOL), in partnership with the United States Department of Education. As stated in the Round One Solicitation for Grant Applications (SGA), a primary goal of TAACCCT is to “increase attainment of degrees, certificates, and other industry-recognized credentials and better prepare the targeted population, and other beneficiaries, for high-wage, high-skill employment” (USDOL SGA, 2011, p. 5).¹ Since issuing this SGA, DOL has awarded an unprecedented level of funding to community and technical colleges throughout the country, exceeding any other single federal program to direct funding to community colleges. Through nearly \$2 billion awarded in grants since October 1, 2011, TAACCCT has focused on raising the skill level and employability of low-skilled American citizens, including those adversely impacted by the nation’s Great Recession.

The Office of Community College Research and Leadership (OCCRL) at the University of Illinois at Urbana-Champaign conducted the third-party evaluation of the Health Professions Pathways (H2P) Consortium that was funded with a Round One TAACCCT grant of over \$19M. The overall evaluation has three major components: 1) implementation evaluation, 2) impact evaluation, and 3) performance reporting on behalf of the H2P Consortium to the DOL.

This report focuses on the impact of the H2P Consortium, taking into account programs of study and strategy implementation by the following nine co-grantee colleges:

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- Jefferson Community and Technical College in Louisville, KY (JCTC)
- Malcolm X College in Chicago, IL (MXC)
- Owens Community College in Toledo, OH (OCC)
- Pine Technical and Community College in Pine City, MN (PTCC)
- Texarkana College in Texarkana, TX (TX)

The H2P Consortium Grant

Reflecting the DOL priorities for TAACCCT Round One, the H2P Consortium’s stated vision was to “not only produce a highly skilled healthcare workforce but also galvanize a national movement to dramatically redesign and enhance health professional education and training through national curricular reform, industry engagement, innovative practices and programs, and intensive usage of data and accountability systems to ensure student success and program excellence” (H2P Consortium Proposal, 2011, pp. 1-2).² To realize this vision, the Consortium’s grant proposal committed to implementing the following eight strategies:

¹ See: U.S. DOL, Employment and Training Administration, Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program at <http://www.doleta.gov/grants/pdf/SGA-DFA-PY-10-03.pdf>

² Throughout this document, the Round One TAACCCT proposal submitted on behalf of the H2P Consortium by Cincinnati State Technical and Community College (CSTCC) is cited as the *H2P Consortium Proposal* (2011) to fully and properly represent the collective commitment of the nine co-grantee colleges to this federal grant. In the reference list, this document is cross-referenced under the authorship of Cincinnati State Technical and Community College (2011).

1. Online assessment and enhanced career guidance
2. Contextualized developmental education
3. Competency-based core curriculum
4. Industry-recognized stackable credentials
5. Enhanced retention support
6. Training programs for incumbent health professions workers
7. Enhance data and accountability systems
8. Galvanize a national movement

Also specified in its negotiated Statement of Work (SOW), the H2P Consortium committed to focusing funds on recruiting Trade Adjustment Assistance (TAA)-eligible and lower skilled workers who sought training in health-related occupations. Consortium leaders also spoke to the importance of assisting adults who had been displaced from the workforce due to the Great Recession to return to work and to collaborating with healthcare employers to offer incumbent worker training for individuals holding entry-level jobs who sought the opportunity to learn and advance in a healthcare career.

Figure 1 provides a visual depiction of the theory of change pertaining to the H2P Consortium grant. This logic model displays expected implementation of grant-funded Programs of Study (POS) and strategies for H2P participants. It displays the eight core strategies of the grant in relation to the POS and expected outcomes. With respect to core strategies, this logic model shows how some students engage with assessment and career guidance, including online assessment, prior to their being identified as H2P participants, but some do not.

Similarly, Figure 1 shows how some students participate in strategies, such as contextualized developmental education and incumbent worker training, but others do not. These strategies are deployed by co-grantee colleges as is appropriate to the needs of the participants and to satisfy the grant's SOW. The three strategies of core curriculum, retention supports, and stackable credentials that pertain to participation in the grant-funded SOW were deemed necessary for all (or at least most) of the H2P participants. Across the bottom of the figure are boxes displaying two strategies that pertain to the Consortium's goal of enhancing data utilization within co-grantee colleges and to scale core curriculum as part of a larger national movement to reform community college healthcare education. The extent to which the abovementioned strategies were implemented, and the relationships that were built between these strategies, as displayed in the logic model, is discussed in this report. The remainder of the report presents the site reports for the nine co-grantee colleges in the H2P Consortium, including a description of partnership, strategy implementation, strengths and challenges, and recommendations for implementation and sustainability.

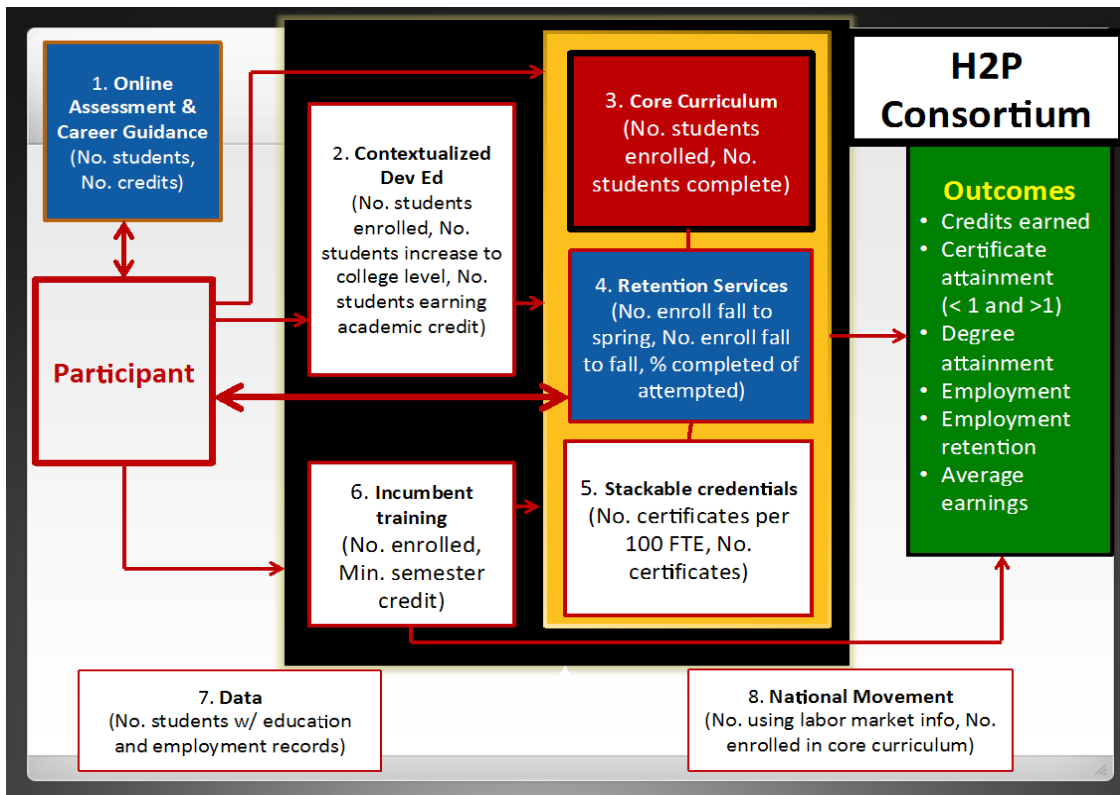


Figure 1. The H2P logic model defined at initial implementation of the H2P Consortium grant.

Background and Related Literature

The TAACCCT grant emphasizes POS and strategy implementation that are closely associated with the notion of career pathways. Formally endorsed by three agencies of the federal government (the Departments of Labor, Education, and Health and Human Services), a joint letter signed by these agency leaders defines career pathways as follows:

[A] series of connected education and training strategies and support services that enable individuals to secure industry relevant certification and obtain employment within an occupational area and advance to higher levels of future education and employment in that area. (Dann-Messier, Oates, & Sheldon, 2012, p. 1)

These federal agencies leverage this joint commitment to ensure that youth and adults can participate in career pathways that provide progressively more advanced educational experiences that enable students to attain industry-recognized credentials to secure employment and advance in a career.

The American Recovery and Reinvestment Act (ARRA) of 2009 provided the foundation for moving career pathways forward with federal funding. As part of ARRA, the Trade Act of 1974 was amended to authorize the Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant program. On March 30, 2010, President Obama signed the Health Care and Education Reconciliation Act that provided an unprecedented two-billion dollar, four-year (2011-2014) investment in career pathways under TAACCCT. To this end, President Obama described TAACCCT as a “down payment” on his administration’s proposed \$12 Billion American Graduation Initiative (AGI) that called for five million more community college degrees and certificates by 2020. Demonstrating his administration’s commitment, President Obama hosted the first-ever *Community*

College Summit in October 2010, where he described community colleges as vital to economic recovery and representing “one of the keys to the future of our country” (The White House, 2011, p. 11). He further noted that community college leaders are needed to prepare high-skill workers that can fuel growth industries, including the healthcare industry.

Using TAACCCT as the primary vehicle for career pathways nationally, the federal government has positioned community colleges as a primary provider of workforce training for the United States. According to the law, TAACCCT requires community colleges to develop new or modified POS in high-skill, high-wage industry sectors that prepare Trade Adjustment Act (TAA) eligible workers, unemployed and displaced workers, veterans, and others for college credentials, including certificates and degrees that lead to middle-skill jobs. Career pathways are a leading strategy under TAACCCT to expand and improve the capacity of community colleges to deliver programs that students can complete in two years or less and enter a family living-wage job.

Central to career pathways envisioned in the federal TAACCCT legislation is a comprehensive package of interventions that include individualized career and college assessment, planning, and advising; reformed developmental education; integrated, contextualized, and applied academic and career-technical instruction; accelerated credit attainment and time-to-degree, including credit for prior learning; competency-based core curriculum; stackable industry-recognized credentials; proactive student supports; and employment advising and job placement assistance (Bragg, 2014; Kirby & Fox, 2014). As a cohesive collection of student-focused strategies, students gain what Rosenbaum, Person, and Deil-Amen (2006) call the “complete package” that their research on publicly and privately funded two-year colleges deemed necessary for non-traditional and minority students to succeed in completing college and entering viable careers.

At their best, career pathways offer structured and sequenced POS wherein completion of a program provides an industry-recognized credential that serves as a steppingstone to progressively more advanced POS, credentials, and employment opportunities (Bragg, 2014). Often, career pathways begin with carefully scripted entry points for high school graduates or adults enrolled in adult basic education (ABE) or English as a Second Language (ESL) programs, or for students enrolled in non-college credit developmental education or short-term training programs, to prepare and matriculate to credit-bearing college coursework (Bragg, 2014). Applied and integrated academic- and career-focused curriculum is tied strategically to student support services designed to help learners to move into and through college by mastering foundational and progressively higher competencies needed for job entry and career advancement over a lifetime.

Career pathways also recognize that, for many students, college experiences and employment are (or should be) connected. Career pathways help these students to envision the possibility of college enrollment and completion to secure a good job, even when college going is challenging for them. By sharing the secrets of “doing college”, career pathways help students understand how to navigate their postsecondary experience (Jaggars & Mechur Karp, 2015), often while remaining employed. Students receive the guidance and support they need to achieve success because they understand how and why courses are relevant to their college and career goals. Career pathways also provide students with both the general and specialized education they need to enter careers while learning to be productive citizens and informed contributors to their communities (Association of American Colleges & Universities, 2015). College and career advisors, sometimes called “success coaches” or “navigators”, empower students to make smart decisions about college that contribute to wise decisions about all aspects of life.

Community colleges have long held that preparation for employment is a core mission, and advocates for career pathways say they support this mission (Jenkins, 2008). Career-technical education,

contextualized general education, and workforce development are blended and integral to the career pathways approach. The creation of career pathways requires educators and their partners to think critically about how curriculum is structured to enable all students to be successful in college and prepared for family living wage careers. Architects of career pathways know that students' demographic, economic, and social backgrounds relate to college attendance and employment (Goldrick-Rab, 2006), so they design career pathways to optimize success for all students.

This vision of career pathways requires community colleges meet students where they are to help them to attain the college credentials they need to enter and advance in their chosen career. Students who need an initial foothold on the college ladder are a critical target population for career pathways, but so are students who have some college credits but no credentials, including students who have failed to finish college. Initiatives such as the Alliance for Quality Career Pathways (CLASP, 2014) and Pathways to Results (OCCRL, 2014) explicitly reference the necessity for career pathways to provide equitable access and outcomes for diverse student populations. These initiatives encourage policy makers and practitioners to work together to use the career pathway approach to address inequities in access and outcomes for underserved student populations so that all student groups can achieve their desired college and career goals.

Career pathways were envisioned from the start of the H2P Consortium, beginning with competency-based core curriculum that offers students the foundation for learning progressively advanced content and demonstrating increasingly complex knowledge and skills. The H2P Consortium took lessons from past healthcare education reforms to design its TAACCCT proposal and to guide the executive of its POS and strategies. In this regard, the Consortium drew lessons from *Healthy America* (Pew, 1991), which offered a set of core standards for interdisciplinary healthcare education. The *Common Healthcare Competencies* (Far West, 1994) and the Pew Health Professionals Commission's report (1995) provided insights on some ways allied health education can be "related [to] discipline clusters, multiskilling, and interdisciplinary core curriculum" and advocated for "student and professional articulation and career ladders within disciplines and between professions" (n.p.). These reports were complimented by a later document from the Institute of Medicine (2003) that provided interdisciplinary and common core competencies relevant to the H2P Consortium vision.

Whereas this earlier effort at reform had more limited impact than some healthcare educators hoped for, some were inspired by the ideas and committed to bringing about substantive change in healthcare education. Some of these healthcare educators affiliated with one another through their college's involvement in the Round One TAACCCT-funded H2P Consortium, including individuals who held national leadership roles in organizations like the National Network of Health Career Programs in Two-Year Colleges (NN2). Others who affiliated with H2P were newcomers to the healthcare education reform agenda, and their newly found commitment reflected their own or their college's interest in change. Together, the healthcare educators who were part of the nine co-grantee colleges of the H2P Consortium assumed leadership change roles on behalf of the TAACCCT grant, and they capitalized on the H2P Consortium structure to share ideas with other educators, particularly related to the implementation of a competency-based core curriculum.

Evaluation Questions

This report addresses a number of important questions concerning the impact evaluation of the H2P Consortium. The questions focus on descriptive and inferential analysis.

- 1) What is the distribution of student enrollment among the nine community colleges in the H2P Consortium? Who are these students, and how do they participate in the grant?
- 2) What POS are being offered by the H2P Consortium co-grantee colleges, and how is enrollment in these POS distributed among the colleges and the major categories of POS? Who enrolls in these major categories of POS? What does participation look like over the period of the grant?
- 3) What strategies are offered by the co-grantee colleges, and how is participation in these strategies distributed among the colleges? Who participates in these strategies? What does participation look like over the period of the grant?
- 4) What educational outcomes are associated with H2P participants in terms of their program retention, program completion, and credential attainment (one or more)? Are these outcomes related to student background and characteristics?
- 5) What employment outcomes are associated with H2P participants in terms of employment and wage change? Are these outcomes related to student background and characteristics?
- 6) What is the average effect of the grant-funded POS and strategies on student-level education and employment outcomes?

Methods

Impact evaluation is an important element of this third-party evaluation of the H2P Consortium. A primary goal of impact evaluation is to assess the impact of grant-funded POS and strategies on students' educational and employment outcomes. Results are both descriptive and inferential to provide a broad and deep picture of what the H2P Consortium did to implement the grant (see OCCRL, 2005) – the number of students enrolled in various POS, the number of students participating in one of the eight strategies -- as well as the impact of the POS and strategies on students' outcomes.

This impact evaluation for the H2P Consortium draws upon student level data collected and analyzed by OCCRL for the DOL-mandated performance reports. Because the H2P Consortium was part of Round One TAACCCT, and because several of the community colleges associated with the Consortium had limited experience with federal reporting, OCCRL provided the primary centralized point of secure data transmission for analysis and reporting purposes. Because the student records could include personal identifiers, such as social security numbers (SSNs) and student ID numbers (SIDs), it was necessary for this project to receive University of Illinois at Urbana-Champaign (UIUC) Institutional Review Board (IRB) approval, and this was achieved early in the first year of the grant prior to gathering and completing the first report based on student-level data to the DOL. The data required of all sites to report to OCCRL was specified in formal templates. A data dictionary that was started with definitions provided by DOL was expanded as the grant unfolded, with continuing updates to the dictionary to reflect data elements needed to address the evaluation questions.

OCCRL worked with the H2P colleges to create a secure process (Box.com) to upload data to the central, secure database housed at OCCRL. On a quarterly basis since the beginning of the grant, H2P colleges uploaded and transmitted data for students (H2P participants and Retro comparison students)

to conduct the analysis. The data transmission was carried out by H2P colleges' institutional research (IR) staff or by data managers who were employed by the grant and trained by OCCRL researchers.

The master dataset has multiple purposes, as mentioned. Quarterly and annual performance reporting is a major purpose of the dataset, but the impact studies are also important. In addition, the central dataset maintained by OCCRL as well as the datasets of H2P colleges are tapped to conduct specialized studies on student outcomes for the purposes of improving POS. The Pathways to Results (PTR) projects conducted by all nine co-grantee colleges represent an important endeavor that tapped data for the purposes of improving POS and ensuring that outcomes associated with those POS are distributed equitably among participant subgroups.

In terms of statistical analysis, each section of the report provides additional information on methods carried out to support the analysis. Both descriptive and inferential analysis was performed on student demographic characteristics, pre-college characteristics and experiences, college educational experiences and outcomes, and employment outcomes.

H2P Participation

Figure 2 shows the number of all participants who enrolled in the H2P Consortium grant by co-grantee college, with the cumulative number of participants reaching 6,569. Closer examination of these results show enrollments varied widely from one college to another, with two colleges dominating the overall H2P Consortium participants. Together, Cincinnati State Technical and Community College (CSTCC), the lead college, and El Centro College (ECC) comprised approximately 52% of all H2P participants.

In all cases, the H2P colleges' participants exceeded the enrollment goal established in the negotiated SOW and adjusted (typically raised) at the time the Consortium was awarded a no cost extension in early 2014. Figure 3 shows that five of the co-grantee colleges exceeded their enrollment target by 50% or more, with two colleges, CSTCC and ECC, exceeding their participant enrollment target by very substantial margins.

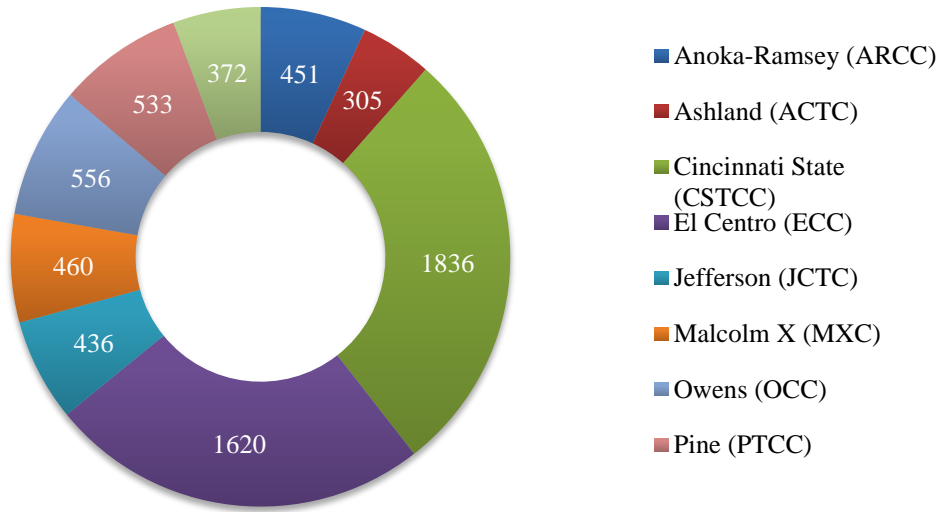


Figure 2. Total number of H2P participants by H2P college.

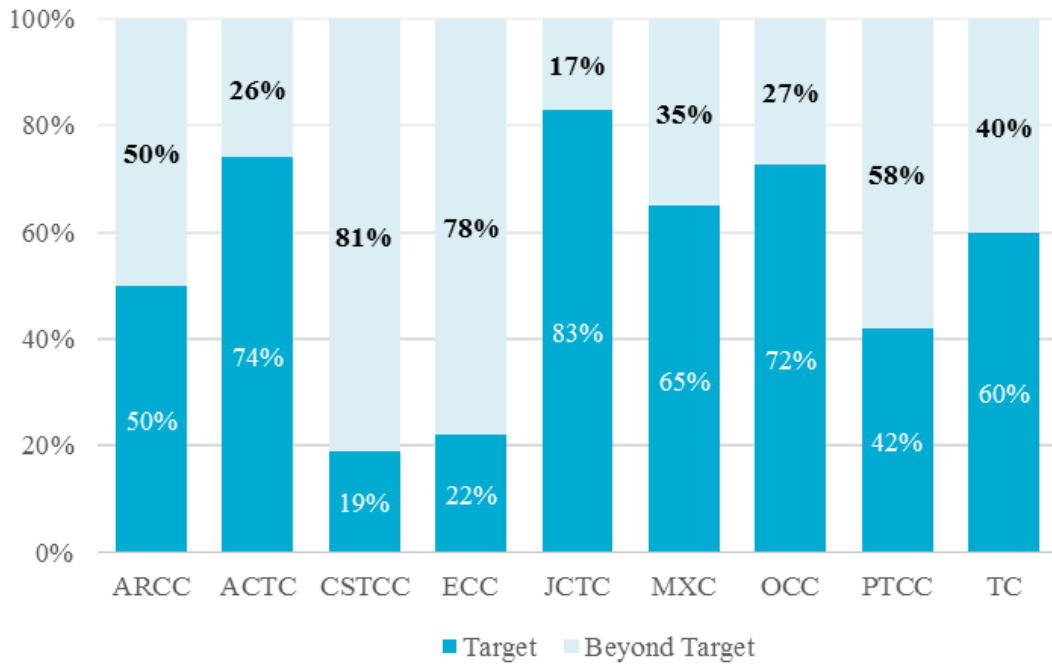


Figure 3. Percentage of participant enrollment by H2P college that represents the target and beyond target.

Table 1 provides further identification of H2P participation according to their classification as Type 1 and Type 2 participants. Type 1 participants are students who enrolled in a grant-funded POS, and Type 2 participants are those individuals who participated in a grant-funded strategy (e.g., credit for prior learning, retention services, incumbent worker training) but who did not participate in a grant-funded POS in the time period that data were obtained on student enrollment for the purposes of this impact evaluation.

Table 1. Number of H2P Participants by College

College	Number of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TX
Total H2P Participants	6,569	451	305	1,836	1,620	436	460	556	533	372
Type 1	4,888	448	284	950	1,521	279	376	313	367	350
Type 2	1,681	3	21	886	99	157	84	243	166	22

Figure 4 provides a graphic representation of Type 1 and Type 2 participants by college, again illustrating high variability in the number of students participating in the H2P grant by college and participation type. These data show that a large percentage of the Type 2 participants were concentrated in one college, CSTCC, where about half of all Type 2 participants in the Consortium were enrolled. Three other colleges, OCC, JCTC, and PTCC, enrolled the majority of the remaining Type 2 participants, with three other colleges, ARCC, ACTC and TC, enrolling a very small number of Type 2 participants. ECC enrolled 99 Type 2 participants, and MXC enrolled 84. Chapter 3 explores the specific grant-funded strategies in which these students participated.

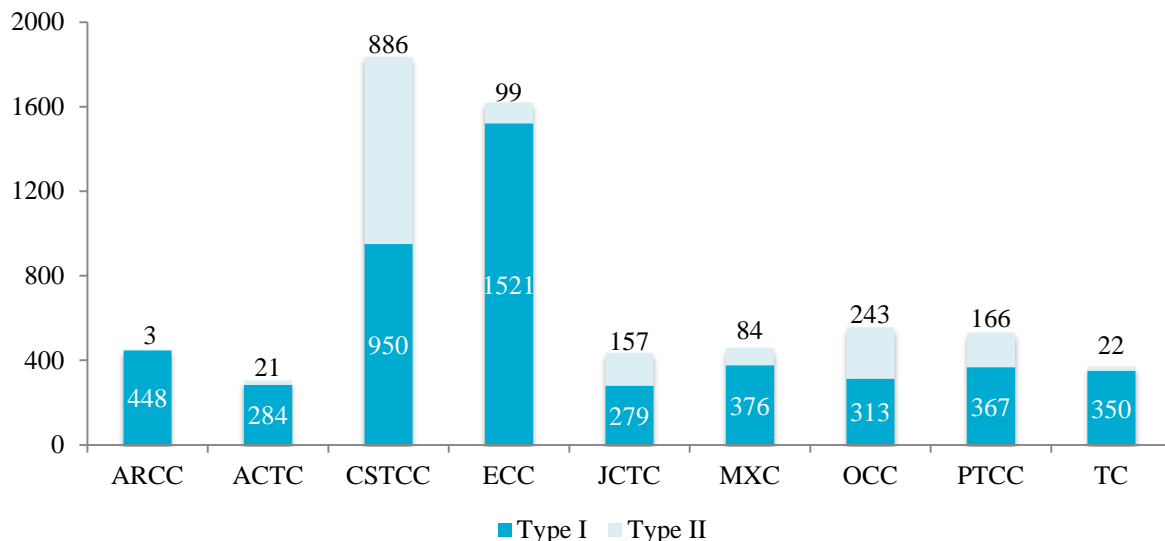


Figure 4. Type 1 and Type 2 enrollment by H2P college.

Table 2 provides a description of the cumulative group of H2P participants (Type 1 and Type 2) by demographic characteristics: gender, race/ethnicity, age at H2P intake, and Pell eligibility, which serves as a proxy for low-income status. Across the Consortium, the vast majority of the H2P participants were women, although the male to female distribution does vary among the colleges. CSTCC, MXC and TC served higher percentages of women than the other H2P colleges. Looking at race/ethnicity, approximately half of the participants were White, with the next largest racial/ethnic group being Black (27%), then Latino (12%). However, the distribution on race/ethnicity also varied considerably among the co-grantee colleges, with colleges located in urban areas serving higher proportions of students of color than those colleges in rural areas. The majority of students at ECC and MXC were members of racial/ethnic minority groups, with about one-third of ECC's participants being Latino and about 55% of MXC's students being Black. The H2P participants spanned a wide age range. Approximately 40% of participants were between 19 and 24 years of age at the time of H2P enrollment, an age range considered typical of traditional college enrollees, while 32.5% of participants were 25-34 and 28.5% were 35 and older. This diversity of ages was represented in all the nine H2P colleges, with ACTC, OCC, and TC enrolling a higher percentage of traditional college age students than the other H2P colleges, and CSTCC, JCTC, and PTCC enrolling a higher percentage of older students than the other H2P colleges. Lastly with respect to Table 2, whereas the variable of Pell eligibility has limitations in terms of fully representing low-income status, most likely under-representing this characteristic, the data show 42% of H2P participants were Pell eligible, with participants enrolled at ECC, JCTC, OCC, and PTCC showing a higher percentage of Pell eligibility than other H2P colleges.

Table 3 provides a description of all participants (Type 1 and Type 2) on characteristics that the H2P Consortium identified as target populations for the TAACCCT grant. Included in this table are variables having to do with Trade Assistance Act (TAA) status, veteran status, employment at intake (with the TAACCCT identifying displaced and unemployed workers as preferred target groups), and highest level of education (with the TAACCCT grant identifying low-skilled adults as preferred target groups). Of the total group of H2P participants, less than 10% met the requirements to be classified as TAA eligible status, and 46% of these students were enrolled in CSTCC. A larger group of H2P participants were identified as veterans, with a total count for the Consortium of 275. Approximately 56% of the veterans were H2P participants in CSTCC and ECC, which is also where the preponderance of all H2P participants were located. With respect to employment, 1,893 (29%) of all H2P participants were not employed at the time they became an H2P participant. The percentage of H2P participants who were not employed varied by college, with the percentage at ACTC, CSTCC, and MXC being higher than the overall Consortium average.

Lastly, with respect to Table 3, the data on highest level of education at enrollment show the largest category of education was high school diploma or GED (31%), followed by some college but no degree (24%). It is also worth noting a fairly percentage of unknown data on this variable (23%), with some colleges showing much higher unknown, e.g., 63% at ECC and 55% at TC. Looking at the education level of participants at enrollment by college, the percentage of participants with a high school diploma or GED was especially high at ACTC (78%), JCTC (89%), and OCC (51%).

Table 2. Distribution of H2P Participants on Demographic Characteristics by H2P College

College	Number of Students										Percentage of Students										
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	
Sex																					
Men	1,282	49	47	440	300	61	180	74	40	91	19.5	10.9	15.4	24.0	18.5	14.0	39.1	13.3	7.5	24.5	
Women	5,279	402	257	1,393	1,317	374	280	482	493	281	80.4	89.1	84.3	75.9	81.3	85.8	60.9	86.7	92.5	75.5	
Unknown	8		1	3	3	1					0.1		0.3	0.2	0.2	0.2					
Race/Ethnicity¹																					
American Indian / Alaskan Native	31	2		5	6		4	6	7	1	0.5	0.4		0.3	0.4		0.9	1.1	1.3	0.3	
Asian	192	21	1	21	102	12	16	10	6	3	2.9	4.7	0.3	1.1	6.3	2.8	3.5	1.8	1.1	0.8	
Black	1,756	50	5	836	251	135	255	74	39	111	26.7	11.1	1.6	45.5	15.5	31.0	55.4	13.3	7.3	29.8	
Latino	745	16	5	21	530	16	108	28	5	16	11.3	3.5	1.6	1.1	32.7	3.7	23.5	5.0	0.9	4.3	
Native Hawaiian / Pacific Islander	23	13	1	4	3	1				1	0.4	2.9	0.3	0.2	0.2	0.2				0.3	
Multi-race	51	4		33		7				7	0.8	0.9		1.8		1.6				1.9	
White	3,276	345	290	898	317	258	71	399	466	232	49.9	76.5	95.1	48.9	19.6	59.2	15.4	71.8	87.4	62.4	
Unknown	495		3	18	411	7	6	39	10	1	7.5		1.0	1.0	25.4	1.6	1.3	7.0	1.9	0.3	
Age at H2P Intake																					
19 and under	682	52	62	158	137	24	64	97	41	47	10.4	11.5	20.3	8.6	8.5	5.5	13.9	17.4	7.7	12.6	
20-21	811	60	51	183	213	43	58	82	57	64	12.3	13.3	16.7	10.0	13.1	9.9	12.6	14.7	10.7	17.2	
22-24	1,061	75	42	252	290	79	83	81	65	94	16.2	16.6	13.8	13.7	17.9	18.1	18.0	14.6	12.2	25.3	
25-29	1,231	98	54	317	312	83	93	91	113	70	18.7	21.7	17.7	17.3	19.3	19.0	20.2	16.4	21.2	18.8	
30-34	905	51	35	267	254	54	50	74	79	41	13.8	11.3	11.5	14.5	15.7	12.4	10.9	13.3	14.8	11.0	
35-49	1,464	94	50	459	340	123	91	116	142	49	22.3	20.8	16.4	25.0	21.0	28.2	19.8	20.9	26.6	13.2	
50+	406	20	11	193	74	29	21	15	36	7	6.2	4.4	3.6	10.5	4.6	6.7	4.6	2.7	6.8	1.9	
Unknown	9	1		7		1					0.1	0.2		0.4		0.2					
Pell Eligibility																					
Eligible	2,766	153	79	596	737	239	110	370	384	98	42.1	33.9	25.9	32.5	45.5	54.8	23.9	66.5	72.0	26.3	
Not eligible	2,383	44	226	359	883	197	87	186	149	252	36.3	9.8	74.1	19.6	54.5	45.2	18.9	33.5	28.0	67.7	
Unknown	1,420	254		881			263			22	21.6	56.3		48.0			57.2			5.9	

¹ Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students. The non-Latino race categories include only students that did not identify as Latino.

Table 3. Distribution of H2P Participants on Target Status by College

College	Number of Students										Percentage of Students										
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	
TAA Status																					
Eligible	61	3	1	28	6	14	5	3	1		0.9	0.7	0.3	1.5	0.4	3.2	1.1	0.5	0.2	0.0	
Not eligible	6,439	448	304	1,739	1,614	422	455	553	532	372	98.0	99.3	99.7	94.7	99.6	96.8	98.9	99.5	99.8	100.0	
Unknown	69			69							1.1	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	
Veteran																					
Eligible Veteran	275	9	7	82	73	9	33	8	28	26	4.2	2.0	2.3	4.5	4.5	2.1	7.2	1.4	5.3	7.0	
Not a Veteran	6,259	442	297	1,743	1,547	427	427	548	505	323	95.3	98.0	97.4	94.9	95.5	97.9	92.8	98.6	94.7	86.8	
Unknown	35		1	11						23	0.5	0.0	0.3	0.6	0.0	0.0	0.0	0.0	0.0	6.2	
Employment at Intake																					
Nonemployed	1,893	112	147	584	401	100	188	149	120	92	28.8	24.8	48.2	31.8	24.8	22.9	40.9	26.8	22.5	24.7	
Employed	4,422	334	108	1,251	1,127	324	272	407	351	248	67.3	74.1	35.4	68.1	69.6	74.3	59.1	73.2	65.9	66.7	
Unknown	254	5	50	1	92	12			62	32	3.9	1.1	16.4	0.1	5.7	2.8	0.0	0.0	11.6	8.6	
Highest Level of Education at Enrollment																					
Less than High School	75	11	1	7	9		46		1		1.1	2.4	0.3	0.4	0.6	0.0	10.0	0.0	0.2	0.0	
High School Diploma or GED	2,006	110	238	596	155	389	80	281	157		30.5	24.4	78.0	32.5	9.6	89.2	17.4	50.5	29.5	0.0	
Some College, No Degree	1,580	325	35	586	236		105	166	127		24.1	72.1	11.5	31.9	14.6	0.0	22.8	29.9	23.8	0.0	
Postsecondary Certificate	743	2	9	318	37		16	54	186	121	11.3	0.4	3.0	17.3	2.3	0.0	3.5	9.7	34.9	32.5	
Associate's Degree	400		8	130	103	1	30	28	53	47	6.1	0.0	2.6	7.1	6.4	0.2	6.5	5.0	9.9	12.6	
Bachelor's Degree or Higher	256	2	8	120	67		26	26	7		3.9	0.4	2.6	6.5	4.1	0.0	5.7	4.7	1.3	0.0	
Unknown	1,509	1	6	79	1,013	46	157	1	2	204	23.0	0.2	2.0	4.3	62.5	10.6	34.1	0.2	0.4	54.8	

CHAPTER 2: H2P PARTICIPATION IN PROGRAMS OF STUDY

This section focuses on the 4,888 H2P participants that were designated as Type 1 participants, meaning they enrolled in a TAACCCT grant-funded POS. The designation of Type 1 participants involved multiple methods to ensure accurate reporting. First, at the beginning of the grant, OCCRL conducted an inventory of POS offered by all H2P colleges. This inventory required that the co-grantee colleges identify each unique POS, along with the courses, credits, credentials, and program awards associated with each. This inventory provided details the H2P Consortium needed to document the number of grant-funded POS for quarterly and annual performance reporting, and also for the third-party curriculum review. This information also contributed to the design of Consortium's student level data system in that OCCRL could identify students according to course and program enrollment. Toward the end of the grant, additional analysis and documentation was conducted by OCCRL staff members to improve the accuracy of POS assignment to H2P participants. Using college course catalogs, websites, and evaluator notes from site visits and interviews, the assignment of students to POS was further refined and enhanced. For example, these latter analyses enabled OCCRL to assign students to not only one but multiple POS, when appropriate. These methods were important to designating and counting student enrollment by POS as well as measuring credential attainment and program completion, which is also critical for accuracy in reporting employment outcomes for this impact evaluation.

Table 4 provides a listing of grant-funded POS offered by the co-grantee colleges. The POS are listed according to one of four categories. The first category is "very short-term", which refers to POS that are 12 credit hours or less, including non-credit. The second category is "short term", which refers to POS that are over 12 credit hours and less than 1 year in length. The third category is "1 year or greater in length", which is aligned with POS that are longer than 1 year. The fourth category is Associate's Degree, which is primarily the RN credential awarded through an ADN or an AAS degree. These results show the colleges vary in the number of POS and category of POS offered.

Table 4. H2P Programs of Study Offered by H2P Colleges

Category of Program of Study	College								
	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Very Short-term (12 credit hours or less)									
Certified Nursing Assistant/ KMA/SRNA/STNA/Nurse Aide Training/Basic Nursing Assisting	X	X	X	X		X	X	X	X
Community Health Worker			X	X					
EKG								X	
EMT- Basic	X	X	X						X
Health Unit Coordinator			X						
Orthopedic Technician			X						
Phlebotomy	X	X						X	
Trained Medication Aide	X							X	
Short term (<1 year)									
Community Health Worker						X			
Community Pharmacy Assistant/ Retail Pharmacy Assistant		X			X				
EMT-Intermediate									X
Expanded Functional Dental Certificate							X		
Long-Term Care Assistant								X	
Medical Office Administrative Assisting					X				
Medical Office Clinical Assisting					X				
Medical Office Radiography					X				
Medical Billing						X			
Medical Coding					X		X		
Personal Training						X			
Pharmacy Technician	X	X			X				X
Sterile Processing Certificate							X		
X-Ray								X	

Category of Program of Study	College								
	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
1 year or more									
Clinical Lab Technician					X				
Dental assisting							X		
EMT-Paramedic		X	X			X			X
Massage Therapy							X		
Medical Assisting		X	X	X	X				
Medical Coding						X			
Pharmacy Technician II		X			X	X			
Practical Nursing/Vocational Nursing		X	X	X	X		X	X	X
Associate's Degree									
Associate's Degree Nursing	X	X	X	X	X	X	X	X	X
Associate's Degree Nursing (Mobility)	X	X	X	X	X	X	X	X	X
Emergency Medical Technology (EMT) Associate's			X						X
Health Science Technology/Health Information Technology Management/Health Information Technology Informatics		X	X		X	X	X		
Medical Assisting					X			X	
Multi-Competency Health Completion			X						
Perioperative Nurse Internship				X					
Pharmacy Associate's		X							
Physical therapy Assistant	X								
Respiratory Care			X						
Radiologic Science/MRI				X			X		

Figure 5 shows all nine co-grantee colleges offered grant-funded POS at the Associate’s Degree level, but no other POS category was offered by all co-grantee colleges. Five H2P colleges offered POS associated with all four categories, and four H2P colleges offered POS in three categories, suggesting the colleges offered a comprehensive array of POS in association with the H2P Consortium grant. Knowing that the H2P colleges offered these categories of POS is useful to understand student enrollment patterns, educational awards, and employment outcomes reported later in Chapter 4 of this report.

