

AN EVALUATION OF THE TAA CONSORTIUM FOR HEALTHCARE EDUCATION
ONLINE (CHEO) PROGRAM AT RED ROCKS COMMUNITY COLLEGE

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I. BACKGROUND AND PURPOSE

The Great Recession of 2007 inspired significant policy development to aid economic stabilization in the United States. The American Recovery and Reinvestment Act (ARRA) of 2009 included initiatives focused on job creation, in addition to programs aimed at modernizing health care systems, schools, infrastructure, and clean energy (The White House, n.d.). ARRA also enabled authorization of the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant Program. The U.S. Department of Labor (2011) reported that: “TAACCCT provides community colleges and other eligible institutions of higher education with funds to expand and improve their ability to deliver education and career training programs that can be completed in two years or less, are suited for workers who are eligible for training . . . , and prepare program participants for employment in high-wage, high-skill occupations.” This study utilizes a program evaluation framework (Community Tool Box, 2016) to gain insight into the students that participated in TAACCCT programs and determine the effects during and after their career training.

This study examines the TAA Consortium for Healthcare Education Online (CHEO) program. This program granted \$14.2 million to eight community colleges in Alaska, Colorado, Montana, South Dakota, and Wyoming in order to establish educational programs to help people develop skills in the allied health fields. The consortium set a target of enrolling 3,037

participants in CHEO-touched courses, helping 2,000 students earn health-related credentials, and moving 1,445 people towards employment (Colorado Community College System, 2016). This evaluation specifically focuses on the CHEO program at Red Rocks Community College (RRCC), which has campuses in Lakewood and Arvada, CO. The college received funding in Fall 2012 and started to redesign courses, recruit students, develop internships, and build partnerships with healthcare employers shortly thereafter. Edwards & McKay (2015) found that staff and faculty originally focused on certifications, including Home Health Aide, Hospice Care Aide, and Medication Aide, but the most successful enrollment was found in the Nurse Aide and Registered Nurse (RN) Refresher programs.

The grant stipulated that all programming activity cease by March 2016, whereas all reporting was required to close by the end of the grant in September 2016. Therefore, this evaluation examines nearly three years of longitudinal data to answer the following research questions:

- ▶ **Who were the CHEO students?**
- ▶ **What was their experience at RRCC?**
- ▶ **What were the employment outcomes of the CHEO program participants?**

2. METHODS

Data were systematically collected from the Office of Institutional Research at Red Rocks Community College for this project. Student-level enrollment, demographic, and award (degree/certificate) records were obtained for those enrolled in courses from Fall 2012 through Spring 2016. This data was utilized to gain a better understanding of key student characteristics through descriptive statistics. It was also uploaded and analyzed using geographic information system (GIS) technology to develop maps that provide a visualization of the spatial reach of CHEO students across the Denver Metropolitan Region. Additional information was collected through a content analysis of documents that contain qualitative case study information regarding the CHEO student experience at RRCC.

Employment data was collected from various sources. The Colorado Community College System (CCCS) provided CHEO student information acquired from the Colorado Department of Labor and Employment (CDLE) Unemployment

Insurance Wage Data files. CHEO staff collected supplementary information during student interviews. Finally, a survey was distributed to CHEO certificate earners in August of 2016 to obtain additional employment status information and to determine whether students' RRCC training had helped them either obtain entry to employment or earn a wage increase.

The survey was tested several times to ensure the survey logic worked correctly. It was then emailed with the Qualtrics software program to 552 eligible students using provided email addresses. Twelve emails were forwarded to another email address and zero emails failed to be delivered. There were 81 surveys completed, resulting in a 15% response rate. This data was used to supplement other employment data and to conduct a regression analysis using SPSS software to determine the factors associated with employment outcomes for CHEO students.

3. RESULTS

3.1. CHEO Students

This section describes who participated in CHEO programs throughout the course of the grant. It is important to note that a large number of students came from an approximately 5-mile radius of the Arvada and Lakewood Campuses as seen in Figure 1. This suggests that the community college model is effective at Red Rocks Community College: the programs are benefiting the local community.

Equally important, the high number of students that traveled more than 10 miles to attend RRCC also suggests that the CHEO program allowed for participation by offering hybrid programs, which allowed students to complete some major requirements online. The RRCC RN Refresher program is also one of few accredited programs in the State of Colorado. Therefore, students may have elected to travel longer distances due to the high demand but low supply of equally convenient and high-quality programming.