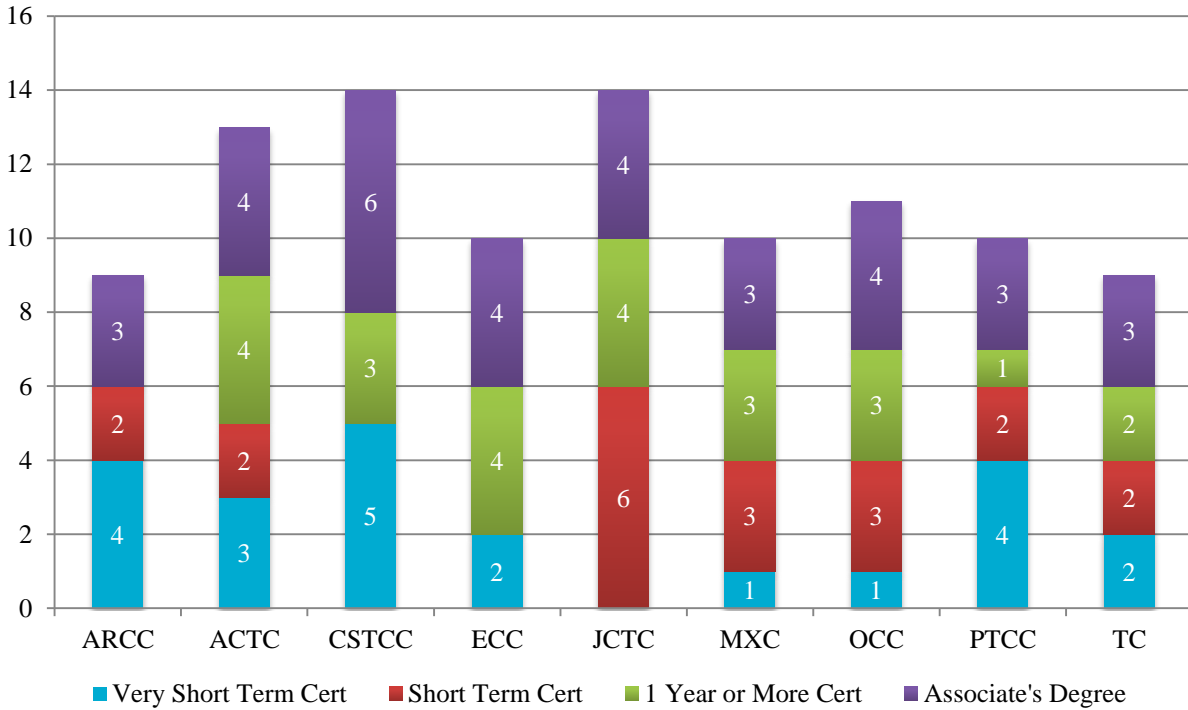


Figure 5. Number of POS by category and college.

Table 5 presents H2P participant enrollments by category of POS and by college. These results show enrollment in Associate’s Degree POS dominate participant enrollment in several of the H2P colleges, including the two colleges (CSTCC and ECC) that enroll the preponderance of students in the H2P Consortium. The enrollment of H2P participants is also substantial in very short term POS, with all but one of the nine co-grantee colleges enrolling participants in this category of POS. Enrollments in POS of 1 year or more accounted for over 100 H2P participants in five of the co-grantee: CSTCC, ECC, JCTC, PTCC, and TC. Figure 6 summarizes the POS enrollment by category and college and underscores the variation between colleges in terms of the length of the POS in which H2P participants enrolled.

Table 5. H2P Programs of Study Enrollment by H2P College

Category of Program of Study	College								
	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Very Short-term (12 credit hours or less)	232	213	418	139	0	228	163	258	117
Certified Nursing Assistant/KMA/SRNA/STNA/Nurse Aide Training/Basic Nursing Assisting	222	194	347	87		124	163	75	41
Community Health Worker			8	52					
EKG								45	
EMT- Basic	0	17	14			104			76
Health Unit Coordinator			38						
Orthopedic Technician			11						
Phlebotomy	4	2						22	
Trained Medication Aide	6							116	
Short term (<1 year)	17	62	0	0	297	67	58	73	71
Community Health Worker						2			
Community Pharmacy Assistant/ Retail Pharmacy Assistant		30			68				
EMT-Intermediate									27
Expanded Functional Dental Certificate							8		
Long-Term Care Assistant								32	
Medical Office Administrative Assisting					58				
Medical Office Clinical Assisting					56				
Medical Office Radiography					47				
Medical Billing						26			
Medical Coding					1		42		
Personal Training						39			
Pharmacy Technician	17	32			67				44
Sterile Processing Certificate							8		
X-Ray								41	

Category of Program of Study	College								
	ARCC	ACTC	CSTCC	ECC	JTC	MXC	OCC	PTCC	TC
1 year or more	0	84	314	155	171	90	50	257	232
Clinical Lab Technician					3				
Dental assisting							13		
EMT-Paramedic		8	9			79			28
Massage Therapy							11		
Medical Assisting		5	36	81	59				
Medical Coding						8			
Pharmacy Technician II		9			66	3			
Practical Nursing/Vocational Nursing		62	269	74	43		26	257	204
Associate's Degree	286	209	672	888	119	82	234	178	156
Associate's Degree Nursing* (mutually exclusive from Mobility)	227	140	277	694	20	57	122	37	102
Associate's Degree Nursing (Mobility)	30	18	30	48	65	20	52	73	48
Emergency Medical Technology (EMT) Associate's			35						6
Health Science Technology/Health Information Technology Management/Health Information Technology Informatics		51	93		34	5	33		
Medical Assisting					59*			68	
Multi-Competency Health Completion			165						
Perioperative Nurse Internship				29					
Pharmacy Associate's		0							
Physical therapy Assistant	29								
Respiratory Care			72						
Radiologic Science/MRI				117			27		
TOTAL POSs Assigned	535	568	1,404	1,182	587	467	505	766	576
N Students Assigned POS	447	263	854	1,064	262	371	311	367	348
N Student in H2P	448	284	950	1,521	279	376	313	367	350
	100%	93%	90%	70%	94%	99%	99%	100%	99%

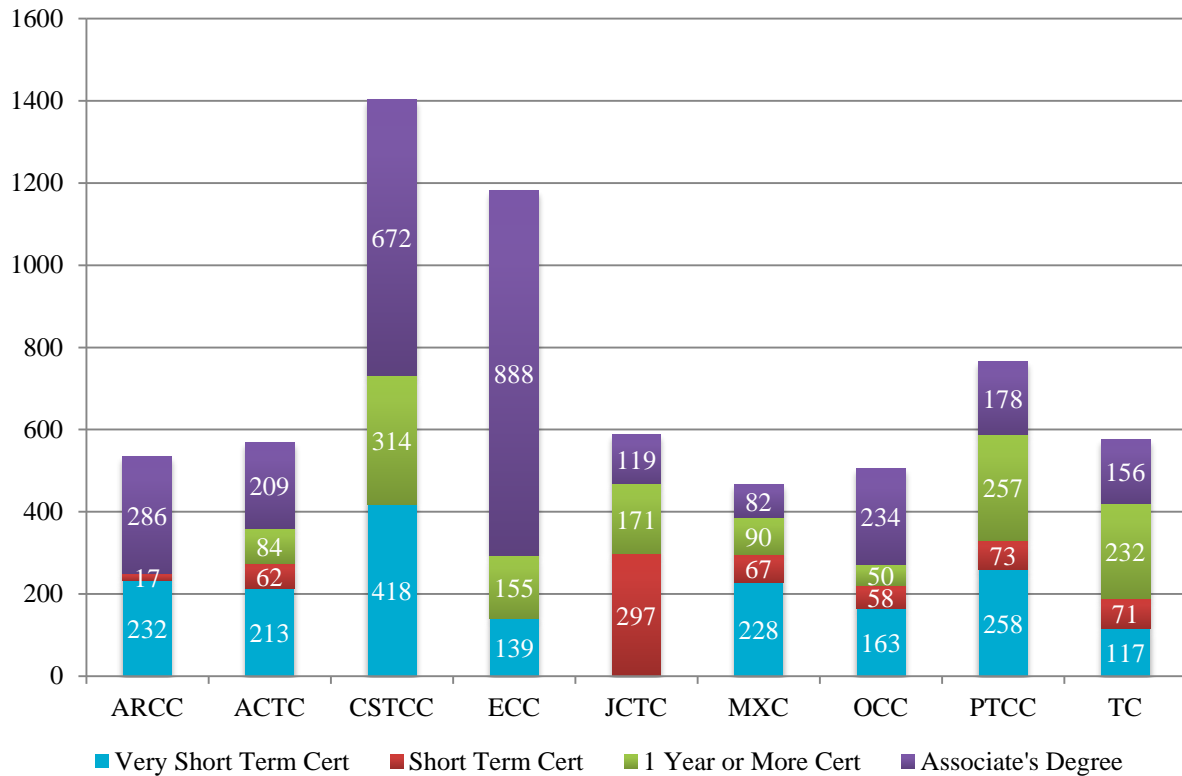


Figure 6. Enrollment by POS category by college.

Table 6 presents demographics and target population for all H2P participants by POS category, including multiple POS. Results show the percentage of males is highest in very short term POS and lowest in POS greater than 1 year in length. A higher percentage of Whites than other race/ethnic groups enroll in multiple POS, and the only POS category with more than 5% veterans is short term. Pell eligible students make up a larger percentage of the longer and multiple POS categories than the very short and <=1 year POS. Those who were non-employed made up a larger percentage of very-short POSs and <=1 year than >1 year and Associate’s Degrees by almost 20% points. Participants with less than a high school diploma made up a larger percentage of those in very short POS than any other POS category.

Table 6. Distribution of H2P Participant Demographics and Target Populations by POS Category

Demographics	Very Short Cred		Less Than 1 Year		1 Year or Greater		Associate's		Multiple	
Sex										
Men	142	23.9	31	26.1	67	15.5	264	17.8	275	16.5
Women	451	76.1	88	73.9	366	84.5	1211	81.9	1386	83.3
Unknown	--	--	--	--	--	--	4	0.3	2	0.1
Race/Ethnicity¹										
American Indian / Alaskan Native	1	0.2	1	0.8	5	1.2	7	0.5	7	0.4
Asian	11	1.9	2	1.7	8	1.8	101	6.8	40	2.4
Black	172	29.0	42	35.3	132	30.5	362	24.5	367	22.1
Latino	69	11.6	16	13.4	60	13.9	234	15.8	102	6.1
Multi-race	2	0.3	3	2.5	0	0.0	4	0.3	12	0.7
Native Hawaiian / Pacific Islander	6	1.0	0	0.0	4	0.9	8	0.5	5	0.3
Unknown	34	5.7	1	0.8	32	7.4	100	6.8	48	2.9
White	298	50.3	54	45.4	192	44.3	663	44.8	1082	65.1
Age at H2P Intake										
19 and under	102	17.2	21	17.6	26	6.0	84	5.7	144	8.7
20-21	95	16.0	15	12.6	60	13.9	143	9.7	220	13.2
22-24	102	17.2	19	16.0	90	20.8	244	16.5	277	16.7
25-29	92	15.5	13	10.9	94	21.7	313	21.2	343	20.6
30-34	50	8.4	10	8.4	64	14.8	274	18.5	219	13.2
35-49	109	18.4	32	26.9	82	18.9	348	23.5	382	23.0
50+	43	7.3	9	7.6	17	3.9	71	4.8	76	4.6
Unknown	--	--	--	--	--	--	2	0.1	2	0.1
Pell Eligibility										
Eligible	148	25.0	39	32.8	230	53.1	683	46.2	840	50.5
Not eligible	227	38.3	43	36.1	152	35.1	594	40.2	661	39.7
Unknown	218	36.8	37	31.1	51	11.8	202	13.7	162	9.7
TAA Status										
Eligible	4	0.7	0	0.0	1	0.2	4	0.3	14	0.8
Not eligible	589	99.3	119	100.0	431	99.5	1461	98.8	1649	99.2
Unknown	--	--	--	--	1	0.2	14	0.9	--	--
Veteran										
Eligible Veteran	29	4.9	10	8.4	17	3.9	60	4.1	60	3.6
Not a Veteran	564	95.1	99	83.2	414	95.6	1416	95.7	1596	96.0
Unknown	--	--	10	8.4	2	0.5	3	0.2	7	0.4
Employment at Intake										
Nonemployed	222	37.4	44	37.0	78	18.0	296	20.0	508	30.5
Employed	353	59.5	70	58.8	329	76.0	1118	75.6	1068	64.2
Unknown	18	3.0	5	4.2	26	6.0	65	4.4	87	5.2
Highest Level of Education at Enrollment										
Less than High School	41	6.9	4	3.4	5	1.2	2	0.1	9	0.5
High School Diploma or	189	31.9	37	31.1	115	26.6	223	15.1	583	35.1

Demographics	Very Short Cred		Less Than 1 Year		1 Year or Greater		Associate's		Multiple	
GED										
Some College, No Degree	150	25.3	25	21.0	92	21.2	328	22.2	400	24.1
Postsecondary Certificate	34	5.7	11	9.2	99	22.9	116	7.8	288	17.3
Associate's Degree	13	2.2	2	1.7	25	5.8	71	4.8	120	7.2
Bachelor's Degree or Higher	20	3.4	3	2.5	15	3.5	46	3.1	44	2.6
Unknown	146	24.6	37	31.1	82	18.9	693	46.9	219	13.2

¹ Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Tables 7-16 show the demographic distribution and target status of H2P participants according to each of the POS categories, ranging from Very Short Term to Multiple Credential. These tables further support earlier discussion about the distinctive characteristics of students enrolled in the different lengths of POS, with the most diverse student populations evident in shorter term credentials and least evident in multiple credentials.

Table 7. Distribution of H2P Participants on Demographic Characteristics for Very Short Term POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Total	593	142	32	113	70	0	144	20	1	71	100.0	23.9	5.4	19.1	11.8	0.0	24.3	3.4	0.2	12.0
Sex																				
Men	142	12	9	12	13	0	53	2	0	41	23.9	8.5	28.1	10.6	18.6	0.0	36.8	10.0	0.0	57.7
Women	451	130	23	101	57	0	91	18	1	30	76.1	91.5	71.9	89.4	81.4	0.0	63.2	90.0	100.0	42.3
Race/Ethnicity¹																				
American Indian / Alaskan Native	1	0	0	0	0	0	1	0	0	0	0.2	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0
Asian	11	4	0	2	1	0	4	0	0	0	1.9	2.8	0.0	1.8	1.4	0.0	2.8	0.0	0.0	0.0
Black	172	23	1	32	8	0	93	0	0	15	29.0	16.2	3.1	28.3	11.4	0.0	64.6	0.0	0.0	21.1
Latino	69	9	0	0	27	0	30	0	0	3	11.6	6.3	0.0	0.0	38.6	0.0	20.8	0.0	0.0	4.2
Multi-race	2	0	0	0	0	0	0	0	0	2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8
Native Hawaiian / Pacific Islander	6	4	0	1	0	0	0	0	0	1	1.0	2.8	0.0	0.9	0.0	0.0	0.0	0.0	0.0	1.4
Unknown	34	0	0	0	30	0	3	1	0	0	5.7	0.0	0.0	0.0	42.9	0.0	2.1	5.0	0.0	0.0
White	298	102	31	78	4	0	13	19	1	50	50.3	71.8	96.9	69.0	5.7	0.0	9.0	95.0	100.0	70.4
Age at H2P Intake																				
19 and under	102	22	9	12	9	0	27	6	0	17	17.2	15.5	28.1	10.6	12.9	0.0	18.8	30.0	0.0	23.9
20-21	95	24	7	13	9	0	24	4	0	14	16.0	16.9	21.9	11.5	12.9	0.0	16.7	20.0	0.0	19.7
22-24	102	26	4	19	9	0	28	1	0	15	17.2	18.3	12.5	16.8	12.9	0.0	19.4	5.0	0.0	21.1
25-29	92	25	4	21	11	0	18	4	1	8	15.5	17.6	12.5	18.6	15.7	0.0	12.5	20.0	100.0	11.3
30-34	50	11	3	9	5	0	13	4	0	5	8.4	7.7	9.4	8.0	7.1	0.0	9.0	20.0	0.0	7.0
35-49	109	25	4	28	14	0	26	1	0	11	18.4	17.6	12.5	24.8	20.0	0.0	18.1	5.0	0.0	15.5
50+	43	9	1	11	13	0	8	0	0	1	7.3	6.3	3.1	9.7	18.6	0.0	5.6	0.0	0.0	1.4
Pell Eligibility																				
Eligible	148	15	11	21	31	0	41	15	0	14	25.0	10.6	34.4	18.6	44.3	0.0	28.5	75.0	0.0	19.7
Not eligible	227	16	21	54	39	0	34	5	1	57	38.3	11.3	65.6	47.8	55.7	0.0	23.6	25.0	100.0	80.3
Unknown	218	111	0	38	0	0	69	0	0	0	36.8	78.2	0.0	33.6	0.0	0.0	47.9	0.0	0.0	0.0

¹ Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 8. Distribution of H2P Participants on Target Status by College for the Very Short Term POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
TAA Status																				
Eligible	4	1	0	0	0	0	3	0	0	0	0.7	0.7	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0
Not eligible	589	141	32	113	70	0	141	20	1	71	99.3	99.3	100.0	100.0	100.0	0.0	97.9	100.0	100.0	100.0
Veteran																				
Eligible Veteran	29	3	1	6	3	0	8	0	0	8	4.9	2.1	3.1	5.3	4.3	0.0	5.6	0.0	0.0	11.3
Not a Veteran	564	139	31	107	67	0	136	20	1	63	95.1	97.9	96.9	94.7	95.7	0.0	94.4	100.0	100.0	88.7
Employment at Intake																				
Nonemployed	222	49	17	48	17	0	72	5	0	14	37.4	34.5	53.1	42.5	24.3	0.0	50.0	25.0	0.0	19.7
Employed	353	89	11	65	52	0	72	15	1	48	59.5	62.7	34.4	57.5	74.3	0.0	50.0	75.0	100.0	67.6
Unknown	18	4	4	0	1	0	0	0	0	9	3.0	2.8	12.5	0.0	1.4	0.0	0.0	0.0	0.0	12.7
Highest Level of Education at Enrollment																				
Less than High School	41	10	0	1	5	0	25	0	0	0	6.9	7.0	0.0	0.9	7.1	0.0	17.4	0.0	0.0	0.0
High School Diploma or GED	189	70	25	45	14	0	25	9	1	0	31.9	49.3	78.1	39.8	20.0	0.0	17.4	45.0	100.0	0.0
Some College, No Degree	150	62	4	38	11	0	26	9	0	0	25.3	43.7	12.5	33.6	15.7	0.0	18.1	45.0	0.0	0.0
Postsecondary Certificate	34	0	1	11	3	0	2	1	0	16	5.7	0.0	3.1	9.7	4.3	0.0	1.4	5.0	0.0	22.5
Associate's Degree	13	0	1	5	4	0	2	1	0	0	2.2	0.0	3.1	4.4	5.7	0.0	1.4	5.0	0.0	0.0
Bachelor's Degree or Higher	20	0	1	13	3	0	3	0	0	0	3.4	0.0	3.1	11.5	4.3	0.0	2.1	0.0	0.0	0.0
Unknown	146	0	0	0	30	0	61	0	0	55	24.6	0.0	0.0	0.0	42.9	0.0	42.4	0.0	0.0	77.5

Table 9. Distribution of H2P Participants on Demographic Characteristics for the Less Than 1 Year POS by College

College	Number of Participants										Percentage of Participants										
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	
Total	119	14	3	0	0	6	50	17	8	21	100.0	11.8	2.5	0.0	0.0	5.0	42.0	14.3	6.7	17.6	
Sex																					
Men	31	3	0	0	0	0	22	3	1	2	26.1	0.0	0.0	0.0	0.0	0.0	44.0	17.6	12.5	9.5	
Women	88	11	3	0	0	6	28	14	7	19	73.9	0.0	100.0	0.0	0.0	100.0	56.0	82.4	87.5	90.5	
Race/Ethnicity¹																					
American Indian / Alaskan Native	1	0	0	0	0	0	0	1	0	0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0	
Asian	2	2	0	0	0	0	0	0	0	0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Black	42	0	0	0	0	3	35	0	0	4	35.3	0.0	0.0	0.0	0.0	50.0	70.0	0.0	0.0	19.0	
Latino	16	1	0	0	0	0	13	2	0	0	13.4	0.0	0.0	0.0	0.0	0.0	26.0	11.8	0.0	0.0	
Multi-race	3	1	0	0	0	0	0	0	0	2	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	
Native Hawaiian / Pacific Islander	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Unknown	1	0	0	0	0	0	1	0	0	0	0.8	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	
White	54	10	3	0	0	3	1	14	8	15	45.4	0.0	100.0	0.0	0.0	50.0	2.0	82.4	100.0	71.4	
Age at H2P Intake																					
19 and under	102	22	9	12	9	0	27	6	0	17	17.2	15.5	28.1	10.6	12.9	0.0	18.8	30.0	0.0	23.9	
20-21	95	24	7	13	9	0	24	4	0	14	16.0	16.9	21.9	11.5	12.9	0.0	16.7	20.0	0.0	19.7	
22-24	102	26	4	19	9	0	28	1	0	15	17.2	18.3	12.5	16.8	12.9	0.0	19.4	5.0	0.0	21.1	
25-29	92	25	4	21	11	0	18	4	1	8	15.5	17.6	12.5	18.6	15.7	0.0	12.5	20.0	100.0	11.3	
30-34	50	11	3	9	5	0	13	4	0	5	8.4	7.7	9.4	8.0	7.1	0.0	9.0	20.0	0.0	7.0	
35-49	109	25	4	28	14	0	26	1	0	11	18.4	17.6	12.5	24.8	20.0	0.0	18.1	5.0	0.0	15.5	
50+	43	9	1	11	13	0	8	0	0	1	7.3	6.3	3.1	9.7	18.6	0.0	5.6	0.0	0.0	1.4	
Pell Eligibility																					
Eligible	39	7	0	0	0	3	18	6	4	1	32.8	0.0	0.0	0.0	0.0	50.0	36.0	35.3	50.0	4.8	
Not eligible	43	3	3	0	0	3	8	11	4	11	36.1	0.0	100.0	0.0	0.0	50.0	16.0	64.7	50.0	52.4	
Unknown	37	4	0	0	0	0	24	0	0	9	31.1	0.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	42.9	

¹ Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 10. Distribution of H2P Participants on Target Status for the Less than 1 Year POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
TAA Status																				
Eligible	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not eligible	119	14	3	0	0	6	50	17	8	21	100.0	0.0	100.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
Veteran																				
Eligible Veteran	10	0	0	0	0	0	5	3	1	1	8.4	0.0	0.0	0.0	0.0	0.0	10.0	17.6	12.5	4.8
Not a Veteran	99	14	3	0	0	6	45	14	7	10	83.2	0.0	100.0	0.0	0.0	100.0	90.0	82.4	87.5	47.6
Unknown	10	0	0	0	0	0	0	0	0	10	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.6
Employment at Intake																				
Nonemployed	44	6	3	0	0	1	21	4	2	7	37.0	0.0	100.0	0.0	0.0	16.7	42.0	23.5	25.0	33.3
Employed	70	8	0	0	0	4	29	13	5	11	58.8	0.0	0.0	0.0	0.0	66.7	58.0	76.5	62.5	52.4
Unknown	5	0	0	0	0	1	0	0	1	3	4.2	0.0	0.0	0.0	0.0	16.7	0.0	0.0	12.5	14.3
Highest Level of Education at Enrollment																				
Less than High School	4	0	0	0	0	0	4	0	0	0	3.4	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0
High School Diploma or GED	37	3	1	0	0	4	10	16	3	0	31.1	0.0	33.3	0.0	0.0	66.7	20.0	94.1	37.5	0.0
Some College, No Degree	25	10	2	0	0	0	11	1	1	0	21.0	0.0	66.7	0.0	0.0	0.0	22.0	5.9	12.5	0.0
Postsecondary Certificate	11	1	0	0	0	0	0	0	1	9	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	42.9
Associate's Degree	2	0	0	0	0	1	0	0	1	0	1.7	0.0	0.0	0.0	0.0	16.7	0.0	0.0	12.5	0.0
Bachelor's Degree or Higher	3	0	0	0	0	0	1	0	2	0	2.5	0.0	0.0	0.0	0.0	0.0	2.0	0.0	25.0	0.0
Less than High School	4	0	0	0	0	0	4	0	0	0	3.4	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0

Table 11. Distribution of H2P Participants on Demographic Characteristics for the 1 Year or Greater POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Total	433	0	2	119	96	25	34	37	72	48	100.0	0.0	0.0	27.0	22.0	6.0	8.0	9.0	17.0	11.0
Sex																				
Men	67	0	0	21	12	2	22	3	5	2	15.5	0.0	0.0	17.6	12.5	8.0	64.7	8.1	6.9	4.2
Women	366	0	2	98	84	23	12	34	67	46	84.5	0.0	100.0	82.4	87.5	92.0	35.3	91.9	93.1	95.8
Race/Ethnicity¹																				
American Indian / Alaskan Native	5	0	0	0	1	0	1	0	3	0	1.2	0.0	0.0	0.0	1.0	0.0	2.9	0.0	4.2	0.0
Asian	8	0	0	2	3	0	2	1	0	0	1.8	0.0	0.0	1.7	3.1	0.0	5.9	2.7	0.0	0.0
Black	132	0	0	66	15	10	4	3	16	18	30.5	0.0	0.0	55.5	15.6	40.0	11.8	8.1	22.2	37.5
Latino	60	0	0	1	43	1	10	3	0	2	13.9	0.0	0.0	0.8	44.8	4.0	29.4	8.1	0.0	4.2
Multi-race	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Native Hawaiian / Pacific Islander	4	0	0	3	0	0	0	0	0	1	0.9	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.1
Unknown	32	0	0	0	28	1	0	1	2	0	7.4	0.0	0.0	0.0	29.2	4.0	0.0	2.7	2.8	0.0
White	192	0	2	47	6	13	17	29	51	27	44.3	0.0	100.0	39.5	6.3	52.0	50.0	78.4	70.8	56.3
Age at H2P Intake																				
19 and under	26	0	1	8	7	0	0	6	0	4	6.0	0.0	50.0	6.7	7.3	0.0	0.0	16.2	0.0	8.3
20-21	60	0	0	10	19	2	4	10	7	8	13.9	0.0	0.0	8.4	19.8	8.0	11.8	27.0	9.7	16.7
22-24	90	0	0	24	18	8	11	6	8	15	20.8	0.0	0.0	20.2	18.8	32.0	32.4	16.2	11.1	31.3
25-29	94	0	1	31	13	10	13	5	14	7	21.7	0.0	50.0	26.1	13.5	40.0	38.2	13.5	19.4	14.6
30-34	64	0	0	20	13	1	3	3	18	6	14.8	0.0	0.0	16.8	13.5	4.0	8.8	8.1	25.0	12.5
35-49	82	0	0	24	18	3	3	6	20	8	18.9	0.0	0.0	20.2	18.8	12.0	8.8	16.2	27.8	16.7
50+	17	0	0	2	8	1	0	1	5	0	3.9	0.0	0.0	1.7	8.3	4.0	0.0	2.7	6.9	0.0
Pell Eligibility																				
Eligible	230	0	0	68	48	15	6	20	55	18	53.1	0.0	0.0	57.1	50.0	60.0	17.6	54.1	76.4	37.5
Not eligible	152	0	2	19	48	10	9	17	17	30	35.1	0.0	100.0	16.0	50.0	40.0	26.5	45.9	23.6	62.5
Unknown	51	0	0	32	0	0	19	0	0	0	11.8	0.0	0.0	26.9	0.0	0.0	55.9	0.0	0.0	0.0

¹ Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 12. Distribution of H2P Participants on Target Status for the 1 Year or Greater POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
TAA Status																				
Eligible	1	0	0	0	1	0	0	0	0	0	0.2	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Not eligible	431	0	2	118	95	25	34	37	72	48	99.5	0.0	100.0	99.2	99.0	100.0	100.0	100.0	100.0	100.0
Unknown	1	0	0	1	0	0	0	0	0	0	0.2	100.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Veteran																				
Eligible Veteran	17	0	0	3	4	0	3	1	2	4	3.9	0.0	0.0	2.5	4.2	0.0	8.8	2.7	2.8	8.3
Not a Veteran	414	0	2	114	92	25	31	36	70	44	95.6	0.0	100.0	95.8	95.8	100.0	91.2	97.3	97.2	91.7
Unknown	2	0	0	2	0	0	0	0	0	0	0.5	100.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0
Employment at Intake																				
Nonemployed	78	0	0	13	28	2	4	2	13	16	18.0	0.0	0.0	10.9	29.2	8.0	11.8	5.4	18.1	33.3
Employed	329	0	1	106	58	23	30	35	51	25	76.0	0.0	50.0	89.1	60.4	92.0	88.2	94.6	70.8	52.1
Unknown	26	0	1	0	10	0	0	0	8	7	6.0	100.0	50.0	0.0	10.4	0.0	0.0	0.0	11.1	14.6
Highest Level of Education at Enrollment																				
Less than High School	5	0	0	0	0	0	5	0	0	0	1.2	0.0	0.0	0.0	0.0	0.0	14.7	0.0	0.0	0.0
High School Diploma or GED	115	0	1	33	9	24	4	26	18	0	26.6	0.0	50.0	27.7	9.4	96.0	11.8	70.3	25.0	0.0
Some College, No Degree	92	0	0	35	20	0	9	7	21	0	21.2	0.0	0.0	29.4	20.8	0.0	26.5	18.9	29.2	0.0
Postsecondary Certificate	99	0	0	40	3	0	2	2	26	26	22.9	0.0	0.0	33.6	3.1	0.0	5.9	5.4	36.1	54.2
Associate's Degree	25	0	0	8	5	0	2	0	6	4	5.8	0.0	0.0	6.7	5.2	0.0	5.9	0.0	8.3	8.3
Bachelor's Degree or Higher	15	0	0	1	5	0	6	2	1	0	3.5	0.0	0.0	0.8	5.2	0.0	17.6	5.4	1.4	0.0
Unknown	82	0	1	2	54	1	6	0	0	18	18.9	0.0	50.0	1.7	56.3	4.0	17.6	0.0	0.0	37.5

Table 13. Distribution of H2P Participants on Demographic Characteristics for the Associate's Degree POS by College

College	Number of Participants										Percentage of Participants										
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	
Total	1,479	203	42	214	787	78	57	52	46	0	100.0	14.0	3.0	14.0	53.0	5.0	4.0	4.0	3.0	0.0	
Sex																					
Men	264	26	5	67	144	7	10	2	3	0	17.8	12.8	11.9	31.3	18.3	9.0	17.5	3.8	6.5	0.0	
Women	1,211	177	36	147	640	71	47	50	43	0	81.9	87.2	85.7	68.7	81.3	91.0	82.5	96.2	93.5	0.0	
Unknown	4	0	1	0	3	0	0	0	0	0	0.3	0.0	2.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	
Race/Ethnicity¹																					
American Indian / Alaskan Native	7	1	0	0	4	0	0	1	1	0	0.5	0.5	0.0	0.0	0.5	0.0	0.0	1.9	2.2	0.0	
Asian	101	10	0	4	81	2	3	0	1	0	6.8	4.9	0.0	1.9	10.3	2.6	5.3	0.0	2.2	0.0	
Black	362	21	0	103	168	18	36	13	3	0	24.5	10.3	0.0	48.1	21.3	23.1	63.2	25.0	6.5	0.0	
Latino	234	4	0	0	210	5	9	5	1	0	15.8	2.0	0.0	0.0	26.7	6.4	15.8	9.6	2.2	0.0	
Multi-race	4	1	0	2	0	1	0	0	0	0	0.3	0.5	0.0	0.9	0.0	1.3	0.0	0.0	0.0	0.0	
Native Hawaiian / Pacific Islander	8	5	0	0	3	0	0	0	0	0	0.5	2.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	
Unknown	100		0	1	99	0	0	0	0	0	6.8	0.0	0.0	0.5	12.6	0.0	0.0	0.0	0.0	0.0	
White	663	161	42	104	222	52	9	33	40	0	44.8	79.3	100.0	48.6	28.2	66.7	15.8	63.5	87.0	0.0	
Age at H2P Intake																					
19 and under	84	13	8	16	41	3	0	0	3	0	5.7	6.4	19.0	7.5	5.2	3.8	0.0	0.0	6.5	0.0	
20-21	143	22	10	14	90	4	2	0	1	0	9.7	10.8	23.8	6.5	11.4	5.1	3.5	0.0	2.2	0.0	
22-24	244	38	5	29	146	11	6	5	4	0	16.5	18.7	11.9	13.6	18.6	14.1	10.5	9.6	8.7	0.0	
25-29	313	48	3	40	166	16	13	16	11	0	21.2	23.6	7.1	18.7	21.1	20.5	22.8	30.8	23.9	0.0	
30-34	274	33	5	49	139	19	13	9	7	0	18.5	16.3	11.9	22.9	17.7	24.4	22.8	17.3	15.2	0.0	
35-49	348	44	9	47	177	19	18	19	15	0	23.5	21.7	21.4	22.0	22.5	24.4	31.6	36.5	32.6	0.0	
50+	71	4	2	18	28	6	5	3	5	0	4.8	2.0	4.8	8.4	3.6	7.7	8.8	5.8	10.9	0.0	
Unknown	2	1	0	1	0	0	0	0	0	0	0.1	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	
Pell Eligibility																					
Eligible	683	103	15	98	361	35	2	38	31	0	46.2	50.7	35.7	45.8	45.9	44.9	3.5	73.1	67.4	0.0	
Not eligible	594	14	27	54	426	43	1	14	15	0	40.2	6.9	64.3	25.2	54.1	55.1	1.8	26.9	32.6	0.0	
Unknown	202	86	0	62	0	0	54	0	0	0	13.7	42.4	0.0	29.0	0.0	0.0	94.7	0.0	0.0	0.0	

¹ Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 14. Distribution of the H2P Participants on Target Status for the Associate's Degree POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
TAA Status																				
Eligible	4	0	0	3	1	0	0	0	0	0	0.3	0.0	0.0	1.4	0.1	0.0	0.0	0.0	0.0	0.0
Not eligible	1,461	203	42	197	786	78	57	52	46	0	98.8	100.0	100.0	92.1	99.9	100.0	100.0	100.0	100.0	0.0
Unknown	14	0	0	14	0	0	0	0	0	0	0.9	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0
Veteran																				
Eligible Veteran	60	5	0	11	35	5	2	0	2	0	4.1	2.5	0.0	5.1	4.4	6.4	3.5	0.0	4.3	0.0
Not a Veteran	1,416	198	41	201	752	73	55	52	44	0	95.7	97.5	97.6	93.9	95.6	93.6	96.5	100.0	95.7	0.0
Unknown	3	0	1	2	0	0	0	0	0	0	0.2	0.0	2.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Employment at Intake																				
Nonemployed	296	33	18	52	163	11	13	3	3	0	20.0	16.3	42.9	24.3	20.7	14.1	22.8	5.8	6.5	0.0
Employed	1,118	170	17	162	574	67	44	49	35	0	75.6	83.7	40.5	75.7	72.9	85.9	77.2	94.2	76.1	0.0
Unknown	65	0	7	0	50	0	0	0	8	0	4.4	0.0	16.7	0.0	6.4	0.0	0.0	0.0	17.4	0.0
Highest Level of Education at Enrollment																				
Less than High School	2	0	0	1	1	0	0	0	0	0	0.1	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0
High School Diploma or GED	223	18	33	51	19	63	5	28	6	0	15.1	8.9	78.6	23.8	2.4	80.8	8.8	53.8	13.0	0.0
Some College, No Degree	328	182	6	70	44	0	17	6	3	0	22.2	89.7	14.3	32.7	5.6	0.0	29.8	11.5	6.5	0.0
Postsecondary Certificate	116	1	2	45	14	0	8	17	29	0	7.8	0.5	4.8	21.0	1.8	0.0	14.0	32.7	63.0	0.0
Associate's Degree	71	0	0	18	30	0	15	1	7	0	4.8	0.0	0.0	8.4	3.8	0.0	26.3	1.9	15.2	0.0
Bachelor's Degree or Higher	46	2	0	14	17	0	12	0	1	0	3.1	1.0	0.0	6.5	2.2	0.0	21.1	0.0	2.2	0.0
Unknown	693	0	1	15	662	15	0	0	0	0	46.9	0.0	2.4	7.0	84.1	19.2	0.0	0.0	0.0	0.0

Table 15. Distribution of H2P Participants on Demographic Characteristics for Multiple POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Total	1,663	88	184	408	111	153	86	185	240	208	100.0	5.0	11.0	25.0	7.0	9.0	5.0	11.0	14.0	13.0
Sex																				
Men	275	7	26	77	21	20	39	28	13	44	16.5	8.0	14.1	18.9	18.9	13.1	45.3	15.1	5.4	21.2
Women	1,386	81	158	330	90	132	47	157	227	164	83.3	92.0	85.9	80.9	81.1	86.3	54.7	84.9	94.6	78.8
Unknown	2	0	0	1	0	1	0	0	0	0	0.1	0.0	0.0	0.2	0.0	0.7	0.0	0.0	0.0	0.0
Race/Ethnicity¹																				
American Indian / Alaskan Native	7	1	0	2	0	0	0	2	1	1	0.4	1.1	0.0	0.5	0.0	0.0	0.0	1.1	0.4	0.5
Asian	40	5	1	5	6	7	4	5	4	3	2.4	5.7	0.5	1.2	5.4	4.6	4.7	2.7	1.7	1.4
Black	367	6	2	179	18	43	33	19	5	62	22.1	6.8	1.1	43.9	16.2	28.1	38.4	10.3	2.1	29.8
Latino	102	2	5	7	46	6	21	4	2	9	6.1	2.3	2.7	1.7	41.4	3.9	24.4	2.2	0.8	4.3
Multi-race	12	2		8	0	1	0	0	0	1	0.7	2.3	0.0	2.0	0.0	0.7	0.0	0.0	0.0	0.5
Native Hawaiian / Pacific Islander	5	2	1	1	0	1	0	0	0	0	0.3	2.3	0.5	0.2	0.0	0.7	0.0	0.0	0.0	0.0
Unknown	48		3	2	19	2	1	17	3	1	2.9	0.0	1.6	0.5	17.1	1.3	1.2	9.2	1.3	0.5
White	1082	70	172	204	22	93	27	138	225	131	65.1	79.5	93.5	50.0	19.8	60.8	31.4	74.6	93.8	63.0
Age at H2P Intake																				
19 and under	144	15	30	32	9	6	4	26	8	14	8.7	17.0	16.3	7.8	8.1	3.9	4.7	14.1	3.3	6.7
20-21	220	13	28	50	20	14	9	29	27	30	13.2	14.8	15.2	12.3	18.0	9.2	10.5	15.7	11.3	14.4
22-24	277	10	26	54	18	32	18	29	32	58	16.7	11.4	14.1	13.2	16.2	20.9	20.9	15.7	13.3	27.9
25-29	343	21	36	81	15	28	27	31	58	46	20.6	23.9	19.6	19.9	13.5	18.3	31.4	16.8	24.2	22.1
30-34	219	6	24	61	18	13	13	25	34	25	13.2	6.8	13.0	15.0	16.2	8.5	15.1	13.5	14.2	12.0
35-49	382	18	33	103	27	50	13	41	68	29	23.0	20.5	17.9	25.2	24.3	32.7	15.1	22.2	28.3	13.9
50+	76	5	7	26	4	9	2	4	13	6	4.6	5.7	3.8	6.4	3.6	5.9	2.3	2.2	5.4	2.9
Unknown	2	0	0	1	0	1	0	0	0	0	0.1	0.0	0.0	0.2	0.0	0.7	0.0	0.0	0.0	0.0
Pell Eligibility																				
Eligible	840	26	49	229	55	71	33	119	197	61	50.5	29.5	26.6	56.1	49.5	46.4	38.4	64.3	82.1	29.3
Not eligible	661	11	135	102	56	82	21	66	43	145	39.7	12.5	73.4	25.0	50.5	53.6	24.4	35.7	17.9	69.7
Unknown	162	51	0	77	0	0	32	0	0	2	9.7	58.0	0.0	18.9	0.0	0.0	37.2	0.0	0.0	1.0

¹ Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 16. Distribution of H2P Participants on Target Status for Multiple POS by College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
TAA Status																				
Eligible	14	1	1	4	0	4	1	2	1	0	0.8	1.1	0.5	1.0	0.0	2.6	1.2	1.1	0.4	0.0
Not eligible	1,649	87	183	404	111	149	85	183	239	208	99.2	98.9	99.5	99.0	100.0	97.4	98.8	98.9	99.6	100.0
Veteran																				
Eligible Veteran	60	1	4	12	2	2	11	2	13	13	3.6	1.1	2.2	2.9	1.8	1.3	12.8	1.1	5.4	6.3
Not a Veteran	1,596	87	180	395	109	151	75	183	227	189	96.0	98.9	97.8	96.8	98.2	98.7	87.2	98.9	94.6	90.9
Unknown	7	0	1	0	0	0	0	0	0	6	0.4	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	2.9
Employment at Intake																				
Nonemployed	508	23	97	116	35	45	28	53	65	46	30.5	26.1	52.7	28.4	31.5	29.4	32.6	28.6	27.1	22.1
Employed	1,068	65	55	292	69	99	58	132	147	151	64.2	73.9	29.9	71.6	62.2	64.7	67.4	71.4	61.3	72.6
Unknown	87	0	32	0	7	9	0	0	28	11	5.2	0.0	17.4	0.0	6.3	5.9	0.0	0.0	11.7	5.3
Highest Level of Education at Enrollment																				
Less than High School	9	1	0	0	1	0	7	0	0	0	0.5	1.1	0.0	0.0	0.9	0.0	8.1	0.0	0.0	0.0
High School Diploma or GED	583	17	143	107	10	143	17	79	67	0	35.1	19.3	77.7	26.2	9.0	93.5	19.8	42.7	27.9	0.0
Some College, No Degree	400	70	20	142	10	0	23	70	65	0	24.1	79.5	10.9	34.8	9.0	0.0	26.7	37.8	27.1	0.0
Postsecondary Certificate	288	0	4	101	1	0	3	15	94	70	17.3	0.0	2.2	24.8	0.9	0.0	3.5	8.1	39.2	33.7
Associate's Degree	120	0	6	38	4	0	6	10	13	43	7.2	0.0	3.3	9.3	3.6	0.0	7.0	5.4	5.4	20.7
Bachelor's Degree or Higher	44	0	7	20	3	0	2	11	1	0	2.6	0.0	3.8	4.9	2.7	0.0	2.3	5.9	0.4	0.0
Unknown	219	0	4	0	82	10	28	0	0	95	13.2	0.0	2.2	0.0	73.9	6.5	32.6	0.0	0.0	45.7

CHAPTER 3: CROSS CASE ANALYSIS OF H2P CONSORTIUM'S STRATEGIES

The purpose of this chapter is to provide a brief cross case analysis for each of the strategies implemented by the H2P Consortium as part of their effort to effect transformative change in healthcare education. The Consortium implemented the following eight strategies:

1. Online assessment and enhanced career guidance
2. Contextualized developmental education
3. Competency-based core curriculum
4. Industry-recognized stackable credentials
5. Enhanced retention support
6. Training programs for incumbent health professions workers
7. Enhance data and accountability systems
8. Galvanize a national movement

Where appropriate, the cross case analysis for each strategy addresses the following questions:

1. What strategies were offered by the H2P Consortium co-grantee colleges, and what were the intended outcomes of each strategy?
2. How was the strategy implemented, and how is participation distributed among the colleges?
3. What participants were engaged by each strategy, and how do they differ from participants who were not engaged by the strategy?

Our mixed methods analysis draws from the qualitative data gathered through the implementation evaluation and the quantitative data generated from the student level dataset created for the purposes of performance reporting and third-party evaluation. Implementation of each strategy is only briefly discussed in this chapter, as OCCRL's H2P implementation report describes the strategies and discusses their implementation by each college in greater detail. Readers interested in details related to strategy implementation can find this information in the *Third-party evaluation of implementation of the Health Professions Pathways (H2P) Consortium* available at: occril.illinois.edu/files/Projects/TAA/h2p-implemenation.pdf.

Strategy 1: Online Assessment and Enhanced Career Guidance

The first strategy employed by the H2P Consortium was *Online Assessment and Enhanced Career Guidance*. Central to this strategy was H2P colleges' efforts to award students credit for prior learning (CPL) through a variety of prior learning assessment strategies (PLA). The Council for Adult and Experiential Learning provides the following definition for PLA:

PLA is the process by which many colleges evaluate for academic credit the college-level knowledge and skills an individual has gained outside of the classroom (or from non-college instructional programs), including employment, military training/service, travel, hobbies, civic activities and volunteer service. (CAEL, 2010, p. 6)

The Consortium selected this strategy as a means to recognize the knowledge and skills gained by Trade Adjustment Act (TAA) eligible individuals, displaced workers, and incumbent workers through

previous work and life experience (H2P Consortium Proposal, 2011). Descriptive research has shown that students who earn CPL through a PLA process have higher graduation rates and shorter time to completion (CAEL, 2010; Hayward & Williams, 2015). The H2P Consortium proposal asserted these outcomes for students who earned CPL through the TAACCCT grant.

The co-grantee colleges utilized a variety of PLA methods for awarding CPL during the course of the grant (see Table 17), including a combination of assessments established prior to the grant and after the awarding of the grant. A tool adopted by seven of the nine co-grantee colleges was the Virtual Career Network (VCN), which is designed to provide career exploration and career guidance support and to assess students' foundational skills. The co-grantee colleges also differed on whether they awarded or waived credits through PLA, with colleges choosing to waive credits to avoid negatively impacting students' financial aid eligibility.

Table 17 describes the methods colleges used to award CPL, the number of credits granted/waived through CPL, the number of unique students who received CPL, and whether the students who received CPL were enrolled in an H2P POS. The H2P colleges had 415 students over the 3-year period from January 2012 through December 2014 who successfully earned CPL. In total, the colleges reported that these students either earned or had waived a total of 3,055.5 credits, with students earning CPL at eight of the nine co-grantee colleges.³ ACTC reported having PLA options for students, but only a small number had experiences to potentially qualify, and none of the H2P participants earned CPL. ACTC staff reported that these students preferred to take the coursework rather than participate in a PLA process.

Demographic characteristics of students who earned CPL are shown in Table 18. Across the H2P Consortium, 6.3% of H2P students earned CPL, with individual colleges ranging from 0% (ACTC) to 20.6% (JCTC). Much of the variation between colleges shows up where there are limited numbers of students in the subgroup served. For example, across H2P colleges, a total of 23 (3.1%) of Latino students earned CPL. Just five Latino students at JCTC earned CPL, but these five students were 31.3% of their Latino H2P students. However, there was some variation in demographic groups. Overall, when compared to H2P students who did not earn CPL, a higher percentage of CPL students were female (+9.9%), White (+8.8%), and nontraditional age (25 years and older, +10%).

CPL students' status in four target demographics groups (TAA eligible, veterans, unemployed, and low-skilled) is shown in Table 19. Also, highest level of educational enrollment is provided in Table 19 as an indicator of students' approximate level of skill. A higher percentage of students who earned CPL were employed at the time of intake (+21%) as compared to students who did not earn CPL.

³ Our analysis may under report the number of students who earned or received a CPL waiver because some colleges require students to earn a minimum number of college credits before CPL is awarded. Students who qualify for but have not yet been awarded CPL may not be included. Also, the number of students who enrolled in an H2P POS is conservative both because we were unable to assign students to a POS until they had completed at least one unique course in that POS, and some students had not done this prior to December, 2014, the last term for which OCCRL collected student level course data for this impact evaluation.

Table 17. Credit for Prior Learning (CPL) for H2P Participants by College (January 2012 through December 2014)

College	Prior Learning Assessment Methods	Credits Waived or Awarded	Total CPL Credits	Students with CPL	Mean No. CPL Credits Per Student	CPL Students in a H2P Program of Study	Programs of Study that Students Who Earned CPL Enrolled in ¹
Consortium Wide			3055.5	415	7.36	339	
ARCC	<ul style="list-style-type: none"> Advanced Placement Exams American Council of Education Guides Challenge Exams College Level Examination Program Exams DSST Credit by Examination Program Portfolio-Based Assessments Virtual Career Network 	Waived	52	52	1	52	<ul style="list-style-type: none"> LPN Mobility Nursing Associate in Science
ACTC	<ul style="list-style-type: none"> Advanced Placement Exams American Council of Education Guides Challenge Exams College Level Examination Program Exams Evaluation of Local Training Portfolio-Based Assessments Virtual Career Network 	N/A	0	0	0	N/A	N/A
CSTCC	<ul style="list-style-type: none"> Advanced Placement Exams Portfolio-Based Assessments Program Checklists Virtual Career Network 	Waived	242	66	3.84	59	<ul style="list-style-type: none"> Emergency Medical Services Health Information Technology Health Unit Coordinator MCH Completion Nurse Aid Training Practical Nursing
ECC	<ul style="list-style-type: none"> Advanced Placement Exams Challenge Exams College Level Examination Program Exams Dallas County Community College District's Health Career Resources Portfolio-Based Assessments Virtual Career Network 	Awarded	42	41	1.02	7	<ul style="list-style-type: none"> Associate Degree in Nursing Diagnostic Medical Sonography Paramedic
JCTC	<ul style="list-style-type: none"> Advanced Placement Exams Challenge Exams College Level Examination Program Exams Portfolio-Based Assessments 	Waived Awarded	1326	90	14.73	74	<ul style="list-style-type: none"> CLT LPN to ADN Medical Assisting Diploma Medical Office Administrative Assisting Medical Office Clinical Assisting Medical Office Radiography Pharmacy Technician II Practical Nursing

College	Prior Learning Assessment Methods	Credits Waived or Awarded	Total CPL Credits	Students with CPL	Mean No. CPL Credits Per Student	CPL Students in a H2P Program of Study	Programs of Study that Students Who Earned CPL Enrolled in ¹
MXC	<ul style="list-style-type: none"> Advanced Placement Exams Challenge Exams College Level Examination Program Exams Credit by Assessments Military Portfolio-Based Assessments Virtual Career Network (discontinued) 	Awarded	282	23	12.26	19	<ul style="list-style-type: none"> EMT Basic EMT-II LPN to PN Completion Personal Training
OCC	<ul style="list-style-type: none"> Advanced Placement Exams Challenge Exams College Level Examination Program Exams Credit by Assessments Proficiency Exams 	Awarded	785.5	84	9.35	67	<ul style="list-style-type: none"> Dental Assisting Expanded Functions Dental Auxiliary LPN to ADN Massage Therapy Medical Coding Practical Nursing Sterile Processing STNA
PTCC	<ul style="list-style-type: none"> Advanced Placement Exams American Council of Education Guides Challenge Exams College Level Examination Program Exams Evaluation of Local Training Virtual Career Network 	Awarded	92	13	7.08	13	<ul style="list-style-type: none"> Limited Scope X-Ray Medical Assistant Phlebotomy Practical Nurse Trained Medication Aide
TC	<ul style="list-style-type: none"> Advanced Placement Exams Challenge Exams College Level Examination Program Exams Non-Portfolio, Continuing Education Units to Semester Credit Hours Virtual Career Network 	Awarded	234	49	4.78	48	<ul style="list-style-type: none"> LVN to Associate' Degree in Nursing Vocational Nursing

¹ Includes all H2P-impacted POS that CPL students enrolled in between January 2012 and December 2014.

Table 18. Demographics of H2P Participants who Earned Credit for Prior Learning by College (January 2012 through December 2014)¹

Demographic	Number of CPL Students									Percentage of H2P Who Earned CPL								
	All H2P	ARCC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Sex																		
Men	43	9	8	5	3	6	6	1	5	3.4	18.4	1.8	1.7	4.9	3.3	8.1	2.5	5.5
Women	372	43	55	36	87	17	78	12	44	7.0	10.7	3.9	2.7	23.3	6.1	16.2	2.4	15.7
Unknown	0	-	0	0	0	-	-	-	-	0.0	-	0.0	0.0	0.0	-	-	-	-
Race/Ethnicity²																		
American Indian / Alaskan Native	2	0	0	0	0	0	2	0	0	6.5	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0
Asian	7	4	0	0	2	0	1	0	0	3.6	19.0	0.0	0.0	16.7	0.0	10.0	0.0	0.0
Black	115	1	34	15	18	15	13	0	19	6.5	2.0	4.1	6.0	13.3	5.9	17.6	0.0	17.1
Latino	23	1	1	3	5	3	8	1	1	3.1	6.3	4.8	0.6	31.3	2.8	28.6	20.0	6.3
Multi-race	0	0	0	0	0	-	-	-	0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.0
Native Hawaiian / Pacific Islander	2	0	2	-	0	-	-	-	0	3.9	0.0	6.1	-	0.0	-	-	-	0.0
Unknown	25	-	1	18	1	0	5	0	0	5.1	-	5.6	4.4	14.3	0.0	12.8	0.0	0.0
White	241	46	25	5	64	5	55	12	29	7.4	13.3	2.8	1.6	24.8	7.0	13.8	2.6	12.5
Age at H2P Intake																		
19 and under	16	2	4	0	0	1	7	0	2	2.3	3.8	2.5	0.0	0.0	1.6	7.2	0.0	4.3
20-21	27	4	6	4	3	2	5	0	3	3.3	6.7	3.3	1.9	7.0	3.4	6.1	0.0	4.7
22-24	80	17	10	8	18	2	11	4	10	7.5	22.7	4.0	2.8	22.8	2.4	13.6	6.2	10.6
25-29	96	13	19	7	14	4	23	2	14	7.8	13.3	6.0	2.2	16.9	4.3	25.3	1.8	20.0
30-34	75	8	10	12	21	4	12	1	7	8.3	15.7	3.7	4.7	38.9	8.0	16.2	1.3	17.1
35-49	105	6	13	10	30	7	22	5	12	7.2	6.4	2.8	2.9	24.4	7.7	19.0	3.5	24.5
50+	16	2	1	0	4	3	4	1	1	3.9	10.0	0.5	0.0	13.8	14.3	26.7	2.8	14.3
Unknown	0	0	0	-	0	-	-	-	-	0.0	0.0	0.0	-	0.0	-	-	-	-
Pell Eligibility																		
Eligible	176	23	30	12	34	3	48	11	15	6.4	15.0	5.0	1.6	14.2	2.7	13.0	2.9	15.3
Not eligible	173	0	14	29	56	2	36	2	34	7.3	0.0	3.9	3.3	28.4	2.3	19.4	1.3	13.5
Unknown	66	29	19	-	-	18	-	-	0	4.6	11.4	2.2	-	-	6.8	-	-	0.0

¹ACTC did not have students who received CPL during the January 1, 2012 to December 31, 2014 time period.

²Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

³Dashes indicate subgroups with no H2P students at the college.

Table 19. H2P Students who Earned Credit for Prior Learning by Target Status and by College (January 2012 through December 2014)

Target Populations	Number of Students									Percentage of H2P Who Earned CPL								
	All H2P	ARCC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
TAA Status																		
Eligible	2	-	-	-	-	-	-	-	-	3.3	0.0	0.0	0.0	14.3	0.0	0.0	0.0	-
Not eligible	413	52	63	41	88	23	84	13	49	6.4	11.6	3.6	2.5	20.9	5.1	15.2	2.4	13.2
Unknown	0	-	0	-	-	-	-	-	-	0.0	-	0.0	-	-	-	-	-	-
Veteran																		
Eligible Veteran	19	1	1	12	2	3	2	1	7	6.9	11.1	1.2	16.4	22.2	9.1	25.0	3.6	26.9
Not a Veteran	396	51	62	29	88	20	82	12	42	6.3	11.5	3.6	1.9	20.6	4.7	15.0	2.4	13.0
Unknown	0	-	0	-	-	-	-	-	0	0.0	-	0.0	-	-	-	-	-	0.0
Employment at Intake																		
Employed	361	46	56	35	77	20	77	8	42	19.1	41.1	9.6	8.7	77.0	10.6	51.7	6.7	45.7
Nonemployed	50	6	7	4	12	3	7	5	6	1.1	1.8	0.6	0.4	3.7	1.1	1.7	1.4	2.4
Unknown	4	0	0	2	1	-	-	0	1	1.6	0.0	0.0	2.2	8.3	-	-	0.0	3.1
Highest Level of Education at Enrollment																		
Less than High School	1	0	0	0	-	1	-	0	-	1.3	0.0	0.0	0.0	-	2.2	-	0.0	-
High School Diploma or GED	137	0	8	0	83	4	40	2	-	6.8	0.0	1.3	0.0	21.3	5.0	14.2	1.3	-
Some College, No Degree	106	52	21	9	-	5	15	4	-	6.7	16.0	3.6	3.8	-	4.8	9.0	3.1	-
Postsecondary Certificate	65	0	26	3	-	4	20	6	6	8.7	0.0	8.2	8.1	-	25.0	37.0	3.2	5.0
Associate's Degree	61	0	7	8	0	7	4	1	34	15.3	0.0	5.4	7.8	0.0	23.3	14.3	1.9	72.3
Bachelor's Degree or Higher	10	0	1	3	-	1	5	0	-	3.9	0.0	0.8	4.5	-	3.8	19.2	0.0	-
Unknown	35	0	0	18	7	1	0	0	9	2.3	0.0	0.0	1.8	15.2	0.6	0.0	0.0	4.4

¹ACTC did not have students who received CPL during the January 1, 2012 to December 31, 2014 time period.

²Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

³Dashes indicate subgroups with no H2P students at the college.

Strategy 2: Contextualized Developmental Education

The second strategy employed by the H2P Consortium was *Contextualized Developmental Education*. Mazzeo, Rab, and Alssid (2003) provide the following definition of contextualization:

A diverse family of instructional strategies designed to more seamlessly link the learning of foundational skills and academic or occupational content by focusing teaching and learning squarely on concrete applications in a specific context that is of interest to the student. (Mazzeo et al., 2003, pp. 3–4)

Theoretical support for contextualized developmental education is drawn from motivational, social learning, and cognitive theories (Kalchik & Oertle, 2010). Research has shown that contextualized learning positively impacts student learning, including gains related to basic skills; student progression in course work, such as developmental education course completion; entry into subsequent credit-bearing courses; and performance in college level courses (Perin, 2011).

The H2P Consortium selected contextualized education as a strategy to improve students' foundation skills and increase the likelihood that low-skilled students would earn a credential (H2P Consortium Proposal, 2011). H2P colleges' implemented two forms of contextualization in their approach to this strategy: 1) contextualized developmental education, and 2) integrated basic skills instruction. Contextualized developmental education is an instructional approach where contextual information from a discipline area is integrated into basic skill education in reading, writing, and/or math, and integrated basic skills instruction is an instructional approach where basic skills education in reading, writing, and/or math is integrated within a college-level course (Perin, 2011).

The scale developed by OCCRL to measure the level of implementation of all eight strategies extends from “not planned” to “scale up”.⁴ Results of this scale on contextualized developmental education are shown in Table 20. Seven of the H2P colleges implemented at least one contextualized development course wherein healthcare information was integrated into at least one basic skills area. However, in five of those colleges at least one of the contextualized developmental courses was discontinued by the end of the grant. Three colleges were still planning six courses when the OCCRL evaluation team made its last site visit in fall 2014. Seven co-grantee colleges implemented integrated basic skills instruction in healthcare courses, and five of these colleges integrated basic skills instruction into courses that were part of the Health Occupations Core Curriculum (HOCC) discussed below in Strategy Three. One college reported discontinuing its use of integrated basic skills instruction. In total, 21 healthcare courses with integrated basic skills were reported as sustainable by six co-grantee colleges.

⁴ The implementation levels are defined as follows:

- Not Planned: The College decided not to implement this strategy.
- Pre-Planning: The College committed to the strategy but has not started planning it.
- Planning: The College was engaged in a planning process to move forward with this strategy.
- Implementation: The College was engaged in implementation of the strategy.
- Sustainability: The strategy had been fully implemented, and the team was addressing sustainability of this strategy.
- Scale-Up: The strategy was broadened in scope and scale to fit other college needs or adapted/replicated to suit other colleges.
- Not Implemented: This was a strategy that the college elected not to bring to implementation during the course of the grant.
- Discontinued: This was a strategy that was implemented during the course of the grant, but the college discontinued.

Table 20. Level of Implementation of Contextualized Developmental Education with Health Content by Developmental Area at College (January 2012 through December 2014)

College	Developmental Mathematics	Developmental Reading	Developmental Writing	Health Courses with Integrated Developmental Content
ARCC	ABE effort Math for Health Sciences (MATH 0110) discontinued Developmental Mathematics Course not planned	ABE effort discontinued Developmental Reading Course was being planned	Elements of College Writing (ENGL 0950) course was sustained with the option to accelerate	Not planned
ACTC	Foundations of Math for Allied Health (AHS 95) course was discontinued	Not implemented	Not implemented	Five courses include developmental content (HST 101, HST 102, HST 103, AHS, 105, AHS 115)
CSTCC	Not implemented	Not implemented	Not implemented	Developmental content was integrated into Biology/Science Skills (BIO 100) and Integrated Bio for Anatomy and Physiology (BIO 198)
ECC	Health Professions Management (HPRS 2231) and was discontinued	Health Professions Management (HPRS 2231) was discontinued	Health Professions Management (HPRS 2231) was discontinued	Discontinued
JCTC	Integrated Content in Math 065 and Math 085 was sustainable	Integrated a Nursing Text in an ESL course, which was sustainable	Integrated an English Module on Accessing Research in Health Care (APA), which was sustainable	Five courses include developmental content (HST 101, HST 102, HST 103, AHS, 105, AHS 115)
MXC	Developmental Math Course was being planned	Developmental Reading Course was being planned	Developmental Writing Course was being planned	Health Information Management (HIM 101, 102, 103, 104), Health Professions, and Exercise (HEAPRO 102), and Sports studies (ESSS 101, 102)
OCC	Discontinued but workbook was sustainable	Discontinued after two semesters	Not implemented	Not implemented
PTCC	Modules in Math Concepts (MATH 0250) and Math Foundations (MATH 0201) were sustainable	Modules in Reading Strategies I and II (READ 0100, 0210) were sustainable	Modules in Writing Foundation I II and III (ENGL 0100, 0230, 0220) were sustainable	Implemented developmental education supplements to core curriculum course HCCC 1215
TC	Healthcare Mathematics was discontinued	Developmental Reading Course were being planned	Developmental Writing Modules were being planned	Body Systems (NURA 1407) is a for-credit developmental course aimed at students who need support for anatomy and physiology course

The implementation levels are defined as follows:

- Not Planned: The College decided not to implement this strategy.
- Pre-Planning: The College committed to the strategy but has not started planning it.
- Planning: The College was engaged in a planning process to move forward with this strategy.
- Implementation: The College was engaged in implementation of the strategy.
- Sustainability: The strategy had been fully implemented, and the team was addressing sustainability of this strategy.
- Scale-Up: The strategy was broadened in scope and scale to fit other college needs or adapted/replicated to suit other colleges.
- Not Implemented: This was a strategy that the college elected not to bring to implementation during the course of the grant.
- Discontinued: This was a strategy that was implemented during the course of the grant, but the college discontinued.

Strategy 3: Competency-Based Core Curriculum

The third strategy employed by the H2P Consortium was the implementation of a *Competency-Based Core Curriculum*. For over 20 years there has been a call for integrated and cross-professional education across health professions education focused on building a foundational set of shared competencies (Pew, 1995). McPherson (2004) defines a Health Occupations Core Curriculum (HOCC) as follows:

A set of interdisciplinary courses, clinical training, and other educational exposures designed to provide allied health students at each level with the common knowledge, skills, and values necessary to perform effectively in the evolving health care workplace. (McPherson, 2004, p. 30)

Four potential benefits of HOCC are discussed in the literature. First, students are exposed to a full array of health occupations pathways and subsequently better informed in their selection of a POS (McPherson, 2004; Wolfson, & Lavelle, 1991). Second, students are better prepared for the rigor of study in healthcare education and more likely to be retained and complete their POS (Wolfson & Lavelle, 1991). Third, students enter their POS with foundational knowledge and skills that they can scaffold on new discipline specific knowledge, improving their mastery of discipline specific skills (Wolfson & Lavelle, 1991). Fourth, health careers become more accessible to underserved populations, including low-income and minority students (McPherson, 2004). Improved student outcomes including higher retention of students, higher rates of completion, and improved employability are also reported, and these improved student outcomes boost the college's reputation and financial resources, and stabilize health occupations POS (McPherson, 2004). Moreover, healthcare professionals who share a foundation of knowledge taught across interdisciplinary fields of study strengthen understanding of the roles various health disciplines play and use that knowledge to better serve their patients, adapt to emerging changes, and collaborate in cross-disciplinary teams (Pew, 1995; Wolfson, & Lavelle, 1991). In addition, the H2P Consortium proposal stated HOCC was selected as a strategy for implementation and scaling because it was expected to reduce redundant coursework, maximize resources (e.g. faculty, space), support interdisciplinary collaboration, and improve mobility for lower-skilled workers (H2P Consortium Proposal, 2011).

One co-grantee college, ECC, had 10 years of experience in developing and implementing a competency-based HOCC prior to the H2P grant. The H2P Consortium capitalized on ECC's expertise with curriculum reform and invited ECC personnel to lead a community of practice to provide a wide array of technical assistance and mentoring to colleges in and outside of the H2P Consortium. Whereas ECC's HOCC operated as a model for other colleges, the ECC team recognized early in the grant that other colleges were likely adopt and adapt the HOCC to make it fit their own local circumstances (Fleming, 2015). As the model for the Consortium, ECC's HOCC consists of six courses that align with one or more healthcare POS, and there are a total of 12 POS that incorporate one or more HOCC courses.

The HOCC implemented by the co-grantee colleges varied notably, and these findings are explained in detail in the *H2P Implementation Evaluation Report* (OCCRL, 2015). A description of the HOCC implemented by each co-grantee college is provided in Table 21.

As of December 31, 2012, 40 courses had been developed by the H2P Consortium that were part of an HOCC, which represented a combination of 20 newly implemented courses and 20 existing but enhanced courses. Five of these courses had not enrolled any H2P students during the course of the 3-year period of the grant, between January 1, 2012 and December 31, 2014. In total, there were 3,682 student-course enrollments in HOCC courses across the Consortium, and 2,202 unique H2P students

enrolled in at least one HOCC course. The overall pass rate for students in HOCC courses was 97.5%. In addition, the H2P Consortium used grant funds to work with Cinécraft Productions to develop 10 e-learning modules to support and supplement learning in HOCC courses. These modules are case-based, interactive, and published as open source. Although designed to complement courses in the HOCC, the modules can be used to supplement a wide range of nursing and allied healthcare courses because they are designed to intentionally represent a wide range of clinical settings, clinical roles, and patients. Table 22 provides a listing of the HOCC courses and enrollments in each co-grantee college.

The demographic characteristics of students who enrolled in HOCC courses are found in Tables 23 and 24. Across the H2P Consortium, 33.5% of H2P participants enrolled in HOCC courses, with individual colleges ranging from 2.0% (ACTC) to 77.9% (ECC) of their H2P participants. When compared to H2P students who did not enroll in HOCC courses, a higher percentage of students who enrolled in HOCC courses were Latino (+15.3%) and a smaller percentage of HOCC student were either Black (-10.4) or White (-19.3%). Finally, in comparison to students who did not enroll in HOCC courses, a lower percentage of students who enrolled in HOCC courses reported their highest level of education at enrollment as a high school diploma or GED (-11.5%).

Table 21. Health Occupations Core Curriculum (HOCC) by College (January 2012 through December 2014)

College	No. Courses in HOCC	No. Credit Hrs. Possible in HOCC	HOCC Credentials	No. Unique Students who Enrolled in 1 or More HOCC Course	No. Unique Students who Passed 1 or More HOCC Course	No. Courses Passed	Mean No. HOCC Courses Passed by Students ¹	Related Programs of Study ²
ARCC	1 course	3	N/A	9	9	9	1.00	HOCC course recommended for Pharmacy Technician Certificate and Physical Therapist Assistant; an elective in Integrative Health and Healing; recommended to students not admitted to Nursing
ACTC	8 courses total: 6 HOCC courses and 2 medical terminology courses	18	Basic Health Care Foundations Certificate (4 courses, 9 completers) Intermediate Health Care Foundations Certificate (3 courses, 0 completers)	131	119	171	1.44	HOCC credentials stack with the AAS Health Science Technology program
CSTCC	1 course	6	N/A	239	209	211	1.01	
ECC	7 courses	15	N/A	1,262	1,225	2,328	1.90	HOCC courses incorporated in 12 programs of study at ECC, ranging from one required HOCC course to six required courses.
JCTC	7 courses total: 6 HOCC courses and 1 medical terminology course	18	Basic Health Care Foundations Certificate (4 courses, 17 completers) Intermediate Health Care Foundations Certificate (3 courses, 1 completer)	93	84	111	1.32	HOCC credentials stack with the AAS Health Science Technology program
MXC	2 courses	9	N/A	75	71	91	1.28	HEAPRO 102 required for all health programs except Respiratory Therapy program
OCC	5 courses	16	N/A	209	203	445	2.19	HOCC courses required vary across healthcare programs
PTCC	3 courses	6	N/A	50	45	81	1.80	HOCC is a pre-requisite substitute for the Practical Nursing and the Long Term Care Assistant certificate programs
TC	6 courses	18	N/A	134	133	144	1.08	HOCC courses are part of some programs of study and the college is exploring expanding the number of related programs that incorporate one or more HOCC courses

¹Mean number of HOCC courses taken by students who took one or more HOCC courses.

²Related POS: a) require HOCC courses as prerequisite, b) require HOCC courses, c) provide selective admissions preference to students enrolled in HOCC courses, and d) are stackable with HOCC. There may be additional programs not listed that where HOCC courses are an approved elective course.

Table 22. Health Occupations Core Curriculum (HOCC) Courses by College (January 2012 through December 2014)

College	Course No.	Course Name	Status	Credit Hours	Terms Offered During Grant	No. Students Enrolled ¹	No. Students Passed ²	Percent Passed	No. Credits Attempted	No. Credits Earned
ARCC	HCCC 1000	Introduction to Health Careers	New	3	Fall 2013, Spring and Fall 2014	9	9	100	27	27
ACTC	HST 101	Health Care Basic Skills I	New	3	Fall 2013, Spring and Fall 2014	22	22	100	66	66
	HST 102	Health Care Delivery and Management	New	3	Spring and Fall 2014	10	10	100	30	30
	HST 103	Health Care Communication	New	2	Fall 2013, Spring 2014	11	11	100	22	22
	HST 121	Pharmacology	New	2	Fall 2013, Spring and Fall 2014	12	11	92	26	22
	HST 122	Clinical Pathophysiology (Prerequisite: College Level Biology)	New	3	Fall 2013, Spring and Fall 2014	5	5	100	15	15
	HST 123	Health Care Basics Skills II	New	2	Fall 2013, Spring 2014	12	12	100	24	24
	AHS 115	Medical Terminology (Students take either AHS 115 or CLA 131)	Enhanced	3	Summer and Fall 2012, Spring and Fall 2013, Spring 2014	28	26	93	87	78
	CLA 131	Medical Terminology	Enhanced	3	Spring, and Summer 2012, Spring, Summer, and Fall 2013, Spring and Fall 2014	85	74	87	267	222
CSTCC	BIO 100	Integrated Biology and Skills for Success in Science	Enhanced	6	Fall 2013, Spring 2014, Fall 2014	239	211	88	1,488	1,266
ECC	HPRS 1004	Basic Health Profession Skills	Enhanced	2	Summer and, Fall 2013	41	41	100	0	0
	HPRS 1202	Wellness and Health Promotion	Enhanced	2	Spring, Summer, and Fall 2012, Spring, Summer, and Fall 2013, Spring, Summer, and Fall 2014	147	146	99	296	292
	HPRS 1204	Basic Health Profession Skills	Enhanced	2	Spring, Summer, and Fall 2012, Spring, Summer, and Fall 2013, Spring, Summer, and Fall 2014	1,165	1,159	99	2,420	2,318
	HPRS 2201	Pathophysiology	Enhanced	2	Spring, Summer, and Fall 2012, Spring, Summer, and Fall 2013, Spring, Summer, and Fall 2014	245	245	100	508	490
	HPRS 2210	Basic Health Profession Skills II	Enhanced	2	Spring, Summer, and Fall 2012, Spring, Summer, and Fall 2013, Spring and Fall 2014	191	188	98	382	376
	HPRS 2300	Pharmacology/Health Professions	Enhanced	3	Spring, Summer, and Fall 2012; Spring, Summer, and Fall 2013; Spring, Summer and Fall 2014	325	325	100	990	975
	HPRS 2231	General Health Professions Management	Enhanced	2	Spring, Summer, and Fall 2012; Spring, Summer, and Fall 2013; Spring, Summer, and Fall 2014	230	224	97	472	448
JCTC	AHS 115	Medical Terminology	Enhanced	3	Spring, Summer, and Fall 2012; Spring, Summer, and Fall 2013; Spring and Fall 2014	76	69	91	234	207
	HST 101	Health Care Basic Skills I	New	3	Fall 2013, Spring and Summer 2014	17	14	82	51	42

College	Course No.	Course Name	Status	Credit Hours	Terms Offered During Grant	No. Students Enrolled ¹	No. Students Passed ²	Percent Passed	No. Credits Attempted	No. Credits Earned
JCTC	HST 102	Health Care Delivery and Management	New	3	Fall 2013, Summer and Fall 2014	8	6	75	24	18
	HST 103	Health Care Communication	New	2	Fall 2013, Spring and Fall 2014	12	9	75	24	18
	HST 121	Pharmacology	New	2	Fall 2013, Spring 2014	4	4	100	8	8
	HST 122	Clinical Pathophysiology	New	2	Spring and Fall 2014	9	8	89	27	27
	HST 123	Health Care Basic Health Skills II	New	3	N/A	0	0	0	0	0
MXC	HEAPRO 101	Health Professions 101	Enhanced	6	Fall 2013, Spring 2014	24	24	100	144	144
	HEAPRO 102	Health Professions 102	New	3	Fall 2013; Spring, Summer, and Fall 2014	72	67	93	216	201
OCC	BIO 211	Anatomy and Physiology I	Enhanced	4	Spring, Summer, and Fall 2012; Spring, Summer, and Fall 2013; Spring, Summer, and Fall 2014	144	144	100	620	576
	BIO 212	Anatomy and Physiology II	Enhanced	4	Spring, Summer, and Fall 2012; Spring, Summer, and Fall 2013; Spring, Summer, and Fall 2014	132	132	100	552	528
	HIT 125	Language of Medicine	Enhanced	3	Spring, Summer, and Fall 2012; Spring, Summer, and Fall 2013; Spring, Summer, and Fall 2014	99	95	96	306	285
OCC	HIT 231	Pharmacology	Enhanced	2	Fall 2012, Spring and Fall 2013, Spring 2014	35	35	100	70	70
	HIT 236	Pathophysiology	Enhanced	3	Spring, Summer, and Fall 2012; Spring and Summer 2013; Spring, Summer, and Fall 2014	39	39	100	117	117
PTCC	HCCC 1210	Skills Set	New	2	N/A	0	0	0	0	0
	HCCC 1215	Introduction to Health Careers 1	New	2	Fall 2012, Spring and Fall 2013; Spring, Summer, and Fall 2014	50	45	90	102	90
	HCCC 1220	Introduction to Health Careers 2	New	2	Fall 2012, Spring and Fall 2013, Spring and Summer 2014	39	36	92	80	72
TC	BIOL 2401	Anatomy & Physiology I	Enhanced	4	N/A	0	0	0	0	0
	BIOL 2402	Anatomy & Physiology II	Enhanced	4	N/A	0	0	0	0	0
	HPRS 1201	Introduction to Health Professions	New	2	N/A	0	0	0	0	0
	HPRS 1304	Basic Health Profession Skills	New	3	Spring, Summer, and Fall 2013; Spring 2014	10	10	100	30	30
	RNSG 1201	Pharmacology	Enhanced	2	Spring, Summer, and Fall 2012; Spring, Summer, and Fall 2013; Spring, Summer, and Fall 2014	128	128	100	260	256
	SPNL 1301	Health Care Spanish	New	3	Summer 2013	7	6	86	21	18

¹ Excludes students who withdrew from the course.

² Students who passed received final grades of A, B, C, CP, or D.

Table 23. Demographic Distribution of H2P Participants Enrolled in HOCC Courses by College (January 2012 through December 2014)

College	Number of Students										Percentage of Students Who Enrolled in HOCC Courses									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Sex																				
Men	373	2	22	60	222	12	19	23	1	12	29.1	4.1	46.8	13.6	74.0	19.7	10.6	31.1	2.5	13.2
Women	1,828	7	109	179	1039	81	56	186	49	122	34.6	1.7	42.4	12.8	78.9	21.7	20.0	38.6	9.9	43.4
Race/Ethnicity¹																				
American Indian / Alaskan Native	7	0	-	1	3	0	0	2	0	1	22.6	0.0	-	20.0	50.0	0.0	0.0	33.3	0.0	100.0
Asian	99	3	1	4	83	3	0	4	0	1	51.6	14.3	100.0	19.0	81.4	25.0	0.0	40.0	0.0	33.3
Black	437	0	3	99	179	27	56	21	1	51	24.9	0.0	60.0	11.8	71.3	20.0	22.0	28.4	2.6	45.9
Latino	473	0	2	3	433	4	16	6	1	8	63.5	0.0	40.0	14.3	81.7	25.0	14.8	21.4	20.0	50.0
Multi-race	2	0	0	1	1	0	-	-	-	0	8.7	0.0	0.0	25.0	33.3	0.0	-	-	-	0.0
Native Hawaiian / Pacific Islander	8	1	-	2	0	2	-	-	-	3	15.7	25.0	-	6.1	0.0	28.6	-	-	-	42.9
Unknown	360	-	1	1	338	1	2	16	1	0	72.7	-	33.3	5.6	82.2	14.3	33.3	41.0	10.0	0.0
White	816	5	124	128	225	56	1	160	47	70	24.9	1.4	42.8	14.3	71.0	21.7	1.4	40.1	10.1	30.2
Age at H2P Intake																				
19 and under	225	9	24	21	112	6	13	30	4	14	33.0	17.3	38.7	13.3	81.8	25.0	20.3	30.9	9.8	29.8
20-21	314	0	26	16	189	6	10	36	9	21	38.7	0.0	51.0	8.7	88.7	14.0	17.2	43.9	15.8	32.8
22-24	382	0	14	44	219	19	9	30	3	44	36.0	0.0	33.3	17.5	75.5	24.1	10.8	37.0	4.6	46.8
25-29	424	0	23	55	250	16	10	36	10	23	34.4	0.0	42.6	17.4	80.1	19.3	10.8	39.6	8.8	32.9
30-34	312	0	20	37	191	9	8	26	8	13	34.5	0.0	57.1	13.9	75.2	16.7	16.0	35.1	10.1	31.7
35-49	453	0	20	54	246	32	20	46	14	16	30.9	0.0	40.0	11.8	72.4	26.0	22.0	39.7	9.9	32.7
50+	90	0	4	10	55	5	5	5	2	3	22.2	0.0	36.4	5.2	74.3	17.2	23.8	33.3	5.6	42.9
Unknown	2	0	-	2	-	0	-	-	-	-	22.2	0.0	-	28.6	-	0.0	-	-	-	-
Pell Eligibility																				
Eligible	1,110	3	39	153	597	49	33	139	40	57	40.1	2.0	49.4	25.7	81.0	20.5	30.0	37.6	10.4	58.2
Not eligible	1,037	4	92	67	665	44	11	70	10	74	43.5	9.1	40.7	18.7	75.3	22.3	12.6	37.6	6.7	29.4
Unknown	55	2	-	19	-	-	31	-	-	3	3.9	0.8	-	2.2	-	-	11.8	-	-	13.6

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

²Dashes indicate subgroups with no H2P students in that category at the college.