Finally, Figure 1 maps the spatial distribution of all CHEO students as of Spring 2016 (N=1,103). It also utilizes a color scale to illustrate the average unemployment rate of Denver neighborhoods in July 2012, which was 9.5% at the time. The neighborhoods colored in orange represent those that fall into a category of average unemployment or above. Notably, many of the students—represented by black dots—live in communities with historically higher unemployment. This is important given that the TAACCCT grants aimed to improve the employment opportunities of those impacted by the Great Recession as noted in the introduction.

Furthermore, CHEO participants represented a diverse body of students at RRCC: 76% were women, 47% were incumbent workers, 22% were non-white, 4% were veterans, and 3% had a disability. Furthermore, the data illustrates that the average age was 35, while students ranged from 17–66 years of age.

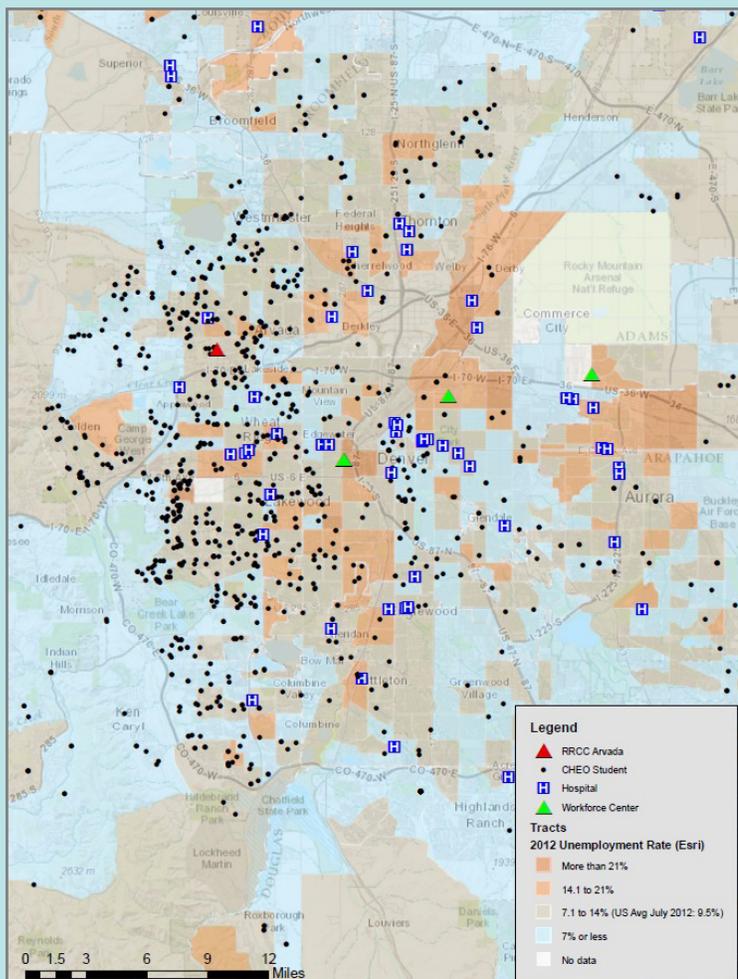


Figure 1: CHEO student addresses compared to 2012 neighborhood unemployment rates in the Denver metro area

CHEO STUDENT BODY

76%
WOMEN

47%
INCUMBENT
WORKERS

22%
NON-WHITE

4%
VETERANS

3%
DISABLED

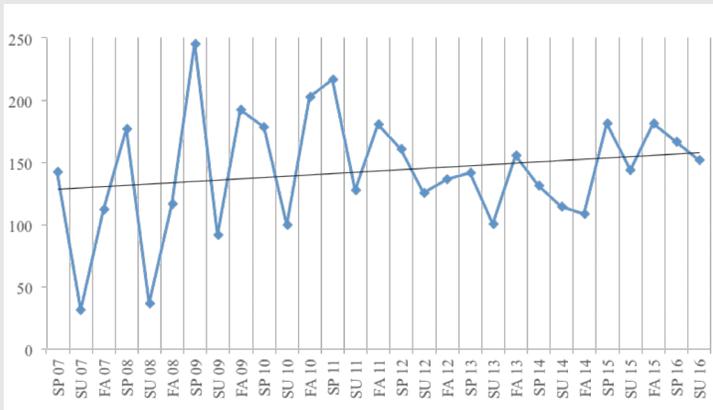


Figure 2: Nurse Aide and RN Refresher course enrollment by semester: Spring 2007 – Summer 2016

75% OF ALL CHEO STUDENTS COMPLETED THEIR COURSES AS OF SPRING 2016.

696 NURSE AIDE, RN REFRESHER, HOME HEALTH AIDE, AND HOSPICE CARE CERTIFICATES WERE EARNED DURING THE GRANT PERIOD.

44 OR APPROX. **3%** CHEO STUDENTS COMPLETED ADDITIONAL CERTIFICATES IN AREAS SUCH AS PHYSICIAN ASSISTANT, HOLISTIC HEALTH, PHLEBOTOMY AND EMERGENCY MEDICAL TECHNICIAN (EMT).

3.2. CHEO Student Experience at RRCC

CHEO students benefited from a high-touch approach to their education. Specifically, a career coach provided a number of support services to ensure that participants were successful, such as student orientation, intrusive advising, discussion of financial support, and introducing a pipeline mentality for students to connect them to a future employer. Furthermore, a curriculum designer assisted with a redesign of 16 courses to improve student success and completion.

Edwards & McKay (2015) conducted a case study on the CHEO program, and their student interviews showed a major theme of linking their success to these staff initiatives. For instance, one student noted the support and responsiveness of the career coach, stating: “If I call her and she can’t get a hold of me because I work all the time, she e-mails me. She even e-mailed me on a survey that I just was too busy for and never got to for my CNA class, and I had never even met her before. And then when I was recruited, they told me to talk to her. So if I can’t call her, I e-mail her. And she responds right back. If I call her and she doesn’t answer, she calls me back. And if she doesn’t get a response, she’ll e-mail me” (p. 15).

Another student described the valuable career support that was provided by the CHEO staff. When Edwards & McKay (2015) asked where the student would be without the career coach, she said: “I probably wouldn’t have my certificate, honestly. I probably would have never done anything because no one would have responded to me, and I wouldn’t have actually known what I was getting myself into. She’s actually trying to help me find a job with benefits as well. She said anything she finds she’ll throw my way. She’ll help me with my resume” (p. 15).

Based on this high-touch approach, success is evident by examining the aggregated outcomes of the CHEO program. A longitudinal view of enrollment illustrates the growing number of the Nurse Aide (NUA) and RN Refresher (NUR) students over time. Figure 2 displays enrollment in those courses from the Spring of 2007 through the Summer of 2016. Note that enrollment experienced a sharp increase during the Great Recession from 2007 to 2009. This trend is expected during times of economic downturn (Dundar et al., 2011). However, the NUA and NUR course enrollment has since continued on an upward trend as the economy has recovered.

Seventy-five percent of all CHEO students completed their courses as of Spring 2016. This is an impressive pass rate compared to other studies that have shown approximately 61% of all community college students earn a passing grade in their courses (Hart, Friedmann, & Hill, 2015).

3.3. Student Employment beyond RRCC

Students that completed the CHEO program have achieved many notable employment outcomes. Data from the Colorado Department of Labor and Employment (CDLE) indicate that 447 (37%) of all unique participants that were not in the labor force became employed after their training at RRCC. Based on the student survey that was distributed, 64% of CHEO participants were employed within the nursing field after completing their training program, and 39% enjoyed full-time employment. Positions commonly held by the employed students included Certified Nursing Assistant (CNA), Registered Nurse (RN), Technician, and Clinical Assistant.

The most common employers included: St. Anthony's, Denver Health, Presbyterian/St. Luke's, National Jewish, Children's Hospital, Lutheran Medical Center, Craig Hospital, and the University of Colorado Hospital. In addition, many health care centers, surgery centers, and assisted living centers employed

RRCC students such as: Bonfils Blood Center, Harvard Park Surgery Center, Centura Health, Banner Health, Brookdale Senior Living, Sunrise Senior Living, Mapleton Nursing Facility, Cherrelyn Healthcare Center, Suncrest Hospice, and Lakewood Manor. These employer locations are represented by a blue "H" symbol in Figure 3.

The graphs below illustrate the breakdown of the retention for CHEO students, and the full breakdown of students' pay range. After earning a certificate and entering the workforce, 73% stayed employed for 6 months or more. However, a majority of students were employed when they entered the CHEO program. A total of 773 unique participants were already earning wages. Notably, 58% of incumbent workers surveyed reported a raise after completing their training. The majority of students (44%) were earning between \$14-16 per hour.