Table 24. H2P Participants who Enrolled in HOCC Courses by Target Status and by College (January 2012 through December 2014)

College	Number of Students										Percentage of Students										
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	
TAA Status																					
Eligible	15	0	0	4	5	3	0	2	1	-	24.6	0.0	0.0	14.3	83.3	21.4	0.0	66.7	100.0	-	
Not eligible	2,187	9	131	235	1,257	90	75	207	49	134	34.0	2.0	43.1	13.5	77.9	21.3	16.5	37.4	9.2	36.0	
Unknown	0	-	-	0	-	-	-	-	-	-	0.0	-	-	0.0	-	-	-	-	-	-	
Veteran																					
Eligible Veteran	92	0	3	17	50	5	8	3	1	5	33.5	0.0	42.9	20.7	68.5	55.6	24.2	37.5	3.6	19.2	
Not a Veteran	2,104	9	128	220	1,212	88	67	206	49	125	33.6	2.0	43.1	12.6	78.3	20.6	15.7	37.6	9.7	38.7	
Unknown	6	-	0	2	-	-	-	-	-	4	17.1	-	0.0	18.2	-	-	-	-	-	17.4	
Employment at Intake																					
Nonemployed	624	3	70	55	340	28	32	51	12	33	14.1	0.9	64.8	4.4	30.2	8.6	11.8	12.5	3.4	13.3	
Employed	1,472	6	42	184	853	64	43	158	33	89	77.8	5.4	28.6	31.5	212.7	64.0	22.9	106.0	27.5	96.7	
Unknown	106	0	19	0	69	1	-	-	5	12	41.7	0.0	38.0	0.0	75.0	8.3	-	-	8.1	37.5	
Highest Level of Education at Enrollment																					
Less than High School	12	0	0	0	6	-	6	-	0	-	16.0	0.0	0.0	0.0	66.7	-	13.0	-	0.0	-	
High School Diploma or GED	504	1	102	77	111	79	16	102	16	-	25.1	0.9	42.9	12.9	71.6	20.3	20.0	36.3	10.2	-	
Some College, No Degree	417	7	18	82	202	-	20	72	16	-	26.4	2.2	51.4	14.0	85.6	-	19.0	43.4	12.6	-	
Postsecondary Certificate	167	1	2	51	30	-	1	24	16	42	22.5	50.0	22.2	16.0	81.1	-	6.3	44.4	8.6	34.7	
Associate's Degree	132	0	5	13	87	0	0	5	2	20	33.0	0.0	62.5	10.0	84.5	0.0	0.0	17.9	3.8	42.6	
Bachelor's Degree or Higher	78	0	3	14	54	-	1	6	0	-	30.5	0.0	37.5	11.7	80.6	-	3.8	23.1	0.0	-	
Unknown	892	0	1	2	772	14	31	0	0	72	59.1	0.0	16.7	2.5	76.2	30.4	19.7	0.0	0.0	35.3	

¹Dashes indicate subgroups with no H2P students at the college.

Strategy 4: Industry-Recognized Stackable Credentials

The fourth strategy employed by the H2P Consortium was *Industry-Recognized Stackable Credentials*. Central to this strategy was short-term industry-recognized credentials that prepare students for entry-level positions in a healthcare career pathway. The Employment and Training Administration provides the following definitions for industry-recognized and stackable credentials:

Industry-Recognized Credential. An industry-recognized credential is one that either is developed and offered by or endorsed by a nationally-recognized industry association or organization representing a sizeable portion of the industry sector, or a credential that is sought or accepted by companies within the industry sector for purposes of hiring or recruitment which may include credentials from vendors of certain products. Consumers should be aware that in some industry sectors there may be more than one major industry association and that they may endorse or promote different credentials, and that the credentials that are sought by individual companies in an industry can vary by geographic region, by company size, or based on what product or equipment the company uses and needs workers to be able to operate. (Oates, 2010, p. 6)

Stackable Credential. A credential is considered stackable when it is part of a sequence of credentials that can be accumulated over time to build up an individual's qualifications and help them to move along a career pathway or up a career ladder to different and potentially higher-paying jobs. For example, one can stack a high school diploma, an associate's degree, and then typically obtain two more years of appropriate postsecondary education to obtain a bachelor's degree. An individual can also stack an interim career/work readiness or pre-apprenticeship certificate, then complete an apprenticeship, and later earn a degree or advanced certification. (Oates, 2010, p. 6-7)

The literature on industry-recognized stackable credentials describes them as central characteristics of career pathways (Kozumplik, Nyborg, Garcia, Cantu, & Larson, 2011). When aligned to industry needs, there are two cited benefits of industry-recognized stackable credentials. First are benefits to students who are more likely to complete a POS, gain labor market experiences, secure employment, and experience greater career mobility and enhanced job security (Oates, 2010, p. 6). Second are benefits to employers who gain access to increasingly skilled and experienced employees, helping to meet employers' labor needs (Austin, Mellow, Rosin, & Seltzer, 2012). The H2P Consortium selected industry-recognized stackable credentials with the goal of accelerating time to completion and streamlining pathways to the labor market for students. Additionally, this strategy was selected to provide students with opportunities for career advancement and to provide security against labor market changes.

Eleven sets of stackable credentials were developed or enhanced through the H2P grant (see Table 25). Six colleges sought to create new entry-level credentials that stacked with existing or new POS within a healthcare pathway (H2P Consortium Proposal, 2011). As of December 2014, five colleges implemented new industry-recognized stackable credentials, including a total of 13 new POS in 11 sets of stackable credentials. The majority of stackable credential pathways included Associate's Degrees, with just two of the nine pathways stacking certificates only. Table 25 reveals that many POS had a limited number of completers as of December 2014, due in part to there being too limited time for students to progress to secure multiple credentials.

Across the Consortium, 15% of credential earners, or 356 students, earned multiple credentials by Fall 2014. Additionally, of the 2,263 participants who earned a credential, 810 were enrolled in Fall 2014. For the 287 students who earned credentials in this term, we did not know if the students had

completed their studies at the college or if they would continue their studies towards an additional credential. However, removing these students from the total, we estimate 523 students were continuing their studies after having earned at least one credential. Table 26 shows the number of students who earned at least one credential and were still enrolled, as well as the number of students who earned multiple credentials in any pathway between January 2012 and December 2014.

Table 25. Industry-Recognized Stackable Programs of Study by College (January 2012 through December 2014)

College ¹	Set	Programs of Study	Program Type	New or Enhanced Program	Minimum No. Credits Required to Complete	No. of Completers
ARCC	Set 1	Pharmacy Technician	Diploma	New	27	9
		Pharmacy Technology/General Occupational/Technical Studies ²	AAS Degree	New	60	0
ACTC	Set 1	Basic Health Care Foundations	Certificate	New	11	19
		Intermediate Health Care Foundations	Certificate	New	18	0
		Health Science Technology	AAS Degree	Enhanced	60	0
	Set 2	Emergency Medical Services, Paramedic	Certificate	Enhanced	51	7
		Emergency Medical Services, Paramedic	AAS Degree	New	63	7
	Set 3	Retail Pharmacy Technician	Certificate	Enhanced	21	7
		Pharmacy Technician I	Certificate	Enhanced	27	8
		Pharmacy Technician II	Certificate	Enhanced	63	8
	JCTC	Set 1	Basic Health Care Foundations	Certificate	New	11
Intermediate Health Care Foundations			Certificate	New	18	1
Health Science Technology			AAS Degree	Enhanced	60	0
Set 2		Pharmacy Technician I	Certificate	Enhanced	20	29
		Pharmacy Technician II	Certificate	Enhanced	37	22
Set 3		Medical Assisting	Diploma	Enhanced	50	34
		Medical Assisting	AAS Degree	New	60	0
MXC	Set 1	Emergency Medical Technician	Certificate	Enhanced	8	6
		EMT I Paramedic	Certificate	Enhanced	34	81
		EMT II Paramedic	AAS Degree	Enhanced	61	48
	Set 2	Basic Nursing Assistant	Certificate	Enhanced	7	32
		LPN/RN Completion	Certificate	New	20	44
		Nursing	AAS Degree	Enhanced	69	36
	Set 3	Medical Billing	Certificate	Enhanced	18	13
		Medical Coding	Certificate	New	38	0
PTCC	Set 1	EKG/EKA	Certificate	New	3	6
		Phlebotomy	Certificate	New	4	1
		Medical Assisting	AAS Degree	New	60	15

¹CSTCC, ECC, OCC, and TC had not implemented new industry-recognized stackable POS as of December 31, 2014.

²Not an H2P impacted POS.

Table 26. H2P Participants who Earned Multiple Credentials by College (January 2012 through December 2014)

College	Students Awarded at Least One College Credential ¹	Credential Earners Still Enrolled in Fall 2014	Students Awarded Multiple College Credentials ¹	Percentage Awarded Multiple Credentials	No. of Students by Number of Credentials Awarded ²						Students Awarded Multiple Credentials that Included an Associate's Degree	Percentage of Multiple Credential Earners Who Awarded an Associate's Degree
					2	3	4	5	6	7		
Consortium Wide	2,263	810	356	15.7	253	47	18	5	25	8	204	57.3
ARCC	205	81	22	10.7	22	0	0	0	0	0	22	100.0
ACTC	100	46	26	26.0	12	8	5	0	1	0	24	92.3
CSTCC	454	172	27	5.9	26	1	0	0	0	0	5	18.5
ECC	292	64	2	0.7	2	0	0	0	0	0	2	100.0
JCTC	192	53	109	56.8	39	21	12	5	24	8	81	74.3
MXC	280	101	43	15.4	39	4	0	0	0	0	16	37.2
OCC	281	144	22	7.8	20	2	0	0	0	0	18	81.8
PTCC	287	104	82	28.6	72	9	1	0	0	0	22	26.8
TC	172	45	23	13.4	22	1	0	0	0	0	14	60.9

¹The data in this table include all credentials earned by H2P students between January 1, 2012 and December 31, 2014, including those not in healthcare fields. Credentials earned by students previous and subsequent to this point are excluded.

²The number of credentials earned by all H2P participants, including those continuing their studies as of Fall 2014.

Strategy 5: Enhanced Retention Support

The fifth strategy employed by the H2P Consortium was *Enhanced Retention Support Services* (ERSS). Research suggests that individualized student advising and other student supports improve student outcomes as evidenced in increased course registration and credits earned, and improved retention rates and graduation rates (Bettinger & Baker, 2013; Scrivener & Weiss, 2009). Students who receive ERSS may also be more likely to apply for and be awarded financial assistance (Scrivener & Weiss, 2009). Studies have also shown that student support services and career development improve access to career pathways for underserved populations, improve retention of students in POS, and improve students' transition from education to the workforce (Summer, 2003; Tatham, 2009).

H2P used a 4-pronged approach to provide students with ERSS (H2P Consortium Proposal, 2011). The first prong was to build relationships with community-based organizations (CBOs) and workforce partners to gain their support in identifying potential students and provide resources to support these students in achieving their educational and career goals. Specifically, H2P envisioned a partnership with workforce development that could be leveraged to identify and refer potential students, provide services that support the colleges' efforts to meet student needs, and support job placement. The second prong involved providing students with career planning services, including the use of the VCN. The third prong was the provision of intrusive or proactive advising where staff would provide individualized relationship based comprehensive supports, including identifying and demonstrating concern for students at risk of dropping out. The fourth prong is technology assisted employment services. Specifically, colleges implemented new systems for tracking their retention services, and they tested using text messaging to provide employment information to students and graduates. The co-grantee colleges collaborated on the adoption of this strategy, but the implementation of this strategy was adapted to meet the needs of students at each college. Table 27 presents the ERSS by college.

OCCRL studied ERSS using data from CSTCC, OCC, and PTCC given that these three colleges adopted Blumen early in the grant and consistently used the platform to track retention services. Although the number of ERSS provided to H2P participants and the data collected by these three colleges on the provision of these services is extensive, it is possible that not all services provided to students were documented by the colleges and/or provided to OCCRL. The ERSS are therefore referred to as "documented" rather than "provided" services to reflect this distinction. OCCRL team members coded H2P ERSS documented by the grant staff at CSTCC, OCC, and PTCC into seven categories. The first five categories were adopted from McDonnell, Soricone, and Sheen (2014) to reflect five components of comprehensive student supports: academic advising, nonacademic advising, career services, financial services, and social services and counseling. We added two additional categories, assessment and employment services, to reflect priorities given to these services by the H2P Consortium. The full list of seven categories follows:

Academic Advising assists student to navigate and successfully engage in their academic pathways. Examples of H2P ERSS included in the academic advising category are academic tutoring, advising program plan, satisfactory academic progress meeting, and goal setting for students.

Assessments provide an assessment of students' academic and employment related skills. Examples of H2P ERSS including in the assessment category are National Career Readiness Certificate (NCRC) Profile (fit, talent, or performance) and ACT KeyTrain Assessments (WorkKeys locating information, math, or reading assessments).

Career Services engages students in the selection of career pathways and setting career goals. Examples of H2P ERSS included in the career services category are career counseling, career workshops, and career exploration through the Virtual Career Network.

Employment Services supports students' transitions into employment and along their career pathway. Examples of H2P ERSS included in the employment services category are job counseling/job seeking, job coaching, resume writing, job search, and mock interviews.

Financial Services assists students in navigating the financial aid system, building their financial skills, and otherwise financing their postsecondary studies. Examples of H2P ERSS included in the financial services category are financial aid counseling, education/counseling to improve financial and economic literacy, FAFSA application process, and scholarships.

Nonacademic Advising fosters student students' ability to navigate and access college resources and builds students' sense of connection to the college. Examples of H2P ERSS included in the nonacademic advising category are discussing support service resources, online resources, and orientation and group meetings.

Social Services and Counseling assists students in managing their personal lives in order to support persistence in and completion of their studies. Examples of H2P ERSS included in social services and counseling are personal counseling and exit interviews.

Table 28 shows the number of students, number of service records, range and frequency of services documented, and the time in hours for each service category for CSTCC, OCC, and PTCC. We found 14,473 documented ERSS provided to a total of 2,221 H2P students. The percentage of H2P students who received retention services was 77.2% at CSTCC, 48.6% at OCC, and 100% at PTCC. The focus of ERSS provided by H2P-funded staff at the three colleges varied widely. Assessment was the most common service documented by CSTCC, with 1,192 participants receiving a mean of 3.7 hours of assessment services per student, whereas OCC did not document assessment services and PTCC documented assessment services provided only to seven students. Academic advising was the most time intensive service documented by CSTCC, with 372 students receiving a mean of 5.7 hours of academic advising per student. Academic advising and career services were the most common documented ERSS provided to H2P students at OCC, which documented 135 students with a mean of 0.7 hours of academic advising per student and 132 students with a mean of 0.8 hours of career services per student. PTCC documented providing nonacademic advising and employment services to all of their 533 H2P students, for a mean of 2.1 and 0.4 hours of nonacademic advising and employment services per student, respectively. In contrast, OCC documented providing nonacademic advising to two students and employment services to four students. The mode of delivery of ERSS varied substantially across colleges. CSTCC provided 72.9% of their ERSS through individual contacts with students, OCC provided 50.1% of their ERSS through phone conversations with students, and PTCC delivered 56.3% of ERSS via emails. The number of services and percentage of services provided by delivery mode for each co-grantee college is shown in Table 29.

The demographic characteristics of students who received ERSS are provided in Tables 30 and 31. Our analysis confirms that most TAA-eligible students received ERSS. At CSTCC, when compared to H2P students who did not receive ERSS, a higher percentage of the students who received these services were Black (+6.9%), and a lower percentage were White (-6.3%) or 50 years of age or older (-7.1%). At OCC, when compared to H2P students who did not receive enhanced retention services, a higher percentage of students who received services were White (+8.8) and were nontraditional age (25 years of age and older, +19.1%). At OCC, participants not employed at the time of intake were more likely to receive ERSS (+6.2%) compared to those who were employed.

Table 27. Enhanced Retention Support Services by Colleges (January 2012 through December 2014)

College	Retention Services Staffing	Technology Used	Partnerships	Advising and Academic Supports	Career Services	Non-academic Supports	Notes
ARCC	<ul style="list-style-type: none"> Retention Coach Student Support Advisors 	<ul style="list-style-type: none"> Blumen 	<ul style="list-style-type: none"> Strong workforce partnership and college partnerships 	<ul style="list-style-type: none"> Advising on course selection Connecting students with tutoring and other academic supports Facilitate student assessments 	<ul style="list-style-type: none"> Vocational counseling Online career advising through the Virtual Career Network (VCN) ISEEK Career Assessment 	<ul style="list-style-type: none"> Navigating campus support services 	<ul style="list-style-type: none"> The position funded by TAACCT was an extension of an earlier initiative called Minnesota FastTRAC that was associated with Shifting Gears
ACTC	<ul style="list-style-type: none"> H2P Success Coach 	<ul style="list-style-type: none"> Blumen was implemented and discontinued Starfish Enterprise Success Program implemented 2014 	<ul style="list-style-type: none"> Developed college and community partnerships 	<ul style="list-style-type: none"> Both traditional and enhanced academic advising Real time tracking of attendance and follow-up with students Early alert and academic monitoring of students Additional lab time 	<ul style="list-style-type: none"> Collaboration with campus services and faculty Online career advising through VCN 	<ul style="list-style-type: none"> Referrals on campus and off campus for support services Focus on relationship development collaboration around overcoming barriers for individual students 	<ul style="list-style-type: none"> Facilitated outreach to untapped populations (e.g. undecided majors, etc.) Additional supports were provided to eligible students through the Accelerate Opportunity Kentucky (AOKY) project staff The implementation of Starfish Enterprise Success Program improved collaboration of services by faculty, staff, and administrators.
CSTCC	<ul style="list-style-type: none"> Student Academic Advisor Job Coaches, Tutors Business Developer 	<ul style="list-style-type: none"> Blumen Starfish Enterprise Success Program implemented 2014 	<ul style="list-style-type: none"> Job Coaches were hired and placed at area employers to support employees who are seeking to earn credentials PTEC works with area employers and community partners to identify and support students 	<ul style="list-style-type: none"> Proactive advising and planning Academic alerts for students with a GPA below 2.5 Tutoring services Academic assessments 	<ul style="list-style-type: none"> Job search and placement Resume writing and Review Practice interviews Professionalism, training Career counseling Career related assessments Online career advising through the Virtual Career Network (VCN) 	<ul style="list-style-type: none"> Individualized support to overcome barriers, example: providing transportation for a student in need Assistance with securing funding to support credentialing and other expenses Financial literacy counseling Goal setting 	<ul style="list-style-type: none"> Services provided in association with the Pathways to Employment Center (PTEC) PTEC provides individualized service supports CSTCC hired division-based retention advisors institution-wide, part-time with a focus on academic support
ECC	<ul style="list-style-type: none"> Retention Specialists Program Services Specialist 	<ul style="list-style-type: none"> Starfish Enterprise Success Program piloted 2014 	<ul style="list-style-type: none"> Collaboration with CBO Sharing Life to provide Nursing Aid program to low-income, low-skilled individuals 	<ul style="list-style-type: none"> Academic alert system Tracking students' progress in their academic coursework 	<ul style="list-style-type: none"> Vocational counseling Online career advising through the Virtual Career Network (VCN) ISEEK Career Assessment WorkKeys 	<ul style="list-style-type: none"> Referral and collaboration with community based organizations Using student feedback in scheduling courses to meet their needs Referral to college based services Outreach to students regarding their need for support 	<ul style="list-style-type: none"> Program services specialist facilitated student recruitment efforts ECC institutionalized their retention specialist

College	Retention Services Staffing	Technology Used	Partnerships	Advising and Academic Supports	Career Services	Non-academic Supports	Notes
JCTC	<ul style="list-style-type: none"> Student Success Coach 	<ul style="list-style-type: none"> Starfish Enterprise Success Program implemented 2014 	<ul style="list-style-type: none"> Developed partnerships with area employers and workforce partners for job placement activities 	<ul style="list-style-type: none"> Academic planning VCN assessments Academic alert system Tracking students' progress in their academic coursework 	<ul style="list-style-type: none"> Career exploration Job placement 	<ul style="list-style-type: none"> Outreach to students engaged in H2P coursework 	<ul style="list-style-type: none"> Early focus on recruitment efforts Participation in TAA recruitment via Rapid Response Meetings Flexible and extended hours to meet students' needs
MXC	<ul style="list-style-type: none"> Completion Advisor 	<ul style="list-style-type: none"> Grades First student support software – campus wide implementation 	<ul style="list-style-type: none"> MXC was interested in building and expanding partnerships to support student employment 	<ul style="list-style-type: none"> Intrusive academic advising Monitor academic alert system and ensure students receive timely supports Semester audits of students' progress 	<ul style="list-style-type: none"> Workshops for interview preparation, internships, job skills, and other skills necessary to secure employment CareerFinder 	<ul style="list-style-type: none"> Monitor academic alert system and ensure students receive timely supports 	<ul style="list-style-type: none"> MXC staff used a “tag team” strategy that connected the Completion Advisor to POS staff and faculty to coordinate communications and support for students who were struggling academically
OCC	<ul style="list-style-type: none"> Retention Specialist Career Coach 	<ul style="list-style-type: none"> Banner (add on) 	<ul style="list-style-type: none"> The Career Coach helped ProMedica employees with career plans, resume writing, and interview skills in addition to referrals to the College. 	<ul style="list-style-type: none"> Intrusive advising including advising on course selection Supplemental instruction Early alert system Study skill workshops 	<ul style="list-style-type: none"> Career exploration and counseling Assistance with resume and cover letter development Job placement Online career advising through the Virtual Career Network (VCN) ISEEK Career Assessment 	<ul style="list-style-type: none"> Referrals to community based and college based support services Outreach to students engaged in H2P coursework Dissemination on financial literacy information Financial aid counseling 	<ul style="list-style-type: none"> Career exploration and academic planning helped to reduce the number of students taking prerequisites for programs in which they would ultimately not enroll
PTCC	<ul style="list-style-type: none"> Student Success Coach Employment and Education Advisor 	<ul style="list-style-type: none"> MNSCU Texting Service used in conjunction with intrusive advising 	<ul style="list-style-type: none"> Developed college partnerships 	<ul style="list-style-type: none"> Academic Early Alert System Academic planning Revised orientation process Cohort advising sessions Support students through the application process Student orientations Development of career pathways Academic Progress Monitoring 	<ul style="list-style-type: none"> Resume Assistance Mock Interviews Online career advising through the Virtual Career Network (VCN) ISEEK Career Assessment Job Counseling Assistance with identifying jobs 	<ul style="list-style-type: none"> Semester potlucks with faculty, staff, and students Share support services resources with students FAFSA assistance 	<ul style="list-style-type: none"> The use of VCN had been scaled to the rest of the College and was included as part of the College's budget Interviews with faculty indicated regular communication occurred between faculty, staff, and administrators to promote student retention PTCC had scaled the Student Success Coach role to a college level academic advisor role coordinating intrusive academic advising
TC	<ul style="list-style-type: none"> Advisor Retention Specialist 	<ul style="list-style-type: none"> Career Coach (job listings) 	<ul style="list-style-type: none"> Developed college partnerships 	<ul style="list-style-type: none"> A dedicated advisor in the college advising provided support on admissions, program requirements, and using VCN Early academic alert system Tutoring 	<ul style="list-style-type: none"> ISEEK Career Assessment Career advising support provided by the college Workshops on career preparation by the college 		<ul style="list-style-type: none"> Advisor Retention Specialist position not retained in healthcare The college used non-TAACCT funding to hire a college wide Retention Specialist and a part time Life Advisor

Table 28. Documented Enhanced Retention Support Services Received by H2P Participants at CSTCC, OCC, and PTCC (January 2012 through December 2014)

Retention Service Category	College	No. Students	No. Service Records	Range of No. Services Provided for Students	No. of Students by the Number of Services Received in the Service Category							Hours of the Service Category Received	
					1	2	3	4	5	6	7 or more	Total Hours	Hours per student
All Services Combined	CSTCC	1,418	7,150	1 - 54	111	116	298	360	149	124	260	7,440.9	5.2
	OCC	270	595	1 - 19	132	80	20	18	7	3	10	264.1	1.0
	PTCC	533	6,728	5 - 46	0	0	0	0	3	10	520	1,799.6	3.4
Assessment	CSTCC	1,192	4,327	1 - 10	72	116	408	368	104	85	39	4,453.9	3.7
	OCC	0	0	0	0	0	0	0	0	0	0	0	0.0
	PTCC	7	12	1 - 3	3	3	1	0	0	0	0	7.6	1.1
Academic Advising	CSTCC	372	1,471	1 - 53	159	71	33	30	15	12	52	2,133.3	5.7
	OCC	135	245	1 - 17	95	24	4	4	3	1	4	99.4	0.7
	PTCC	398	1,104	1 - 16	126	126	46	40	24	10	26	289.6	0.7
Nonacademic Advising	CSTCC	45	50	1 - 2	40	5	0	0	0	0	0	55.1	1.2
	OCC	2	2	1 - 2	2	0	0	0	0	0	0	0.3	0.2
	PTCC	533	3356	1 - 29	0	19	46	74	131	94	169	1,139.2	2.1
Career Services	CSTCC	179	195	1 - 2	163	16	0	0	0	0	0	97.5	0.5
	OCC	132	216	1 - 9	89	27	7	3	1	2	3	111.8	0.8
	PTCC	82	197	1 - 9	32	19	14	8	4	4	1	146.5	1.8
Employment Services	CSTCC	356	1,072	1 - 17	99	117	43	31	19	9	38	662.2	1.9
	OCC	4	4	1 - 4	4	0	0	0	0	0	0	1.7	0.4
	PTCC	533	2,031	1 - 12	0	0	311	127	41	25	29	203.1	0.4
Financial Services	CSTCC	29	35	1 - 3	24	4	1	0	0	0	0	39	1.3
	OCC	107	124	1 - 4	92	14	0	1	0	0	0	49.8	0.5
	PTCC	18	21	1 - 2	15	3	0	0	0	0	0	12.3	0.7
Social Services and Counseling	CSTCC	0	0	0	0	0	0	0	0	0	0	0	0.0
	OCC	4	4	1	4	0	0	0	0	0	0	1.2	0.3
	PTCC	7	7	1	7	0	0	0	0	0	0	1.4	0.2

Table 29. Mode of Contact for Documented Enhanced Retention Support Services at CSTCC, OCC, and PTCC (January 2012 through December 2014)

Mode of Contact	Number of Services by Mode			Percentage of Services by Mode		
	CSTCC	OCC	PTCC	CSTCC	OCC	PTCC
Email	34	156	3,791	0.5	26.2	56.3
Group	1,518	12	781	21.2	2.0	11.6
Individual	5,212	121	669	72.9	20.3	9.9
Mail	2	0	47	0.0	0.0	0.7
Phone	324	298	314	4.5	50.1	4.7
Other	60	8	1,126	0.8	1.3	16.7

Table 30. Demographic Distribution of H2P Participants Who Did and Did Not Receive Documented Enhanced Retention Support Services at CSTCC, OCC, and PTCC (January 2012 through December 2014)

College	Number of Students who Received ERSS			Percentage of H2P Students who Received ERSS		
	CSTCC	OCC	PTCC	CSTCC	OCC	PTCC
Sex						
Men	320	33	40	72.7	44.6	100.0
Women	1,096	237	493	78.7	49.2	100.0
Unknown	2	-	-	66.7	-	-
Race/Ethnicity¹						
American Indian / Alaskan Native	5	1	7	100.0	16.7	100.0
Asian	17	5	6	81.0	50.0	100.0
Black	668	33	39	79.9	44.6	100.0
Latino	14	10	5	66.7	35.7	100.0
Native Hawaiian / Pacific Islander	2	-	-	50.0	-	-
Multi-race	25	-	-	75.8	-	-
White	673	206	466	74.9	51.6	100.0
Unknown	14	15	10	77.8	38.5	100.0
Age at H2P Intake						
19 and under	102	42	41	64.6	43.3	100.0
20-21	136	42	57	74.3	51.2	100.0
22-24	196	34	65	77.8	42.0	100.0
25-29	250	34	113	78.9	37.4	100.0
30-34	217	42	79	81.3	56.8	100.0
35-49	366	65	142	79.7	56.0	100.0
50+	146	11	36	75.6	73.3	100.0
Unknown	5	-	-	71.4	-	-
Pell Eligibility						
Eligible	441	178	384	74.0	48.1	100.0
Not eligible	276	92	149	76.9	49.5	100.0
Unknown	701	-	-	79.6	-	-

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

²Dashes indicate subgroups with no H2P students at the college.

Table 31. H2P Participants Who Did and Did Not Receive Documented Enhanced Retention Support Services by Target Status at CSTCC, OCC, and PTCC (January 2012 through December 2014)

College	Number of Students who Received Documented ERSS			Percentage of H2P Students who Received Documented ERSS		
	CSTCC	OCC	PTCC	CSTCC	OCC	PTCC
TAA Status						
Eligible	25	2	1	89.3	66.7	100.0
Not eligible	1,393	268	532	80.1	48.5	100.0
Unknown	0	-	-	0.0	-	-
Veteran						
Eligible Veteran	66	4	28	80.5	50.0	100.0
Not a Veteran	1,345	266	505	77.2	48.5	100.0
Unknown	7	-	-	63.6	-	-
Employment at Intake						
Employed	964	189	351	77.1	46.4	100.0
Nonemployed	453	81	120	77.6	54.4	100.0
Unknown	1	-	62	100.0	-	100.0
Highest Level of Education at Enrollment						
Less than High School	7	-	1	100.0	-	100.0
High School Diploma or GED	473	122	157	79.4	43.4	100.0
Some College, No Degree	467	91	127	79.7	54.8	100.0
Postsecondary Certificate	255	28	186	80.2	51.9	100.0
Associate's Degree	111	15	53	85.4	53.6	100.0
Bachelor's Degree or Higher	98	13	7	81.7	50.0	100.0
Unknown	7	1	2	8.9	100.0	100.0

¹Dashes indicate subgroups with no H2P students at the college.

Strategy 6: Training Programs for Incumbent Health Professions Workers

The sixth strategy employed by the H2P Consortium was *Training Programs for Incumbent Health Professions Workers*. The DOL (2010) described incumbent worker training as “efforts on the part of employers to provide training to currently-employed workers in order to help keep these employees employed.” Incumbent worker training programs can be offered in house by employers, or in conjunction with a community or educational institution partner (DOL, 2010). Employees who participate in incumbent training programs are more likely to be promoted, avoid layoffs, and to benefit from a wage increase (Hollenbeck, 2008; DOL, 2010). Employers who offer incumbent worker training report more dedicated staff, reduced turnover, access to higher skilled employees, and fewer unfilled vacancies (Proscio, 2010). The value of incumbent programs is elevated for employers who have a high number of skilled employees approaching retirement age and in fields where there is a rapid growth in the need for skilled employees (Biswas, 2011; Proscio, 2010).

Incumbent training programs in healthcare are being used to address labor shortages in health care, to promote local economic development, to increase the diversity of healthcare provide, and to improve healthcare delivery in rural areas (Biswas, 2011; Moss & Winstein, 2009). Health care employers who offer incumbent training programs report that the return on investment is positive, citing improved stability, improved quality of care provided, and improved performance (Proscio, 2010). Whereas some training programs for healthcare employees are provided directly through their employers, it is more common for these programs to be developed through partnerships with community and technical colleges, community-based organizations, and workforce partners (Biswas, 2011; Moss & Winstein, 2009).

Under this strategy the H2P Consortium specifically targeted incumbent healthcare programs that engaged lower-skilled healthcare workers for more advanced positions. H2P cited three goals in their adoption of this strategy: a) addressing critical staff shortages, b) increasing job satisfaction and retention rates, and c) improving quality of care (H2P Consortium Proposal, 2011). The incumbent healthcare programs created through H2P are modeled on part on the [Health Careers Collaborative of Greater Cincinnati](#) (HCCGC). The HCCGC was developed with the support of previous DOL funding to support the collaboration of healthcare providers, workforce partners, CBOs, and educational institutions in the Greater Cincinnati area to address regional healthcare employee shortages and build healthcare employment pathways (Biswas, 2011). Under this model, employers identified the knowledge and skills needed to meet regional labor market needs and provide curricular input, clinical rotations, and equipment and space necessary for these POS and their employees to be successful (Biswas, 2011).

With the mentorship of CSTCC, JCTC used the HCCGC to build the Health Career Collaborative of the Greater Louisville Area (HCCGL). Development of this new initiative ran through 2013, with 28 partners including workforce partners, hospitals, clinical care, nursing homes, and home health care providers from both Kentucky and Indiana signing a charter in November of 2013. The local WIB is an active member of the HCCGL, describing the collaborative as an important means of improving training and employment prospects for low-skilled individuals throughout the region. Whereas health care remains a competitive field for business and industry partners, both JCTC and the partners involved in HCCGL expressed the goal of working collaboratively to build the prestige of the healthcare industry in the region. The HCCGL provides JCTC information on trends, labor market needs, and changes in the healthcare industry. Additionally, through the collaboration fostered by the HCCGL, partners identify shared workforce needs and work with educational partners to build POS to meet these needs. One of the strategic advantages to the HCCGL is that the collaborative can take collective action to pursue resources and supports, such as grants and contracts. For example, collaboration between the HCCGL and the WIB has created a Health Care Careers Center, and this

Center will provide supports for individuals who are interested in entering healthcare occupations, and those who are incumbent workers who would like additional education and training.

New or enhanced incumbent healthcare worker training programs were implemented at five co-grantee colleges between January 2012 and December of 2014 (see Table 32). Programs that were developed with and for the employer partners are substantially different among the colleges. They range from entry level short term certificate programs, such as ARCC's CNA and Trained Medical Aid programs, to ECC's Associate's Degree programs in Nursing and Radiologic Sciences. Additionally, some programs were developed in partnership with single employers and taught onsite, such as ACTC's STNA program taught at King's Daughters Medical Center, whereas other programs were developed in collaboration with multiple employers and offered on campus, such as PTCC's Phlebotomy program. Employers varied in their contributions to the development, implementation, and instruction of programs, with some employers helping to identify the need for programs, others referring employees to participate and still others taking active roles in curriculum development and clinical instruction.

Table 32. Training Programs Offered by H2P Consortium for Incumbent Health Professions Workers by College (January 2012 through December 2014)

College	Training Programs	New or Enhanced Program	Program Description and Employer Partner	Employer Partner Contributions	Notes
ARCC	Certified Nursing Assistant and Trained Medical Aide	Enhanced	Taught onsite at GracePointe Crossing a long-term care and assisted living facility	<ul style="list-style-type: none"> • Clinical site for CNA students • Classroom space • Hands-on training opportunities for students and recent graduates • Scholarships for CNA students • TMA course textbooks (in class use) 	ARCC's customized training department also offered Physical Therapist Assistant, Phlebotomy, and Emergency Medical Technician (EMT) programs for employer partners
ACTC	State Registered Nurse Aide	New	Three week intensive program taught onsite at King's Daughters Medical Center (KDMC) a large not-for-profit hospital	<ul style="list-style-type: none"> • Reviewed core curriculum and provided input 	KDMC was exploring the possibility of repeating the SRNA program annually, and developing more short-term incumbent worker training programs with ACTC
ECC	Nursing	Enhanced	Taught on campus with onsite clinical. Students are dual enrolled in BSN programs. Partners include three Dallas area hospitals: Hospital Corporation of America, North Texas; Methodist Health System; and Texas Health Presbyterian	<ul style="list-style-type: none"> • Identify, access, and refer participants • Use of and access to equipment and facilities • Assist with program design 	The hospital partner identifies participants from current hospital staff. The partner provides access to equipment at the hospital facility. Participates in the coordination of clinical instruction. Hospital partners continue to review program design; collaborates with college's curriculum team to review and make any changes or adjustments
	Radiologic Sciences	New	Taught on campus with onsite clinicals at Baylor Health Care System is a large multi-facility healthcare provider	<ul style="list-style-type: none"> • Identify industry workforce needs • Providing instruction • Use of and access to equipment and facilities 	Identified emerging trends in instruction and competencies in radiology and to adjust curriculum/instruction as needed. Hospital partner participates in clinical instruction. Collaborates with College program coordinator / dean to make changes to instruction/ curriculum as needed. Provide access to radiologic equipment at their hospital facility
JTC	Medical Assistant, Medical Office Radiography, and Health Science Technology	New and Enhanced	JTC collaborates with employer and workforce partners through the Health Careers Collaborative of the Greater Louisville Area	<ul style="list-style-type: none"> • Identify industry workforce needs • Identify necessary skills and competencies, and validate curricula • Assist with outreach and recruitment, including identify and referring employees for training 	Incumbent programs are well established at JTC and part of their workforce development initiatives. They continue to develop training programs that are focused on helping employers to promote from within. The programs here are examples of programs they have provided from 2012-2014
PTCC	EKG Credential for LPN and RN	New	Incumbent workers programs, taught on campus, that open to employees from any of the colleges employer partners	<ul style="list-style-type: none"> • Identify industry workforce needs • Identify and referring employees for training 	The EKG and Phlebotomy credentials were also designed for licensed, incumbent healthcare workers
	Phlebotomy				

¹CSTCC, MXC, OCC and TC all supported incumbent students employed in healthcare settings; these colleges had not implemented *new* industry-recognized stackable POS as of December 31, 2014.

Strategy 7: Enhanced Data and Accountability Systems

The seventh strategy employed by the H2P Consortium is to *Enhance Data and Accountability Systems* at H2P colleges, and two primary goals were established under this strategy. The first allows for student data to be analyzed on academic progress, financial status, and academic and career assessments (H2P Consortium Proposal, 2011). The second goal enables linking student level academic data to employment data (H2P Consortium Proposal, 2011). Reaching these two goals facilitates three processes for the Consortium: 1) collecting and submitting reliable data to the DOL for the Quarterly Performance Report (QPR) and the Annual Performance Report (APR), 2) evaluating the impact POS and strategies on student outcomes, and 3) improving programs.

OCCRL supported efforts of the H2P Consortium to develop enhanced data and accountability systems, including working with the Consortium's National Office and co-grantee colleges to implement and use a common data system to track and assess student progress, to ensure compliance with human subjects protocols through the University of Illinois' Institutional Review Board (IRB) approval process, to develop institutional level data sharing agreements, to establish the H2P data dictionary, to establish baseline progress and implementation measures, to conduct site visits to gather qualitative data for mixed methods analysis, and to accurately and appropriately report implementation and impact evaluation results. Most co-grantee colleges built internal relationships to integrate data from multiple systems, and all executed policies and procedures to share data securely with OCCRL. As necessary, the co-grantee colleges secured written agreements with their state's workforce system to access Unemployment Insurance (UI) wage data for the students and graduates, naming OCCRL as a partner in UI Wage data-sharing agreements, as needed. Seven H2P colleges secured access to UI wage data and shared these student-level data with OCCRL, and the remaining aggregate employment data were secured by OCCRL with the state agency for the other two colleges. A description of progress made by the co-grantee colleges to build enhanced data and accountability systems is shown in Table 33.

As part of the H2P Consortium's sustainability, each co-grantee college participated in the Pathways to Results (PTR) process that involves analysis of disaggregated data by student subgroup on student outcomes to identify and resolve equity gaps. The PTR process is illustrated in Figure 7, and more information is available at www.occril.illinois.edu/projects/pathways. Each co-grantee college team was assigned an OCCRL staff member as a coach to help facilitate the PTR process. The H2P Consortium goal in engaging with PTR was to build the capacity of staff at each college to use data to improve healthcare pathways and POS and to facilitate the use of the tools and resources to undertake this work. By using PTR, which emphasizes the use of data to improve performance and sustain innovation, the co-grantee colleges were supported in learning how to understand program performance (positive or not), to understand outcomes gaps among diverse student sub-groups, and to apply lessons from data analysis to support program improvement and sustainability. Through PTR, the co-grantee colleges took steps to improve equity and outcomes for their students in at least one POS at their college. Brief descriptions of each team's PTR project are provided in Table 33, and more information is available on the teams' posters available online at <http://occril.illinois.edu/h2ps-pathways-to-results-project>.