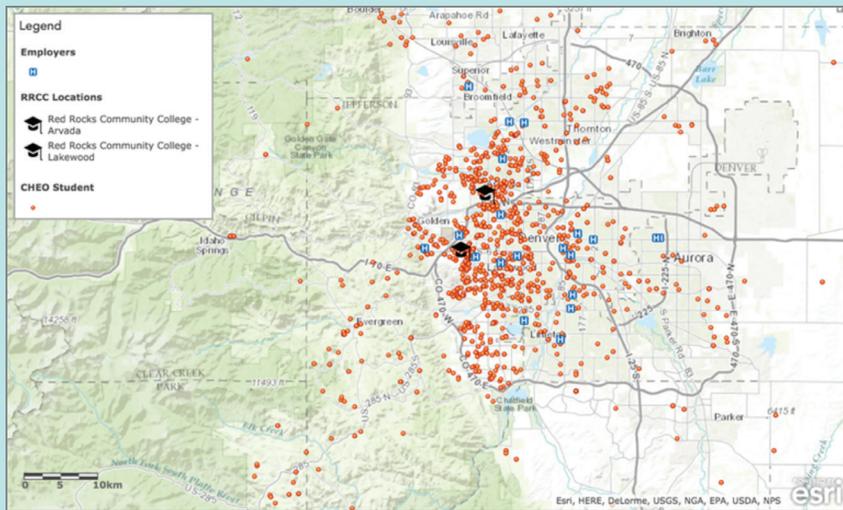
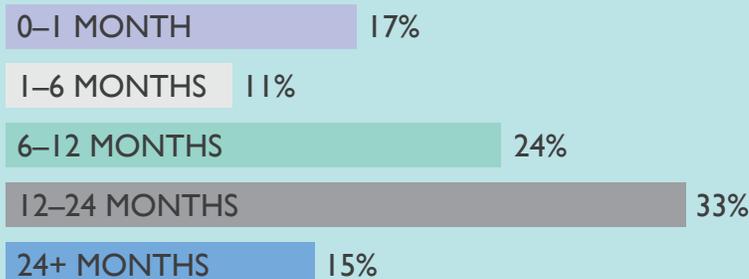
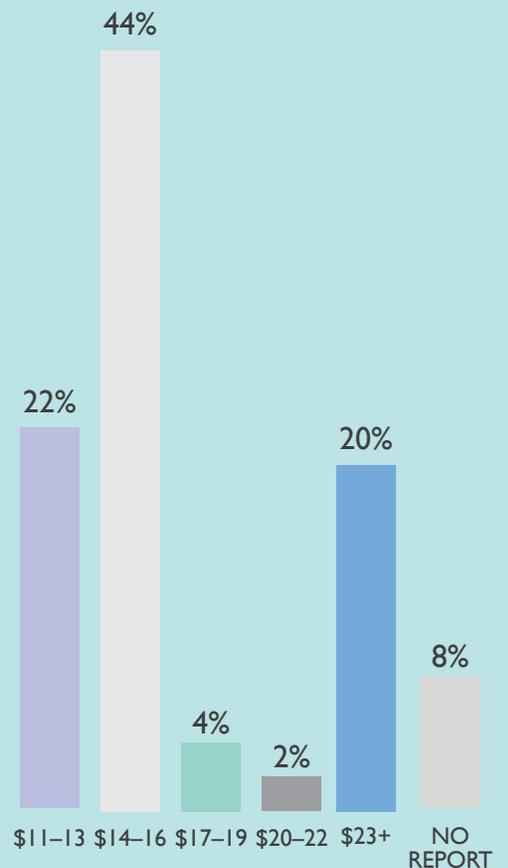


Figure 3: CHEO student and employer locations in the Denver metro area

PERCENTAGE OF CHEO STUDENTS RETAINED IN THE WORKFORCE



HOURLY PAY RANGE OF CHEO STUDENTS



Finally, a statistical analysis of factors associated with student employment, retention, and wage increases presents a compelling story. The results indicate the extent to which demographic characteristics (age, disability, citizenship, race, sex, and veteran status) were correlated with these three employment outcomes. The results of an ordinary least squares (OLS) linear regression are outlined in Table 1 for the three dependent variables (DVs).

TABLE I: OLS REGRESSION RESULTS

Model	DV: Employment		DV: Retention		DV: Wage Increase	
	C	SE	C	SE	C	SE
Age	***-.009	.003	***-.010	.003	***-.012	.003
Disability	.051	.155	-.057	.178	.002	.142
U.S. Citizenship	-.056	.161	-.063	.185	.020	.161
Race	-.087	.067	-.056	.077	-.038	.059
Sex	.053	.065	.089	.075	.002	.059
Veteran Status	*.252	.151	*.316	.172	-.259	.258
Constant	***.976	.094	***.714	.108	***1.234	.098
N	249		249		208	

***p < 0.01, **p < 0.05, * p < 0.1

Employment

Two factors were associated with employment of non-incumbent certificate completers. First, younger students were more likely to become employed. For every one additional year of age, the average likelihood of getting hired decreased by .9%—nearly a full percentage point. In other words, if an applicant was 10 years younger than their competitor, they would be 9% more likely to become employed. This finding was statistically significant with 99.9% confidence. Second, veterans were 25% more likely to become employed compared to civilians. This finding was significant with 90% confidence. The other factors were not associated with the outcome of interest. Disability, citizenship, race, and sex were not correlated with employment in this model.

Retention

The factors associated with retention in employment of 9 or more months produced similar results. For every one additional year of age, the average likelihood of remaining employed decreased by 1%. Younger students were more likely to maintain employment with 99.9% confidence. Veterans were also 31.6% more likely to continue in the workforce as compared to their civilian counterparts. This was found with 90% confidence. None of the other factors were associated with retention in employment for non-incumbent certificate holders.

Wage Increase

The final category examined incumbent workers that had completed a CHEO certificate. Similar results were produced in accordance with the first two dependent variables. The only factor that was positively associated with students receiving a raise was age. Specifically, for every one additional year of age, the likelihood of receiving a raise fell by 1.2%. In other words, younger employees were more likely to receive a wage increase upon completing a certificate at RRCC.



YOUNGER STUDENTS

- ▶ MORE LIKELY TO BECOME EMPLOYED
- ▶ MORE LIKELY TO MAINTAIN EMPLOYMENT OF 9 OR MORE MONTHS
- ▶ MORE LIKELY TO RECEIVE A WAGE INCREASE UPON COMPLETION OF A CERTIFICATE AT RRCC



VETERANS VS. CIVILIANS

- ▶ MORE LIKELY TO BECOME EMPLOYED
- ▶ MORE LIKELY TO MAINTAIN EMPLOYMENT OF 9 OR MORE MONTHS

4. BARRIERS TO EMPLOYMENT

Student survey results also revealed barriers that students experienced when seeking employment after the CHEO program. The most popular answer for both employed and unemployed completers involved finding a job with an acceptable starting pay rate. Thirty-four percent of respondents struggled with this financial obstacle. Additional challenges included finding a job location close to home (27%), obtaining financial aid to help pay for school expenses (15%), finding a daycare provider (8%), and finding public transportation to the job location (1%).

Particularly noteworthy, 45% of respondents voluntarily selected “Other” when asked to list the biggest barrier to employment. They provided written responses. Themes that emerged from these descriptions included:

- ▶ **Lack of Experience:** Some respondents noted that hospitals wanted to hire candidates with clinical experience within the past 2 years. Others had to work as a volunteer, or in an assisted living facility, before being considered “experienced” by an employer. Furthermore, the lack of up-to-date computer charting software skills and inexperience with electronic health record systems (e.g. Meditech or Epic) barred some from employment.
- ▶ **Inflexible Work Schedules:** CHEO students noted that the lack of a flexible work schedule at their current nursing job made it challenging to take the next level of classes to improve their economic opportunities. Many employers were not willing to allow students to enroll in classes while working. One student left their current job in order to take Physician Assistant classes.
- ▶ **Hiring Policies and Procedures:** Other students experienced barriers due to internal human resource procedures that were sometimes difficult to identify and overcome. For instance, some jobs did not offer health insurance benefits to entry-level workers. Others experienced an unwillingness to hire more mature workers in entry-level positions. Furthermore, one student was not able to obtain her nursing license after completing RRCC classes due to the criminal background check policy.

5. CONCLUSION

This program evaluation contributes further insight into the students that participated in the TAA CHEO program at Red Rocks Community College from 2012–2016. It illustrates that a diverse representation of students took part in courses based on various demographic, geographic, and economic characteristics. It provides further insight into the positive experiences that students had in CHEO courses and the growth in enrollment and certificates issued during the grant period. Finally, analysis of student employment outcomes illustrates the successes and ongoing challenges of CHEO certificate earners.

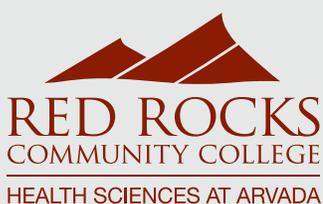
This report may generate more questions than answers related to the CHEO program at RRCC. It is recommended that future evaluations take place to assess student experiences and progress in the Nurse Aide and RN Refresher programs. The continued production of such information would be useful to administrators, faculty, staff, and employers as they continue to improve the health-related programs to better serve students and enhance the employment pipeline.



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“Neighborhoods are operationalized as census tracts.” Fry & Taylor (2012) note: “As a general rule, a census tract conforms to what people typically think of as a neighborhood” (p. 1). This study is commensurate with others that have used tracts to demarcate neighborhoods (Crowder & South, 2008; Glaeser & Vigdor, 2012; Ludwig et al., 2012)



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