Table 33. Enhanced Data and Accountability Systems by College (January 2012 through December 2014)

College	Instituted a Data System to Track Strategy Implementation at the Student Level	Linked Strategy Implementation Data with Student Outcomes Data	Negotiated Access to Student Level UI Wage Data	Hired a Data Manager	Used the Pathways to Results Process ¹	Other Changes in Data Capacity
ARCC	Instituted and used Blumen to track intake and retention services data	Yes	Yes	Yes	Analyzed race, age, educational history, and gender, as well as retention and completion of students in their Pharmacy Technician Certificate and Associate programs	<ul style="list-style-type: none"> • Training was provided on the college data systems by Institutional Research (IR) • Collaborative relationship developed between data manager and IR
ACTC	Instituted Starfish Enterprise Success Program to track retention services data	Yes	In aggregate only, not at the student level	Yes	Analyzed race and gender, as well as course completion and retention for student enrolled in their Health Occupations Core Curriculum	
CSTCC	Instituted and used Blumen to track intake and retention services data	Yes	Yes	Yes	Analyzed alignment of programs of study to support development of core curriculum	<ul style="list-style-type: none"> • CSTCC personnel also provided training in Blumen to the other nine co-grantee colleges • CSTCC has committed to procure a new case management system to be used across the college that will be built into college dollars that also supports sustainability
ECC	Instituted and discontinued use of Blumen	Yes	Yes	Yes	Analyzed race and gender, as well as course completion and grades earned for students enrolled in prior learning assessment portfolio course	<ul style="list-style-type: none"> • The data manager for the H2P project was hired as a research associate in the college's Research and Institutional Effectiveness (RIE) office
JCTC	Instituted Starfish Enterprise Success Program to track retention services data	Yes	In aggregate only, not at the student level	Yes	Analyzed race/ethnicity and completion rates of student enrolled in stackable Medical Assisting programs of study (certificate, diploma, and associate programs)	
MXC	Unknown	Yes	Yes	Yes	Analyzed race/ethnicity, as well as program completion over a 10 year period for students enrolled in their healthcare programs	<ul style="list-style-type: none"> • H2P leadership at ECC actively nurtured an interest in using data to address important questions
OCC	Instituted and used Blumen to track intake and retention services data	Yes	Yes	Yes	Analyzed race/ethnicity and financial aid status for students engaged in financial literacy project	
PTCC	Instituted and used Blumen to track intake and retention services data	Yes	Yes	Yes	Analyzed Pell grant eligibility status, age, and first generation status for student enrolled in their Healthcare Pre-Professional Certificate	<ul style="list-style-type: none"> • Plan to discontinue use of Blumen at end of grant
TC	Instituted and used Blumen to track intake and retention services data	Yes	Yes	Yes	Analyzed gender and race, as well as completion of student enrolled in Vocational Nursing Program	<ul style="list-style-type: none"> • Staff reported increased awareness in the need to gather and use data

¹Learn more about H2P colleges' Pathways to Results Projects at <http://ocrl.illinois.edu/h2ps-pathways-to-results-projects/>.

PATHWAYS TO RESULTS GOALS:

- Improve degree pathways and programs of study planning and implementation.
- Improve transition outcomes for all students, especially underserved learners.
- Align PTR to public policies dedicated to improving student transition to college and careers.
- Improve access to data and tools that support evidence-based decision making and continuous improvement.

WITH THE PATHWAYS TO RESULTS STRATEGY...

- Partnerships are the key
- Equity is a priority
- Critical processes are examined
- Solutions are planned, implemented and evaluated
- Learning is continuous

PROFESSIONAL DEVELOPMENT AND TECHNICAL ASSISTANCE AVAILABLE ON PTR

- Facilitation & Coaching
- PTR Networking and Cross-site Meetings
- E-learning Modules
- Technology Enhancements
- Annual Scaling Up PTR Conference
- Regional Network Workshops

TO GET MORE INFORMATION ABOUT PATHWAYS TO RESULTS CONTACT:

Office of Community College Research and Leadership
 University of Illinois
 51 Gerty Drive, 129 Children's Research Center
 Champaign, IL 61820
 occrl@illinois.edu
 http://occrl.illinois.edu
 217-244-9390

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OCCRL
 Office of Community College
 Research and Leadership

Pathways to Results (PTR) is an outcomes-focused, equity-guided process to improve student transition to postsecondary education and employment.

As of 2015, 90 teams involving community colleges and their partners have used PTR to address equity and outcomes gaps in their pathways and programs of study.



ENGAGEMENT AND COMMITMENT

Identify the PTR team, decide on the initial improvement objective and outcomes, and secure buy-in from all the partners.

OUTCOMES AND EQUITY ASSESSMENT

Student-level data is collected to examine outcomes and identify gaps in results between racial, ethnic, low income, and other groups and special populations.

PROCESS ASSESSMENT

Processes such as recruiting, advising, teaching, and learning are probed to understand why desired results are not being produced and identify "promising processes" that should be replicated.

PROCESS IMPROVEMENT

Solutions and evaluation plans are developed to improve student outcomes, address equity gaps, and enhance programs of study.

REVIEW AND REFLECTION

Solutions and evaluation plans are developed to improve student outcomes, address equity gaps, and enhance programs of study.

PTR in Action at H2P Colleges

Anoka-Ramsey Community College:

Pharmacy Technician Certificate and Pharmacy Technician Associate of Science Degree

Ashland Community and Technical College:

Core Curriculum

Cincinnati State Technical and Community College:

Allied Health Programs in Health & Public Safety Division

EI Centro College:

Prior Learning Assessment

Jefferson Community and Technical College:

Medical Assisting

Malcolm X College:

Ethnicity, 10 Years College Credentials/Degree Trend and Healthcare Program Enrollment

Owens Community College:

Financial Literacy Project

Pine Technical and Community College:

Healthcare Pre-Professional Certificate

Texarkana College:

Vocational Nursing Program

H2P PTR Coaches: Debra Bragg, Heather Fox, Catherine Kirby



COLLEGE OF EDUCATION AT ILLINOIS

Figure 7. Pathways to Results poster customized for the H2P Consortium.

Strategy 8: Galvanize a National Movement

The eighth strategy employed by the H2P Consortium is to *Galvanize a National Movement* to improve healthcare education and training. Central to this strategy is the commitment to sustain and scale practices and resources developed by the colleges that may yield transformative change for community colleges, programs, and students. These changes may also impact state, regional, and national employer and workforce partners and promote adoption of HOCC. This strategy both supported and was reliant on the goals set by the H2P Consortium in the previous seven strategies. From the beginning of the grant, the H2P Consortium leaders described the importance of building a national network and key partnerships to galvanize a national movement on healthcare education reform (Krismer, 2015). Some key partnerships developed through this grant were the Collaboratory, the Health Professions Network (HPN), I-SEEK, the National Network of Health Care Programs in Two-Year Colleges (NN2), the National Association of Workforce Boards (NAWB), and the Teaching Institute for Excellence in STEM.

Efforts to galvanize a national movement started with the adoption and adaptation of the HOCC by the co-grantee colleges (see Strategy Three). The H2P Consortium developed a community of practice (COP) to support the implementation and scaling of the HOCC, as well as other practices and resources developed through the H2P Consortium grant. The COP also spearheaded efforts to build resources and relationships necessary to scale the HOCC. The H2P Consortium used a peer-to-peer network model for building commitment to implementation of a HOCC beyond the H2P Consortium wherein the co-grantee colleges recruited other partner community colleges to adopt a HOCC and to join the national healthcare education reform movement.

Table 34 provides a list of all community colleges that made a commitment to implement a HOCC. Including the original co-grantee colleges and partner colleges, a total of 33 colleges committed to implement a HOCC. The partner colleges vary in geographic distribution, the setting and size of the campuses, the size and focus of healthcare POS, and the average number of healthcare credentials the colleges award as a proportion of the total number of credentials in all fields they award annually. This variety is intentional, and is seen by H2P leaders as important to building a robust HOCC that is relevant across community colleges nationally.

Table 34. Community Colleges Committed to the National Movement as of July 2015

College	H2P or Partner College ¹	State	Campus Setting ²	Unduplicated 12-month Headcount ²	No. Total Credentials Awarded in All Programs ²		No. Health Professions and Related Programs Credentials Awarded ²		Percentage of Total Credentials Awarded in Health Professions	
					Certificates	Associates	Certificates	Associates	Certificate	Associates
Anoka-Ramsey Community College	H2P	MN	Large Suburb	12,552	79	1008	5	235	6.33	23.31
Ashland Community & Technical College	H2P	KY	Small City	5,304	1,183	423	124	51	10.48	12.06
Central Lakes College	Partner	MN	Remote Town	6,213	330	578	119	84	36.06	14.53
Cincinnati State Technical and Community College	H2P	OH	Large City	16,052	277	1258	143	249	51.62	19.79
City Colleges of Chicago – Malcolm X College	H2P	IL	Large City	11,768	428	402	411	176	96.03	43.78
Cuyahoga Community College	Partner	OH	Large City	44,752	511	2,482	365	708	71.43	28.53
East Los Angeles College	Partner	CA	Small City	53,813	2,258	1,615	154	158	6.82	9.78
El Centro College	H2P	TX	Large City	19,333	461	743	202	357	43.82	48.05
Grand Rapids Community College	Partner	MI	Midsize City	24,390	170	1,726	80	217	47.06	12.57
Hazard Community and Technical College	Partner	KY	Remote Town	4,896	970	374	370	110	38.14	29.41
Houston Community College – Coleman College for Health Sciences	Partner	TX	Large City	88,564	1,525	4,410	450	431	29.51	9.77
Ivy Tech Community College	Partner	IN	Large City	180,464	7,730	9,265	1,854	2,612	23.98	28.19
Jefferson Community & Technical College	H2P	KY	Large City	19,927	1,770	1,122	571	260	32.26	23.17
Lansing Community College	Partner	MI	Midsize City	26,034	1,790	1,871	895	287	50.00	15.34
Laredo Community College	Partner	TX	Midsize City	12,434	852	778	233	62	27.35	7.97
Los Angeles City College	Partner	CA	Large City	28,386	480	494	11	77	2.29	15.59
Los Angeles Harbor College	Partner	CA	Large City	12,915	48	565	0	53	0.00	9.38
Los Angeles Mission College	Partner	CA	Large City	12,677	357	654	0	30	0	4.6%

College	H2P or Partner College ¹	State	Campus Setting ²	Unduplicated 12-month Headcount ²	No. Total Credentials Awarded in All Programs ²		No. Health Professions and Related Programs Credentials Awarded ²		Percentage of Total Credentials Awarded in Health Professions	
					Certificates	Associates	Certificates	Associates	Certificate	Associates
Los Angeles Southwest College	Partner	CA	Large Suburb	9,937	5	309	4	29	80.0%	9.4%
Los Angeles Trade Technical College	Partner	CA	Large City	20,244	1,116	356	9	39	0.8%	10.96%
Los Angeles Valley College	Partner	CA	Large City	26,127	732	685	1	98	0.1%	14.3%
Metropolitan Community College-MO	Partner	MO	Large City	31,268	617	1,922	123	268	19.9%	13.9%
Metropolitan Community College-NE	Partner	NE	Large City	30,892	486	1,571	156	226	32.1%	14.4%
Mountwest Community and Technical College	Partner	MV	Midsize Suburb	4,073	28	342	10	86	35.7%	25.2%
Normandale Community College	Partner	MN	Small City	14,693	250	1,157	229	129	91.6%	11.2%
Owens Community College	H2P	OH	Large Suburb	22,519	467	1,170	101	330	21.6%	28.2%
Pierce College	Partner	WA	Large Suburb	5,363	90	487	42	56	46.7%	11.5%
Pine Technical and Community College	H2P	MN	Remote Town	1,681	125	69	63	21	50.4%	30.4%
San Juan College	Partner	MN	Small City	12,564	601	654	60	161	10.0%	24.6%
Sinclair Community College	Partner	OH	Midsize City	29,433	1,519	1,841	627	593	41.3%	32.2%
South Suburban College	Partner	IL	Large Suburb	12,258	182	355	92	112	50.6%	31.6%
Texarkana College	H2P	TX	Small City	5,358	299	269	61	69	20.4%	25.7%
West Los Angeles College	Partner	CA	Large Suburb	14,881	467	351	89	21	19.1%	6.0%

¹Partner colleges were recruited by H2P Consortium Colleges to commit to the national movement for health occupations core curriculum. Recruited partner colleges are mentored by H2P Consortium Colleges in their implementation of a health occupations core curriculum.

²Campus setting, unduplicated 12-month headcount, and health professions and related program credentials awarded are all from the IPEDS Institutional Profile, downloaded from the IPEDS Data Center 2012-2013 Provisional Release Data <https://nces.ed.gov/ipeds/datacenter>.

CHAPTER 4: EDUCATIONAL OUTCOMES OF H2P PARTICIPANTS

The purpose of this chapter is to explore the educational outcomes of H2P participants, to examine the factors that were most strongly related to H2P participants' educational outcomes, and to estimate the impact H2P had overall on the educational outcomes of healthcare students at the H2P colleges. The research questions address in this chapter are:

- 1) What credentials did H2P participants earn?
- 2) What were the retention rates of participants who did not earn credentials?
- 3) How did credential attainment and retention vary by student subgroup?
- 4) What impact did H2P have on the likelihood that healthcare students would complete their POS?

Although the specific methods used in each analysis will be discussed immediately prior to the presentation of the results, we will begin with a broad introduction to our methodological approaches. All methods described in this chapter fall under one of two categories: descriptive or inferential. Descriptive statistics are meant to describe a population, such as by demographic distribution, average outcomes, and outcomes by student and institutional factor. The mean number of H2P participants who earned any type of postsecondary credential is one example of a descriptive statistic, and this variable can be disaggregated by student characteristics such as race/ethnicity, gender, and Pell eligibility.

The second methodological category is inferential statistics, which covers a broad range of quantitative methods that are meant to estimate the relationship between the independent variables of interest (e.g. race/ethnicity, gender, Pell receipt, etc.) and the outcomes (e.g. credential attainment, retention, GPA, etc.). Regression techniques were a primary method used in this chapter. Unlike descriptive statistics, regression allows for the control for multiple variables simultaneously, thus better isolating the relationship between independent variables and outcomes. For example, instead of simply comparing the mean credential attainment rates of different racial/ethnic groups, regression allows us to control for gender, Pell receipt, and any other variable in the model to more accurately estimate racial/ethnic group differences.

The goal of inferential statistics is to identify significant relationships between variables, which are defined as relationships that are unlikely to have occurred by chance (or are highly probable to represent "true" relationships in the population of interest). Inferential statistics increase the precision of our estimates and allow us to identify significant relationships, but they do not provide for causal claims, primarily due to the fact that we cannot control for all variables that could theoretically be related to the outcomes. We may be able to claim that Pell eligible students were significantly less likely to earn a credential, for example, but these methods do not allow us to claim that Pell eligibility caused a decrease in the likelihood of earning a credential. Similarly, we may find that H2P participants were significantly more likely to earn a credential than the comparison group, but we are unable to definitively claim H2P caused an increase in credential attainment.

For the majority of analyses, our sample consists of Type 1 H2P participants. We exclude Type 2 participants because they were not enrolled in an H2P-impacted POS, and thus we would not expect any H2P credentials to be attributable to them. However, to estimate the impact of H2P on the educational outcomes of healthcare students, we also utilize a Retrospective (Retro) sample of healthcare students. To construct this group, we asked colleges to provide OCCRL with all students that were enrolled in a healthcare POS at their institution during the fall of 2009. We then selected a subset of the H2P and Retro samples enrolled in the same POS. By comparing the educational

outcomes of H2P participants with the outcomes of this prior cohort of healthcare students, we are able to estimate whether H2P had a significant impact on the likelihood that students would complete a POS. Once again, greater detail on how these samples were defined and the methods used to estimate the impact of H2P on students' educational outcomes is provided in the following sections.

The results presented in this chapter are broken into two sections, based generally on the sample used for our analyses. The first section presents results of analyses utilizing only the Type 1 H2P sample, addressing the first five research questions regarding the educational outcomes of Type 1 H2P participants. The second section presents results in which the Retro sample is utilized, addressing the next three research questions regarding the impact of H2P on students' educational outcomes. The chapter closes with a brief conclusion summarizing the findings.

Educational Outcomes of H2P Participants

What credentials did H2P participants earn?

Table 35 displays the number and percentage of Type 1 H2P participants that earned any healthcare credential⁵ by Fall 2014, disaggregated by college. The first set of rows includes all credentials ever earned and allows for multiple credentials of different lengths earned by the same student, whereas the second set of rows only indicates the highest level of credential earned by each student. Of the 4,888 Type 1 H2P participants, 2,867 (58.7%) did not earn a credential by Fall 2014. This figure varied greatly between colleges from a low of 16.9% to a high of 81.5%, although this no doubt reflects differences between colleges in terms of the types and length of POS funded by the grant. The credential length with the highest award rate was the very short-term certificate category, which requires less than 12 credit hours to complete. Approximately 18.9% of Type 1 participants earned a very short-term certificate, and this was the highest credential earned for 16.9% of participants. A roughly equal percentage of participants earned long-term certificates and Associate's Degrees, 11.6% and 11.3%, respectively. Short-term certificates were the least common credential awarded to participants, constituting the highest level of credential earned for only 2.9% of participants. Across the Consortium, 3.9% of participants earned multiple credentials, but this figure also varied significantly from a low of 0.1% to a high of 20.8% by co-grantee college.

We next examined the types of credentials earned by Type 1 participants based on POS, found in Table 36. POS related to nursing constituted the majority of the credentials earned by participants. Certified nursing assistant was the most conferred credential out of all POS, with 704 participants across the Consortium completing this POS. The Associate's Degree in nursing (ADN) and licensed vocational nursing/practical nursing were the two next largest categories with 450 and 412 participants, respectively, earning these credentials. These three POS comprised more than two-thirds (68.1%) of all credentials awarded to Type 1 participants. The emergency medical technician/paramedic, trained medication aid, medical assistant, and pharmacy POS were the next four largest in terms of credentials conferred. No other POS awarded more than 40 credentials to participants.

⁵Healthcare credentials are those in fields such as nursing, allied health, dentistry, and pharmacy. These credentials were identified in three ways. First, we used classification of instructional programs (CIP) codes. Credentials with a CIP code of 51 were considered healthcare credentials. However, not all colleges provided OCCRL with CIP codes, and some healthcare credentials did not have a CIP code of 51. Thus, we next used credential names to identify additional healthcare credentials. Finally, certain colleges awarded associate's degrees with a CIP code other than 51 where the field/subject was not specified. In these instances, OCCRL identified students who had received these credentials and analyzed their coursetaking history to determine the POS that they likely completed.

Table 35. Length of Credentials Earned by Type 1 H2P Participants, by College

College	Number of Participants										Percentage of Participants										
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	
Any Credential																					
No Credential	2867	271	193	546	1240	141	128	53	106	189	58.7	60.5	68.0	57.5	81.5	50.5	34.0	16.9	28.9	54.0	
Very Short	924	63	61	315	38	31	155	156	74	31	18.9	14.1	21.5	33.2	2.5	11.1	41.2	49.8	20.2	8.9	
Short-Term Certificate	218	9	9	0	12	74	30	27	29	28	4.5	2.0	3.2	0.0	0.8	26.5	8.0	8.6	7.9	8.0	
Long-Term Certificate	565	0	31	93	73	73	48	31	142	74	11.6	0.0	10.9	9.8	4.8	26.2	12.8	9.9	38.7	21.1	
Associate's Degree	552	105	32	10	160	55	36	54	59	41	11.3	23.4	11.3	1.1	10.5	19.7	9.6	17.3	16.1	11.7	
Multiple Credentials	191	4	30	14	2	58	25	7	39	12	3.9	0.9	10.6	1.5	0.1	20.8	6.6	2.2	10.6	3.4	
Highest Credential																					
No Credential	2867	271	193	546	1240	141	128	53	106	189	58.7	60.5	68.0	57.5	81.5	50.5	34.0	16.9	28.9	54.0	
Very Short	824	63	52	304	38	4	135	154	46	28	16.9	14.1	18.3	32.0	2.5	1.4	35.9	49.2	12.5	8.0	
Short-Term Certificate	144	9	2	0	11	31	30	21	17	23	2.9	2.0	0.7	0.0	0.7	11.1	8.0	6.7	4.6	6.6	
Long-Term Certificate	501	0	5	90	72	48	47	31	139	69	10.2	0.0	1.8	9.5	4.7	17.2	12.5	9.9	37.9	19.7	
Associate's Degree	552	105	32	10	160	55	36	54	59	41	11.3	23.4	11.3	1.1	10.5	19.7	9.6	17.3	16.1	11.7	

Table 36. Number of Credentials Related to Programs of Study Earned by Type 1 H2P Participants, by College

Credential Category	Number of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
ADN	450	88	32	3	137	55	40	3	51	41
Cert NA	704	69	42	342	9		75	166		1
CHW	29				29					
Core	40		19			17	1		3	
Dental	20							20		
EKG	5								5	
EMT/Para	161						123			38
Exercise	1							1		
Health Unit Coordinator	9			9						
HIT	39			2			13	24		
Long Term Care Nursing Assist	4								4	
LPN	412		1	74	26	30		44	165	72
Massage	10							10		
MCH	5			5						
Med Assist	102			19	49	18		1	15	
Med Office Admin	12					11		1		
Nurse Internship	21				21					
OTA	7			7						
Personal Trainer	11						11			
Pharm	71	9	3			37				22
Phlebotomy	1		1							
PTA	12	12								
Radiology	35				23	11		1		
Resp Care	2			2						
Sterile Proc	7							7		
TMA	104								104	
Xray	25								25	

What were the retention rates of participants that did not earn credentials?

Of the 4,888 Type 1 H2P participants, 2,021 participants (41.3%) earned at least one credential by Fall 2014, whereas the remaining 2,867 (58.7%) participants had not earned a credential. However, thus far we focused on the entire sample of Type 1 H2P participants, regardless of their first term of enrollment. Many H2P participants that enrolled later in the grant period may not have had sufficient time to complete their POS but may still be enrolled and pursuing a credential. The purpose of this section is therefore to examine whether Type 1 H2P participants who had not earned a credential were still enrolled in an H2P college by Fall 2014.

Table 37 and Table 38 present the first⁶ and last terms of enrollment, respectively, for Type 1 H2P participants who had not earned a credential. As evidenced by Table 37, the term that constituted the first term of enrollment for the highest percentage of participants in this sample (45.7%) was Spring 2012, the first full term of implementation of H2P. No other term constituted the first semester of enrollment for more than 20% of the sample. As another 7.7% enrolled for the first time the following summer, more than half of the sample of Type 1 participants who did not earn a credential (53.4%) were already enrolled by Summer 2012. Indeed, less than 5% of this sample enrolled during the last year of the grant period from Spring 2014 through Fall 2014. However, the figures in Table 38 show that a sizeable percentage of this sample of non-credential earners was still enrolled at the conclusion of the study timeframe in Fall 2014. Across the Consortium, 43.3% of these participants were still enrolled during the Fall 2014 semester, and this figure was more than 50% at one college. Thus, whereas less than half of Type 1 participants earned a credential by the end of the study timeframe in Fall 2014, a large percentage of non-completers were still enrolled in their institution.

Table 39 investigates this issue in a slightly different manner by analyzing the number of terms that elapsed between non-completers' first and last terms of enrollment. As shown in this table, about one out of every five Type 1 participants (20.9%) were enrolled for one or two semesters only before exiting their institution without a credential. However, another 20.0% of participants had been enrolled for the maximum nine terms for which we had data, and more than half of all non-completers had been enrolled for six terms, or the equivalent of two full academic years, before exiting. Thus, whereas more than half of the sample of Type 1 participants exited without a credential, many non-completers were still enrolled and had likely made progress toward completing a POS.

The figures on credential attainment and retention through Fall 2014 for non-completers are summarized in Table 39. Across the Consortium, more than two-thirds of Type 1 participants had either attained a credential or were still enrolled in their institution by the conclusion of the study timeframe, and this attainment or retained figure was greater than 50% at every institution. Additionally, three institutions had figures greater than 75%, with more than 90% of students at one institution earning a credential or being retained. In sum, less than a third of Type 1 H2P participants exited their institution by Fall 2014 without having received some type of postsecondary award.

⁶ In this analysis, the first possible term of enrollment is the first term of implementation of H2P, Spring 2012. However, students may have been enrolled in the institution prior to this term.

Table 37. First Term of Enrollment for Type 1 H2P Participants who did not Earn a Credential, by College

Term	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Spring 2012	1,239	106	89	196	610	74	27	30	37	70	45.7	51.0	47.3	38.5	49.9	54.4	22.7	57.7	36.6	40.2
Summer 2012	208	11	9	23	114	12	12	6	6	15	7.7	5.3	4.8	4.5	9.3	8.8	10.1	11.5	5.9	8.6
Fall 2012	492	38	61	58	249	13	15	8	9	41	18.2	18.3	32.4	11.4	20.4	9.6	12.6	15.4	8.9	23.6
Spring 2013	264	16	17	67	113	6	9	2	14	20	9.7	7.7	9.0	13.2	9.2	4.4	7.6	3.8	13.9	11.5
Summer 2013	98	9	2	3	63	5	8	0	4	4	3.6	4.3	1.1	0.6	5.2	3.7	6.7	0.0	4.0	2.3
Fall 2013	291	19	5	106	67	15	36	6	18	19	10.7	9.1	2.7	20.8	5.5	11.0	30.3	11.5	17.8	10.9
Spring 2014	93	4	0	47	6	11	10	0	13	2	3.4	1.9	0.0	9.2	0.5	8.1	8.4	0.0	12.9	1.1
Summer 2014	11	1	5	0	1	0	2	0	0	2	0.4	0.5	2.7	0.0	0.1	0.0	1.7	0.0	0.0	1.1
Fall 2014	14	4	0	9	0	0	0	0	0	1	0.5	1.9	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.6
Total	2,710	208	188	509	1223	136	119	52	101	174	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Analysis excludes participants with no relevant course data ($n = 153$)

Table 38. Final Term of Enrollment for Type 1 H2P Participants who did not Earn a Credential, by College

Term	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Spring 2012	42	8	0	15	0	10	0	0	6	3	1.5	3.8	0.0	2.9	0.0	7.4	0.0	0.0	5.9	1.7
Summer 2012	50	0	2	13	10	16	0	0	3	6	1.8	0.0	1.1	2.6	0.8	11.8	0.0	0.0	3.0	3.4
Fall 2012	177	10	26	20	56	12	3	9	8	33	6.5	4.8	13.8	3.9	4.6	8.8	2.5	17.3	7.9	19.0
Spring 2013	277	25	39	51	100	12	9	7	15	19	10.2	12.0	20.7	10.0	8.2	8.8	7.6	13.5	14.9	10.9
Summer 2013	100	11	10	2	56	5	2	1	1	12	3.7	5.3	5.3	0.4	4.6	3.7	1.7	1.9	1.0	6.9
Fall 2013	328	22	28	68	121	10	25	7	11	36	12.1	10.6	14.9	13.4	9.9	7.4	21.0	13.5	10.9	20.7
Spring 2014	440	28	22	118	175	17	38	9	14	19	16.2	13.5	11.7	23.2	14.3	12.5	31.9	17.3	13.9	10.9
Summer 2014	122	8	6	4	87	5	3	1	0	8	4.5	3.8	3.2	0.8	7.1	3.7	2.5	1.9	0.0	4.6
Fall 2014	1,174	96	55	218	618	49	39	18	43	38	43.3	46.2	29.3	42.8	50.5	36.0	32.8	34.6	42.6	21.8
Total	2,710	208	188	509	1223	136	119	52	101	174	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Analysis excludes participants with no relevant course data ($n = 153$)

Table 39. Total Terms between First and Last Enrollment for Type 1 H2P Participants who did not Earn a Credential, by College

Total Terms	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
1	347	36	24	89	87	20	20	5	25	41	12.8	17.3	12.8	17.5	7.1	14.7	16.8	9.6	24.8	23.6
2	220	13	23	47	68	20	21	4	6	18	8.1	6.3	12.2	9.2	5.6	14.7	17.6	7.7	5.9	10.3
3	232	9	19	55	67	22	11	5	15	29	8.6	4.3	10.1	10.8	5.5	16.2	9.2	9.6	14.9	16.7
4	377	30	35	104	116	21	22	11	22	16	13.9	14.4	18.6	20.4	9.5	15.4	18.5	21.2	21.8	9.2
5	186	8	12	17	109	8	9	2	5	16	6.9	3.8	6.4	3.3	8.9	5.9	7.6	3.8	5.0	9.2
6	290	17	20	55	141	11	9	6	10	21	10.7	8.2	10.6	10.8	11.5	8.1	7.6	11.5	9.9	12.1
7	373	40	19	68	198	11	14	5	7	11	13.8	19.2	10.1	13.4	16.2	8.1	11.8	9.6	6.9	6.3
8	144	6	1	14	102	6	6	2	1	6	5.3	2.9	0.5	2.8	8.3	4.4	5.0	3.8	1.0	3.4
9	541	49	35	60	335	17	7	12	10	16	20.0	23.6	18.6	11.8	27.4	12.5	5.9	23.1	9.9	9.2
Total	2,710	208	188	509	1223	136	119	52	101	174	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

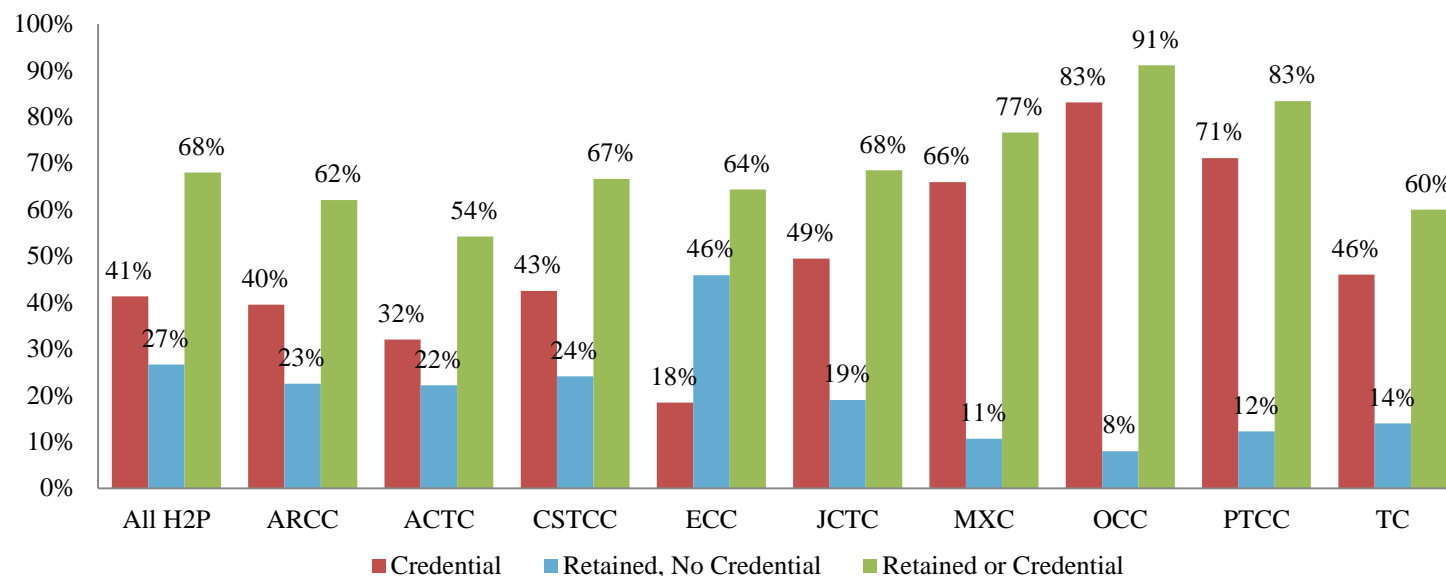


Figure 8. Credential attainment and retention rates for Type 1 H2P participants, by college.

How did credential attainment and retention vary by student subgroup?

The prior section analyzed credential attainment and retention rates for the Consortium overall and for individual colleges. We next investigate whether credential attainment and retention rates varied by student subgroup. We first analyze the number and percentage of Type 1 H2P participants that earned a healthcare credential by Fall 2014, disaggregated both by demographic group and college and found in Table 40 below. In terms of gender, there was not a substantial attainment gap between men and women. Men were 3.5 percentage points less likely to earn a credential compared to females, although males were more likely than females to earn a credential at three of the nine colleges. However, there were larger gaps in attainment based on race/ethnicity. American Indian/Alaskan Native (AIAN) participants had the highest attainment rate, although the number of AIAN participants in the sample was quite small ($n = 22$). Among the subgroups with greater representation, White participants were the most likely to earn a credential, with more than half of White participants (51.0%) receiving a postsecondary award by Fall 2014. In contrast, Latino participants were the least likely to earn a credential, with only 27.2% of Latino participants completing a POS. Approximately 38.5% of both Asian and Black participants earned a credential, whereas 31.3% of multiracial participants and 42.1% of Native Hawaiian/Pacific Islander participants did so, although these latter two subgroups were both quite small. Lastly, 16.0% of participants whose race/ethnicity was unknown earned a credential.

Participants from racial/ethnic minority subgroups were less likely to earn a credential, but participants that were eligible for Pell grants were slightly more likely to earn a credential compared to participants that were not eligible. Approximately 42.5% of Pell eligible participants completed a POS compared to 39.6% of non-eligible participants. Although there was some variability in attainment rates based on age, these differences were not particularly consequential, apart from the youngest subgroup being less likely to earn a credential. Approximately 31.6% of participants who were 19 years old or younger at the time of H2P enrollment earned a credential, whereas all other age subgroups had attainment rates between 39% and 45%. Although not shown in the table, there was no substantive difference in the attainment rates between participants that were not employed in the quarter immediately prior to their enrollment in H2P compared to participants that were employed (42.1% vs. 40.8%).

Table 41 continues this line of inquiry by disaggregating credential attainment based on the length of the credential participants earned. Some of the disparities evident in the previous analysis are likewise apparent in the current analysis. For example, the associate's degree attainment rates for Black and Latino participants (8.4% and 7.5%, respectively) were roughly half the rates for Asian and White participants (18.6% and 15.1%, respectively). Men were more likely than women to earn very short-term certificates (18.9% vs. 16.4%) whereas women were more likely to earn long-term certificates (10.5% vs. 9.3%) and associate's degrees (12.0% vs. 8.2%). Participants in the middle of the age distribution were the most likely to earn long-term certificates and associate's degrees, whereas participants at the ends of the age spectrum (21 and under or 50 and over) were the most likely to earn very short-term certificates. Once again, Pell eligibility did not appear to be a significant determinant of attainment. Participants eligible and not eligible for Pell had roughly similar rates of attaining credentials of different lengths. For example, the difference in associate's degree attainment between these groups was only 0.2%. Pell eligible participants were more likely than non-eligible to earn long-term certificates, however (13.0% vs. 8.7%, respectively). Participants that employed prior to their H2P enrollment were more likely than non-employed participants to earn an associate's degree (12.5% vs. 9.6%), but non-employed participants were more likely to earn credentials of all other lengths.

Table 40. Number and Percentage of Type 1 H2P Participants who Earned Healthcare Credentials by Demographic Group and College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Sex																				
Men	343	16	14	59	53	10	103	33	15	40	38.5	33.3	29.8	29.9	19.3	32.3	70.5	86.8	68.2	44.9
Women	1,675	161	77	344	226	128	145	227	246	121	42.0	40.3	32.6	45.7	18.2	51.8	63.0	82.5	71.3	46.4
Unknown	3	-	-	1	2	-	-	-	-	-	50.0	0.0	0.0	100.0	66.7	0.0	0.0	0.0	0.0	0.0
Race/Ethnicity¹																				
American Indian / Alaskan Native	13	1	-	1	4	-	2	3	2	-	59.1	50.0	-	50.0	66.7	-	100.0	75.0	40.0	-
Asian	66	6	1	5	26	5	12	5	5	1	38.4	28.6	100.0	38.5	26.0	50.0	92.3	83.3	100.0	33.3
Black	447	24	2	149	41	35	118	25	16	37	38.6	48.0	50.0	34.8	17.4	44.3	57.8	71.4	66.7	37.4
Latino	178	5	1	6	90	5	54	9	1	7	27.2	31.3	20.0	75.0	18.1	41.7	64.3	60.0	33.3	50.0
Multi-race	10	1	-	6	-	2	-	-	-	1	31.3	25.0	-	37.5	-	40.0	-	-	-	14.3
Native Hawaiian / Pacific Islander	8	5	-	2	1	-	-	-	-	-	42.1	45.5	-	100.0	33.3	-	-	-	-	-
White	1,233	135	86	234	82	90	57	200	234	115	51.0	39.2	31.9	49.0	26.6	53.6	83.8	85.5	72.0	51.3
Unknown	66	-	1	1	37	1	5	18	3	-	16.0	-	33.3	33.3	9.9	25.0	100.0	94.7	60.0	-
Age at H2P Intake																				
19 and Under	144	7	12	37	10	3	16	37	5	17	31.6	14.0	21.1	48.1	8.2	25.0	41.0	92.5	41.7	36.2
20-21	255	28	16	49	35	12	31	41	19	24	41.1	47.5	32.0	50.5	16.9	52.2	66.0	89.1	54.3	42.1
22-24	372	37	15	64	52	33	51	42	30	48	44.7	49.3	40.5	45.4	19.0	57.9	73.9	95.5	66.7	52.2
25-29	427	51	20	82	52	25	55	49	64	29	44.0	52.0	41.7	42.7	17.5	46.3	70.5	84.5	76.2	47.5
30-34	280	17	8	55	43	17	32	37	49	22	40.7	33.3	25.0	36.4	18.4	50.0	71.1	84.1	83.1	57.9
35-49	446	29	16	92	69	43	53	48	77	19	41.7	31.2	33.3	40.9	21.7	53.8	67.1	66.7	72.6	39.6
50+	94	8	4	23	20	5	9	6	17	2	39.0	40.0	36.4	35.9	29.4	27.8	50.0	66.7	65.4	28.6
Unknown	3	-	2	-	-	1	-	-	-	-	30.0	-	-	66.7	-	-	100.0	-	-	-
Pell Eligibility																				
Eligible	933	61	27	183	111	66	71	163	208	43	42.5	40.4	34.2	40.7	15.8	49.6	71.0	81.5	72.5	45.7
Not eligible	786	24	64	126	170	72	68	97	53	112	39.6	54.5	31.2	48.6	20.7	49.3	91.9	85.8	66.3	45.7
Unknown	302		95			109			6		42.7	36.4	0.0	39.4	0.0	0.0	54.0	0.0	0.0	54.5

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 41. Highest Credential Earned for Type 1 H2P Participants, by Demographic Characteristics

	Number of Participants					Percentage of Participants				
	No Credential	Very Short Certificate	Short Certificate	Long Certificate	Associate's Degree	No Credential	Very Short Certificate	Short Certificate	Long Certificate	Associate's Degree
Sex										
Men	549	169	18	83	73	61.5	18.9	2.0	9.3	8.2
Women	2,315	654	124	418	479	58.0	16.4	3.1	10.5	12.0
Unknown	3	1	2	0	0	50.0	16.7	33.3	0.0	0.0
Race/Ethnicity¹										
American Indian / Alaskan Native	9	5	1	3	4	40.9	22.7	4.5	13.6	18.2
Asian	106	19	3	12	32	61.6	11.0	1.7	7.0	18.6
Black	711	209	43	98	97	61.4	18.0	3.7	8.5	8.4
Latino	476	64	7	58	49	72.8	9.8	1.1	8.9	7.5
Multi-race	22	2	4	4	0	68.8	6.3	12.5	12.5	0.0
Native Hawaiian / Pacific Islander	11	6	1	0	1	57.9	31.6	5.3	0.0	5.3
White	1,186	477	81	310	365	49.0	19.7	3.3	12.8	15.1
Unknown	346	42	4	16	4	84.0	10.2	1.0	3.9	1.0
Age at H2P Intake										
19 and Under	312	99	15	21	9	68.4	21.7	3.3	4.6	2.0
20-21	366	120	15	68	52	58.9	19.3	2.4	11.0	8.4
22-24	461	146	27	109	90	55.3	17.5	3.2	13.1	10.8
25-29	543	151	18	120	138	56.0	15.6	1.9	12.4	14.2
30-34	408	99	13	73	95	59.3	14.4	1.9	10.6	13.8
35-49	623	163	45	95	143	58.3	15.2	4.2	8.9	13.4
50+	147	44	11	14	25	61.0	18.3	4.6	5.8	10.4
Unknown	7	2	0	1	0	70.0	20.0	0.0	10.0	0.0
Pell Eligibility										
Eligible	1,262	346	56	286	245	57.5	15.8	2.6	13.0	11.2
Not eligible	1,200	333	63	172	218	60.4	16.8	3.2	8.7	11.0
Unknown	405	145	25	43	89	57.3	20.5	3.5	6.1	12.6

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

The previous tables focused only on the credentials participants earned by the end of the Fall 2014 semester. But once again, participants could have still been enrolled at their institution at this time. The figures in Table 42 therefore show the percentage of participants that had either earned a credential or were still enrolled by the last term of the study period, disaggregated by student subgroups. Men were slightly less likely than women to have earned a credential or be retained, although once again this gap was not very pronounced (62.0% vs. 66.1%). Black participants were the least likely among racial subgroups with a sufficient sample size (≥ 25) to have earned a credential or maintained enrollment through Fall 2014 (60.7%), but on a positive note all of the larger racial subgroups had credential or retention rates between 60-70%. Asian participants had the highest rate (70.3%) followed by Whites (68.4%) and Latinos (65.0%). Figure 9 displays how attainment or retention rates vary by race/ethnicity. The relationship between age and this outcome is similar to the relationships found in the previous analyses, with little variation between groups in the middle of the age distribution. The youngest and oldest subgroups both had attainment or retention rates under 60% (57.0% and 58.5%, respectively), whereas the remaining categories had rates roughly between 65-68%. Finally, once again we see that Pell eligible participants were more likely than their peers not eligible for Pell to experience positive postsecondary outcomes. More than 70% of Pell eligible participants had earned a credential or were still enrolled by Fall 2014, whereas this was true for 62.3% of participants not eligible for Pell. Although not shown in the table, whether students were employed in the quarter before enrolling in H2P did not impact attainment or retention rates. The rate for participants employed prior to H2P was 65.6% compared to 65.0% for non-employed participants.

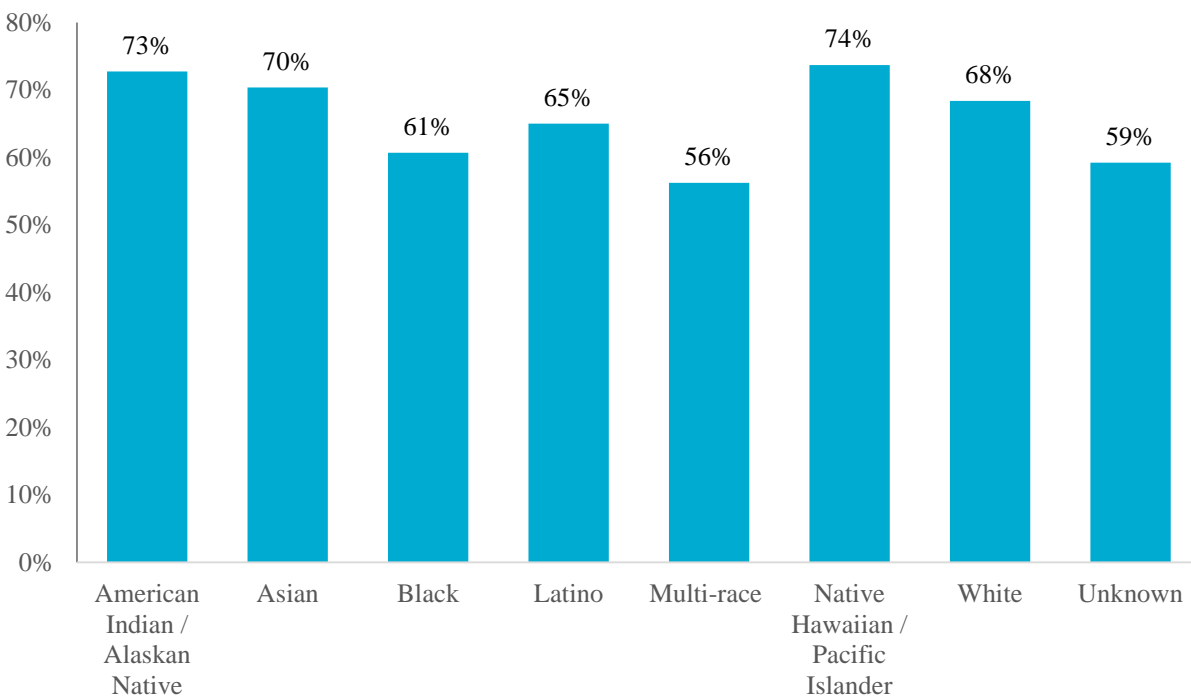


Figure 9. Percentage of Type 1 H2P participants that attained a credential or were retained by Fall 2014, by race/ethnicity.

Table 42. Number and Percentage Type 1 H2P Participants who Earned a Credential or were Retained by Fall 2014, by Demographic Group and College

College	Number of Participants										Percentage of Participants									
	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC	All H2P	ARCC	ACTC	CSTCC	ECC	JCTC	MXC	OCC	PTCC	TC
Sex																				
Men	553	29	22	110	157	20	119	36	15	45	62.0	60.4	46.8	55.8	57.3	64.5	81.5	94.7	68.2	50.6
Women	2,639	244	124	511	740	167	168	242	289	154	66.1	61.0	52.5	68.0	59.5	67.6	73.0	88.0	83.8	59.0
Unknown	3	0	0	1	2	0	0	0	0	0	50.0		0.0	100.0	66.7	0.0				
Race/Ethnicity¹																				
American Indian / Alaskan Native	16	1	0	1	6	0	2	3	3	0	72.7	50.0		50.0	100.0		100.0	75.0	60.0	0.0
Asian	121	12	1	10	65	9	12	5	5	2	70.3	57.1	100.0	76.9	65.0	90.0	92.3	83.3	100.0	66.7
Black	703	33	2	253	122	48	143	28	19	55	60.7	66.0	50.0	59.1	51.9	60.8	70.1	80.0	79.2	55.6
Latino	425	8	3	8	312	9	64	11	2	8	65.0	50.0	60.0	100.0	62.8	75.0	76.2	73.3	66.7	57.1
Multi-race	18	2	0	10	0	5	0	0	0	1	56.3	50.0		62.5		100.0				14.3
Native Hawaiian / Pacific Islander	14	9	0	2	2	1	0	0	0	0	73.7	81.8	0.0	100.0	66.7	100.0				0.0
White	1,654	208	139	337	179	113	61	213	271	133	68.4	60.5	51.5	70.5	58.1	67.3	89.7	91.0	83.4	59.4
Unknown	244	0	1	1	213	2	5	18	4	0	59.2		33.3	33.3	57.3	50.0	100.0	94.7	80.0	0.0
Age at H2P Intake																				
19 and Under	260	23	24	52	72	6	20	37	6	20	57.0	46.0	42.1	67.5	59.0	50.0	51.3	92.5	50.0	42.6
20-21	418	38	22	66	135	16	35	43	28	35	67.3	64.4	44.0	68.0	65.2	69.6	74.5	93.5	80.0	61.4
22-24	560	53	23	91	153	43	55	43	40	59	67.2	70.7	62.2	64.5	56.0	75.4	79.7	97.7	88.9	64.1
25-29	636	64	25	129	160	34	64	52	72	36	65.6	65.3	52.1	67.2	53.9	63.0	82.1	89.7	85.7	59.0
30-34	469	36	20	94	140	21	39	40	54	25	68.2	70.6	62.5	62.3	59.8	61.8	86.7	90.9	91.5	65.8
35-49	704	50	27	152	193	58	63	56	83	22	65.9	53.8	56.3	67.6	60.7	72.5	79.7	77.8	78.3	45.8
50+	141	8	5	35	44	9	10	7	21	2	58.5	40.0	45.5	54.7	64.7	50.0	55.6	77.8	80.8	28.6
Unknown	7	1	0	3	2	0	1	0	0	0	70.0	50.0	0.0	100.0	100.0	0.0	100.0			
Pell Eligibility																				
Eligible	1,545	109	44	300	427	98	86	179	241	61	70.4	72.2	55.7	66.7	60.9	73.7	86.0	89.5	84.0	64.9
Not eligible	1,238	34	102	181	472	89	71	99	63	127	62.3	77.3	49.8	69.9	57.6	61.0	95.9	87.6	78.8	51.8
Unknown	412	130	0	141	0	0	130	0	0	11	58.3	51.4		58.5			64.4			100.0

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Thus far we have analyzed the relationship between student characteristics and postsecondary outcomes using only descriptive characteristics. To better isolate the relationship between specific student variables and these postsecondary outcomes, we use logistic regression. This technique is commonly used when the outcome variable of interest is dichotomous (yes/no). The estimates of the independent variables included in the model represent the difference in the likelihood of the outcome occurring between the included and excluded categories, controlling for all other variables in the model. These likelihood estimates take the form of odds ratios. For example, in terms of race/ethnicity, the White subgroup was excluded from the model, so the estimates for the race/ethnicity categories included in the model represent the difference in the odds of the outcome occurring between the listed race/ethnic category and White participants. An odds ratio of 1 indicates there was no difference between groups, odds ratios less than 1 indicate a decrease in the probability of the outcome occurring for the group included in the model, whereas an odds ratio greater than 1 represents an increase in likelihood of the outcome occurring. Logistic regression also produces the significance level of the estimate, which represents the probability that a difference of that magnitude would have been found by chance if there was actually no relationship in the population.

The results of the logistic regression analyses are presented in Table 43. The table includes four separate models that were fit to four different outcomes: 1) whether participants had earned a credential or were still retained by Fall 2014, 2) whether participants earned any credential, 3) whether participants had earned a long-term certificate or associate's degree, and 4) whether participants earned an associate's degree. The results of these analyses show that Black participants were significantly less likely than Whites to have earned a credential or still be enrolled by Fall 2014, but this was the only significant racial/ethnic difference for this outcome. However, both Black and Latino participants had significantly lower odds of the outcome occurring for the three models looking at different types of attainment. Male participants were significantly less likely than women to be retained or have earned a credential in all models. Pell eligible participants had significantly higher odds than participants not eligible for Pell in the first and third models, but the differences were not significant in the second and fourth models. The youngest subgroup of participants had the lowest odds in every analysis, whereas one of the middle three age subgroups (22-24, 25-29, and 30-34) having the highest odds in each analysis. Interestingly, being assigned to developmental education in math or English did not have an impact on the attainment or retention outcome, but developmental education placement had a significantly negative impact on most of the attainment outcomes. Participants that enrolled in at least one developmental education math or "other" course were significantly less likely to earn any credential and to earn an associate's degree, and all of the developmental education variables were significantly and negatively related to whether participants earned a long-term certificate or associate's degree. The models also controlled for whether participants had attended a different college prior to enrolling in their H2P college, although this variable was not significant in any of the models. Finally, the models also controlled for the college participants attended, but differences between colleges should be interpreted cautiously given that the types of POS that were impacted by H2P differed considerably between colleges.

Table 43. Logistic Regression Models of Credential Attainment and Retention for Type 1 H2P Participants

	Credential or Retained		Any Credential		Long Certificate or Associate's		Associate's	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
Race/Ethnicity¹ (White)								
American Indian / Alaskan Native	.964	.946	1.069	.900	.794	.639	.834	.751
Asian	1.364	.123	.978	.908	.878	.508	.921	.709
Black	.602	.000	.576	.000	.615	.000	.642	.002
Latino	1.029	.814	.666	.003	.621	.001	.410	.000
Multi-race	.533	.102	.417	.035	.446	.150	.000	.998
Native Hawaiian / Pacific Islander	1.374	.597	1.189	.751	.183	.104	.255	.194
Unknown	.836	.182	.407	.000	.161	.000	.043	.000
Male	.833	.041	.794	.018	.794	.029	.732	.027
Pell Eligible	1.194	.017	.922	.301	1.402	.000	1.154	.206
Age Category (19 or <)								
20-21	1.420	.019	1.451	.023	2.680	.000	3.837	.000
22-24	1.353	.031	1.668	.001	3.545	.000	5.286	.000
25-29	1.209	.166	1.577	.002	4.185	.000	7.652	.000
30-34	1.392	.024	1.457	.019	3.990	.000	8.349	.000
35-49	1.239	.119	1.300	.082	3.075	.000	6.917	.000
50+	1.235	.283	1.425	.093	2.076	.007	5.457	.000
Developmental Education								
Any DE Math	.994	.952	.475	.000	.127	.000	.070	.009
Any DE English	.969	.840	1.092	.577	.115	.003	.000	.996
Any DE Other ²	1.820	.036	.516	.037	.271	.000	.225	.000
Different College	.968	.313	.981	.545	.965	.183	.955	.141
H2P College (CSTCC)								
ARCC	.446	.000	.411	.000	1.073	.752	12.008	.000
ACTC	4.673	.000	5.228	.000	2.286	.000	9.533	.000
MXC	.590	.000	.263	.000	1.627	.001	15.346	.000
ECCC	.922	.625	.975	.875	4.247	.000	20.603	.000
JCTC	3.052	.000	5.467	.000	2.717	.000	19.073	.000
OCC	1.767	.001	2.068	.000	6.846	.000	11.951	.000
PTCC	.556	.000	.773	.075	3.210	.000	11.290	.000
TC	2.017	.000	1.071	.673	.062	.000	.003	.000

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

²The "Other" category for developmental education includes courses such as English as a Second Language, student success courses, and first-year seminar courses.

Impact of H2P on Participants' Educational Outcomes

As mentioned in the introduction to this chapter, the goal of our analysis of H2P is not only to describe the educational outcomes of H2P participants and to examine the relationship between student characteristics and educational outcomes, but also to estimate the impact H2P had on the educational outcomes of healthcare students at the H2P colleges. OCCRL and the H2P Consortium elected to use a Retro sample of healthcare students as a comparison group in order to estimate the extent to which H2P improved student outcomes. We will first describe in greater detail how this Retro sample was selected by the colleges and the methods OCCRL used to estimate the impact of H2P on healthcare students' outcomes before presenting our results.

OCCRL instructed H2P colleges to select a Retro sample of students by identifying all students that were "enrolled in a healthcare program of study" during the Fall 2009 semester, three years prior to the full implementation of H2P at most colleges (Fall 2012). Whereas these same instructions were provided to all H2P colleges, each college executed the process independently and ended up using somewhat different methods based on a variety of considerations, such as the availability of specific variables, when the college introduced specific POS, and the like. For example, some colleges selected the Retro cohort using students' declared major and/or POS, whereas other colleges selected students who enrolled in specific courses, such as nursing or biomedical technology courses, to identify healthcare students. These varying methods for selecting the samples meant the Retro student samples varied between colleges.

Few H2P colleges funded all of their healthcare POS through H2P, so in many instances colleges' Retro samples consisted of students enrolled in different POS than the H2P sample, even though all POS were in healthcare. For example, some colleges did not impact their LVN programs, but the Retro samples for those colleges included students enrolled in that POS. In order to further increase the rigor of this analysis and ensure the comparability of the H2P and Retro samples, we decided to further subset both samples to specific POS at specific colleges with sufficient numbers of students (> 30). These POS ended up being exclusively ADN and LVN programs, as no other POS had sufficient numbers of students in both time periods. Six of the nine colleges had at least one ADN or LVN cohort with 30 or more students and are thus included in these impact analyses. Three of these six colleges are included in the ADN analysis, and five of the colleges are included in the LVN analysis.⁷ After selecting the POS with sufficient numbers in both the Retro and H2P samples, we identified the specific courses that were required during the first semester of these programs. These courses were identified both by reviewing the actual course catalogs for the POS at each college and by analyzing student progression through courses in the course data submitted to OCCRL by each college. Students who enrolled in one of these courses during at least one of the first two long semesters were included in the impact study cohorts. Overall, then, our impact analyses are focused on estimating whether H2P made a significant impact on the likelihood that LVN and ADN students at six of the nine colleges would complete their POS within five long semesters (Fall 2009 to Fall 2011 for Retro students, and Fall 2012 to Fall 2014 for H2P participants). The demographic characteristics of the Retro and H2P impact samples at each college are presented in Table 44 below.

⁷ LVN students at CSTCC during the H2P timeframe were included, but the Retro sample did not include LVN students.

Table 44. Demographic Characteristics (Percentages) of H2P Participant and Retro Cohort Postsecondary Samples, by College

	H2P Cohort							Retro Cohort					
	All H2P	ARCC	CSTCC	JCTC	OCC	PTCC	TX	All Retro	ARCC	JCTC	OCC	PTCC	TX
Sex													
Men	12.3	15.3	17.9	6.9	10.2	7.9	11.0	10.9	10.7	14.3	10.7	12.7	6.3
Women	87.7	84.7	82.1	93.1	89.8	92.1	89.0	89.1	89.3	85.7	89.3	87.3	93.8
Race/Ethnicity¹													
American Indian / Alaskan Native	1.1	0.0	0.0	0.0	2.0	4.8	0.0	0.2	0.0	0.0	0.0	0.0	1.6
Asian	1.6	2.4	3.0	0.0	2.0	0.0	1.2	2.4	2.5	5.7	1.5	0.0	3.1
Black	26.4	7.1	50.7	20.7	20.4	12.7	42.7	10.7	6.3	14.3	0.0	16.9	32.8
Latino	1.6	0.0	0.0	3.4	6.1	0.0	2.4	3.0	1.9	1.4	6.9	1.4	1.6
Multi-race	1.6	0.0	6.0	0.0	0.0	0.0	2.4	0.2	0.0	1.4	0.0	0.0	0.0
Native Hawaiian / Pacific Islander	0.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown	0.5	0.0	1.5	3.4	0.0	0.0	0.0	5.7	1.9	1.4	15.3	5.6	0.0
White	66.9	89.4	38.8	72.4	69.4	82.5	51.2	77.8	87.4	75.7	76.3	76.1	60.9
Age at Cohort Start Date													
19 and Under	2.7	3.5	3.0	0.0	0.0	0.0	6.1	4.2	5.0	1.4	3.1	1.4	10.9
20-21	14.4	15.3	13.4	6.9	2.0	14.3	24.4	13.5	20.8	8.6	10.7	2.8	18.8
22-24	18.1	16.5	14.9	27.6	20.4	9.5	24.4	16.4	15.7	12.9	16.0	16.9	21.9
25-29	23.2	20.0	23.9	24.1	24.5	28.6	20.7	20.8	20.1	20.0	23.7	25.4	12.5
30-34	14.4	18.8	20.9	3.4	12.2	14.3	9.8	13.7	16.4	20.0	9.9	9.9	12.5
35-49	23.7	22.4	20.9	31.0	36.7	28.6	13.4	27.5	20.8	32.9	31.3	36.6	20.3
50+	3.2	2.4	3.0	6.9	4.1	4.8	1.2	3.2	0.6	4.3	4.6	5.6	3.1
Unknown	0.3	1.2	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.8	1.4	0.0
Pell Eligibility													
Eligible	57.1	48.2	58.2	55.2	71.4	84.1	36.6	34.7	30.8	50.0	26.7	56.3	20.3
Not eligible	27.5	0.0	20.9	44.8	28.6	15.9	63.4	19.4	0.0	0.0	73.3	0.0	0.0
Unknown	15.5	51.8	20.9	0.0	0.0	0.0	0.0	45.9	69.2	50.0	0.0	43.7	79.7

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Our impact analyses consist of three methods. First, we calculate descriptive statistics, such as the percentage of students that earned credentials, to compare the H2P and Retro samples. However, as mentioned previously, mean differences may be a misleading representation of the impact of H2P, particularly if the samples of H2P and Retro samples are significantly different. Interestingly, there are some notable differences between the two samples in terms of the demographic characteristics and prior educational experiences. As shown in Table 44, approximately 11% more of the Retro sample was White compared to the H2P sample (77.8% vs. 66.9%), whereas the percentage of Black students in the H2P sample was more than twice as high as the percentage in the Retro sample (26.4% vs. 10.7%). The H2P sample also had a higher percentage of Pell eligible students, although this is likely due to the higher rate of missing data in the Retro sample. Finally, the two samples also differed considerably in terms of their prior educational attainment, as reflected in Figure 10. Retro students were far more likely to have a high school diploma or GED as their highest level of education, but were also far more likely to have an Associate's Degree. In contrast, H2P participants were more likely to have attended college without receiving a credential or to have attained a postsecondary certificate.

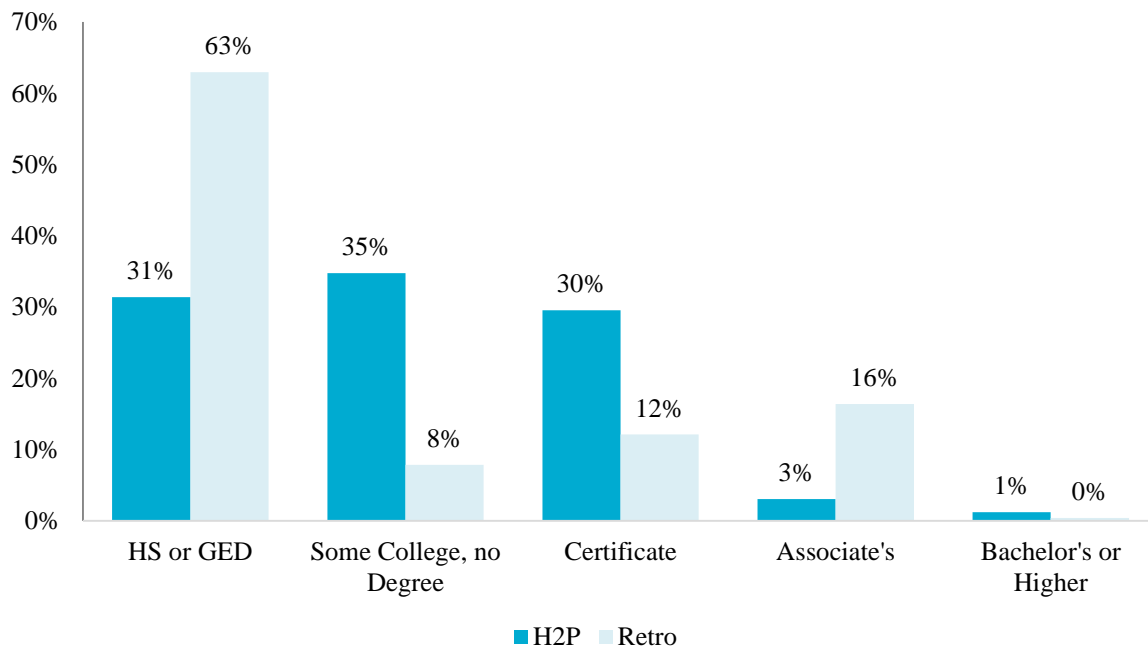


Figure 10. Prior educational attainment of H2P and Retro postsecondary impact samples.

Given these demographic and educational differences between the samples, it is important to control for these differences in order to more accurately estimate the impact of H2P on students' educational outcomes. This will be done in two ways. First, logistic regression will be used as it was in the analysis of the relationship between demographic characteristics and educational outcomes for Type 1 H2P participants. Second, we will also use a more sophisticated methodological approach known as propensity score matching (PSM). Although a thorough description of this technique is beyond the scope of this section, PSM allows the researcher to create treatment and control groups that are more balanced on background characteristics (Dehejia & Wahba, 2002; Rosenbaum & Rubin, 1983). In this instance, the result of this technique is samples of H2P and Retro students that are statistically equivalent on variables such as race/ethnicity, gender, Pell eligibility, age, and prior educational attainment. Balancing the samples in this way allows for greater confidence that mean differences between the groups on outcomes of interest represent the true impact of the H2P intervention. We will

therefore present the mean differences between the groups on credential attainment rates before turning to our more sophisticated analyses estimating the impact of H2P on student outcomes.

What impact did H2P have on the likelihood that healthcare students completed their POS?

We begin with our analysis of the relative completion rates of H2P and Retro students in LVN/LPN programs at four co-grantee colleges (CSTCC students were included in the H2P impact sample but there were no LVN students in their Retro sample, so CSTCC is not included in this analysis). Across these four colleges, H2P LVN/LPN students were less likely to complete their program compared to Retro students (64% vs. 73%). However, as evidenced by Figure 11, the relative attainment rates for the H2P and Retro samples varied considerably across colleges. In OCC, H2P participants were approximately 22% more likely to complete their POS. At PTCC, 86% of both the H2P and Retro samples were awarded the LVN certificate. At JCTC, Retro students were slightly more likely (5%) to complete their program, whereas at TC the Retro cohort had a considerably higher probability of earning the LVN certificate (67% vs. 41%). It should be mentioned that TC experienced a number of changes unrelated to H2P that are likely contributors to the declining completion rate, including a change from a quarter to a semester scheduling system and a revamped LVN curriculum which now requires LVN students to complete courses that were traditionally only required of ADN students. Excluding TC, H2P participants at the other three colleges were actually more likely to complete their LVN/LPN compared to Retro students (80% vs. 75%).

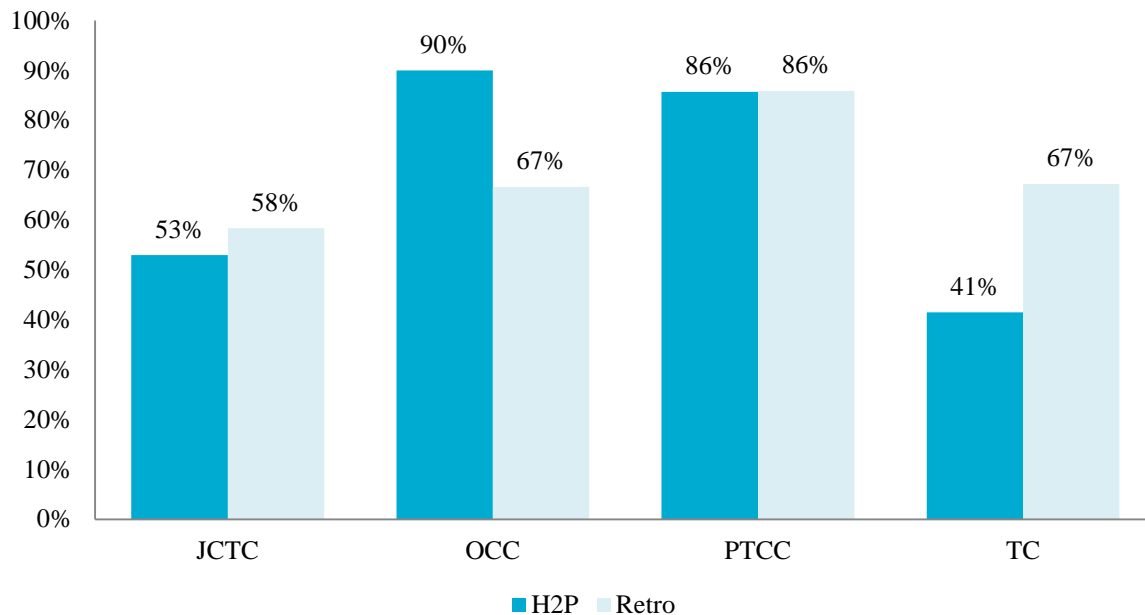


Figure 11. Long-certificate attainment rates for LVN/LPN students in Retro and H2P postsecondary impact samples.

We next turn to our analysis of ADN students at three of the colleges, presented in Figure 12 below. In this instance, H2P and Retro students in ADN programs had nearly equivalent completion rates (67.6% vs. 68.4%), but once again completion rates varied by college. H2P participants exhibited higher completion rates compared to Retro students at both JCTC (83% vs. 74%) and OCC (54% vs. 48%), whereas the Retro students were more likely to complete their program at ARCC (79% vs. 72%).

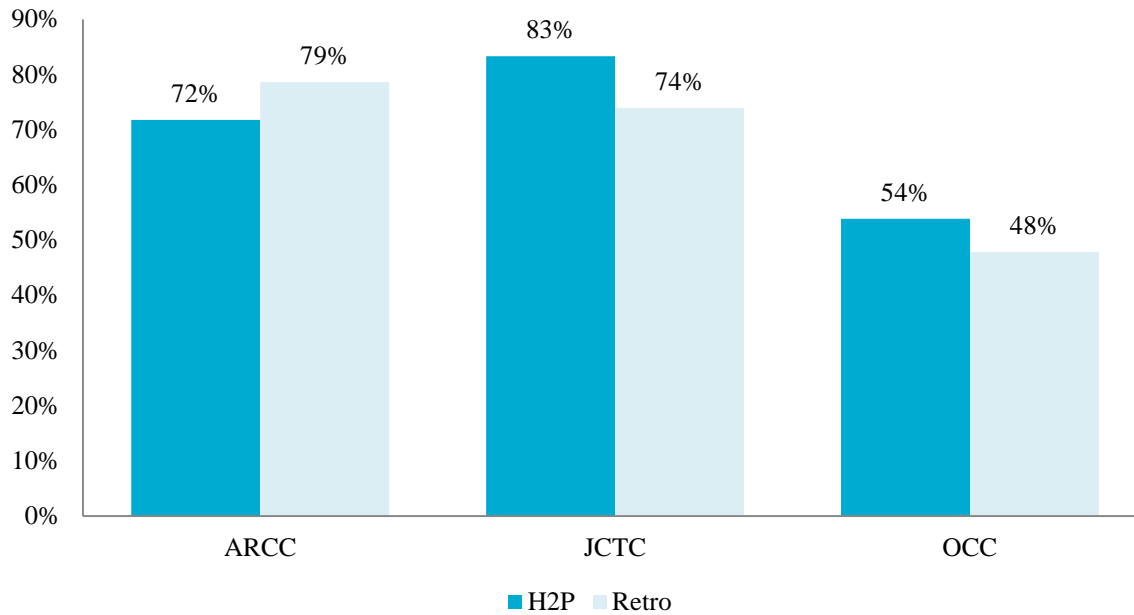


Figure 12. Associate's degree attainment rates for ADN Students in H2P and Retro samples.

Although our primary interest in these analyses is whether H2P participants were more likely than Retro students to complete their POS, another important component of the H2P initiative was the emphasis on stackable credentials that are part of career pathways. We therefore analyzed the rates at which H2P and Retro students completed multiple credentials (see Figure 13). Although few LVN and ADN students overall completed multiple credentials, it does appear that H2P participants were considerably more likely to do so than the Retro sample. Approximately 3% of H2P participants in these targeted programs completed more than one credential, compared to 0.6% of Retro students.

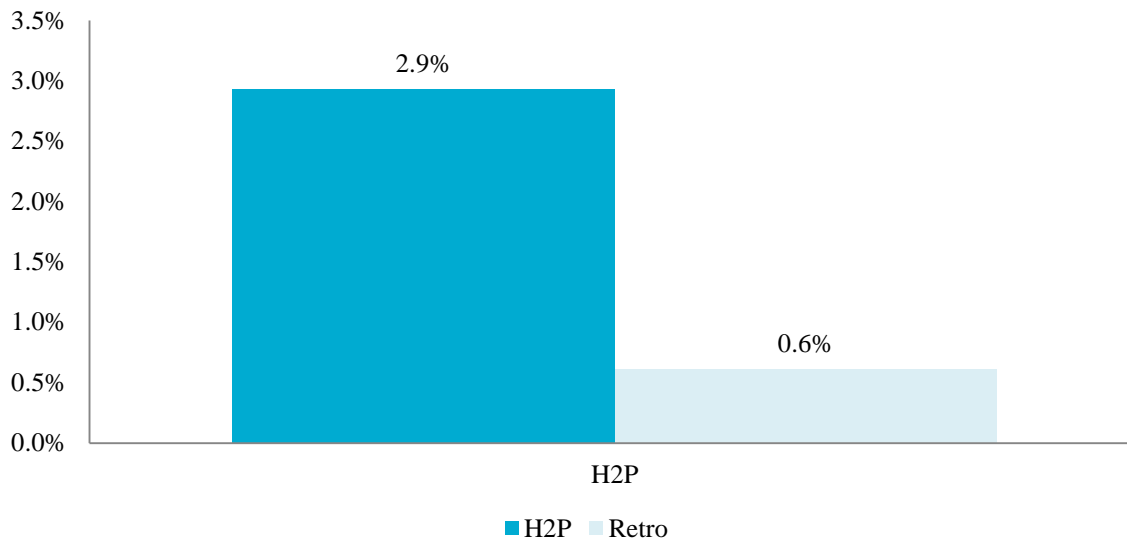


Figure 13. Rates of multiple credential attainment for Retro and H2P postsecondary impact samples.

When the LVN/LPN and ADN samples are combined across the six colleges included in this analysis and the aggregate credential attainment rates for H2P and Retro students are compared, the Retro sample had a slightly higher completion rate, as evidenced in Figure 14. Approximately 71% of students in the Retro sample completed their POS compared to 68% of H2P participants.

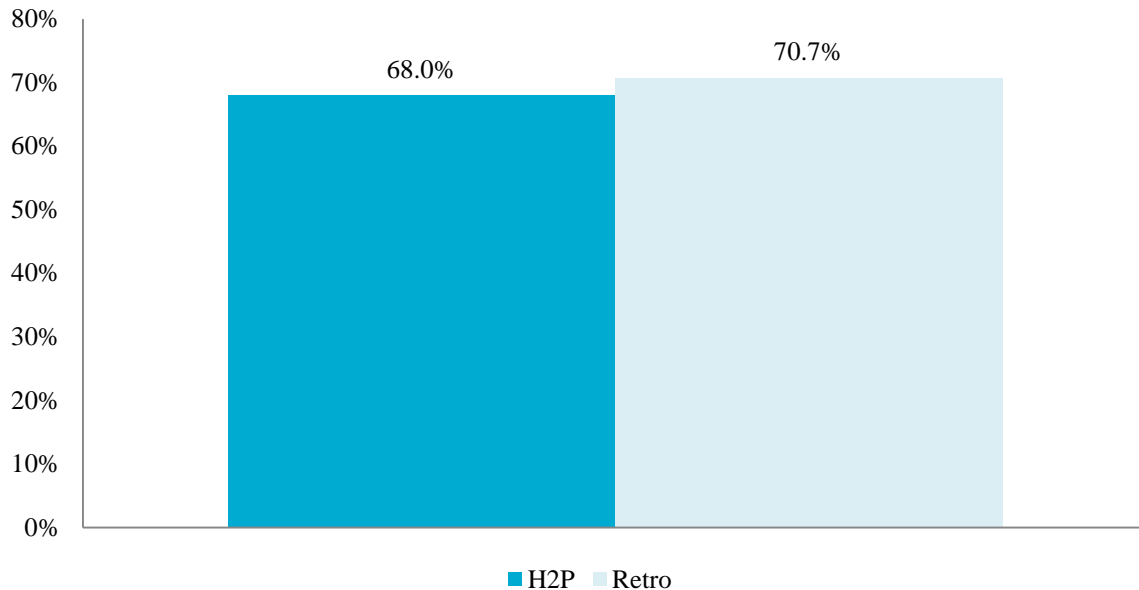


Figure 14. Aggregate credential attainment rates for H2P and Retro postsecondary impact samples.

As mentioned above, it is important to statistically control for the demographic differences between the H2P and Retro samples to better isolate the impact of H2P on attainment. Our first approach is to utilize logistic regression, the results of which are presented in Table 45. This table includes the results from three statistical models. The first model includes all LVN/LPN and ADN students in the sample, the second model restricts the sample to LVN/LPN students, and the third model restricts the sample to ADN students. In all models, the H2P variable represents the difference in the likelihood of the outcome occurring, controlling for all other variables in the model. The results of the logistic regression analysis show that H2P participants had higher odds of completing their POS once student characteristics had been controlled for in two of the three models. When the LVN/LPN and ADN samples were combined, H2P participants had 61% higher odds of completion, and this difference was marginally significant ($p = .059$). The estimated impact of H2P in the LVN/LPN sample was even larger but this difference was not statistically significant, possibly due to the smaller sample size and lack of statistical power to detect significant effects. H2P participants had slightly lower odds compared to Retro students in the ADN sample, but this was also not a significant difference. A number of student background characteristics were also found to significantly affect the likelihood that students would earn a credential. Across most analyses, non-White students had lower attainment rates than White students, men were less likely to complete their ADN than women, and Pell eligible students were more likely than students not eligible for Pell to complete, results seen in the previous descriptive analyses as well.

Table 45. Logistic Regression Models of Postsecondary Impact Analyses, by POS Sample Type

	All Impact Sample		LVN Sample		ADN Sample	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
H2P	1.610	.059	1.898	.145	.904	.765
Race/Ethnicity¹						
American Indian / Alaskan Native	.046	.014	.034	.012	*	*
Asian	.229	.050	.216	.120	.175	.164
Black	.439	.003	.333	.002	1.019	.974
Latino	.721	.548	.229	.131	1.672	.480
Multi-race	.482	.445	.655	.678	*	*
Unknown	.275	.007	.079	.006	.654	.459
Male	.832	.547	.840	.699	.323	.015
Pell Eligible	1.921	.009	2.057	.033	2.116	.066
Age Category						
20-21	3.961	.056	6.611	.033	*	*
22-24	3.805	.059	6.379	.036	1.067	.916
25-29	2.415	.203	2.772	.233	.942	.918
30-34	2.948	.132	8.950	.018	.599	.406
35-49	1.625	.483	3.321	.165	.566	.320
50+	1.113	.900	.994	.996	.774	.787
Any Developmental Education	1.065	.916	.977	.979	.953	.953
Different College	1.071	.755	1.436	.259	.746	.359
Employed Pre-Cohort	1.434	.269	2.729	.035	1.391	.489
Pre-Cohort Credits Earned	1.048	.020	1.032	.248	1.047	.140

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

In the final analysis, we use PSM techniques to further reduce bias in our estimates of the impact of H2P. The PSM models match students on all of the variables controlled for in the logistic regression models above and also match students based on the H2P college they attended. We used Stata's *teffects* procedure to match the samples and estimate the average treatment effects (ATE), which represents the mean difference in the outcome variable between the H2P and Retro groups after these two samples have been matched. The specific PSM procedure is referred to as nearest-neighbor matching, which matches each observation in the treatment group to the observation in the control group with the closest estimated propensity score (Dehejia & Wahba, 2002). Once again, we fit three separate models to estimate the impact of H2P on the combined sample, the LVN/LPN sample, and the ADN sample.

The results of our PSM models are found in Table 46 below. The table includes the ATEs as well as the significance level of this mean difference. The estimates of the effect of H2P in the PSM analyses are similar to the estimates produced by the logistic regression models, with some slight differences. In this instance, H2P participants are roughly 7% more likely to complete their POS when the two samples are combined, but this difference is not statistically significant as it was in the logistic regression analysis. In contrast, the impact of H2P was significant for the LVN/LPN sample, with H2P participants being 18% more likely than Retro students to complete their program. Another difference between this analysis and the previous one is that H2P ADN students were slightly more likely than their Retro peers to complete their ADN in Nursing in the PSM analysis, although once again this difference was not significant. Both the logistic regression and PSM analyses provide some evidence showing the benefit H2P had on the postsecondary attainment rates of healthcare students, particularly those in LVN/LPN programs, although these benefits were not found across all POS at all colleges.

Table 46. PSM Estimates of H2P Postsecondary Treatment Effect, by Sample

	All Impact Sample		LVN Sample		ADN Sample	
	ATE	Sig.	ATE	Sig.	ATE	Sig.
H2P	6.99%	.148	18.04%	.000	0.39%	.941

CHAPTER 5: EMPLOYMENT OUTCOMES OF H2P PARTICIPANTS

The previous chapter explored the educational outcomes of H2P participants and the impact H2P had on the likelihood that students' would complete their POS and earn a postsecondary credential. This chapter expands this analysis by examining H2P participants' labor market outcomes and estimating the impact of H2P on students' employment and earnings. The research questions that will be addressed in this chapter are:

- 1) What were the pre-H2P employment experiences of H2P participants?
- 2) What were the employment outcomes of H2P participants?
- 3) How did employment outcomes vary by credential length and POS?
- 4) How much wage growth did participants experience as a result of H2P participation?
- 5) How did wage growth vary by credential length and POS?
- 6) What student characteristics were related to participants' employment outcomes?
- 7) What impact did H2P have on students' employment outcomes?
- 8) Did H2P have an equivalent impact for different student subgroups?

Overview of Employment Outcomes Methods

We begin with an overview of our data sources and methods, although greater detail on the particular methods used in each analysis is provided immediately prior to the presentation of those results. Similar to the previous chapter, the first set of research questions is addressed using Type 1 H2P participants, who were identified by the colleges as being enrolled in an H2P-impacted POS. In addition to the extensive amount of postsecondary data on these participants colleges provided to OCCRL, we were able to obtain student-level employment and wage data by retrieving UI wage records for participants from all colleges, apart from the two colleges from Kentucky (ACTC and JCTC). However, we were also unable to verify the accuracy of wage data for participants from TC. The labor market analyses of Type 1 H2P participants are therefore focused on six of the nine H2P colleges (ARCC, CSTCC, ECC, MXC, OCC, and PTCC). The UI wage data used in our analyses covers a span of approximately five years, from the first quarter of 2010 through the first quarter of 2015. The overwhelming majority of participants (>99%) did not begin enrolling in H2P until 2012, meaning that we have wages for at least two years prior to H2P enrollment for nearly all participants. Using roughly eight quarters of pre-enrollment wages allows us to accurately account for students' average pre-H2P earnings capacity, and thus more precisely estimate the impact of H2P on students' earnings growth.

The collection and reporting of employee wages is mandated by the federal government through the Social Security Act (SSA) and the Federal Unemployment Tax Act (FUTA), although each state maintains its own UI wage data system (Aspen Institute, 2014; Feldbaum & Harmon, n.d.). FUTA requires the collection of wage data for the majority of workers, but not all. Categories of employment that are generally not covered by states' UI wage systems include: 1) self-employment, 2) certain agricultural labor and domestic service, 3) service for relatives, 4) service of patients in hospitals, 5) certain student interns, 6) certain alien farm workers, 7) certain seasonal camp workers, and 8) railroad workers (Feldbaum & Harmon, p. 6).

Although an estimated 99.7% of all wage and salary workers and 89% of the civilian labor force in the US is covered by UI wage collection (Feldbaum & Harmon, p. 7), there are a number of important

limitations of this data source. The first stems from the fact that each state maintains its own wage record database. If a student who completes college in one state moves to another state for employment, it is often difficult for the college to obtain that student's employment data. This can particularly affect colleges that are close to the border of another state and/or for whom many of their graduates cross state lines. Second, average coverage of wage and salary workers is quite high, but coverage is likely lower for underserved populations and/or those who are disconnected from the formal workforce, populations which are often served by community colleges. Finally, whereas the presence of a student's wage record provides fairly definitive evidence (barring issues such as data-entry errors) that a student was employed, the absence of wage records does not allow one to definitively conclude that the student was unemployed. This is due to the reasons mentioned above and to the precise definition of unemployment used by the Federal Government in which a worker must both be out of a job and seeking employment.

These limitations of UI wage data lead to a number of caveats regarding our results. The first is that our estimates of H2P participants' employment and earnings are likely conservative given the possibilities for missing data, particularly stemming from students crossing state boundaries or working in industries not covered by UI wage systems. Put differently, the percentage of students employed and their true earnings are likely higher than our estimates. The second is that our calculations of wage gains will only be for those participants who had wage data prior to their enrollment in H2P. This may also lead to a conservative estimate of the benefits of H2P participation given that unemployed workers and those disconnected from the labor force would be expected to receive the greatest employment benefits of H2P, but such participants are excluded from wage gain analyses given their lack of pre-H2P wage data. Finally, we are able to infer that participants with wage data are employed, but we will abstain from interpreting a lack of wage data as unemployment. We used the term "non-employed" to describe participants for whom we do not have UI wage data, keeping in mind that these participants may be employed in different states or in industries not covered by states' UI wage systems.

We used both descriptive and inferential statistics to address the research questions in this chapter. However, researchers have noted some concerns about using earnings data in either descriptive or inferential analyses. The issue stems from the presence of outliers, or individuals whose wages are substantially different than the majority of individuals in the sample. When calculating the mean earnings of a sample, for example, the presence of a single outlier can dramatically alter the mean. Researchers therefore recommend some minor modifications to analyses using earnings data. For descriptive analyses, median earnings rather than the mean are often perceived as a more accurate representation of the average. We will therefore present both statistics but focus our discussion on the medians. For inferential analyses, researchers recommend taking the logarithm of earnings before fitting a regression model to the data (Mincer, 1974). This decreases the influence of outliers and results in less bias in the statistical estimates of the relationship between independent variables and the outcome. However, this changes the interpretation of the analyses. Instead of estimates representing a change in the absolute value of earnings (e.g., a \$500 increase in wages) they now represent a percent change in the outcome (e.g., a 5% increase in wages). This will become clearer during the presentation of our inferential results.

In order to estimate the impact of H2P on students' labor market outcomes, we will once again utilize the Retro samples of healthcare students provided by colleges. These analyses will therefore investigate whether H2P participants experienced greater wage gains and higher probabilities of employment compared to Retro students. While we will also use PSM techniques in these analyses, we would like to reiterate our recommendations of caution in interpreting these estimates. Any differences in employment or wage gains between H2P and Retro students could have been caused by the H2P reforms, but they could also have been caused by a number of broad macroeconomic factors

that influence workers' labor market outcomes. It is well documented that the peak of the Great Recession was from roughly 2009 to 2010 (Bureau of Labor Statistics, 2015; Elsby, Hobijn, & Şahin, 2010), the precise time span for the Retro sample. It is likely that H2P participants entered a more favorable economic environment than their Retro peers, which would result in H2P participants having better employment outcomes regardless of the efficacy of H2P. However, research also shows that recessions often cause individuals to return to schooling, particularly those who lose employment during such economic downturns (Hillman & Orians, 2013). Thus, H2P participants might also be lower achieving or at greater risk of unemployment on average than students in the Retro sample, which would result in H2P participants having worse labor outcomes than their peers. Despite utilizing the most rigorous quantitative methods at our disposal to estimate the impact of H2P on students' labor outcomes, it is difficult to determine the extent to which our estimates approximate the true "effect" of H2P on employment and earnings. The results should therefore be interpreted as suggestive, rather than definitive.

Employment Outcomes of Type 1 H2P Participants

What were the pre-H2P employment experiences of Type 1 H2P participants?

We begin by analyzing the employment and earnings of H2P participants prior to H2P, found in Table 47 below. Before discussing these results, the following are the definitions of the variables in the analyses and how they were calculated:

- Employed Pre-H2P – The student was employed at any point during 2010 or 2011.
- Employed Pre-Quarter – The student was employed in the quarter immediately preceding the quarter they enrolled in H2P.
- Mean Pre-H2P Earnings - The mean earnings for participants across all quarters in 2010 and 2011.
- Median Pre-H2P Earnings – The median earnings for participants across all quarters in 2010 and 2011.
- Minimum Pre-H2P Earnings – The minimum earnings participants earned across all quarters in 2010 and 2011.
- Maximum Pre-H2P Earnings – The maximum earnings participants earned across all quarters in 2010 and 2011.
- Pre-Quarter Earnings – The earnings participants earned in the quarter immediately preceding the quarter in which they enrolled in H2P.

It should be mentioned that each of the above variables is student-level. For example, the Mean Pre-H2P Earnings represents the mean earnings across quarters for an individual student. We then derive the means and medians for the variables listed above for the entire sample of participants. The table below provides both group medians for student-level mean variables and group means for student-level median variables, so it is important to keep in mind the distinction between the student-level variables in the rows and the aggregate variables in the columns to understand how the figures are calculated.

Across H2P colleges, approximately three-fourths of participants (75.8%) were employed for at least one quarter during the two years prior to the start of H2P, meaning one in every four participants had no wage data during that time period. The percentage of participants that were employed in the

quarter immediately prior to enrolling in H2P was even lower at less than two-thirds (64.8%). However, the vast majority of participants (87.7%) worked for at least one quarter during the H2P timeframe, and the percentage of participants who worked during H2P was as high as 92.0% at some colleges. H2P participants' median earnings were \$3,829 across colleges, which translates into annual earnings of \$15,316. The median also fluctuated considerably across colleges, from a low of \$3,212 at OCC to a high of \$4,327 at ECC. Participants' earnings in the quarter immediately preceding their enrollment in H2P were higher on average than their mean and median earnings across the pre-H2P timeframe, which is to be expected given that earnings generally increase over time.

What were the employment outcomes of H2P participants?

We next analyze the mean and median earnings and employment outcomes of Type 1 H2P participants at each college, found in Table 48 below. The following are the definitions of the variables in the analyses and how they were calculated:

- Employed H2P – The student was employed at any point during the H2P timeframe from 2012 through the first or second quarter of 2015.
- Employed Post-H2P – The student was employed during the last quarter of 2014 or the first two quarters of 2015⁸, the last three quarters for which we have UI wage data.
- Employment Change – The difference between the percent of participants employed post-H2P and the percent employed in the quarter preceding their enrollment in H2P.
- Max Final Earnings – The maximum quarterly earnings for participants over the last three quarters of the H2P timeframe, the last quarter of 2014 and the first two quarters of 2015.
- Mean Final Earnings – The mean quarterly earnings for participants over the last three quarters of the H2P timeframe, the last quarter of 2014 and the first two quarters of 2015.
- Median Final Earnings – The median quarterly earnings for participants over the last three quarters of the H2P timeframe, the last quarter of 2014 and the first two quarters of 2015.
- Mean Earnings Gain – The difference between Mean Final Earnings and Mean Pre-H2P Earnings.
- Median Earnings Gain – The difference between Median Final Earnings and Median Pre-H2P Earnings.
- Pre-Quarter Earnings Gain – The difference between Max Final Earnings and Pre-Quarter Earnings.

Once again, approximately three-fourths of participants were found to be employed, although in this instance the time period covers only three quarters compared to two years for the Employed Pre-H2P variable. When compared to the percentage of participants that were employed in the quarter immediately prior to their enrollment in H2P, there was a 10.3 percentage point increase in the employment rate. Student earnings also increased significantly between pre- and post-H2P for every earnings variable calculated. Mean earnings increased from \$3,718 to \$5,258, and median earnings increased from \$3,829 to \$5,259. Across colleges, then, the median earnings gain between pre- and post-H2P was approximately \$1,400, or roughly a 37% increase in quarterly earnings. This gain was at least \$1,200 for participants from all colleges in the sample, and median earnings gains ranged from approximately \$1,200 to \$1,750. And perhaps most importantly, the earnings gains participants

⁸ 2015 Quarter 2 wages are only available for the Minnesota colleges, Anoka and Pine Tech. 2015 Quarter 1 is the last quarter of available wages for all other colleges that supplied us with UI wage data.

experienced between the quarter immediately prior to their enrollment in H2P and their final wages was even larger. The median Pre-Quarter Earnings Gain was \$1,932 across colleges and was as high as \$2,854 at one college, which would translate into an \$11,416 increase in annual earnings.

Given the fluctuations in participants' earnings across quarters, we also calculated the maximum amount participants earned in any of the last three quarters. Across colleges, the median of this variable was \$6,419 and the lowest estimate for any college was \$5,949. It is important to note these quarterly earnings represent annual earnings of nearly \$24,000, which is above the federal poverty line for a family of four (\$22,500). Thus, whereas the majority of H2P participants come from the bottom quartile of the national income distribution, the average H2P participant is able to secure quarterly earnings by the conclusion of H2P that do not qualify as poverty-level wages.

How did employment outcomes vary by credential length/program of study?

Although the average H2P participant experienced considerable earnings increase between the pre-H2P time period and the conclusion of H2P, it is likely that not all participants received equivalent socioeconomic benefits. We next investigate how labor market outcomes and earnings gains vary according to whether participants completed a credential, the length of the highest credential they earned, and the POS they completed.

Table 49 provides participants' average labor market outcomes by their highest level of credential. As expected, participants' outcomes increase significantly the higher the credential they earn. In terms of employment, 72.0% of participants that did not earn a credential by Fall 2014 were employed compared to 86.1% of participants that had earned an Associate's Degree, and the employment rate is higher for each credential category compared to the next lowest category. The median final earnings of those without a credential was \$4,891 compared to \$9,662 for those that earned an associate's degree. Put differently, Associate's Degree holders earned twice the quarterly wages of those who did not earn a credential by the conclusion of H2P. Participants who earned short and long certificates had quarterly earnings of \$6,218 and \$6,606, respectively, appreciably higher than the earnings of those that did not earn a credential.

Table 47. Pre-H2P Employment Characteristics of Type 1 H2P Participants, By College

	Total		ARCC		CSTCC		MXC		ECCC		OCC		PTCC	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Employed Pre-H2P	75.8	100.0	79.9	100.0	85.8	100.0	21.8	0.0	78.2	100.0	86.6	100.0	80.9	100.0
Employed Pre-Quarter	64.8	100.0	68.8	100.0	69.8	100.0	42.6	0.0	63.9	100.0	75.4	100.0	64.3	100.0
Employed H2P	87.7	100.0	86.2	100.0	92.0	100.0	85.6	100.0	86.1	100.0	89.5	100.0	85.6	100.0
Mean Pre-H2P Earnings	\$4,567	\$3,718	\$3,983	\$3,121	\$4,211	\$3,494	\$5,680	\$3,930	\$5,150	\$4,211	\$4,031	\$3,253	\$4,140	\$3,791
Median Pre-H2P Earnings	\$4,602	\$3,829	\$4,008	\$3,238	\$4,248	\$3,674	\$5,667	\$3,930	\$5,186	\$4,327	\$4,047	\$3,212	\$4,203	\$3,964
Minimum Pre-H2P Earnings	\$2,614	\$1,379	\$2,119	\$1,063	\$2,344	\$1,103	\$5,005	\$3,231	\$2,969	\$1,604	\$2,205	\$1,369	\$2,349	\$1,512
Maximum Pre-H2P Earnings	\$6,424	\$5,563	\$5,845	\$5,057	\$5,959	\$5,422	\$6,368	\$4,389	\$7,237	\$6,188	\$5,736	\$5,157	\$5,778	\$5,428
Pre-Quarter Earnings	\$5,174	\$4,447	\$4,555	\$3,726	\$4,745	\$4,293	\$5,250	\$3,586	\$5,937	\$5,287	\$4,418	\$3,659	\$4,749	\$4,319

Table 48. Employment Outcomes for Type 1 H2P Participants, by College

	Total		ARCC		CSTCC		MXC ⁹		ECCC		OCC		PTCC	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Employed Pre-Quarter	64.8	100.0	68.8	100.0	69.8	100.0	42.6	0.0	63.9	100.0	75.4	100.0	64.3	100.0
Employed Post-H2P	75.1	100.0	75.2	100.0	78.2	100.0	71.5	100.0	73.5	100.0	78.6	100.0	74.1	100.0
Employment Change	10.3		6.5		8.4		29.0		9.6		3.2		9.8	
Max Final Earnings	\$7,297	\$6,419	\$7,248	\$6,201	\$6,061	\$5,949	\$7,059	\$5,914	\$8,101	\$7,028	\$6,704	\$6,102	\$8,195	\$7,490
Mean Final Earnings	\$5,999	\$5,258	\$5,383	\$4,783	\$5,063	\$4,847	\$5,674	\$4,730	\$6,844	\$5,688	\$5,527	\$4,884	\$6,580	\$6,075
Median Final Earnings	\$6,016	\$5,259	\$5,285	\$4,750	\$5,064	\$4,892	\$5,713	\$4,869	\$6,891	\$5,750	\$5,573	\$4,727	\$6,614	\$6,112
Mean Earnings Gain	\$1,681	\$1,492	\$1,650	\$1,703	\$1,078	\$1,196	\$1,624	\$1,094	\$1,979	\$1,624	\$1,563	\$1,396	\$2,323	\$1,766
Median Earnings Gain	\$1,659	\$1,402	\$1,511	\$1,509	\$1,057	\$1,215	\$1,712	\$1,439	\$1,983	\$1,516	\$1,594	\$1,306	\$2,266	\$1,751
Pre-Quarter Earnings Gain	\$2,491	\$1,932	\$2,978	\$2,570	\$1,669	\$1,668	\$2,656	\$2,171	\$2,675	\$1,857	\$2,314	\$1,601	\$3,484	\$2,854

⁹ Pre-H2P UI wage data for MXC were not available for the majority of students, which is why the percentage of MXC participants considered employed was 21.8% only. It is likely that the earnings estimates for MXC do not accurately represent the average pre-H2P earnings for students.

However, the data also show that the labor market outcomes of Type 1 H2P participants who earned very short certificates were often equivalent to, or worse, than the outcomes of participants that did not earn any credential at all. Whereas very short certificate earners were more likely to hold employment than participants without a credential (73.8% vs. 72.0%), the median quarterly earnings of participants that earned very short certificates were roughly \$700 lower than participants with no credential. Although this could be due to the fact that low-skilled individuals and those who struggle with employment are the most likely to pursue these very short term credentials, these participants still gained less in earnings than participants who never earned a credential. This is particularly concerning given that very short certificates, particularly the CNA POS, were the most common type of credential awarded to H2P participants.

Just as there was a strong relationship between highest credential earned and quarterly earnings, participants that earned longer-term credentials experienced greater earnings gains than those who earned very short credentials who did not earn any credential. Median pre-quarter earnings gains by highest level of credential are summarized in Figure 15 below. As evidenced by this figure, participants who did not earn a credential and those who earned a very short certificate both experienced earnings gains of roughly \$1,500 from the quarter prior to their enrollment in H2P and their median quarterly earnings over the last three quarters for which UI earnings data are available. In contrast, participants who earned short and long certificates experienced earnings gains between \$3,000 and \$4,000, roughly double the gains of participants in the lower two categories. Finally, Associate’s Degree recipients earned roughly \$6,000 more in the final quarters compared to the quarter prior to their H2P enrollment. In short, credential attainment not only was related to absolute earnings but also the magnitude of earnings gains participants experienced as a result of H2P participation.

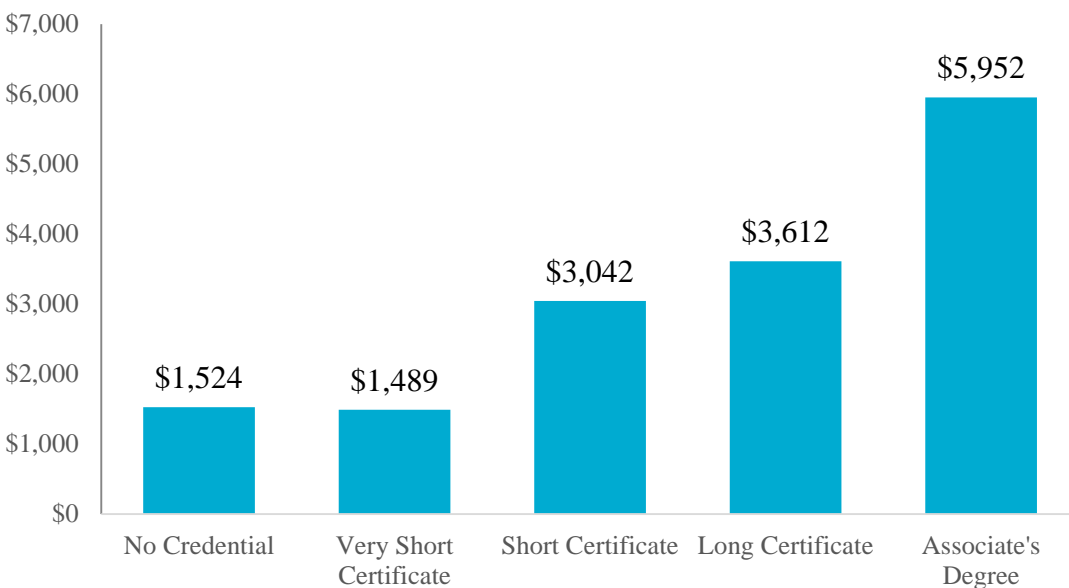


Figure 15. Median pre-quarter earnings gains for Type 1 H2P participants, by highest level of credential earned.

Table 49. Employment Outcomes for Type 1 H2P Participants, by Highest Level of Credential Earned

	No Credential			Very Short Certificate			Short Certificate			Long Certificate			Associate's Degree		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Employed Post-H2P	72.0	100.0	2344	73.8	100.0	740	75.0	100.0	88	84.7	100.0	379	86.1	100.0	424
Maximum Final Earnings	\$6,688	\$5,933	1749	\$5,304	\$5,033	577	\$8,691	\$7,724	68	\$8,038	\$7,874	327	\$12,331	\$12,634	373
Mean Final Earnings	\$5,582	\$4,819	1749	\$4,345	\$4,104	577	\$7,297	\$6,114	68	\$6,523	\$6,419	327	\$9,814	\$9,532	373
Median Final Earnings	\$5,586	\$4,891	1749	\$4,373	\$4,185	577	\$7,301	\$6,218	68	\$6,574	\$6,606	327	\$9,849	\$9,662	373
Mean Earnings Gain	\$1,212	\$1,150	1475	\$886	\$1,012	427	\$2,865	\$1,734	43	\$2,518	\$2,698	264	\$4,068	\$3,735	319
Median Earnings Gain	\$1,186	\$1,148	1475	\$903	\$1,093	427	\$2,806	\$1,407	43	\$2,488	\$2,493	264	\$4,018	\$3,987	319
Pre-Quarter Earnings Gain	\$1,735	\$1,524	1354	\$1,575	\$1,489	388	\$4,097	\$3,042	50	\$3,819	\$3,612	226	\$5,827	\$5,952	299

Table 50. Maximum Post-H2P Earnings of Type 1 H2P Participants, by Highest Level of Credential Earned and College

		All Colleges	ARCC	CSTCC	MXC	ECCC	OCC	PTCC
No Credential	Mean	\$6,799	\$6,264	\$5,927	\$6,096	\$7,142	\$7,922	\$6,690
	Median	\$5,662	\$5,792	\$5,901	\$4,107	\$6,169	\$7,671	\$5,205
	N	1883	193	426	94	919	42	74
Very Short Certificate	Mean	\$5,258	\$5,194	\$5,295	\$5,911	\$5,855	\$4,473	\$6,356
	Median	\$4,954	\$5,370	\$5,035	\$5,537	\$4,949	\$4,001	\$6,383
	N	596	53	252	93	24	119	35
Short Certificate	Mean	\$9,625	*	*	\$7,873	\$16,394	\$8,263	\$5,950
	Median	\$7,057	*	*	\$6,411	\$17,368	\$9,157	\$6,136
	N	87	<10	<10	20	10	16	14
Long Certificate	Mean	\$7,283	*	\$8,752	\$8,012	\$7,477	\$6,447	\$8,218
	Median	\$7,535	*	\$8,698	\$8,017	\$7,776	\$7,521	\$7,809
	N	388	<10	83	39	64	27	114
Associate's Degree	Mean	\$11,477	\$10,491	*	\$11,702	\$14,344	\$10,631	\$12,742
	Median	\$11,993	\$10,872	*	\$12,692	\$15,154	\$11,354	\$11,325
	N	410	93	<10	33	143	50	45

Given the potential for regional variation in earnings, we also explored how the relationship between credential attainment and labor market outcomes varied by co-grantee college. Table 50 presents participants' maximum post-H2P earnings by college. The relationship between credential length and labor market outcomes holds essentially true for all colleges in the sample, apart from a few notable exceptions. At two of the colleges (MXC and PTCC), participants who received very short certificates did in fact earn more than participants who did not earn a credential. At ECC, the group of participants who received short-term certificates actually earned more than any other group in the sample, although we believe this is due to the fact that this POS is an add-on for some participants who already hold an Associate's Degree in Nursing. Across the colleges, however, some participants' earnings rose higher the higher the credential completed. Median earnings for Associate's Degree holders was great than \$10,000 across colleges, whereas earnings for those with very short or no credentials were considerably lower.

The previous analyses demonstrated the positive relationship between credential length and participants' labor market outcomes, but it is possible that participants' outcomes might also vary by the specific POS they complete. Table 51 therefore disaggregates participants into the POS they completed by Fall 2014 and analyzes their employment and earnings. Only POS for which at least 10 participants completed a credential are included in the table. Particularly as a result of the H2P strategy related to creating stackable credentials, many of these POS consist of credentials of different lengths. For example, programs such as dental, EMT/paramedic, and medical assisting all consist of both certificates and Associate's Degrees, although not necessarily at every co-grantee college. Nonetheless, the labor outcomes figures in the table are disaggregated by POS but aggregated at the level of credential. Finally, it should also be mentioned that participants are included in the program categories if they earned a credential at any point during the H2P timeframe. Some participants may have completed during Fall 2014 and thus only had one quarter of post-completion earnings, whereas other participants may have completed as early as Spring 2012 and had nearly three years in the workforce by the second quarter of 2015.

Given those caveats, there is significant variation in participants' labor market outcomes based on the specific POS they complete. Participants who completed dental programs were the most likely to be employed during the final quarters (94.7%) whereas community health workers (CHW) (62.1%) and trained medication aides (69.8%) were the least likely to be employed. RNs, LPN/LVNs, medical assistants, physical therapists, radiology technicians, and x-ray technicians all had employment rates in the mid- to low-80% range, whereas CNA, EMT/paramedics, and health information technology (HIT) participants had rates in the mid-70s. Participants that were awarded the ADN or Associate's Degree in radiology had the highest median final quarterly earnings in the sample at \$10,706 and \$9,005, respectively. In contrast, CNAs had the lowest median quarterly earnings at \$4,075, approximately \$800 lower than participants who did not complete any POS, followed by X-ray technicians and EMT/paramedics. These gaps are similarly evident in terms of participants' quarterly earnings gains. RNs had the highest median earnings, but radiology participants had the highest quarterly earnings growth at \$5,132, followed by RNs (\$4,310) and physical therapy assistants (\$4,011). At the other end of the spectrum, trained medication aides and X-ray technicians both experienced quarterly earnings gains of less than \$1,000, and certified nurse assistants' quarterly earnings only increased by slightly more (\$1,075). These earnings gains are summarized in Figure 16.

Table 51. Employment Outcomes of Type 1 H2P Participants, by Program of Study

Credential Category		Employed Post-H2P	Maximum Final Earnings	Mean Final Earnings	Median Final Earnings	Mean Earnings Gain	Median Earnings Gain	Pre-Quarter Earnings Gain
No Cred	Mean	72.1	\$6,688	\$5,581	\$5,585	\$1,211	\$1,184	\$1,728
	Median	100.0	\$5,939	\$4,818	\$4,894	\$1,147	\$1,147	\$1,524
	N	2351	1756	1756	1756	1478	1478	1358
ADN	Mean	86.6	\$13,255	\$10,499	\$10,526	\$4,265	\$4,217	\$6,175
	Median	100.0	\$13,791	\$10,516	\$10,706	\$3,887	\$4,310	\$6,469
	N	336	298	298	298	251	251	240
Cert NA	Mean	74.8	\$5,096	\$4,190	\$4,211	\$851	\$854	\$1,486
	Median	100.0	\$4,802	\$3,946	\$4,075	\$993	\$1,075	\$1,445
	N	579	460	460	460	356	356	303
CHW	Mean	62.1	\$5,922	\$5,151	\$5,286	\$1,738	\$1,903	\$2,280
	Median	100.0	\$6,169	\$6,169	\$6,169	\$1,057	\$1,243	\$1,606
	N	29	19	19	19	18	18	13
Dental	Mean	94.7	\$7,220	\$6,195	\$6,223	\$2,451	\$2,486	\$2,788
	Median	100.0	\$7,342	\$6,860	\$6,569	\$2,403	\$2,109	\$2,957
	N	19	18	18	18	18	18	18
EMT/Para	Mean	75.6	\$7,017	\$5,588	\$5,697	\$1,650	\$1,787	\$2,925
	Median	100.0	\$7,110	\$5,297	\$5,258	\$1,697	\$1,983	\$2,220
	N	123	93	93	93	23	23	63
HIT	Mean	75.8	\$8,408	\$6,987	\$7,023	\$2,186	\$1,990	\$3,948
	Median	100.0	\$7,970	\$6,229	\$6,405	\$1,609	\$1,692	\$3,014
	N	33	26	26	26	19	19	20
LPN	Mean	84.5	\$8,606	\$6,950	\$6,949	\$2,617	\$2,544	\$4,038
	Median	100.0	\$8,403	\$7,014	\$7,077	\$2,716	\$2,449	\$3,882
	N	252	219	219	219	199	199	167
Med Assist	Mean	83.5	\$6,606	\$5,455	\$5,600	\$2,372	\$2,453	\$2,819
	Median	100.0	\$6,851	\$5,499	\$5,812	\$2,538	\$2,493	\$3,235
	N	79	66	66	66	52	52	35
PTA	Mean	83.3	\$8,707	\$7,437	\$7,609	\$4,459	\$4,584	\$5,814
	Median	100.0	\$8,934	\$8,154	\$8,061	\$3,332	\$4,011	\$6,871
	N	12	11	11	11	11	11	11
Radiology	Mean	83.3	\$10,669	\$8,433	\$8,728	\$4,060	\$4,140	\$6,260

Credential Category		Employed Post-H2P	Maximum Final Earnings	Mean Final Earnings	Median Final Earnings	Mean Earnings Gain	Median Earnings Gain	Pre-Quarter Earnings Gain
	Median	100.0	\$11,585	\$9,005	\$9,005	\$4,937	\$5,132	\$6,100
	N	24	20	20	20	20	20	15
TMA	Mean	69.8	\$6,469	\$5,207	\$5,273	\$891	\$922	\$1,060
	Median	100.0	\$6,404	\$4,996	\$5,643	\$1,031	\$954	\$864
	N	43	32	32	32	30	30	22
Xray	Mean	81.3	\$5,950	\$4,776	\$4,760	\$332	\$276	\$1,328
	Median	100.0	\$6,136	\$4,569	\$4,737	\$870	\$498	\$2,536
	N	16	14	14	14	13	13	12

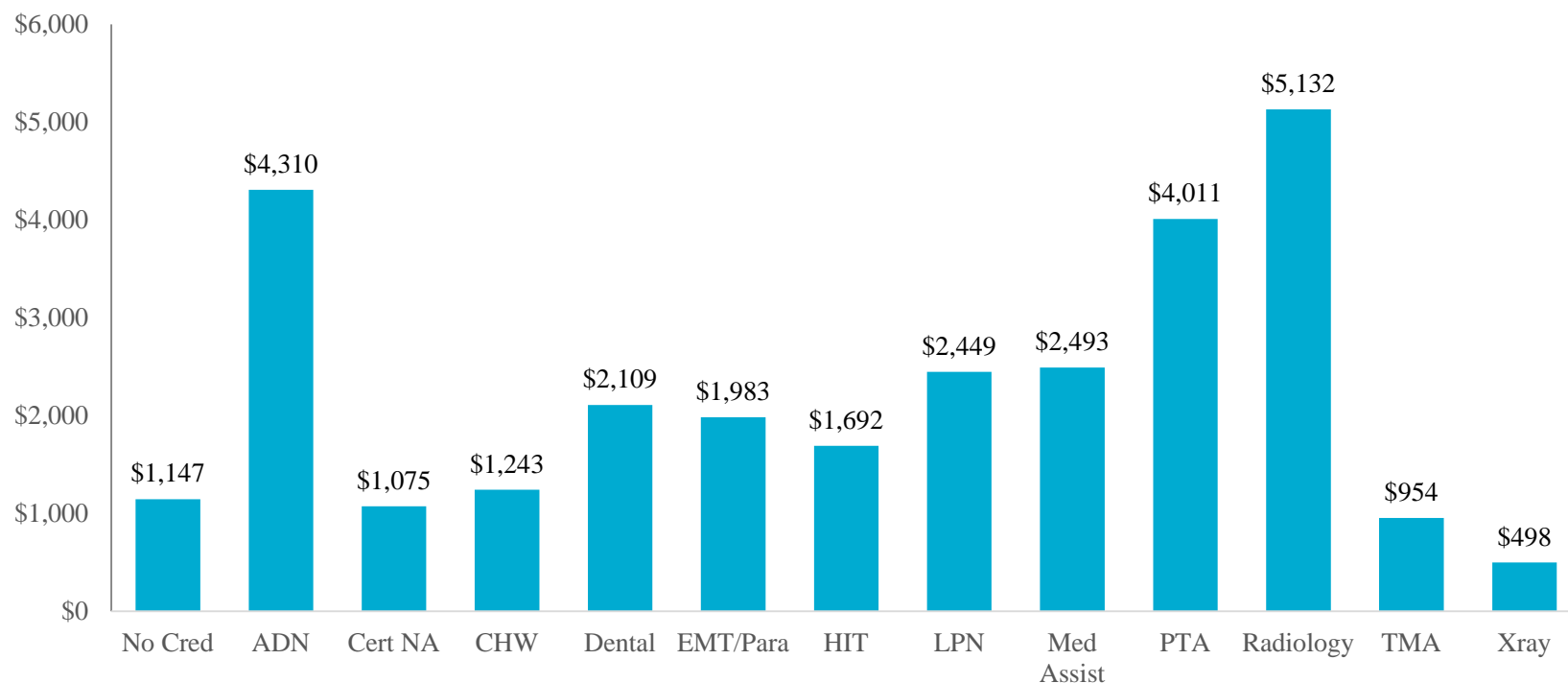


Figure 16. Median earnings gains for Type 1 H2P Participants, by program of study.

What student characteristics were related to participants' labor outcomes?

We also analyzed the relationship between student characteristics and labor market outcomes. Table 52 disaggregates employment and earnings statistics by participants' demographic characteristics. In terms of gender, men and women had roughly equivalent labor market outcomes. There was less than a \$20 difference in maximum final earnings, mean final earnings, and median final earnings between men and women. However, women were 3% more likely to be employed at the end of H2P grant, and women also experienced greater earnings growth than men as a result of H2P participation. Both median earnings gains and pre-quarter earnings gains were roughly \$250 more for women, and mean earnings gains were approximately \$400. Put differently, women had lower average earnings than men prior to H2P, but this gender gap had been all but eliminated by the end of the H2P timeframe.

There were racial/ethnic differences in labor outcomes, but the employment and earnings gaps were not consistently reflective of historical patterns of inequity. For example, there were negligible differences in median final earnings between Black, Latino, and White participants. Blacks had the highest median final earnings out of these subgroups, but Latino participants had the greatest mean and median earnings gains. Multiracial and Native Hawaiian/Pacific Islander participants had lower final earnings than the previous three subgroups, but these two groups experienced the greatest median and pre-quarter earnings gains out of all racial/ethnic subgroups. American Indian/Alaskan Native participants had the lowest mean and median earnings gains in the sample, but this subgroup had the highest maximum, mean, and median final earnings, which implies that these participants had the highest pre-H2P earnings. The one subgroup that had consistently lower labor market outcomes was Asian participants. Only 65.8% of Asian participants were employed at the end of H2P, the only group with less than 70% employment. Asian participants also had the lowest final earnings, the second lowest mean and median earnings gains, and the lowest pre-quarter earnings gains.

The relationship between age and labor outcomes was generally more consistent. As expected, final earnings generally increased as a function of age, which can be explained by the fact that older adults generally have more years of experience in the labor force, which is positively correlated with earnings. Interestingly, however, was the inverse relationship between age and employment. Participants in the second-youngest category (20-21) had the highest employment rate at 80.0%, whereas only 59.0% of participants in the oldest category (50+) were employed. One possible explanation of this finding is that employers may have been reluctant to hire older workers, who generally command higher wages than younger workers, given that the economy was still recovering from the Great Recession during this period, although this explanation cannot be confirmed by our analyses. Employment rates decreased as age increased between these categories. The relationship between age and earnings gains was not as consistent, although younger participants appeared to experience greater earnings gains on average, which is likely a function of their lower pre-H2P earnings.

Finally, Pell eligible participants were more likely to be employed at the end of the H2P grant compared to participants not eligible for Pell, and the pre-quarter earnings gains for Pell eligible participants was roughly \$370 more than the gains for participants not eligible for Pell. However, participants reported as not eligible for Pell had greater final earnings and greater mean and median earnings gains compared to Pell eligible participants.

Table 52. Employments Outcomes of Type 1 H2P Participants, by Demographic Characteristics

	Employed Post-H2P	Maximum Final Earnings	Mean Final Earnings	Median Final Earnings	Mean Earnings Gain	Median Earnings Gain	Pre-Quarter Earnings Gain
Sex							
Men	72.6	\$6,414	\$5,251	\$5,275	\$1,160	\$1,220	\$1,719
Women	75.6	\$6,425	\$5,259	\$5,256	\$1,546	\$1,467	\$1,975
Race/Ethnicity¹							
American Indian / Alaskan Native	85.7	\$6,802	\$5,810	\$5,728	\$856	\$795	\$1,784
Asian	65.8	\$5,521	\$4,274	\$4,286	\$1,067	\$940	\$1,402
Black	79.4	\$6,634	\$5,529	\$5,530	\$1,413	\$1,432	\$2,047
Latino	76.7	\$5,974	\$5,056	\$5,241	\$1,616	\$1,511	\$1,779
Multi-race	85.0	\$6,778	\$4,677	\$4,671	\$1,540	\$1,737	\$2,867
Native Hawaiian / Pacific Islander	75.0	\$6,144	\$4,845	\$4,887	\$1,967	\$2,083	\$2,380
White	73.7	\$6,586	\$5,282	\$5,282	\$1,596	\$1,471	\$2,061
Age at H2P Intake							
19 and Under	78.2	\$3,856	\$3,009	\$3,031	\$2,223	\$2,279	\$2,087
20-21	80.0	\$5,327	\$4,203	\$4,126	\$2,317	\$2,283	\$2,090
22-24	79.9	\$5,670	\$4,492	\$4,682	\$1,781	\$1,852	\$1,509
25-29	76.0	\$7,107	\$5,693	\$5,665	\$1,283	\$1,125	\$1,831
30-34	74.7	\$7,466	\$5,966	\$5,983	\$615	\$624	\$1,667
35-49	70.8	\$8,051	\$6,643	\$6,729	\$1,186	\$1,109	\$2,233
50+	59.0	\$7,632	\$6,840	\$6,861	\$377	\$628	\$1,984
Pell Eligibility							
Eligible	76.4	\$6,191	\$4,940	\$4,982	\$1,467	\$1,397	\$2,066
Not Eligible	73.5	\$7,110	\$5,726	\$5,814	\$1,584	\$1,414	\$1,696

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

What was the impact of credentials on labor market outcomes controlling for student characteristics?

Whereas the previous sections descriptively examined how labor market outcomes vary as a function of the credentials participants' earned and their demographic characteristics, this section uses inferential statistics to better isolate the relationships between these independent variables and participants' employment outcomes. Specifically, this section uses regression techniques to determine which variables are related at a statistically significant level to employment and earnings. Logistic regression is used for employment, given that employment is a dichotomous (yes/no) outcome and there, the odds ratio estimates represent the difference in the probability of the outcome of employment occurring. Linear regression is used for the earnings analyses as the earnings variable is continuous. As mentioned previously the earnings variable is on a logarithmic scale in order to reduce the influence of outliers and produce more accurate estimates. The estimates therefore represent the percentage increase or decrease in earnings. Both the logistic and linear regression models include significance levels of the estimates.

In both analyses, we present the results of four separate models, all of which include participants' demographic characteristics. The first three models control for whether participants were ever employed prior to H2P. The first model includes variables for the highest level of credential participants earned. The second model removes these credential length variables and replaces them with the variables for credential category. The third model retains these credential category variables and adds indicator variables for the H2P college participants attended. The final model replaces the pre-H2P employment variable with the variable for median pre-H2P earnings. The benefit of this model is that it more accurately captures participants' pre-H2P earnings capacity, and therefore more accurately estimates the impact of demographic and credential variables on labor market outcomes. However, participants that did not have pre-H2P earnings are excluded from the model, reducing the sample size and restricting the generalizability of the results (i.e., the estimates only apply to participants that were employed prior to H2P).

Table 53 presents the results of the logistic regression models of whether participants were employed by the end of H2P. There were no relationships found between employment and gender, Pell eligibility, or developmental education. Asian participants had lower odds of employment than White participants, but this difference was not significant. All other racial/ethnic groups had higher odds of employment compared to White participants, and both Black and Latino participants were significantly more likely than Whites to be employed. Similar to the descriptive analyses presented above, there was also a strong inverse relationship between age and post-H2P employment. Pre-H2P employment was highly predictive of post-H2P employment, as incumbent workers had roughly six times the odds of post-H2P employment compared to non-employed participants. Still being enrolled in college by Fall 2014 also reduced one's chances of being employed. The magnitude and significance levels of the demographic characteristics estimates were highly consistent across analyses, regardless of which credential and college variables were included in the models.

There was also a strong and positive relationship between the highest level of credential participants earned and their likelihood of employment; the higher the credential participants earned, the greater the probability that they were employed at the end of the H2P grant. Participants who earned an Associate's Degree had roughly three times the odds of employment compared to participants that did not earn a credential. Additionally, even earning a very short certificate had a positive and nearly significant ($p = .052$) relationship on employment. In regards to the specific types of credentials participants earned, all POS apart from the CHW credential were positively related to employment, although not all estimates were statistically significant. RN and dental participants had the highest odds of employment, followed by EMT/paramedics, LPN/LVNs, and X-ray technicians. These relationships generally held when controlling for co-grantee college and either pre-H2P employment or pre-H2P earnings.

Table 54 presents the results of linear regression models of earnings. Once again, the table includes results of four separate models controlling for different combinations of variables. Overall, the estimates for gender and race/ethnicity are similar to the estimates in the employment analysis above. There was no significant relationship between gender and earnings. Asian participants were the only group that had significantly lower earnings than Whites. American Indian/Alaskan Native participants did have lower estimated earnings than Whites, but this difference was not statistically significant. All other racial/ethnic groups were estimated to earn more than White participants, and these differences were significant for both Black and Latino participants in the first two models. However, these differences were no longer significant once the H2P college variables had been added to the model or when controlling for pre-H2P earnings. Once again we see a consistent relationship between age and earnings, although in this instance it is a positive relationship. All age groups older than 21 were estimated to earn significantly more than the youngest subgroup in the first three models controlling

for pre-H2P employment, but in this analysis these differences were no longer significant once pre-H2P earnings had been controlled for. This implies that older participants had higher earnings than younger participants, but the magnitude of earnings growth did not vary according to age. One key difference between this analysis and the employment analysis is the impact of Pell eligibility. Although this variable was not found to impact employment, Pell eligible participants had significantly lower earnings than participants not eligible for Pell in this instance, even when controlling for pre-H2P earnings and the credentials participants earned. Pell eligible participants thus experienced lower earnings and less earnings growth than participants not eligible for Pell. This analysis also demonstrates that pre-H2P employment characteristics significantly impacted post-H2P earnings, even when controlling for educational attainment. Participants who were employed prior to H2P had roughly 35% greater earnings than participants who were unemployed, and there was also a significant relationship between pre-H2P earnings and post-H2P earnings.

Many of the relationships between credentials and earnings are similar to the relationships found in the employment analyses, but with some notable differences. Perhaps the most important difference is that participants that earned very short certificates actually had lower earnings than participants who did not earn a credential, and there was no significant impact of short-term certificates on earnings. However, both long-term certificates and Associate's Degrees had a positive and significant impact on earnings. The only credential that had a significantly negative impact on earnings was certified nurse assistant, although the community health worker credential was negative and nearly significant. Once again, we find that RN and LPN/LVN participants had significantly higher earnings after H2P, even when controlling for prior earnings. Participants that completed physical therapy assistant and radiology programs also had significantly higher earnings than participants that did not complete credentials. In fact, when controlling for prior earnings, physical therapy assistants had even greater earnings growth than RN participants, making this the credential with the greatest impact on earnings growth out of all POS.

Table 53. Logistic Regression Models of Final Employment for Type 1 H2P Participants

	Model 1		Model 2		Model 3		Model 4	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
(Constant)	1.042	.838	1.043	.833	1.205	.415	.629	.342
Male (Female)	.968	.772	.918	.453	.892	.325	1.003	.987
Race/Ethnicity¹ (White)								
American Indian / Alaskan Native	1.441	.580	1.313	.683	1.423	.600	2.023	.365
Asian	.770	.220	.770	.225	.783	.270	.915	.765
Black	1.596	.000	1.542	.001	1.461	.005	1.540	.008
Latino	1.388	.014	1.368	.021	1.422	.022	1.597	.015
Multi-race	2.080	.349	2.109	.342	1.712	.498	2.578	.365
Native Hawaiian / Pacific Islander	1.123	.873	1.205	.801	1.009	.990	1.395	.764
Unknown	1.066	.653	1.120	.437	1.187	.294	1.508	.038
Age Category (19 or <)								
20-21	.854	.455	.835	.395	.843	.423	.549	.048
22-24	.804	.274	.768	.188	.760	.175	.560	.049
25-29	.626	.014	.607	.009	.604	.009	.350	.000
30-34	.531	.001	.512	.001	.509	.001	.323	.000
35-49	.470	.000	.470	.000	.464	.000	.272	.000
50+	.287	.000	.302	.000	.306	.000	.219	.000
Pell Eligible (Pell non eligible)	1.005	.954	1.011	.909	1.001	.989	1.023	.849
Any Developmental Education	1.018	.868	1.030	.785	1.007	.947	1.079	.579
Still Enrolled	.843	.061	.825	.036	.824	.036	.726	.006
Employed Pre-H2P (Non-employed)	5.966	.000	6.251	.000	6.340	.000	*	*
Median Pre-H2P Log Earnings	*	*	*	*	*	*	1.447	.000
Credential Length (No credential)								
Very Short Certificate	1.253	.050	*	*	*	*	*	*
Short Certificate	1.570	.107	*	*	*	*	*	*
Long Certificate	1.899	.000	*	*	*	*	*	*
Associate's Degree	2.794	.000	*	*	*	*	*	*
Credential Category (No credential)								
ADN	*	*	3.329	.000	3.522	.000	3.522	.000
CertNA	*	*	1.257	.097	1.142	.408	1.157	.474
CHW	*	*	.528	.130	.529	.131	.478	.088
Dental	*	*	3.652	.210	3.570	.225	3.154	.277
HIT	*	*	1.844	.197	1.727	.269	2.249	.303
LPN	*	*	2.000	.001	2.498	.000	2.332	.002
MedAssist	*	*	1.850	.065	1.986	.040	2.603	.049
PTA	*	*	1.554	.683	1.008	.994	.753	.799
Radiology	*	*	1.774	.333	1.855	.299	3.164	.129
TMA	*	*	1.125	.752	1.600	.245	2.557	.108
Xray	*	*	2.034	.289	2.873	.125	3.908	.121
EMT/Paramedic	*	*	2.528	.000	1.957	.068	1.325	.730
College (Cincinnati)								
ARCC	*	*	*	*	1.337	.223	1.688	.094
MXC	*	*	*	*	1.152	.624	.545	.349
ECCC	*	*	*	*	.819	.194	.649	.018
OCC	*	*	*	*	.874	.493	.890	.614
PTCC	*	*	*	*	.617	.020	.729	.211
	n = 3,273		n = 3,273		n = 3,273		n = 2,512	

Table 54. Regression Models of Median Final Earnings (Log) for Type 1 H2P Participants

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
(Constant)	7.918	0.000	7.937	0.000	7.895	0.000	6.550	.000
Male (Female)	-.007	.867	-.027	.546	-.031	.502	-.045	.341
Race/Ethnicity¹ (White)								
American Indian / Alaskan Native	-.138	.522	-.182	.396	-.188	.380	-.145	.468
Asian	-.186	.047	-.192	.043	-.260	.007	-.285	.006
Black	.085	.064	.075	.102	.043	.374	-.005	.913
Latino	.142	.005	.130	.011	.028	.628	-.036	.547
Multi-race	.070	.745	.067	.755	.122	.572	.077	.704
Native Hawaiian / Pacific Islander	.426	.118	.459	.091	.537	.050	.603	.036
Unknown	.023	.699	.029	.627	-.079	.227	-.061	.351
Age Category (19 or <)								
20-21	.094	.220	.083	.278	.082	.281	-.082	.334
22-24	.153	.034	.134	.064	.138	.057	-.065	.423
25-29	.334	.000	.306	.000	.316	.000	-.042	.613
30-34	.347	.000	.317	.000	.322	.000	-.065	.458
35-49	.525	.000	.510	.000	.519	.000	.135	.118
50+	.210	.048	.203	.057	.215	.044	-.073	.524
Pell Eligible (Pell non eligible)	-.165	.000	-.170	.000	-.138	.000	-.075	.048
Any Developmental Education	-.090	.033	-.083	.049	-.070	.102	-.047	.279
Still Enrolled	-.205	.000	-.219	.000	-.220	.000	-.261	.000
Employed Pre-H2P (Non-employed)	.335	.000	.356	.000	.344	.000	*	*
Median Pre-H2P Log Earnings	*	*	*	*	*	*	.248	.000
Credential Length (No credential)								
Very Short Certificate	-.150	.001	*	*	*	*	*	*
Short Certificate	.081	.443	*	*	*	*	*	*
Long Certificate	.191	.001	*	*	*	*	*	*
Associate's Degree	.652	.000	*	*	*	*	*	*
Credential Category (No credential)								
ADN	*	*	.742	.000	.748	.000	.638	.000
CertNA	*	*	-.224	.000	-.187	.002	-.146	.018
CHW	*	*	-.412	.040	-.420	.036	-.310	.108
Dental	*	*	.062	.762	.047	.825	.027	.893
HIT	*	*	.114	.519	.107	.564	.130	.513
LPN	*	*	.254	.000	.305	.000	.290	.000
MedAssist	*	*	.112	.310	.116	.296	.116	.321
PTA	*	*	.627	.040	.822	.008	.682	.019
Radiology	*	*	.511	.009	.451	.021	.486	.008
TMA	*	*	.169	.272	.256	.120	.164	.304
Xray	*	*	-.221	.339	-.135	.568	-.193	.401
EMT/Paramedic	*	*	.137	.214	.315	.048	.073	.791
College (Cincinnati)								
Anoka	*	*	*	*	-.179	.030	-.138	.092
Malcolm X	*	*	*	*	-.112	.390	-.033	.878
El Centro	*	*	*	*	.146	.012	.107	.066
Owens	*	*	*	*	.063	.375	-.002	.972
Pine Tech	*	*	*	*	-.065	.404	-.065	.404
	n = 3,273		n = 3,273		n = 3,273		n = 2,512	

Impact of H2P on Employment Outcomes

We now turn to our analyses to estimating the impact of H2P on students' employment and earnings. Although our overall approach in this chapter of utilizing a Retro sample of healthcare students to estimate the impact of H2P is similar to the previous chapter, the sub-sample of students we use and our statistical techniques are slightly different. We therefore begin by describing the sample and our methodological approach in greater detail.

As discussed in the previous chapter, OCCRL asked H2P colleges to provide a Retro sample of healthcare students to compare the postsecondary and labor market outcomes of H2P participants to the outcomes of this comparison cohort. In general, colleges selected Retro samples consisting of all students enrolled in a healthcare POS and/or specific healthcare courses during Fall 2009. To be included in the current impact analyses, colleges needed to have provided us with an appropriate Retro sample and UI wage data for both the Retro sample and H2P participants. Four of the nine colleges met these criteria and are therefore included in the labor market impact analyses: ARCC, CSTCC, OCC, and PTCC. The combined samples of Retro students and Type 1 H2P participants at these four colleges totaled $n = 6,654$ students.

Although all colleges that provided OCCRL with a sample of Retro students who were enrolled during the Fall 2009, this was not necessarily the first term of students' enrollment. We therefore assessed the first term of enrollment for H2P and Retro students from the four colleges included in these analyses, presented in Table 55. As expected, Fall 2009 was the term of enrollment with the highest percentage of students. However, more than 70% of the sample enrolled prior to this term, 20.1% had enrolled by Spring 2007, the earliest term of enrollment we obtained for Retro students, and nearly 200 Retro students enrolled after Fall 2009. Similarly, whereas Spring 2012 was the first full term of H2P implementation, more than 40% of Type 1 H2P participants from these four colleges had already enrolled by Spring 2012 and a large percentage of students also enrolled for the first time after this semester. To more accurately estimate the impact of H2P on students' labor market outcomes, we restricted the sample to students whose first term of enrollment was Fall 2009 for Retro students ($n = 1,196$) and Fall 2012 for Type 1 H2P participants ($n = 336$), for a total sample of $n = 1,532$ students.

We next analyzed the demographic and prior employment characteristics for both the H2P and Retro samples. Students' demographic characteristics are presented in Table 56. Although there are no exceptionally large demographic differences between the two samples, there are a few modest differences. The percentage of males in the Retro sample is more than twice as large as the H2P sample (26.6% vs. 12.2%). The racial/ethnic composition is quite similar, although there is a slightly higher percentage of White students in the H2P sample (70.5% vs. 65.7%). The Retro sample is slightly younger than the H2P sample on average, as there are more Retro students in the two youngest categories but more H2P participants in the four oldest categories. Finally, a higher percentage of H2P participants were eligible for Pell, although the proportion of students with missing Pell data is quite different between the two groups. Out of the pool of students for whom Pell data was available, approximately 70.0% of the H2P sample was eligible for Pell, compared to slightly more than half of the Retro sample.

Table 55. First Term of Enrollment for Type 1 H2P Participant and Retro Employment Impact Samples

	H2P	Retro	Percent
Spring 2007		950	20.1
Summer 2007		137	2.9
Fall 2007		517	10.9
Spring 2008		305	6.5
Summer 2008		109	2.3
Fall 2008		580	12.3
Spring 2009		469	9.9
Summer 2009		264	5.6
Fall 2009		1196	25.3
Spring 2010		87	1.8
Summer 2010		37	0.8
Fall 2010		73	1.5
Spring 2011		1	0.0
Summer 2011		1	0.0
Fall 2011		1	0.0
Spring 2012	794		41.2
Summer 2012	102		5.3
Fall 2012	336		17.4
Spring 2013	243		12.6
Summer 2013	48		2.5
Fall 2013	282		14.6
Spring 2014	101		5.2
Summer 2011	7		0.4
Fall 2014	14		0.7

Table 57 compares the H2P and Retro samples on their pre-cohort employment characteristics. The years covered in this pre-cohort period are 2007 and 2008 for the Retro sample and 2010 and 2011 for the H2P sample. A higher percentage of the H2P sample was employed in at least one quarter during this pre-cohort period. Interestingly, the medians of the different earnings variables were always higher for the H2P sample, but the means were higher for the Retro sample. The most reasonable interpretation of this finding is that the average H2P student earned more prior to enrollment than the average Retro student, but the Retro sample likely has a larger percentage of high-earners than the H2P sample, which drives up the mean values. Students' median quarterly earnings are also summarized in Figure 17. Interestingly, H2P participants appear to have higher pre-cohort quarterly earnings compared to Retro students, but median earnings for the two groups converge at the quarter of enrollment. Additionally, Figure 17 shows that H2P participants experienced greater earnings growth from the quarter of enrollment (quarters 10 and 11) to the final quarters. The subsequent sections more precisely test this hypothesis.

Table 56. Type 1 H2P Participant and Retro Employment Impact Samples, by Demographic Characteristics

	Number		Percent	
	H2P	Retro	H2P	Retro
Sex				
Men	41	318	12.2	26.6
Women	295	836	87.8	69.9
Unknown	0	42	0.0	3.5
Race/Ethnicity¹				
American Indian / Alaskan Native	0	10	0.0	0.8
Asian	4	22	1.2	1.8
Black	76	288	22.6	24.1
Latino	8	20	2.4	1.7
Multi-race	4	0	1.2	0.0
Native Hawaiian / Pacific Islander	1	1	0.3	0.1
White	237	786	70.5	65.7
Unknown	6	69	1.8	5.8
Age at H2P Intake				
19 and Under	62	341	18.5	28.5
20-21	36	132	10.7	11.0
22-24	52	190	15.5	15.9
25-29	63	212	18.8	17.7
30-34	42	117	12.5	9.8
35-49	61	163	18.2	13.6
50+	20	37	6.0	3.1
Unknown	0	0	0.0	0.0
Pell Eligibility				
Eligible	193	612	57.4	51.2
Not eligible	83	507	24.7	42.4
Unknown	60	77	17.9	6.4

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 57. Pre-Cohort Employment Characteristics of H2P and Retro Employment Impact Samples

	H2P			Retro		
	Mean	Median	N	Mean	Median	N
Employed Pre-Cohort	86.9	100.0	336	81.7	100.0	1196
Mean Pre-Cohort Earnings	\$3,770	\$3,093	286	\$3,968	\$2,666	958
Median Pre-Cohort Earnings	\$3,811	\$3,081	286	\$3,949	\$2,621	958
Minimum Pre-Cohort Earnings	\$2,014	\$1,114	286	\$2,291	\$943	958
Maximum Pre-Cohort Earnings	\$5,356	\$4,942	286	\$5,658	\$4,287	958

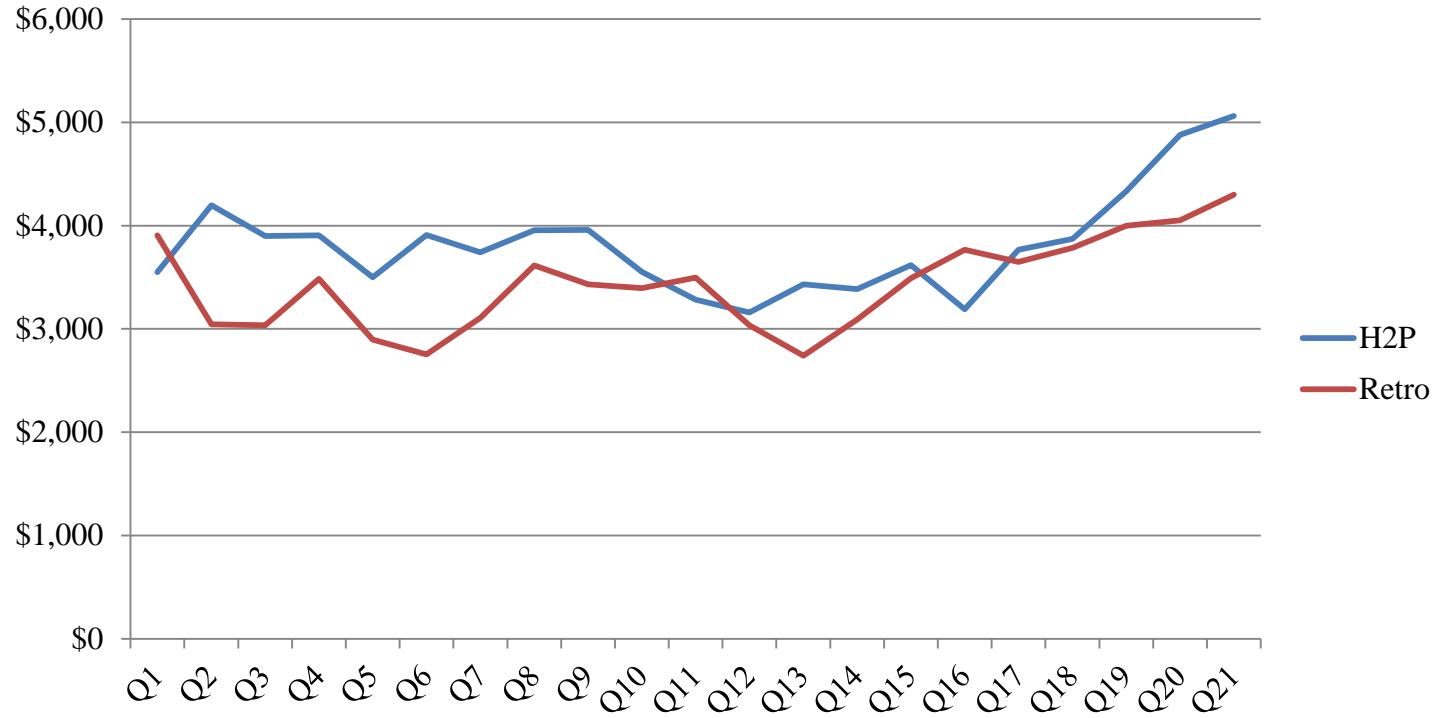


Figure 17. Median quarterly earnings for H2P and Retro employment impact samples.

What impact did H2P have on participants' employment outcomes?

We estimate the impact of H2P on participants' employment outcomes using three techniques. We first analyze the employment outcomes of H2P and Retro students descriptively by comparing students' mean and median earnings and the percentage of students employed in the last three quarters of our study timeframe (the last quarter of 2014 and the first two quarters of 2015 for the H2P sample, and the last quarter of 2011 and the first two quarters of 2012 for the Retro sample). We then use regression techniques to control for student characteristics and statistically estimate the impact of H2P on participants' labor market outcomes. Finally, we once again utilize PSM techniques to further reduce sample-selection bias (i.e., the possibility that the two samples are systematically different in ways that would affect their labor market outcomes) and more accurately estimate the impact of H2P on participants' outcomes. Similar to the PSM analyses in the previous chapter on participants' educational outcomes, students in the H2P and Retro samples were matched on demographic and academic characteristics, and once again we use the *teffects* procedure in Stata to conduct the nearest-neighbor matching method and estimate the ATE.

Table 58 below presents the descriptive labor market outcomes of these samples. Interestingly, the percentage of students employed decreased for both H2P (86.9% to 78.9%) and Retro (81.7% to 72.2%) between the pre-cohort time period and the post-cohort period, although this is likely due to the fact that the pre-cohort period covers eight quarters whereas the post-cohort period only covers three. Either way, H2P participants were 6.7% more likely than Retro students to be employed by the end of the cohort period. H2P participants also had higher mean and median quarterly earnings and greater earnings gains compared to Retro students. Indeed, the median earnings gain for H2P participants was roughly 65% higher than the gain for Retro students (\$1,558 vs. \$942). The additional \$616/quarter that H2P participants gained compared to Retro students translates into approximately \$2,500 in additional annual earnings for H2P participants.

Table 58. Employment Outcomes of H2P and Retro Employment Impact Samples

	H2P			Retro		
	Mean	Median	N	Mean	Median	N
Employed Post-Cohort	78.9	100.0	336	72.2	100.0	1196
Maximum Final Earnings	\$6,570	\$6,105	272	\$5,879	\$5,176	903
Mean Final Earnings	\$5,284	\$4,985	272	\$4,715	\$4,021	903
Median Final Earnings	\$5,292	\$4,841	272	\$4,721	\$4,017	903
Mean Earnings Gain	\$1,663	\$1,513	250	\$843	\$956	802
Median Earnings Gain	\$1,637	\$1,558	250	\$841	\$942	802

Table 59 provides the results of the statistical models estimating the impact of H2P on employment. H2P participants were found to have greater odds of employment compared to Retro students in every model, and this difference was marginally significant ($p < 0.10$) in three of the four models. Thus, controlling for the co-grantee college that the H2P participants attended and a broad range of demographic, pre-employment, and credential attainment variables, H2P had roughly 50% greater odds of employment compared to Retro students. Interestingly, many of the variables found to be significant in the analyses of only H2P participants' employment outcomes are no longer found to be significant when Retro students are added to the model. Pell eligibility and gender were once again found to be unrelated to employment, but in this instance there were also no significant difference between racial/ethnic groups. However, age was still strongly related to employment, as all age

groups represented by variables in the model were significantly less likely than the youngest age group to be employed, and students who enrolled in a developmental education course were less likely to be employed compared to students that did not. Both pre-cohort employment and earnings were also significant predictors of employment. There were no significant differences between co-grantee colleges in terms of their students' probabilities of employment.

Another unexpected finding was the limited relationship between credential attainment and employment. Students who completed very short certificates and short certificates had nearly identical odds of employment compared to students with no credential. Long certificates and Associate's Degrees appeared to result in higher odds of employment, although these differences were not significant. Additionally, the only POS that significantly improved a student's likelihood of employment was the RN program.

The results of the linear regression models estimating the impact of H2P on earnings are included in Table 60. Once again, the H2P variable was found to be significant ($p < 0.05$) or near-significant ($p < 0.10$) in three of the four models, specifically the final three models controlling for the specific POS students completed. H2P participants had roughly 22% higher final earnings and earnings growth compared to Retro students, controlling for the full range of variables in the model. No racial/ethnic differences in earnings were found to be significant, and these analyses also demonstrated a strong relationship between age and labor outcomes, in this instance a positive correlation between age and earnings. Being Pell eligible, enrolled in developmental education, or still enrolled in college at the end of the cohort period resulted in a significant reduction in earnings. Both pre-cohort employment and earnings were also found to be significantly related to earnings, but there were no significant differences between colleges in terms of earnings once pre-cohort employment and earnings had been controlled for. Additionally, whereas men and women exhibited an equivalent probability of being employed, men were found to receive higher earnings than women, even when controlling for all other demographic characteristics, POS completed, and pre-cohort earnings. The male earnings advantage was between 18.3-21.7%, depending on the specific variables included in the model.

Although there was a limited relationship between credential attainment and employment in the previous analysis, credentials were more impactful on earnings. Very short and short certificates were still estimated to have limited impact on earnings, but students who earned long certificates or Associate's Degrees had significantly higher earnings than students who did not complete a credential, a 30.4% and 48.3% earnings boost, respectively. More POS were also found to impact earnings compared to their impact on employment. In addition to a significant impact of the ADN, which resulted in a 51% increase in earnings and 46% greater earnings growth compared to students with no credential, the LPN/LVN and physical therapy assistant programs also significantly impacted earnings. Completing an LPN/LVN resulted in 29-31% greater earnings or earnings growth, and the physical therapy assistant program provided students with a 57-70% boost in earnings.

Table 59. Logistic Regression Models of Final Employment for H2P and Retro Employment Impact Samples

	Model 1		Model 2		Model 3		Model 4	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
Constant	.934	.757	.963	.861	1.003	.991	.703	.550
H2P	1.338	.188	1.488	.070	1.542	.059	1.571	.084
Male (Female)	1.092	.569	1.119	.467	1.104	.526	.941	.735
Race/Ethnicity¹ (White)								
American Indian / Alaskan Native	1.957	.453	1.763	.531	1.761	.535	1.314	.804
Asian	1.070	.888	1.088	.860	1.055	.912	.718	.540
Black	1.167	.341	1.170	.332	1.132	.455	1.206	.317
Latino	2.410	.112	2.474	.101	2.468	.103	2.458	.240
Multi-race	*	*	*	*	*	*	*	*
Native Hawaiian / Pacific Islander	*	*	*	*	*	*	*	*
Unknown	1.483	.216	1.523	.188	1.481	.223	1.961	.113
Age Category (19 or <)								
20-21	.485	.002	.483	.002	.477	.002	.366	.000
22-24	.556	.006	.554	.006	.551	.006	.321	.000
25-29	.434	.000	.437	.000	.434	.000	.225	.000
30-34	.468	.002	.454	.001	.452	.001	.187	.000
35-49	.497	.001	.492	.001	.495	.001	.230	.000
50+	.237	.000	.225	.000	.227	.000	.106	.000
Pell Eligible (Pell non eligible)	1.084	.577	1.084	.579	1.140	.390	1.150	.434
Any Developmental Education	.746	.045	.733	.035	.695	.021	.619	.011
Still Enrolled	1.051	.724	1.005	.972	1.011	.938	.970	.857
Employed Pre-H2P (Non-employed)	7.609	.000	7.435	.000	7.441	.000	*	*
Median Pre-H2P Log Earnings	*	*	*	*	*	*	1.457	.000
Credential Length (No credential)								
Very Short Certificate	1.012	.969	*	*	*	*	*	*
Short Certificate	1.013	.966	*	*	*	*	*	*
Long Certificate	1.524	.169	*	*	*	*	*	*
Associate's Degree	1.491	.233	*	*	*	*	*	*
Credential Category (No credential)								
ADN	*	*	1.786	.090	1.798	.087	2.205	.049
CertNA	*	*	.838	.587	.800	.509	.838	.656
HIT	*	*	1.242	.677	1.187	.742	.781	.690
LPN	*	*	1.078	.813	1.184	.632	1.269	.566
MedAssist	*	*	3.033	.309	3.081	.302	2.098	.491
PTA	*	*	.982	.974	1.075	.906	.854	.808
TMA	*	*	1.049	.951	1.247	.783	*	*
College (Cincinnati)								
Anoka	*	*	*	*	.782	.493	.739	.450
Owens	*	*	*	*	.991	.976	1.143	.731
PineTech	*	*	*	*	.760	.333	.807	.519
	<i>n</i> = 1,532		<i>n</i> = 1,532		<i>n</i> = 1,532		<i>n</i> = 1,244	

¹Students who identified as ethnically Latino are counted in the Latino category regardless of the additional racial categories they selected. All other racial categories include only non-Latino students.

Table 60. Linear Regression Models of Median Final Earnings (Log) for H2P and Retro Employment Impact Samples

	Model 1		Model 2		Model 3		Model 4	
	B	Sig.	B	Sig.	B	Sig.	B	Sig.
Constant	7.728	0.000	7.741	0.000	7.741	0.000	5.874	.000
H2P	.167	.101	.236	.018	.219	.051	.212	.062
Male (Female)	.206	.004	.217	.002	.217	.002	.183	.014
Race/Ethnicity¹ (White)								
American Indian / Alaskan Native	.372	.272	.260	.443	.265	.435	.311	.377
Asian	-.043	.850	*	*	.008	.972	-.067	.789
Black	-.099	.176	-.083	.254	-.080	.286	-.080	.295
Latino	-.253	.222	-.231	.265	-.220	.290	-.126	.584
Multi-race	.374	.505	.290	.602	.238	.673	.234	.669
Native Hawaiian / Pacific Islander	*	*	*	*	*	*	*	*
Unknown	.181	.172	.205	.120	.216	.106	.214	.120
Age Category (19 or <)								
20-21	.145	.160	.144	.163	.145	.160	-.028	.796
22-24	.277	.002	.254	.005	.254	.005	*	*
25-29	.386	.000	.366	.000	.365	.000	-.041	.709
30-34	.504	.000	.487	.000	.487	.000	.073	.567
35-49	.640	.000	.618	.000	.612	.000	.152	.217
50+	.477	.020	.408	.049	.408	.049	.055	.806
Pell Eligible (Pell non eligible)	-.154	.015	-.160	.012	-.167	.012	-.123	.071
Any Developmental Education	-.143	.027	-.139	.031	-.138	.044	-.095	.178
Still Enrolled	-.083	.191	-.128	.045	-.133	.039	-.202	.002
Employed Pre-H2P (Non-employed)	.245	.017	.226	.028	.227	.027	*	*
Median Pre-H2P Log Earnings	*	*	*	*	*	*	.297	.000
Credential Length (No credential)								
Very Short Certificate	-.101	.460	*	*	*	*	*	*
Short Certificate	-.192	.179	*	*	*	*	*	*
Long Certificate	.304	.016	*	*	*	*	*	*
Associate's Degree	.483	.002	*	*	*	*	*	*
Credential Category (No credential)								
ADN	*	*	.510	.000	.517	.000	.459	.001
CertNA	*	*	-.166	.275	-.128	.428	-.034	.839
Dental	*	*	.534	.431	.593	.388	.514	.442
HIT	*	*	.250	.313	.271	.280	.425	.139
LPN	*	*	.293	.046	.312	.057	.301	.066
MedAssist	*	*	-.275	.364	-.268	.381	-.374	.260
PTA	*	*	.700	.043	.604	.111	.569	.145
TMA	*	*	.112	.749	.128	.728	.053	.884
Xray	*	*	-.844	.054	-.827	.067	-.582	.187
College (Cincinnati)								
Anoka	*	*			.112	.569	.134	.495
Owens	*	*			-.045	.730	-.099	.463
Pine Tech	*	*			.009	.945	.033	.807
	<i>n</i> = 1,532		<i>n</i> = 1,532		<i>n</i> = 1,532		<i>n</i> = 1,244	

The next set of analyses uses PSM techniques to further reduce bias in our estimates of the impact of H2P on participants' employment outcomes. We first analyze the effect of H2P on whether students were employed during the final three quarters of the cohort timeframes before estimating the impact of H2P on earnings. In both analyses we present the results from three separate models. The first model matches students on demographic characteristics (gender, race, age, and Pell eligibility), whether students enrolled in a developmental education course (as a proxy for ability level), whether students had previously attended a different postsecondary institution, and whether students were ever employed during the pre-cohort time period. The next model adds students' median pre-cohort earnings as a matching variable. This is a more rigorous form of matching, as including prior earnings results in the H2P and Retro samples having statistically equivalent mean earnings, but students that did not have pre-cohort earnings data are excluded from the model (as evidenced by the reduced sample size). In the final model students are also matched based on the co-grantee college they attended. The same variables are included in each of the three models for both the employment and earnings analyses.

Table 61 presents results of our PSM models of employment in estimating the average treatment effect (ATE), which is the mean difference in outcomes between the two groups once they have been matched on background variables. This ATE represents the percentage point difference between the two groups given that the outcome variable is dichotomous. Despite each model containing different variables and utilizing different samples, the effect estimates are roughly equivalent. Thus, we estimate that H2P participants were approximately 7-8% more likely to be employed at the end of the cohort timeframe compared to Retro students, controlling for all of the variables mentioned above. Separate models were also fit to sub-samples of racial/ethnic minority students and Pell eligible students, and in all instances the effect of H2P on employment was estimated to be between 7-9%.

Table 61. PSM Estimates of the Impact of H2P on Employment

Model 1		Model 2		Model 3	
ATE	Sig.	ATE	Sig.	ATE	Sig.
0.073***	0.005	0.076***	0.006	0.080***	0.009
<i>n</i> = 1527		<i>n</i> = 1241		<i>n</i> = 1241	

Table 62 presents the results of our PSM models of the logarithm of median final earnings. As the earnings variable is on the logarithmic scale, the ATE estimates represent the percent difference in earnings between the two groups in the first model. However, as the second and third models add prior earnings as a control variable, the ATE estimates in those models represent the percent difference in earnings growth (i.e., final earnings controlling for prior earnings). H2P participants were estimated to receive higher quarterly earnings than Retro students in all three models, although the estimates were not statistically significant in the first two models. However, once students were matched on co-grantee college in the final model, the treatment effect estimate was found to be significant and the magnitude of the estimate was greater than in the prior two models. Whereas H2P participants were found to have earnings or earnings growth at least 10% higher than Retro students in each model, the final model estimates that H2P participants experienced roughly 22.4% greater earnings growth than Retro students.

Table 62: PSM Estimates of the Impact of H2P on Median Final Earnings (Log)

Model 1		Model 2		Model 3	
ATE	Sig.	ATE	Sig.	ATE	Sig.
0.112	0.32	0.102	0.27	0.224***	0.002
<i>n</i> = 1170		<i>n</i> = 1049		<i>n</i> = 1049	

CHAPTER 6: SUMMARY AND CONCLUSIONS

Supported through a Round One grant from the DOL's TAACCCT program, the H2P Consortium's professed goal was to reform healthcare education through eight primary strategies: 1) online assessment and enhanced career guidance, 2) contextualized developmental education, 3) competency-based core curriculum, 4) industry-recognized stackable credentials, 5) enhanced retention support, 6) training programs for incumbent health professions workers, 7) enhanced data and accountability systems, and 8) galvanizing a national movement to reform healthcare education. The nine colleges that comprised the Consortium served more than 6,500 participants, nearly 5,000 of which enrolled in one or more TAACCCT-funded POS. The purpose of this report was to document the actions the H2P Consortium's co-grantee colleges made to enroll students in healthcare programs, assess the degree to which H2P participants engaged with the specific strategies that were the crux of the initiative, to examine the educational and labor market outcomes of H2P participants, and to statistically estimate the impact H2P had on the postsecondary and labor outcomes of H2P participants at the co-grantee colleges.

Some co-grantee colleges had experience implementing one or more of the eight strategies prior to the start of the grant, and in these cases, the colleges focused on strengthening and refinement of activities while also mentoring other co-grantee colleges. In other cases where strategies were new and unfamiliar, the co-grantees colleges had to effect paradigmatic, programmatic, and policy changes (OCCRL, 2015). To affect these changes, H2P grant teams associated with the co-grantee colleges had to expand and strengthen partnerships, both internal and external to their colleges. For example, internal partnerships were built between divisions offering credit and non-credit coursework, between academic and student service professional, and between program professionals and institutional research (IR). Examples of external partnerships included new relationships forged between the colleges and employers, workforce partners, and CBOs to recruit students, enhance curriculum, offer clinical instruction and work-based learning (WBL), and hire graduates.

Looking at the implementation of HOCC provides a concrete example of how the Consortium tapped existing expertise and built or strengthened partnerships towards their aim of transformative change. At the inception of the grant, ECC offered a HOCC for over 10 years. ECC led a COP to support HOCC development wherein each college tapped products, curriculum, and expertise to facilitate their adoption and adaptation of the HOCC. The implementation of developmental education courses with contextualized healthcare content served as a contrast to HOCC implementation. Unlike with the HOCC, the H2P Consortium seemed to have limited expertise in developing contextualized developmental education courses, limiting the capacity of the grant teams to implement this change.

In terms of the educational outcomes, the findings from our analyses demonstrates that the majority of H2P participants benefited from participating in the grant, and there is compelling evidence that the reforms that the H2P Consortium implemented made a positive impact on the attainment rates of healthcare students. Of the 4,888 students who enrolled in a TAACCCT-funded POS, roughly two-thirds had either earned a postsecondary credential or were still enrolled in their co-grantee college by the Fall 2014 semester, and this figure was higher than 90% at one college. More than 1,000 long-term certificates and Associate's Degrees were awarded to students, in addition to more than 1,000 short and very short certificates. Nearly one out of every five students who earned a credential earned more than one, supporting the notion that the stackable credential strategy improved credential attainment rates for H2P participants. Additionally, our analyses supported the claim that H2P increased the likelihood that students enrolled in healthcare programs would complete their credentials, particularly in regards to the LVN/LPN POS across the co-grantee colleges. H2P

participants in LVN/LPN POS were roughly 18% more likely to earn that credential compared to the Retro cohort of students in the same POS when using the most rigorous methods available to control for potential differences in background characteristics between the groups.

Although H2P made a positive impact on students' educational outcomes, gaps exist between racial/ethnic groups. Black and Latino students were estimated to be significantly less likely than their White peers to complete any credential, and in particular the long-term certificate and Associate's Degree POS that had the greatest positive impact on students' subsequent labor market outcomes. Concerted attention is needed to ensure that students from all racial and ethnic backgrounds are benefiting equally from the reforms and strategies being implemented by the colleges in order to improve the equitable outcomes of healthcare students.

Our analyses also demonstrate that the labor market outcomes of H2P participants improved greatly when comparing their employment and earnings prior to H2P to their labor outcomes at the end of the grant period. Across the Consortium, students gained \$1,400-\$1,700 in average quarterly earnings (depending on the precise method of calculation). When assessing earnings growth between the quarter immediately preceding when each student enrolled in H2P and final earnings, students gained \$1,900-\$2,500 in quarterly earnings. Earning a credential of any length was shown to have a beneficial impact on the likelihood that students were employed post-H2P, and the earnings gains for students who completed long-term certificate and Associate's Degree programs were particularly pronounced. Students who completed long-term certificates earned roughly \$2,500 more compared to their pre-H2P average and \$3,600 more compared to their earnings in the quarter immediately prior to enrollment in H2P. For students who completed Associate's Degrees, these gains were \$4,000 and \$6,000. These results underscore the high labor market value of the majority of credentials awarded to H2P participants.

Our results also support the positive impact the grant made on the labor market outcomes of healthcare students, although our conclusions are tempered by the fact that the substantial changes in the broader economy which occurred between the Retro and H2P time periods surely influenced our results. Nevertheless, H2P participants experienced median earnings gains roughly 60% higher than Retro students, were significantly more likely to be employed at the end of the cohort time period, and had significantly higher quarterly earnings, even when controlling for a broad range of student characteristics and the specific credentials students earned. Using rigorous quasi-experimental techniques, H2P students had an estimated 8% greater likelihood of employment and 22% higher wages than Retro students, both significant differences.

Whereas the overall results of the impact of H2P on students' labor market outcomes are positive, our analyses also highlighted some areas of concern. Some of the most popular POS at the colleges were very short-term certificates, such as the CNA, CHW, and trained medication aid programs. Despite their popularity, these programs were estimated to offer limited employment benefits to students who were awarded these credentials. For example, CNAs were estimated to earn roughly \$4,000 per quarter, or an annual salary of \$16,000. Both median final earnings and earnings gains for H2P participants who completed these very short-term POS were often lower than the earnings of students who completed no credential at all. The co-grantee colleges no doubt recognized this challenge, which is why the Consortium focused attention on sequencing these entry-level POS integrated into longer-term pathways that allowed students to re-enter and enroll in college education at a subsequent time. However, more time is needed to evaluate the extent to which H2P participants who completed these very short-term programs will persist into longer-term POS and enhance their employability and earnings.

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